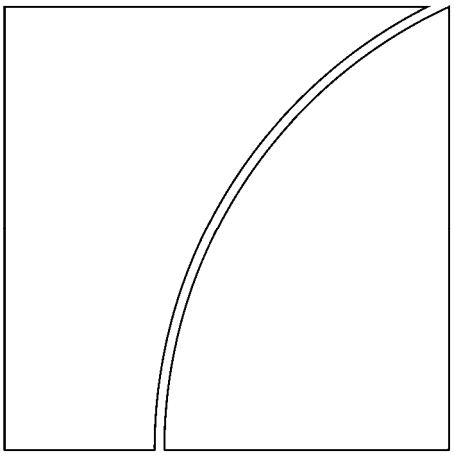
BANK FOR INTERNATIONAL SETTLEMENTS



BIS Working Papers
No 313

Banks and financial intermediation in emerging Asia: reforms and new risks

by M S Mohanty and Philip Turner

Monetary and Economic Department

June 2010

JEL classification: E21, N25, E44, F31

Keywords: Banking system, Asia, Financial markets, foreign exchange intervention

BIS Working Papers are written by members of the Monetary and Economic Department of the Bank for International Settlements, and from time to time by other economists, and are published by the Bank. The papers are on subjects of topical interest and are technical in character. The views expressed in them are those of their authors and not necessarily the views of the BIS.

Copies of publications are available from:

Bank for International Settlements
Communications
CH-4002 Basel, Switzerland

E-mail: publications@bis.org

Fax: +41 61 280 9100 and +41 61 280 8100

This publication is available on the BIS website (www.bis.org).

ISSN 1020-0959 (print)

ISBN 1682-7678 (online)

Banks and financial intermediation in emerging Asia: reforms and new risks

M S Mohanty and Philip Turner[1]

Abstract

The conventional view is that microeconomic reforms after the 1997–98 Asian financial crisis have greatly strengthened banking systems in Asia. Banks have become better capitalised, external exposures have been reduced and credit risk has been managed more effectively. But this conventional view does not take enough account of the macroeconomic background. A sharp rise in domestic savings, combined with the recent large-scale sterilised intervention and easy monetary policy, has led to very easy financing conditions for banks. Bank credit expanded. Banks have accumulated a large stock of government bonds. How these conditions will change and how this will affect banks in Asia is uncertain. Supervisory authorities therefore need to be sure that the present very liquid position of most banking systems in Asia does not allow significant (but so far only latent) increases in market and credit risk to go undetected.

JEL classification: E21, N25, E44, F31

Keywords: Banking system, Asia, Financial markets, foreign exchange intervention.

[1] This paper is a revised version of a presentation made at the OECD/ADBI Eighth Roundtable on Capital Market Reform in Asia, held on 11-12 October 2006 at the ADBI in Tokyo. Views expressed are our own and not those of the Bank for International Settlements. We are grateful to Stephen Cecchetti, Kihwan Kim, Richhild Moessner, Srichander Ramaswamy, Andrew Sheng, Ilhyock Shim, Haibin Zhu, and seminar participants of the Tokyo roundtable for comments; to Nathalie Carcenac, Jakub Demski, Pablo Garcia-Luna, and Gert Schnabel for research assistance; and Clare Batts, Alejandra Gonzalez and Silvia Schneider for secretarial help.

1. Introduction

The Asian banking systems have been hit by several large shocks over the past decade. A financial meltdown in the late 1990s almost crippled the Asian financial intermediation process, leading to a massive loss of output and subsequent efforts by Asian authorities to overhaul the banking system. This was followed by the 2001 global slowdown. The 2007–08 global financial crisis proved to be a huge stress test for the Asian banking system. Up to the time of writing, however, most of Asian banks seem to have weathered the crisis rather well.[2]

The conventional view about the transformation of the banking system since the Asian crisis goes something like this. Prior to the 1997 financial crisis, Asian banks had become exposed to very large credit risks, which were badly managed and poorly supervised. Moreover, the banks were inadequately capitalised for the risks they were running. And too many risks were concentrated in the banking system because capital markets were insufficiently developed. In the decade since the crisis, banks have reduced their legacy bad assets, managed credit risk more effectively and have become better capitalised. Because private capital market development has been slower, banks remain the dominant channel of finance in Asia. All this reduced Asia's exposure to the recent global financial crisis.

This conventional view has much support. But it is incomplete because it does not pay enough attention to the liability side of bank balance sheets. What happened to the liability side of the balance sheets of banks in emerging Asia was quite different from what took place in much of the industrial world. In the main financial centres, banks began to rely more on (typically short-term) funding in wholesale markets and less on retail deposits collected from households. So banks became increasingly dependent on continued access to wholesale markets. And households placed more of their savings in lucrative capital market products, rather than in bank deposits. The crisis that broke in August 2007 was the result of a reckless acceleration of this process. As so often in the history of banking crisis, pressures first became widespread in the wholesale markets where banks borrowed.

But such a process of dis-intermediation hardly affected banks in most of emerging Asia. In developing Asia as a whole, in contrast, bank deposits increased by 14.8% of cumulative nominal GDP from 2001 to 2007 (Table 1), significantly above the expansion registered in the previous six-year period, which straddled the Asian crisis. Such strong deposit growth meant there was little or no need for finance in wholesale funding markets (at home or abroad). Loan-to-deposit ratios remained below one in almost all countries. The main exception to this generalisation was Korea, where bank deposits grew very slowly. Between 2003 and 2007, the share of household financial assets held in bank deposits fell by 10 percentage points (to around 40 percent) as Korean households shifted to investment funds. This forced Korean banks to rely on wholesale funding to a degree that was unusual in Asia.

This paper thus seeks to summarise the complex forces acting to change financial intermediation in Asia since the 1997–98 crisis. One macroeconomic element is the sharp rise in aggregate savings in the region, intermediated largely by the banking system. This has insulated most of the Asian banking system from the interruptions to international wholesale funding markets. A second is that substantial accumulation of foreign exchange reserves led to a major rise in central bank or government paper held by the banks – providing them with low-risk and very liquid assets. A final element is that Asian banks have become stronger, some of the earlier inefficiencies have disappeared, and their lending functions have changed considerably over the past decade.

[2] For a comprehensive analysis of the impact of the crisis in Asia see BIS (2009).

Table 1

Nominal increases in bank deposits and credit

as percent of cumulative nominal GDP

	1995–2001		2001–2007	
	Bank deposits	**Domestic bank credit to the private sector**	**Bank deposits**	**Domestic bank credit to the private sector**
Industrial economies[1]	**5.6**	**3.7**	**5.4**	**5.5**
Asia[1]	**11.4**	**8.9**	**14.8**	**11.3**
People's Republic of China	14.9	13.3	22.7	15.3
India	6.6	3.7	9.4	7.8
Indonesia	8.5	0.8	4.3	4.3
Korea	9.4	9.7	2.4	8.7
Malaysia	11.6	9.3	10.0	7.5
Philippines	6.2	3.4	3.8	0.9
Thailand	7.8	–3.1	5.7	6.9
Latin America[1]	**4.5**	**1.3**	**5.1**	**4.3**
Baltics	**3.2**	**3.5**	**7.1**	**16.4**

[1] This is calculated as the ratio of the increase in, for example, bank deposits from 1995 to 2001 to the increase in nominal GDP over the same period. Weighted averages based on 2005 GDP and PPP exchange rates. Industrial countries included are France, Germany, Italy, Japan, Spain, United Kingdom and United States. Latin America includes Argentina, Brazil, Chile and Mexico. The Baltics are Estonia, Latvia and Lithuania.

Source: IMF, International Financial Statistics; national data.

The rest of the paper is as follows. Section 2 reviews the implications for the banking system of the recent macroeconomic and policy shifts in the region. Section 3 explores how changes in the asset side of bank balance sheets have transformed Asian banks' role in financial intermediation. In Section 4 we turn to developments in the liability side, especially the funding stresses experienced by many banking systems in the current global financial crisis. Section 5 provides an empirical test of how these changes affected bank credit to the private sector. The conclusions are in Section 6.

2. Savings, foreign exchange intervention and the Asian banking system

The classical view is that the investment needs of developing economies generally exceed available domestic saving, leading to a current account deficit in the balance of payments. Banks facilitate financing of this investment by borrowing beyond their deposit resources, and often in international markets. This paradigm, valid for Asia before the 1997 crisis, has changed dramatically. Table 2 shows the marginal propensity to save and invest in major

Table 2

Global saving and investment

	Marginal propensity to save[1]		Marginal propensity to invest[1]	
	1990–96	2000–07	1990–96	2000–07
	In per cent			
Industrial countries	19.7	18.0	15.0	20.1
United States	20.9	5.8	20.0	16.3
Japan	23.0	16.0	21.5	45.9
Germany	12.5	33.6	13.3	13.8
United Kingdom	14.4	16.2	0.3	19.0
Other advanced industrial countries[2]	19.4	22.5	3.5	25.2
Emerging Economies	27.7	42.0	30.7	34.1
People's Republic of China	43.0	69.0	44.0	52.9
India	31.0	47.8	22.7	48.8
Other emerging Asia[3]	33.9	31.2	36.0	23.0
Latin America[4]	14.2	27.0	21.2	22.9
Middle East[5]	61.8	58.3	24.4	29.3
Other emerging economies[6]	43.0	23.6	38.8	25.4
Total	21.5	27.1	18.6	25.4

[1] Change in gross national savings (or gross investment) as a percentage of changes in nominal GDP over the periods indicated. [2] Euro area, (except Germany), Australia, Canada, Denmark, Norway, New Zealand, Switzerland and Sweden. [3] Chinese Taipei, Hong Kong SAR, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. [4] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [5] Iran, Kuwait, Lybia, Oman, Qatar, Saudi-Arabia and Yemen. [6] Czech Republic, Hungary, Poland, Russia, Turkey and South Africa.

Source: IMF, *World Economic Outlook.*

world economies between 1990–96 (the period preceding the 1997) and 2001–07. The United States saw a sharp decline in the marginal propensity to save and a rise in propensity to invest in the first half of 2000s. The most striking development was the jump in the marginal propensity to save in developing Asian economies. This was driven almost entirely by China and India. The marginal propensity to save in the People's Republic of China of 69 percent over the period 2000–07 is extraordinary by any standards – and reflects some special China-specific factors that have yet to be fully elucidated. For a preliminary view see Ma and Yi (2010).[3] In other emerging Asia, the saving-investment balance changed because of a slump in fixed capital formation.

[3] They put emphasis on a combination of a very strong Lewis-model process (where the average wage in the subsistence sector is greater than the marginal product of labour in that sector), and a very rapid aging process (including household and government reactions to that prospect).

A large part of the surplus savings in Asia was channelled into bank deposits. Such a trend was reinforced by the strong rise in risk aversion among households, leading to a shift toward risk-free assets. Various guarantees to bank liabilities provided by many Asian authorities in the wake of the 1997–98 crisis also made investment in bank deposits attractive. Both factors helped to boost bank deposit growth relative to nominal income in Asia during 2001 and 2007 (Table 1).

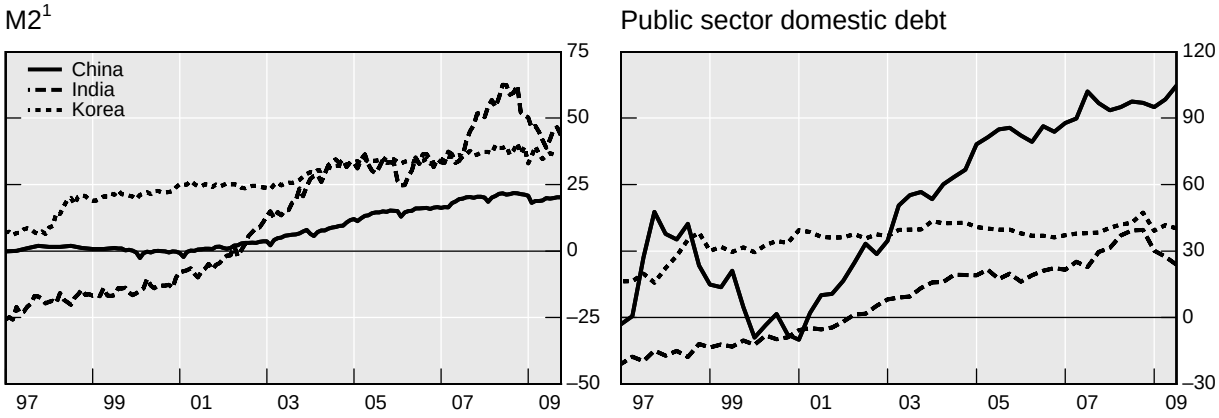
Such deposit expansion went hand-in-hand with another major policy development in the early 2000s – the rapid growth in official foreign exchange reserves. It is not difficult to see why the accumulation of foreign exchange reserves matters for the banking system (see Mohanty and Turner (2006)). When foreign exchange reserves are relatively small, central banks can finance their acquisition by issuing currency. As the demand for cash rises steadily in fast-growing economies, the additional currency issuance is readily absorbed in the economy. In the case of large and persistent intervention in the foreign exchange market, however, additional foreign exchange purchases must be financed by issuing local currency debts. To forestall monetary expansion (and prevent short-term interest rates from falling below the target), the central bank either runs down its holdings of government paper or issues non-monetary liabilities – usually government papers but increasingly the central bank's own securities.

One simple measure of such a financing gap in the central bank's balance sheet is the excess of foreign exchange reserves above currency in circulation. As Graph 1 shows, such a financing gap was either small or negative in relation to broad money and the size of the domestic bond market in many Asian economies up until the late 1990s. However, the gap widened sharply from the early 2000s in many countries (particularly the People's Republic of China and India), leading to a large increase in the supply of central bank and government papers in the economy.

What matters for the financial system and the economy is who holds sterilisation bonds. When households and non-bank firms hold such bonds, bank deposits are likely to fall because bond purchases replace cash holdings in banks. In other words, in a country with a deep and diversified bond market, sterilisation is more likely to be complete: households and non-bank firms reduce their holdings of monetary assets and increase that of non-monetary assets such as government bonds – the so-called portfolio substitution effect.

Graph 1

Foreign exchange reserves minus currency held by the public as a percentage of:



[1] M2 is a broad measure of money which comprises, in addition to M1 (transferable deposits and currency outside deposit money banks), time, savings and foreign currency deposits of resident sectors other than central government.

Sources: BIS; Datastream; IMF; national data.

Table 3

Commercial banks' holding of government and central bank securities

as percent of total assets

	Annual average		
	1994–96	**1999–2001**	**2004–06 (latest month)**
Asia			
People's Republic of China	…	…	10.3
Hong Kong SAR	2.4	4.2	4.8
India[1]	27.1	30.8	34.2
Indonesia	9.6	38.1	31.6
Korea	5.3	7.2	8.4
Malaysia	3.7	3.5	2.9
Philippines	…	26.0	23.8
Singapore	6.9	10.2	10.7
Thailand	0.8	4.3	6.5

[1] All data pertain to end of March of the respective year.

Source: National data.

In many Asian economies, however, the limited development of the bond market implies that it is banks, not the non-bank private sector, that have taken up the bulk of the expanded issuance of central bank and government securities. Survey data available up to 2006, for instance, show that commercial bank holdings of government and central bank securities, which remained fairly small relative to the banking system's total assets in many Asian economies in the second half of 1990s, rose sharply immediately after the 1997–98 crisis as well as in the first half of the 2000s (Table 3). On average, commercial banks held over 30 percent of their assets in government bonds in India and Indonesia during 2004–06 and between 10 and 20 percent in several others.

In sum, the macroeconomic policy environment appeared to have affected the Asian banking system in two important ways. First, large surplus saving and sterilised intervention by central banks to resist currency appreciation led to a sharp expansion of bank balance sheets in many countries in the past decade. Second, as banks invested heavily in government and central bank securities, the share of liquid assets in their total assets grew rapidly.

3. Key changes on the asset side

Several changes to the asset side of bank balance sheets have reduced some of the past vulnerabilities of the Asian banking system. This section reviews two such developments: (i) the quality of assets held by banks; and (ii) the transformation of their lending functions.

Asset quality of the banking system

Asian banks have improved the quality of assets they hold over the past decade. One indicator is the ratio of non-performing loans in total loans (NPL) in the banking system, which has fallen sharply in all countries (Table 4). Partial information available up to the second quarter of 2009 suggest that the NPL ratios rose in Asia as the global financial crisis spread to the region in mid-2008 but nothing compared to that witnessed by industrial countries.

Have banks reduced their exposure to potential bad loan problems in future as well? The risk-adjusted capital ratio of Asian banks has risen substantially since 2000, and efforts to curb connected lending and concentration of credit exposure have probably improved bank governance. Most countries have, for instance, restricted credit exposure to a single borrower (10 to 25 percent of banks' capital) and groups of borrowers (40 to 50 percent of capital in several countries), and prohibited lending to bank shareholders (for instance, Malaysia and Thailand). Several countries have also restricted interconnected subsidiary lending or investment within a banking group and adopted rules limiting banks' exposure to high-risk businesses.[4]

Table 4

Structural bank indicators[1]

	Non-performing loans[2]			Capital asset ratio[4]			Return on assets[5]		
	2000	2008	2009[3]	2000	2008	2009[3]	2000	2008	2009[3]
Emerging Asia[6]	16.6	2.4	4.1	13.5	13.8	14.2	0.7	1.0	1.8
People's Republic of China	22.4	2.4	1.8	13.5	12.0	…	0.2	1.0	…
Hong Kong SAR	7.3	0.9	…	17.8	14.2	…	0.8	1.9	…
India	12.8	2.3	…	11.1	13.0	...	0.7	1.0	…
Indonesia	21.8	3.2	4.1	21.6	16.8	17.8	0.3	2.3	2.7
Korea	8.9	1.1	1.5	10.5	12.3	12.9	–0.6	0.5	…
Malaysia	15.4	4.8	4.6	12.5	12.7	14.2	1.1	1.5	…
Philippines	24.0	4.5	4.7	16.2	15.5	…	0.4	0.8	0.8
Singapore	…	1.4	…	19.6	14.3	…	1.3	1.1	…
Thailand	17.7	5.7	…	11.9	13.8	…	–0.2	1.0	…

[1] Due to differences in national accounting, taxation, and supervisory regimes, data are not strictly comparable across countries. [2] As a percent of total loans. [3] Latest available. [4] As a percent of risk-weighted assets. [5] In percent. [6] Median of the economies listed.

Sources: IMF Global Financial Stability Report.

[4] For instance, according to survey data up to 2005, banks in Korea were not allowed to invest beyond 60 percent of their capital in stocks and volatile bond portfolios (excluding government securities); in the Philippines banks' exposure to real estate was limited to 20 percent of total loans; and in India aggregate exposure of banks to capital market is restricted to 40 percent of their net worth.

Substantial consolidation has also increased competition and efficiency of the Asian banking system. Between 1999 and 2004, many countries closed their weaker banks or merged their banking institutions (varying between 10 to 30 percent of total banks in India, Indonesia, Korea and Malaysia) or privatised them.[5] In addition, there were efforts to increase foreign ownership of the banking system. As a result, the return on assets in the banking system increased sharply in many countries between 2000 and 2008 (Table 4) accompanied by a general rise in the shareholders' equity value (Turner, 2007).

Yet many observers remain a little sceptical about the sustainability of these improvements. There are three reasons for this:

(i) *The lack of comprehensive statistics on borrower default rates and inadequate protection of lenders' rights in many countries*. This makes it hard to assess accurately the asset quality of Asian banks. In past downturns, rising non-performing loans had been disguised for some time by rolling over loans falling due ("evergreening") – leading to an overstatement of capital. In addition, the recent decline in NPL ratios in many countries has taken place during a period of rapid lending growth, reducing their reliability as an indicator of the asset quality. Perhaps the most fundamental reason for uncertainty is the lack of historical data on losses for many business areas that have expanded so rapidly in recent years (for example, lending to households), exposing banks to credit risks that they may be less equipped to manage well.[6]

Turner (2007) reports on World Bank and other survey data summarising the relative position of Asian economies vis-à-vis other regions with regard to lenders' legal rights and costs of contract enforcement as well as bankruptcy. In an index ranging from 0 to 10 – high scores indicating better collateral and bankruptcy laws and hence stronger lenders' rights protection – Asian economies have an average score of 5 compared to 7 for mature markets and 3 for Latin America. Korea and Malaysia, with a score of 6 and 8, respectively, appear to have a better property rights protection system than other countries in the region. As regards contract enforcement, in Asia it takes 22 percent of the debt for lenders to enforce a contract compared to 9 percent in mature markets. Inter-country differences are large: ranging from 5 percent in Korea to 20 percent in Malaysia. Similarly, average bankruptcy costs are much higher in Asia (17 percent of debt) than mature markets and Latin America (7 percent and 13 percent, respectively). Bankruptcy costs are substantially lower in Korea than other countries in the region.

(ii) *The implicit guarantee from governments masks weak "stand-alone" ratings*. This increases moral hazard problems in the banking system, reducing the incentive for efficient management of risks. One indicator of this is the Moody's Bank Financial Strength Ratings (BFSR), which measures the intrinsic strength of a bank without taking into account the probability of bank receiving assistance from its owners, its industry group or official institutions. In other words, BFSR provides an indicator of stand-alone credit risk of a bank based on its fundamental financial strength. The aggregate rating for an economy is measured by the weighted average ratings of banks.[7]

---

[5] For instance, between 2000 and 2004 Indonesia had sold 15 banks (accounting for 70 percent of total banking assets) in the equity market and Korea and Thailand had sold four and three large banks, respectively, to the private sector. There were five cases of mergers and acquisitions in Korea between 2000 and 2004, 9 in Malaysia and 15 in the Philippines. In India, a large number of banks were divested in the equity market under majority government ownership. China sold shares of 14 joint stock companies to foreign investors between 2000 and 2005 (Mihaljek, 2006).

[6] See Kang and Ma (2007) for a discussion on factors leading to booms and busts in consumer credit in Asia.

[7] One limitation of the BFSR, however, is that it is based on a sample of banks which are rated by Moody in each country, which can vary across time. The aggregate rating may not therefore fully represent the strength of the entire banking system, but an important part.

Graph 2 shows BFSR ratings of Asian and other emerging banking systems between 1998 and 2008. Two features of the Graph 2 are worth noting. First, Asian banks, in general, tend to have a lower rating than their counterparts in Latin America and central Europe. Second, in several Asian economies the degree of rating improvement has been rather small over the past decade.

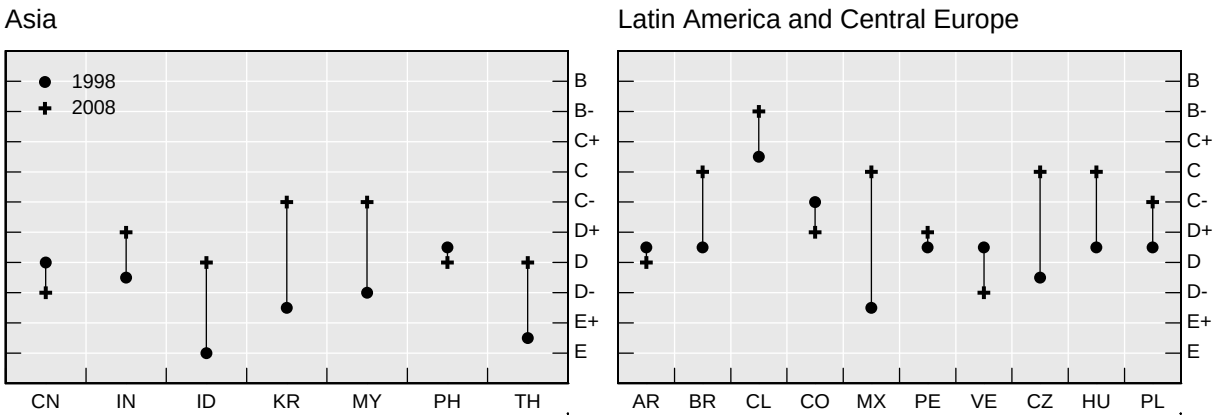
This issue merits particular reflection in countries with a state-owned banking system. In the People's Republic of China, such moral hazard problems are evident from state-owned banks' continued involvement in policy loans and social responsibility, which may be seen as absolving them from making losses (Dobson and Kashyap, 2006). Similarly, some executives of such banks may lack long-term commitment because of the ownership issue.[8]

A similar argument has been made in the case of India. Patel (2004), for instance, argues that a high degree of government involvement in the Indian banking system has given rise to a belief that banks are insulated from systemic risks. It has also led to transfer of quasi-fiscal responsibility from the government to the banking sector through directed lending programmes. Even in countries with a large private banking system, corrective actions in many cases seem to focus on reviving, rather than closing, a troubled bank.

(iii) *The high cost nature of Asia's banking system*. The operating costs of banks in many Asian economies are not only high but have also tended to rise in recent years. For instance, operating costs were 3 to 5 percent of total assets in Indonesia, the Philippines and Thailand in 2007 – substantially higher than more developed financial centres, both within the region (around 1 percent in Singapore and Hong Kong) and outside. Similarly, net interest margins remained high and increased sharply in many countries following the 1997–98 crisis. In Korea, for instance, the margins increased from 3.1 percent in 1995 to 5 percent in 2005 and in Indonesia from 1.6 percent to 2.7 percent. Surprisingly such a trend coincided with a reduction in bank concentration ratio – a measure of the market power of a few big banks in domestic markets – which should have increased competition and thus reduced the monopoly rent of banks.

Graph 2

Moody's bank financial strength ratings[1]



[1] The Bank Financial Strength Rating is Moody's assessment of whether a bank is likely to require financial support from shareholders, the government or other institutions. The ratings range from A (highest) to E (lowest).

Source: Moody's Investors Services.

[8] On this, see Liu Mingkang (2009).

Reasons for this weakness are not entirely clear, given the substantial restructuring over the past decade. Cost-to-income ratios of Asian banks are not particularly high; see Turner (2007). For instance, banks in Korea, Malaysia and Thailand were below the 60 percent cost-income threshold generally accepted as efficient. One explanation is that mergers and acquisitions have yet to reduce excess capacity in the banking system while restrictive labour practices continue to impede productivity growth. A second reason could be that banks have used low real interest rates over the past several years to shore up their margins. A third explanation may be that a strong revival of demand for credit may have increased the pricing power of banks.

The role of banks in financial intermediation

Turning to banks' role in financial intermediation, two aspects of the Asian banking system attracted much attention in the aftermath of the 1997–98 crisis – its bank-centred financial intermediation and its corporate-focused lending. Have these two characteristics changed over the past decade?

(a) Bank-centred intermediation

Contrary to many earlier predictions, Asia's financial intermediation continues to be bank dominated (Table 5). Despite some decline between 1997 and 2007, bank credit to the private sector relative to GDP in the region not only remains high but has also tended to increase in recent years. Moreover, with the exception of a few economies (such as Hong Kong, Singapore and Malaysia), the corporate bond market continues to be small in the region.

Recent experience and research has challenged earlier assumptions that bank-based financial systems lead to resource misallocation or reduce the flexibility of the financial system to respond to shocks. First, empirical studies have failed to find a systematic relationship between the structure of the financial system and its efficiency (Levine, 2002). Rather the performance of both bank and capital market-based systems appears to depend on a number of common factors: the reliability of property rights; legal enforcement systems; and the degree of external competition.[9]

Second, the 2008 global financial crisis served to show that the complex symbiosis between banks and capital markets created large, but somewhat hidden, exposures (BIS, 2009). While banks in more developed financial systems depended on capital markets for revenue generation, risk management, loan securitisation and funding, market functioning depended on banks for market-making services, securities underwriting, and lines of credit. Such mutual dependency between banks and markets amplified shocks as assets became harder to trade or to pledge as collateral. Heightened concern about counterparty risk led to a seizing-up of markets, undermining not only the liquidity of portfolios but also the funding and securitisation strategies of the major banks. With the crisis, the development of private capital markets (including for securitised products) in Asia has stalled. But the underlying advantages of such development as noted by Remolona and Shim (2008) still stand.

[9] Eichengreen, Borensztein and Panizza (2006) provide empirical evidence on this issue. In several European countries, the banking system played an important role in efficient allocation of resources across industries for much of the post-war period. Domestic bond markets started to deepen in Europe only in the 1980s with removal of restrictions on cross-border flow of financial services and, more recently, with the introduction of a common currency (Rajan and Zingales, 2003).

Table 5

Role of banks in financial intermediation

as a percentage of GDP[1]

	Domestic private bank credit[2]			Domestic private debt securities outstanding			Stock market capitalisation[3]		
	1997	**2007**	**2008**	**1997**	**2007**	**2008**	**1997**	**2007**	**2008**
People's Republic of China	97	111	108	0	2	2	6	81	34
Hong Kong SAR	170	140	143	16	12	10	183	794	388
Indonesia	55	25	26	1	2	1	11	40	15
India	25	49	52	1	4	3	22	108	41
Korea	57	98	108	19	47	43	6	82	38
Malaysia	153	105	101	43	60	54	64	128	66
Philippines	56	24	25	0	1	1	33	62	26
Singapore	101	93	104	11	17	16	97	237	114
Thailand	166	92	94	2	12	13	12	59	29
Memo:									
United States	*48*	*62*	*62*	*53*	*77*	*69*	*96*	*116*	*64*
Japan	*191*	*98*	*101*	*30*	*28*	*28*	*51*	*97*	*62*

[1] End of period. [2] Refers to deposit money banks (line 22d of IMF-IFS). [3] Datastream-calculated indices; comprises representative sample of stocks covering a minimum 75–80% of total market capitalisation.

Sources: IMF; Datastream; BIS statistics.

(b) Corporate-focused lending

A distinct feature of the Asian banking system in the past had been its emphasis on the one-way financial intermediation of household deposits to loans for enterprises and purchases of government bonds.

This system of financial intermediation in Asia came under pressure for several reasons. First, by concentrating risks in banks' portfolio, it increased probability of their failure. Second, as Bowers, Gibb and Wong (2003) argue, the corporate sector destroyed rather than created value for the Asian banking system as banks sought to nurture long-term client relationships with insufficient regard for risk and profitability. According to Bowers et al (2003), Asian banks had been persistently under-pricing credit to corporate clients while mobilising deposits at a high interest rate. Among the major 11 Asian banking markets considered, they found that in 2002 none had priced credit at a margin sufficient to earn a reasonable rate of return on capital.

However, the picture has changed sharply in recent years. Survey information available up to mid-2000s suggests that the share of credit going to the enterprise sector fell from above 60 percent in Indonesia, Korea and Malaysia in 2000 to below 50 percent by 2005. By contrast, household sector accounted for 25 to 50 percent of total bank credit in these economies. A similar trend has also been visible in the People's Republic of China and India, where the credit market had been virtually closed to the household sector in the 1990s. In the People's Republic of China, for instance, the share of consumer credit in total credit jumped from less than 4 percent in 2000 to 10 percent in 2005.

A sharp rise in the share of household credit in Asian banks' portfolios has had several important implications. First, high-return mortgage and consumer lending has boosted revenues of banks. Second, the greater opportunity for households to borrow against future income that such credit provides has widened the possibilities for smoothing consumption over time. This is likely to lead to a reduction of an important risk facing the region – its exposure to trade shocks.

Indeed, these two factors are likely to be mutually reinforcing in the long term. While increased borrowing opportunities for households increase growth and the resilience of the economy to external shocks, higher future income expectations raise the demand for household credit, boosting bank revenues and profitability. According to one estimate, households' ability to borrow tends to rise as the average per capita income exceeds $5000 in PPP terms (Bowers et al, 2003). Several Asian economies appear to have crossed this threshold.

4. Issues in the liability side of the bank balance sheets

A much-highlighted aspect of the emerging market banking systems in the 1980s and 1990s was their vulnerability to funding pressures from volatile capital flows. Financing difficulties in international markets too often translated into sharp reductions in bank lending. In addition, short-term foreign currency borrowing created severe currency and liquidity mismatches in banks' balance sheets. The 1997–98 Asian crisis was but one illustration of this vulnerability. How have conditions changed since then? This section reviews major changes in Asian banks' funding markets. It then discusses the lessons from the 2007–08 global financial crisis, particularly vulnerability of countries stemming from dependence on short-term funding markets.

Domestic versus foreign funding

A key structural feature of Asian banking system is its access to a large and growing pool of domestic saving. Table 6 shows this through a simple identity, linking the growth in banking system's lending to various financing sources. Although the asset and liability positions of banks are not mutually independent, as a change in one may well affect the other via the credit multiplier and other dynamic processes, the table provides a useful static analysis. The idea is that banks can finance their credit expansion by one or more of the sources: expanding deposits; net borrowing from abroad; drawing down reserves with the monetary authority; reducing net lending to governments; or increasing borrowing from other sources, particularly wholesale bond markets.

The growth of domestic retail deposits in many Asian economies exceeded loan growth during 2002–07. The exceptions were Korea and Indonesia, where the contribution of retail deposit growth to loan growth was comparatively low. There was a marked increase in the reliance on external funding by banks in both countries; for most others, net financing through international markets was either negligible or negative. Banks in many countries (eg India, Indonesia, Korea, the Philippines and Thailand) also financed a large part of their lending through domestic capital markets or borrowing from other financial institutions in wholesale deposit and bond markets.

Table 6

Contributions to real private credit growth in Asia[1]

	Domestic private credit[2]	Foreign assets[3]	Central bank assets[4]	Government credit[5]	Deposits[6]	Other[7]
	Growth[8]	Growth contribution[9]				
	2002–2007					
Asia[10]	97	–2	–29	–11	132	7
People's Republic of China	100	–4	–37	–11	169	–16
India	154	0	–21	–43	175	44
Korea	54	14	–9	–2	23	27
Hong Kong (SAR)	10	–66	–0	–1	87	–10
Singapore	15	–6	–0	–7	48	–20
Indonesia	107	17	–47	68	47	22
Malaysia	31	–1	–31	3	53	8
Philippines	–6	–21	–31	5	31	10
Thailand	28	–7	–16	2	27	20
Memo:						
United States	*37*	*–0*	*0*	*–2*	*40*	*–0*
Japan	*–11*	*–6*	*–0*	*–13*	*3*	*6*

[1] Referring to deposit money banks, (IMF). [2] Domestic credit to the private sector. [3] Net foreign assets; '+': decrease. [4] Net assets held with central bank; '+': decrease. [5] Net credit to government.'+': decrease. [6] Deposits held with the bank.'+': increase. [7] Other domestic financing (bonds, credit from other financial institutions, capital etc); '+': increase. [8] Cumulative, in per cent. [9] Cumulative, in percentage points. [10] Average of countries listed below; calculated using 2005 GDP PPP weights.

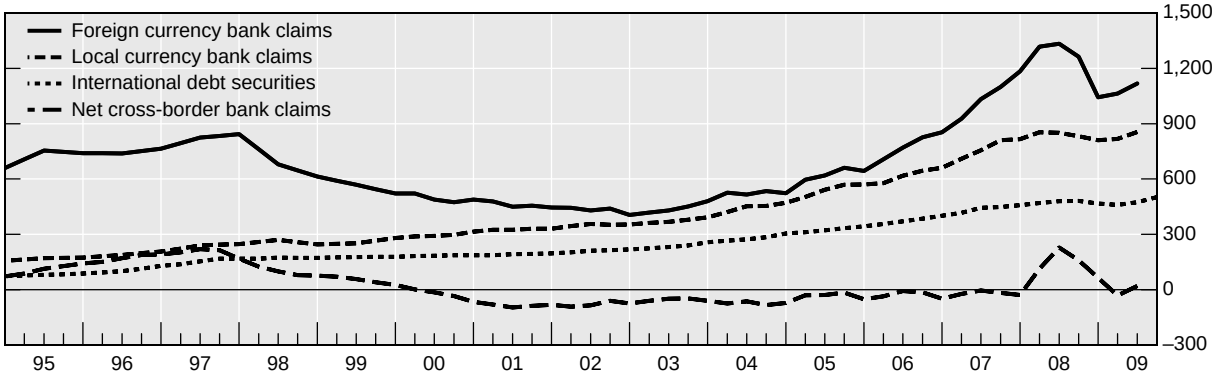
Sources: IMF; national data.

After having declined sharply following the 1997–98 crisis, gross international lending by the BIS reporting banks to Asia began to rise again after 2002. From early 2006, the rise was particularly marked (the thick black line in Graph 3). At the same time, however, Asian banks also increased their deposits with international banks so that their claims on the BIS reporting banks exceeded their liabilities in most years. Second, international banks increasingly lent to Asian countries in domestic rather than foreign currency (the dashed line in Graph 3). Finally, there was a major reduction in banks' role in intermediation of international capital flows in the region. In particular, direct borrowing by the non-bank private sector in international debt markets increased significantly (the dotted line).

Graph 3

International lending to Asia:[1]

International and local claims[2], net cross-border bank claims[3],
(amounts outstanding, in billions of US dollars)



[1] Developing Asia and Pacific including Hong Kong SAR and Singapore. [2] Foreign currency claims are approximated here as cross-border claims in all currencies plus local claims in foreign currencies of reporting banks foreign affiliates. These are based on world-wide consolidated banking statistics on immediate borrower basis reported by 30 countries. International debt securities by country of residence of issuers. [3] "Net cross-border bank claims" are defined as total cross-border claims minus total cross-border liabilities. These are from locational banking statistics on residence basis reported of reporting banks.

Sources: BIS international consolidated and locational statistics; BIS international debt securities.

One major implication of the new pattern of funding is that it made Asian banks more resilient to external financial shocks. In particular, a large domestic funding base and increased lending by foreign banks in local currency played a crucial role in reducing volatility of credit flows to the private sector. In consequence, the aggregate private credit still expanded at a robust pace in Asia in the current global financial crisis (up until the middle of 2009 before slowing or falling in the aftermath of the recession).

Another implication is that increased local currency funding and large foreign currency assets helped to reduce one of the traditional vulnerabilities of Asian banks – exposure to large currency mismatches. Note that what matters is the aggregate currency mismatches in the country – not just directly in banks' books but also indirectly via the mismatches of their customers – as this has implications for the credit quality and, more generally, asset prices in the economy.

Table 7 shows some indicators of currency mismatches. The three columns on the left show the currency denomination of all debt contracts (including those between residents). In the case of Thailand, for example, the foreign currency share of debt contracts fell from 26.8 percent in 1995 to 5.9 percent in 2008. How much of a risk exposure the denomination of debt in foreign currency represents depends in part on the net foreign asset position of the country (that is, foreign currency assets minus foreign currency liabilities): developments in this variable are shown in the middle three columns. A country with a significant negative position suffers a balance sheet loss when its currency depreciates. Thailand now has a positive NFCA, as does Indonesia. The Aggregate Effective Currency Mismatch (AECM) measure shown in the three columns on the right is simply the product of (a) the proportion of aggregate debt that is denominated in foreign currency and (b) the country's net foreign currency position as a percentage of exports. When this measure is negative, currency depreciation has a negative impact on the country's net worth (conversely a positive sign means it is currency appreciation that reduces net worth). The table shows that currency mismatches in most Asian countries fell sharply between 1995 and 2008, particularly in South-east Asia. However, all the three indicators suggest that there was a notable increase in the degree of currency mismatches in Korea.

Table 7

Measuring currency mismatches

	Foreign currency share of total debt outstanding			Net foreign currency assets as a percentage of exports			Aggregate effective currency mismatch (AECM)		
	1995	2005	2008	1995	2005	2008	1995	2005	2008
People's Republic of China	10.3	2.7	1.9	34.9	110.6	166.2	3.9	3.5	4.0
India	7.9	6.5	10.7	35.2	79.4	63.8	2.7	4.5	5.5
Indonesia	32.8	17.0	18.7	–26.7	11.0	14.6	–8.8	2.1	2.8
Korea	10.4	7.9	11.2	–7.9	30.4	–6.4	–0.8	2.6	–0.7
Malaysia	11.4	15.9	12.0	17.1	15.0	17.3	1.9	3.0	2.7
Philippines	16.5	34.4	27.6	–8.4	–41.1	2.6	–1.4	–14.2	0.7
Thailand	26.8	10.1	5.9	–30.7	36.8	52.1	–8.2	3.7	3.2

Source: Goldstein and Turner (2004), updated. The formula is AECM = (NFCA/XGS) x FC % TD (AECM <0), where XGS is exports is goods and services.

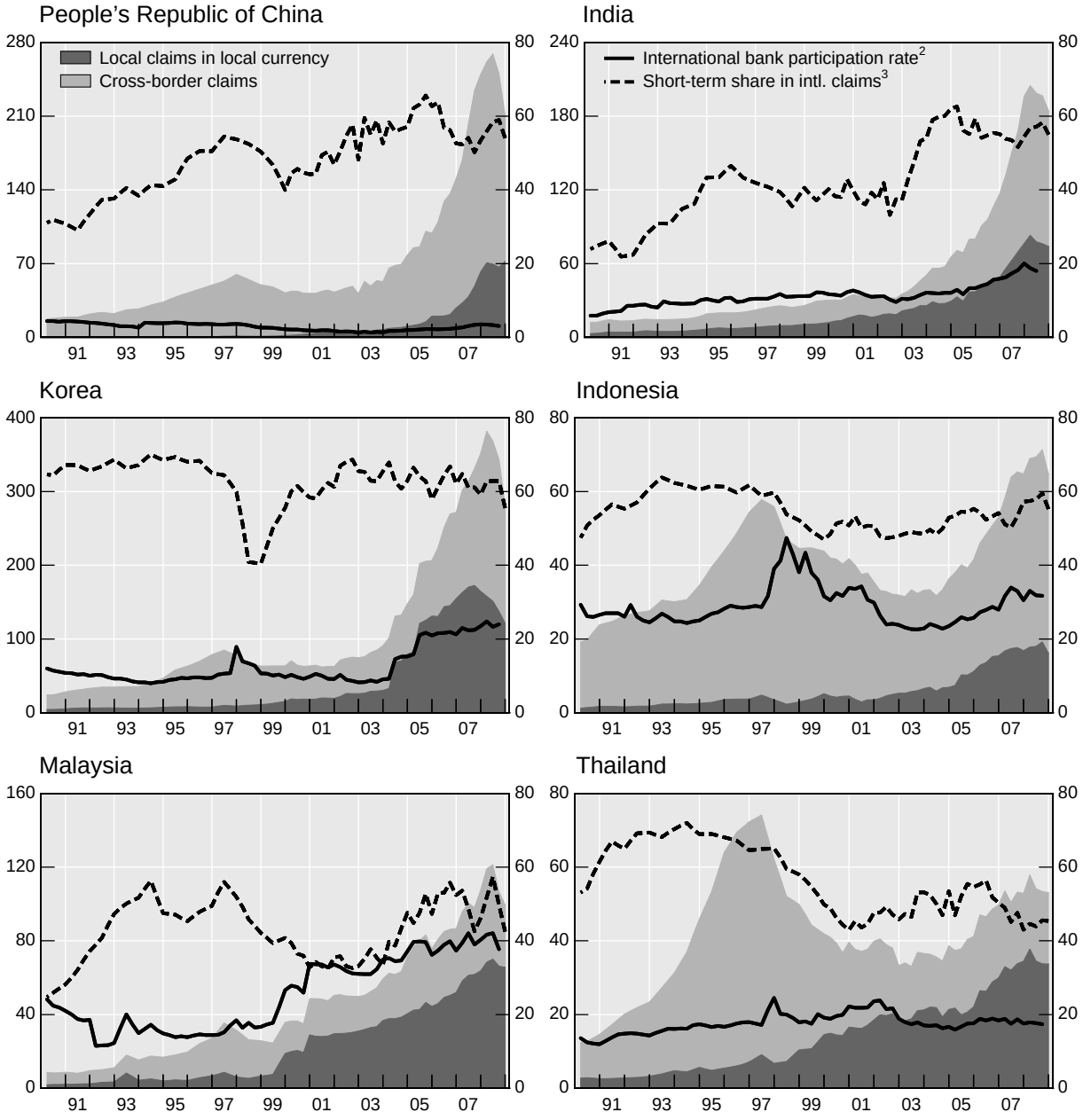
Asia's exposure to the 2007–08 global financial crisis

A key vulnerability of the banking systems that became much evident in the 2007–08 global financial crisis was the structural maturity mismatches in banks' books. From around 2003, international banks had significantly expanded their dollar lending, and such loans were comparatively illiquid. They funded those assets by dollar borrowing in international wholesale markets. In some cases (eg banks in Australia), funding in the main international currencies was used for financing local currency loans at home. Banks had managed potential maturity and exchange rate mismatches (both for themselves and their customers) by using foreign currency or cross-currency swap markets (Baba, Packer and Nagano, 2008).[10] However, the success of these strategies depended on the ready rollover of dollar liabilities in interbank markets. When liquidity in these markets evaporated in mid-2008, given deepening uncertainty about the solvency of some major international banks, these wholesale funding and swap markets became seriously impaired.

[10] For instance, an Australian bank might borrow long-term dollars but immediately swap its liability into floating-rate Australian dollar to match its local loan book.

Graph 4

International bank claims in selected Asian economies[1]



[1] For methodology see P McGuire and N Tarashev, "Bank health and lending to emerging markets", *BIS Quarterly Review*, December 2008. Shaded areas are billions of US dollars (lhs); lines are shares, in per cent (rhs). International bank claims are defined as the sum of cross-border claims and local claims. [2] The numerator of this ratio equals the sum of BIS reporting banks' international claims on non-banks in country *k* and these banks' total local-in-local claims on country *k*, both from the consolidated statistics. The assumption is that local-in-local claims, for which the BIS statistics do not provide a sectoral breakdown, are extended to non-banks only. The denominator of the ratio is the sum of domestic credit to non-banks in country *k* (from the IMF International Financial Statistics) and BIS reporting banks' total cross-border claims on non-banks in country *k* (from the BIS locational statistics by residence). [3] Share of short-term claims in total international claims.

Sources: *BIS Quarterly Review*, December 2008; IMF; BIS consolidated statistics; BIS locational statistics by residency.

The vulnerability of Asian banks varied depending on their exposure to short-term funding.[11] While gross international bank lending to Asia had risen sharply up to mid-2008, the short-term component was particularly high in China, Korea, Indonesia and India (dashed lines in Graph 4). Another point of stress was that in some countries – particularly Korea as well as Malaysia – international bank lending (international plus local currency claims) extended by foreign banks constituted a large part of the credit to the non-bank sector (the black line in the graph). A combination of demand factors (notably the very sharp contraction in international trade) and supply factors (the deterioration in the health of foreign banks and impairment of funding markets) led to a sizeable reduction in foreign banks' exposure to Asia.

The dynamics of emerging market vulnerability

Severe stresses in international interbank and short-term markets in major currencies, combined with a generalised "flight to quality", in September 2008 led to heavy pressures on emerging markets, which until then had been largely spared from the disruptions afflicting the main financial centres. Greater worries about counterparty risk, liquidity hoarding, efforts by holders of domestic assets to purchase foreign currency and the effects of intervention in foreign exchange markets combined, in various degrees, to produce severe liquidity strains in many local currency markets. In Hong Kong SAR, for instance, the difference between three-month Libor and the yield on three-month Exchange Fund bills, a conventional gauge of credit risk, rose sharply from about 100 basis points in September 2008 to about 450 basis points in mid-October. In India, the overnight call money rate traded much higher than the call rate, exceeding 15% by October.

In some countries, these pressures were aggravated by substantial currency depreciation, as borrowers who had dollar debt coming due for repayment had to sell local currency. A sudden unwinding of leveraged foreign exchange exposures created additional depreciation pressures, magnifying financial strains (in part by increasing the local currency value of dollar borrowing). Because the nature of exchange rate exposures associated with foreign exchange derivatives was quite opaque (indeed products were often designed to be opaque so that they could be sold), these exposures were not well understood either by the supervisory authorities or by market participants in many countries.

Korea's experience illustrates how large currency and liquidity mismatches interacted with increased stress in short-term markets in aggravating the funding crisis.[12] Part of the story was the increased reliance of Korean banks for funding local lending on wholesale markets – both domestic and offshore – rather than with retail deposits. In addition, attracted by low foreign interest rates and expected won appreciation, Korean branches of foreign banks, Korean exporters and asset managers had borrowed heavily in foreign currency during 2006 and early 2007. With access to offshore dollar funding markets becoming difficult and exchange rate expectations beginning to change (the won began to depreciate against the dollar in early 2008), the fragility of these strategies was exposed. An exceptionally strong demand for dollars led to a steep rise in onshore dollar rates. This pushed up foreign exchange swap rates, which banks and the corporate sector used to hedge their currency risks. Following the Lehman failure, the spread of cross-currency swap over the interest rate swap widened sharply, increasing the cost of swapping borrowed dollar into local currency.

[11] See McGuire and Tarashev (2008) and Gyntelberg, McGuire and von Peter (2009) for detail analyses of why some emerging market economies were more exposed to the recent global financial crisis than others.

[12] See CGFS (2009) for a full description of the various mechanisms at work.

An additional dimension was the complexity of the derivative contracts entered by Korean firms with banks to hedge exchange risks, leading to large losses for these firms as the won depreciated sharply against the dollar (the so-called 'knock-in and knock-out' contracts). Because of foreign exposures of their corporate clients, banks faced an indirect currency mismatches. Although banks had sold these derivative contracts to foreign banks and hedge funds, they still carried the ultimate risk of default of their corporate clients as underwriter of these contracts. With the expectation that corporate risks would increase as the economy slowed, banks became more cautious and tended to hoard liquidity, thereby impairing these domestic funding markets.

In sum, changes in the liability side of the balance sheets of Asian banks have reduced some "old" vulnerabilities but have created new risks. A key factor in the reduction of vulnerability was their access to large retail deposits. As noted above, unusually favourable macroeconomic conditions, which increased marginal propensities to save, led to substantial growth in bank deposits. In addition, as their net foreign currency borrowing fell and foreign banks lent increasingly in local currency to the non-bank sector, banks' exposure to currency mismatches fell. The main exception to this trend was Korea. The combination of greater dependence on wholesale funding markets, short-term foreign currency borrowing and the use of complex derivative products to hedge foreign exchange risks magnified the Korean banking system's vulnerability to global shocks.

5. A panel model for bank credit

This section reports on a very simple test of the relative influence of some of the important changes discussed above on bank credit through a panel model. A key objective is also to see if there are significant differences in lending behaviour across emerging market economies.

The dependent variable of the model is the percentage change in real bank credit to the private sector. The model examines the specific role of balance sheet variables in bank credit: in particular, to what extent banks' funding conditions affected their capacity to lend. The variables considered are: (a) deposits; (b) access to other funding sources, particularly wholesale and bond markets; and (c) the availability of capital to absorb risks. The framework provides one way to test how far bank credit is constrained by deposits or capital. All funding sources are included in the equation with a lag so that current lending decisions depend on the level of deposits (or funding) in the previous period. The model includes non-performing loans as a proxy for banks' willingness to lend and operating costs to capture the possible implications of banking system's efficiency for its lending behaviour.

The model includes four sets of control variables: (1) demand factors represented by output gap and changes in per capita income in the previous year, as a proxy for permanent income; (2) the cost of credit as measured by the real private lending rate; (3) changes in terms-of-trade as a measure of external risk; and (4) changes in net credit to government to account for potential crowding out effects on the private sector. The model was estimated using data for 2000–07, and including a constant and country-specific fixed effects. Table 8 reports results for emerging Asia as well as Latin America, as a point of comparison.

Table 8

Cross-country determinants of real private bank credit growth[1]

		R^2	D-W	Constant	Δ NPL	dlog (Deposits[1] (–1))	dlog (Other liabilities[1] (–1))	dlog (Capital[1] (–1))	Real lending rate	Δ Operating cost/Assets (–1)	Output gap[1]	dlog (Per capita income[1] (–1))	dlog (Terms of trade (–1))	dlog (Net lending to government)[1]
Asia	1	0.65	2.02	9.14***	–0.62***	0.41***	0.00	0.04*	–0.65*	–3.17	0.15	–0.15	.	.
				(5.53)	(–3.10)	(3.41)	(0.06)	(1.79)	(–1.85)	(–0.87)	(0.46)	(–0.91)		
	2	0.65	2.03	9.19***	–0.63***	0.41***	0.00	0.04*	–0.66*	–3.12	0.14	–0.15	–0.08	.
				(5.19)	(–3.09)	(3.27)	(0.08)	(1.72)	(–1.98)	(–0.88)	(0.41)	(–0.87)	(–0.60)	
	3	0.65	2.04	9.40***	–0.62***	0.40***	0.00	0.04*	–0.64*	–3.14	0.15	–0.18	.	–0.02
				(5.34)	(–3.01)	(3.28)	(0.06)	(1.79)	(–1.75)	(–0.84)	(0.47)	(–1.01)		(–0.56)
	4	0.65	2.05	9.44***	–0.63***	0.40***	0.00	0.04*	–0.64*	–3.09	0.15	–0.18	–0.08	–0.02
				(4.99)	(–2.99)	(3.14)	(0.08)	(1.70)	(–1.88)	(–0.86)	(0.42)	(–0.94)	(–0.58)	(–0.46)
Latin America	1	0.72	2.27	16.56***	–2.46***	0.53***	–0.04	–0.01	–0.65***	–3.89*	0.16	0.14	.	.
				(4.02)	(–3.23)	(3.58)	(–0.93)	(–0.49)	(–3.68)	(–1.67)	(0.38)	(0.33)		
	2	0.73	2.32	16.23***	–2.56***	0.50***	–0.04	–0.01	–0.63***	–3.38	0.12	0.12	0.19	.
				(3.60)	(–3.27)	(2.86)	(–0.78)	(–0.48)	(–2.71)	(–1.06)	(0.27)	(0.26)	(1.27)	
	3	0.74	2.33	17.21***	–2.57***	0.47***	–0.02	0.00	–0.75***	–4.00	0.25	0.23	.	0.10**
				(3.66)	(–2.85)	(3.32)	(–0.53)	(–0.25)	(–4.30)	(–1.66)	(0.73)	(0.51)		(2.58)
	4	0.74	2.35	17.24***	–2.62***	0.45***	–0.02	–0.01	–0.74***	–3.38	0.21	0.22	0.12	0.09*
				(3.67)	(–3.00)	(2.99)	(–0.47)	(–0.27)	(–3.26)	(–1.06)	(0.61)	(0.47)	(0.71)	(1.85)

Asia = People's Republic of China, Chinese Taipei, Hong Kong SAR, India, Korea, Malaysia, Philippines, Singapore, Thailand.
Latin America = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela.

[1] The dependent variable is percentage change in real bank credit to the private sector that is, dlog (loans). Dependent variables shown above are in real terms (except where they are expressed as ratios). The model is estimated through panel regression with White cross-section system robust standard errors.
*,**,*** denote coefficients significantly different from zero at the 10%, 5% and 1%. In parenthesis, t-statistics.

Source: Authors' estimates.

The asset quality of banks appears to have a strong influence on credit growth in Asia. A one percentage point decline in the non-performing loan ratio is associated with about an 0.6 percentage point increase in real bank credit growth to the private sector in the same year. The coefficient on NPL ratio is highly significant in all specifications and robust to different controls.

The results also show that a 1 percent rise in real deposits leads to a 0.4 percent rise in real private bank credits in the following year. The short-run elasticity of lending with respect to deposits is thus around 0.4. How should this result be interpreted? Unless liquidity constrained, banks should not increase lending just because deposits rise. An elasticity of one would suggest that banks were not evaluating the credit risks of lending properly. As it is, a comparatively low elasticity suggests that deposit increases are not automatically on-lent. It is consistent with the observation in Table 1: the more rapid growth of bank deposits than lending in Asia has given banks a significant liquidity cushion. Interestingly, banks' access to non-deposit funding sources (wholesale and bond and other funding markets) appears to have no influence at all on bank lending growth in Asian economies as a whole.

Another finding is that a 1 percentage point rise in the lending rate reduces credit growth by only 0.6–0.7 percent. As should be expected, operating costs may have a negative influence on bank credit, although the coefficient for Asia is not statistically significant. Surprisingly, however, demand variables do not seem to stand out as significant determinants of lending growth although they do have predictable signs in the model.

There are important differences between Asia and Latin America. In particular, bank lending in Latin America is many times more sensitive to asset quality of banks than it is in Asia. A part of the explanation may lie in institutional factors. For instance, higher public ownership of the banking system in Asia may have reduced the lending response of banks to a rise in non-performing loans should this lead to expectations of future bail out.

6. Conclusion and implications

The past decade has seen a considerable transformation of the Asian banking systems. A strong balance sheet and reduced currency mismatches mean that Asian banks are now less vulnerable to financial crisis than they were in the past. With their lending functions more diversified as well, banks have become more profitable and more resilient. Asian banks were therefore able to weather the recent global financial crisis rather well.

One issue is how well banks have managed their risks. As the analysis in this paper revealed, banks in Asia appear to be well capitalised and better managed than before. Nevertheless, as the Korea's experience in the current crisis showed, some banks had overlooked major risks as corporations and households undertook riskier financing strategies. In addition, shortcomings (such as the lack of historical credit records) in the management of household credit risks remain severe in many countries.

Nonetheless, the stronger balance sheet position of Asian banks is due not only to microeconomic reforms, but also to a favourable combination of macroeconomic circumstances. A sharp rise in domestic savings, combined with the recent large-scale sterilised intervention and easy monetary policy, has led to very easy financing conditions for banks. In addition, banks have accumulated a large stock of government bonds. How these conditions will change and how this will affect banks in Asia is uncertain. One implication is that Asian banks' exposure to market risk has risen sharply in the recent years: a fall in bond prices would hurt the banks. And efforts to slow currency appreciation in some countries may have distorted the foreign currency borrowing choices of the non-bank private sector.

Credit risks may also increase in the future. Up until the crisis that broke in mid-2008, rapid industrial expansion led by exports had created a strong demand for bank credit. When exports were booming, such loans were easily serviced. But the greater reliance on domestic consumption that will be needed in the future, possibly accompanied by real exchange rate appreciation, will make some export-dependent activities less profitable. And which new domestic-demand driven activities become profitable in a sustainable way is uncertain. The scale and the timing of this prospective reorientation of the productive structure – from tradable to non-tradables – is not known. But it will probably increase the credit risks facing banks, particularly in the most rapidly growing countries.

A question for the future is how far the present strong liquidity position of most banking systems in Asia would allow these significant (but so far only latent) increases in market and credit risk to go undetected. Banking difficulties or crisis have historically often materialised only after unusually favourable macroeconomic or liquidity conditions have turned adverse. This paper suggests that, although much has been achieved, banking system reform in much of Asia still remains unfinished business. Supervisory authorities cannot relax.

References

Baba, Naohiko, Frank Packer and Teppei Nagano (2008): "The spillover on money market turbulence to FX swap and cross-currency swap markets", *BIS Quarterly Review*, March. Available online at: www.bis.org/publ/qtrpdf/r_qt0803.htm.

Bank for International Settlements (2009), *79th Annual Report*, June. Available online at: www.bis.org/publ/arpdf/ar2009e.htm.

Bank for International Settlements (2010): "The international financial crisis: timeline, impact and policy responses in Asia and the Pacific". Proceedings from a research conference sponsored by the BIS and the People's Bank of China, forthcoming BIS Papers series. Will be available online at: www.bis.org/arp/conf_0908.htm.

Bowers, Tab, Greg Gibb and Jeffrey Wong (2003): *Banking in Asia: acquiring a profit mindset*, John Wiley & Sons (Asia) Ltd, Singapore.

Committee on Global Financial System (2009): *Capital flows to emerging market economies*, *CGFS Papers*, no 33, January. Available online at: www.bis.org/publ/cgfs33.htm.

Dobson, Wendy and Anil Kashyap (2006): "The contradiction in China's gradualist banking reforms", *Brookings Papers on Economic Activity*, no 2.

Eichengreen, Barry, Eduardo Borensztein and Ugo Panizza (2006): "A tale of two markets: bond market development in East Asia and Latin America", *HKMIR Occasional Paper*, no 3, October, Hong Kong Monetary Authority.

Goldstein, Morris and Philip Turner (2004): *Controlling currency mismatches in emerging markets,* Institute for International Economics, Washington DC.

Gyntelberg Jacob, Patrick McGuire and Goetz von Peter (2009): "Highlights of international banking and financial market activity", *BIS Quarterly Review*, June. Available online at: www.bis.org/publ/qtrpdf/r_qt0906.htm.

Kang, Tae Soo and Guonan Ma (2007): "Recent episodes of credit card distress in Asia", *BIS Quarterly Review*, June. Available online at: www.bis.org/publ/qtrpdf/r_qt0706.htm.

Levine, Ross (2002): "Bank-based or market-based financial systems: which is better?", *William Davidson Working Paper*, no 441, February.

McGuire, Patrick and Nikola Tarashev (2008): "Bank health and lending to emerging markets", *BIS Quarterly Review*, December. Available online at: www.bis.org/publ/qtrpdf/r_qt0812.htm.

Mihaljek, Dubravko (2006): "Privatisation, consolidation and the increased role of foreign banks, in the banking system in emerging economies: how much progress has been made?", *BIS papers*, no 28. Available online at: www.bis.org/publ/bppdf/bispap28.htm.

Mingkang, Liu (2009). "China can build on the basis of sound finance", 20 November 2009, Financial Times.

Ma, Guonan and Wang Yi (2010). "China's high saving rate: myth and reality". *BIS Working Paper* no 312. June. Available online at www.bis.org/publ/work312.htm.

Mohanty, M S and Philip Turner (2006): "Foreign exchange reserve accumulation in emerging market economies what are the domestic implications?", *BIS Quarterly Review*, September. Available online at: www.bis.org/publ/qtrpdf/r_qt0609.htm.

Patel, Urijit R (2004): "Role of state-owned financial institutions in India: should the government "do" or "lead"?" in Gerard Caprio et al (eds), *The future of state-owned financial institutions*, the World Bank.

Rajan, Raghuram G and Luigi Zingales (2003): "Banks and markets: the changing character of European finance", *NBER Working Paper*, 9595, March.

Remolona, Eli M and Ilhyock Shim (2008): “Credit derivatives and structured credit: the nascent markets of Asia and the Pacific”, *BIS Quarterly Review*, June. Available online at: www.bis.org/publ/qtrpdf/r_qt0806.htm.

Turner, Philip (2007): “Are banking systems in east Asia stronger?”, *Asian Economic Policy Review*, no 2.