The role of banks

Torsten Ehlers and Agustín Villar[1]

Abstract

Credit has grown at a rapid pace in emerging markets (EMs) over the last 10 years. Banks have played a major role in the extension of credit and have continued to be its main source. Domestic banks have taken over business from foreign banks since 2008. However, developments across EMEs have been heterogeneous, with non-bank financing playing a greater role in the faster growing economies. Important changes have occurred in the composition of bank assets over this period. While the banking sector leverage generally has not increased, banks' sources of funding and recipients of their credit have changed. Bank credit is increasingly flowing to households, in particular, in the form of mortgage loans. Corporate deposits have gained share relative to household deposits, potentially making banks rely on a less stable source of funding. In some EMs, non-core funding (liabilities other than equity and deposits) are playing a greater role in sustaining credit growth by banks. Forward-looking measures point to increased credit risk in many EMs. Interest rate risks remain in many cases with customers, as, for instance, as large share of mortgage loans are variable rate contracts. But interest rates could feed back to credit and funding risks, if defaults on loans rise and corporates respond by discontinuing their supply of deposits.

Keywords: Emerging markets, financial intermediation, banks, bank lending, credit growth

JEL classification: E44, G20, G21

[1] Bank for International Settlements. Agne Subelyte and Diego Urbina provided excellent research assistance. It draws on the BIS survey conducted for this meeting. The replies are presented in summary tables in the appendix.

Introduction

Historically, banks have been the main supplier of credit in emerging market economies (EMEs). In the 1990s, market-based finance began to compete with bank lending. Since 2008, this structural shift has continued in parallel with the exceptionally easy global financial conditions ushered in by the accommodative monetary policies in major advanced economies. How have these changes affected financial intermediation in EMEs? In particular, has the role of banks changed? Has the development of debt securities markets combined with global cyclical forces made banks more vulnerable to credit and funding risks? And how has the role of foreign banks in EMEs changed?

EME banks have not changed their business models in the same way as those in advanced economies did in the run-up to the financial crisis. In the advanced economies, banks rapidly expanded their balance sheets by buying securitised debt, financed mostly with short-term debt instruments such as commercial paper ((Adrian et al (2012) and Acharya and Schnabl (2010)). In contrast, EME banks have relied more on deposits.

This does not mean that EME banks are less risky. Although they have reduced their leverage over the past decade, forward-looking indicators point to heightened credit risk in many EMEs. In a number of economies, the gap between private credit-to-GDP and its long-term trend is positive and large. Already sizeable private sector debt service ratios would increase further with higher interest rates. Moreover, the management of liquidity could become challenging in some EMEs. As banks have relied on deposits to fund long-term loans, deposit withdrawals – in particular, by corporates – could expose banks to increased funding risk. Their reliance on non-core debt is sizeable in some economies.

Post-crisis, many EMEs have seen banks withdraw from the hardest-hit countries. Over the past five years, as domestic credit has expanded rapidly, the relative reliance on direct cross-border bank credit has actually declined in all major EM regions. And foreign banks are increasingly operating through local offices (branches and subsidiaries). The exception is emerging Asia, where a more regional model of cross-border banking seems to be taking shape.

The rest of the paper is organised as follows. Section 1 discusses the relative importance of bank credit in EMEs. Section 2 illustrates the changes in the structure of bank assets and liabilities. Section 3 discusses the potential credit, interest rate and funding risks in the banking sector. The final section briefly reviews the role of international banks.

1. Credit financing and the role of the banking sector

Private sector credit grew rapidly across EMEs over the decade to 2013, driving up credit-to-GDP ratios, particularly since 2008 (Table 1, left-hand columns). In some EMEs, expanding credit pushed the ratio to new heights. While the share of bank credit in total private sector credit declined in several EMEs (Table 1, right-hand columns), banks continue to be the main source of credit (see also country notes from the Czech Republic, Indonesia and the Philippines). There is also evidence that banks

have faced increased competition from debt securities markets in financing some EME borrowers, particularly after 2008.[2, 3]

In several EMEs, private sector credit is increasingly provided by other sectors and financial intermediaries. For example, the sharp fall in the share of domestic bank credit in China reflects the strong expansion of cross-border borrowing and the activities of trust companies, as international portfolios have sought greater exposure to the economy (Ma and Villar (2014)). In Korea, the non-banking sector provides about one third of private sector credit. In Hungary, a banking crisis has cut the banks' share. In contrast, banks have been regaining market share in Mexico and Turkey despite greater competition from fast-developing bond markets.

A drawback of these data is that financial accounts (flows of funds) are available for only a small group of economies. As a result, most private sector credit estimates are based on BIS data for (domestic and cross-border) private sector bank borrowing and debt securities issues.[4] Thus, the estimates exclude debt obtained through the issuance of *domestic* securities unless these are held by banks. This might be a considerable amount, given increased issuance in EMEs in recent years.

State-owned banks continue to play an important role in a few EMEs. One reason is that only small changes have been made to ownership structures over the past decade (Appendix Table A1). State-owned banks hold a dominant position in Algeria, China and India, and constitute a large share of banking sector assets in Argentina, Indonesia, Brazil, Russia and Turkey (and, to a lesser extent, in Korea and Thailand). At the same time, state ownership is negligible in a few countries, such as Hong Kong SAR and Israel. Beyond the pattern of ownership, government intervention seems to have declined (Mohanty and Turner (2008)). Governments have lifted interest rate controls and seem to be interfering less in credit allocation.

[2] These trends will be described in more detail in the second background paper for this meeting on "The role of debt securities markets".

[3] See country note from the Bank of Korea for this meeting.

[4] For Colombia, Peru, the Philippines and Israel, the estimation follows the methodology used in the BIS publication, but it is not being published.

Private sector credit and domestic bank lending in EMEs

Table 1

	Total credit to non-financial private sector (as a share of nominal GDP)[1]			Bank credit to non-financial private sector (as a share of total credit to non-financial private sector)		
	2004	2007	2013	2004	2007	2013
Emerging Asia						
China	124	118	181	96	91	75
Hong Kong SAR	164	183	261	90	83	81
India	38	50	59	96	93	92
Indonesia	29	28	41	87	93	89
Korea	139	160	185	74	76	67
Malaysia	131	114	135	96	96	100
Philippines[2]	41	34	41			
Singapore	101	97	139	91	84	87
Thailand	109	97	127	97	98	97
Latin America						
Argentina	13	15	16	64	76	94
Brazil	34	45	76	88	93	93
Chile	85	94	123	71	71	63
Colombia[2]	26	33	44			
Mexico	23	27	34	34	45	41
Peru[2]	20	23	37			
Central and eastern Europe						
Czech Republic	69	78	98	39	52	55
Hungary	81	112	121	48	47	39
Poland	43	57	79	59	65	65
Other EMEs						
Algeria						
Israel[2]	88	99				
Russia	37	53	68	67	71	75
Saudi Arabia	39	46	43	88	85	95
South Africa	61	80	73	96	95	94
Turkey	21	37	70	72	75	89
United Arab Emirates						

[1] BIS calculations of total credit to private non–financial sector. [2] Total credit to the private sector estimate based on domestic bank credit to private sector (IMF, *International Financial Statistics*, line 22d), plus cross-border loans to the non-bank sector, less government exposure from BIS consolidated banking statistics, plus international debt securities issued by non-financial corporations.

Sources: IMF, *International Financial Statistics*; national data; BIS international banking statistics; BIS securities statistics.

2. Banks' balance sheets and potential risks

A key question is whether favourable global financing conditions have encouraged procyclical behaviour by banks and a build-up of risks on their balance sheets. Relying on balance sheet data for such analysis is fraught with difficulties for reasons outlined below. Nevertheless, a cross-sectional look at banking sectors might help to unveil common features across different economies.

2.1 Bank assets

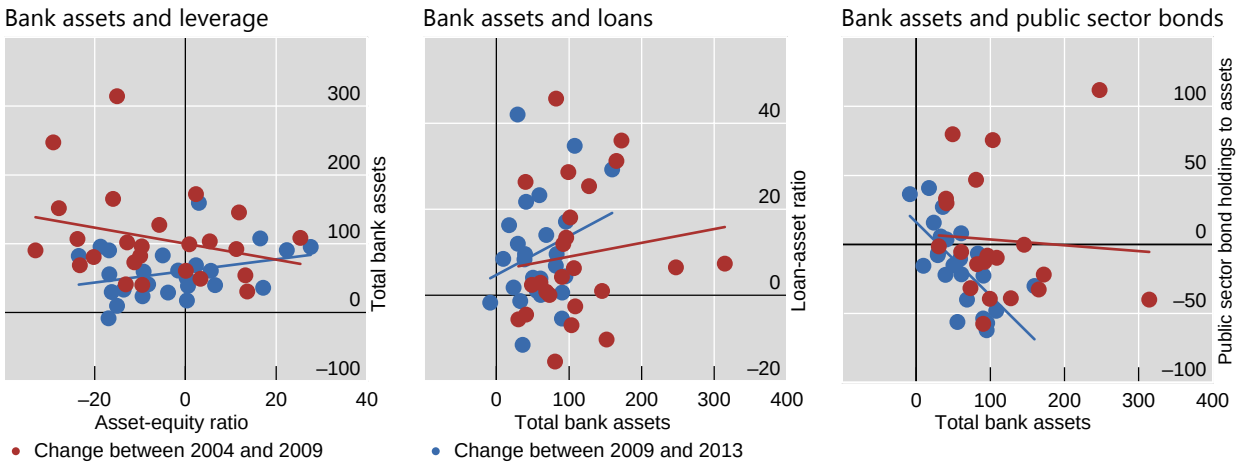
EME bank assets have grown strongly over the last decade (Appendix Table A8), but without lifting bank leverage (asset-to-equity ratio). In the country sample for the whole decade, leverage marginally decreased (ie somewhat more than half of the changes in asset-to-equity ratio are negative) despite the significant growth rates in bank assets. By splitting the sample into two periods (Graph 1, left-hand panel), two outlier observations seem to weigh on the whole panel relationship. In the period 2009–13, there is a slightly positive, albeit less than proportional, relationship between changes in bank total assets and in leverage (asset-to-equity ratio) in the cross section.

The procyclicality of bank leverage tends to obtain where bank portfolios are marked to market, as when tradable securities are held and value-at-risk constraints are binding (Adrian and Shin (2010a,b)). This analysis is based on a very crude measure of leverage that stems from accounting standards which vary widely across EMEs. But EME banks still follow a more traditional business model and are less engaged in investment banking activities than are their advanced economy counterparts.

The strong growth in EME bank assets shifted the composition of assets towards a higher share of loans (Graph 1, centre panel). In 2009–13, the increase in the shares

Bank leverage, asset growth and credit

Percentage changes — Graph 1



Source: BIS questionnaire.

of loans appeared to be stronger, hinting at a continued strong expansion of bank credit.

While bank assets grew, the share of government debt securities holdings in their total assets fell (Graph 1, right-hand panel). The rise in loan ratios is mirrored by a reduction in the share of government bonds in total assets (see country note from Colombia). As banks shifted their portfolio from government bonds to loans, they kept roughly steady the holdings of other (private) securities and financial instruments as a share of their assets. Such holdings are generally comparatively low (Appendix Table A4).

Even though changes in the composition of EME bank loan portfolios vary widely (Appendix Table A5), some general trends stand out. First, the median share of loans to non-financial corporates has declined slightly (from 48% in 2004 and 48% in 2009, to 44% in 2013), which is mirrored mainly by a rise in the share of loans to households. The increase in this median share across EMEs is most visible from 2004–09 (35% to 38%). Since 2009, it has edged up only slightly (to 39%), possibly influenced by a tightening of regulation in many economies (see country note from Korea). But shares vary considerably between countries. In Peru, the share of corporate loans was around 70% in 2013. This share can be much smaller in countries with highly developed bond markets (ie Singapore, 25%), or where loans to the public sector play an important role (ie the Czech Republic, 23.5%).

Second, lending to the household sector is concentrated in residential mortgages; but the pattern is not homogeneous (Appendix Table A9). In 13 out of 23 countries for which information was provided, residential mortgage loans account for more than half of household loans, including in several of the largest or financially more developed EMEs. In nine economies they account for over 10% of total assets, in Chile, the Czech Republic, Malaysia and Hungary for over 15%, and in Poland, Israel and South Africa for over 20%.

2.2. Debt liabilities

How has this asset growth been financed and has the mix of debt liabilities changed? Debt liabilities comprise four funding sources: (i) retail deposits; (ii) corporate deposits; (iii) long-term debt securities (bonds); and (iv) other non-core funding. Sources (iii) and (iv) are typically considered non-core liabilities. Other non-core liabilities include interbank claims[5] and short-term debt securities. These are usually the least stable sources of funding, as they can quickly dry up under stress (Hahm et al (2013)).

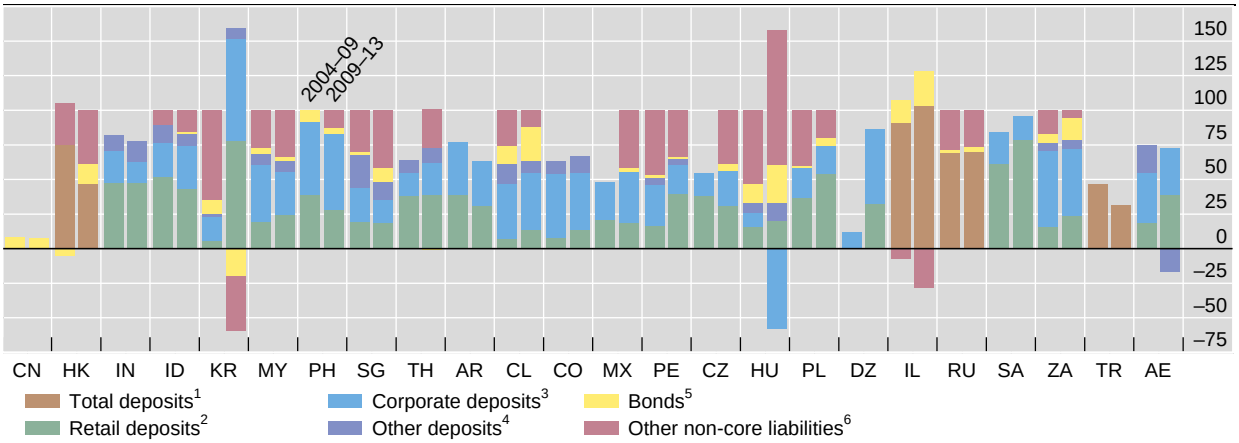
Deposits in general have contributed the most to the growth in liabilities over the last 10 years (Graph 2). Across EMEs, retail and corporate deposits made the greatest contribution to total liabilities growth. The median contribution of corporate deposits was 24% and 31% of total debt liability *growth* in 2004–09 and in 2009–13, respectively. For households deposits the median contribution was 21% and 31%, respectively.

Another major source of bank funding was other non-core liabilities. Across all countries in the sample, its mean contribution was 28% of total debt liabilities in both

[5] It refers to other liabilities than deposits from banks, as those are included in corporate deposits.

Bank debt liabilities

Contributions to total growth in debt liabilities, in per cent — Graph 2



AE = United Arab Emirates; AR = Argentina; BR = Brazil; CL = Chile; CN =China; CO = Colombia; CZ = Czech Republic; DZ = Algeria; HK = Hong Kong SAR; HU = Hungary; ID = Indonesia; IL = Israel; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; SA = Saudi Arabia; SG = Singapore; TH = Thailand; TR = Turkey; VE = Venezuela; ZA = South Africa.

[1] For Hong Kong SAR, Israel, Russia and Turkey, full breakdown of deposits by sector was not provided, therefore total deposits are shown. No data on deposits were provided by Brazil and China. [2] Retail deposits = deposits from households. [3] Corporate deposits = total deposits from non-financial and financial corporates. [4] Other deposits = deposits other than from households or corporates. [5] Bonds = tradable long-term debt securities. Data for Algeria, Argentina, Colombia, India, Saudi Arabia, Turkey and the United Arab Emirates were not provided. For Brazil, data for 2004 and 2009 were not provided. For the Czech Republic, Mexico and Thailand, data for 2004 were not provided. For Russia, only domestic debt securities. [6] Other non-core liabilities = all liabilities other than equity, deposits, or bonds.

Source: BIS questionnaire.

2004–09 and 2009–13. However, the banking sectors where financial markets are more developed (such as Hong Kong, Korea and Mexico) seem to rely on non-core debt financing to a greater extent.[6]

Despite its growth, banks' bond financing still accounts for no more than a small share in total liabilities (Appendix Table A2). In Hungary, Colombia and Israel, where bond financing has increased the most, its contribution to the growth in total debt liabilities was still lower than that of deposits.[7]

3. Credit, funding and interest rate risks

The fast growth in bank assets and the changes in the composition of banks' assets and liabilities raise questions about credit, interest rate, currency and funding risks.

[6] An exception is Hungary, where a decline in deposits seems to have been substituted by non-core financing.

[7] For India, Brazil, Algeria, Turkey and the United Arab Emirates, the numbers for bond financing are not available.

3.1. Credit, interest rate and currency risk

Are there signs that the rapid expansion of bank assets in EMEs has exposed banks to heightened credit risk? Balance sheet measures of credit risk losses, such as non-performing loan ratios or loan loss provisions, signal low risks. In both emerging Asia and Latin America, non-performing loan ratios have been declining and are usually between 2% and 3% of total loans. In central and eastern Europe, non-performing loan ratios have increased since 2008, and are around 6% at the median. Loan loss provisions are low relative to operating income across virtually all emerging markets (median EM Asia = 12%, LatAm = 18%, CEE = 11%).

But, statistics based on balance sheet items are insufficient measures of credit risks or potential instabilities (Lowe (2002)). Crucially, given accounting rules, they function more as backward-looking measures than as leading indicators of potential financial distress. And they may even give misleading signals as profits tend to be high and provisions low during the boom stage of the financial cycle (Borio and Drehmann (2009)).

Forward-looking metrics may signal risks ahead for the banking sector in a number of EMEs (BIS (2014)). Rapid growth in bank assets has fuelled a fast rise in private credit-to-GDP ratios. The credit-to-GDP gap – the deviation of credit-to-GDP ratio from its long-run trend – has proved to be a fairly reliable indicator of future banking sector distress (Borio and Lowe (2002)), with a typical lead time of two or more years ahead. Sceptics argue that emerging market economies (EMEs) are more likely to be undergoing a period of financial deepening, which renders the specification of the trend for the calculation of the credit gap problematic. Yet Drehmann and Tsatsaronis (2014) have shown that the credit gap also performs well for EMEs, albeit not as well as it does for the group of advanced economies.

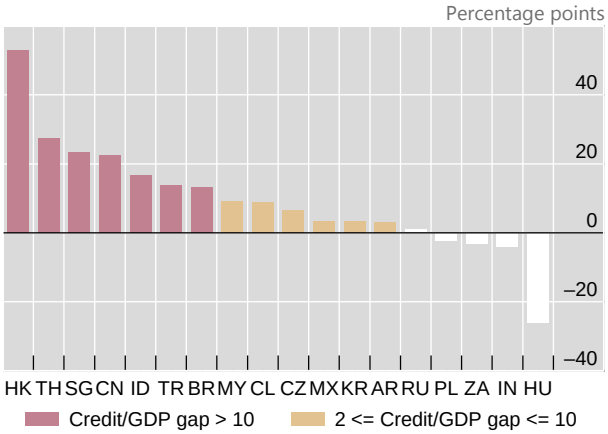
For China, India, Hong Kong SAR and other economies in Asia, as well as Brazil and Turkey, the credit-to-GDP ratio is more than 10 percentage points above its long-run trend (see Graph 3, left-hand panel). This is a threshold at which the Basel III framework suggests that the countercyclical buffer rate should be set at its maximum level (Basel Committee (2010)). Hong Kong has recently activated countercyclical capital buffers, in part as a response to a high credit-to-GDP gap (HKMA (2015)).). For many other EMEs such as Korea, Mexico and South Africa, credit-to-GDP gaps are approaching levels that deserve close attention.

While credit-to-GDP gaps are a fairly reliable predictor of strains at long horizons, high debt service ratios (DSRs) provide better signals for horizons of a year or so (Drehmann and Juselius (2014)). DSRs tend to peak just before strains materialise. While increases in the credit-to-GDP ratio result in steady cumulative increases in the DSR, it is rising or falling interest rates that cause the sharpest changes. The DSR's explicit dependence on interest rates is one link between monetary policy and financial stability. Substantial increases in interest rates, possibly triggered by the normalisation of US monetary policy, could push up debt service costs in many EMEs to critical levels (Graph 3, right-hand panel). In Brazil and Turkey, a 250 basis point increase in rates could result – ceteris paribus – in debt service costs greater than 6 percentage points above their long-run average; assuming that increases in interest rates are fully passed through to lending rates. Levels of more than 6% over the long-run average are critical for financial stability risks. For China, this ratio would be considerably higher.

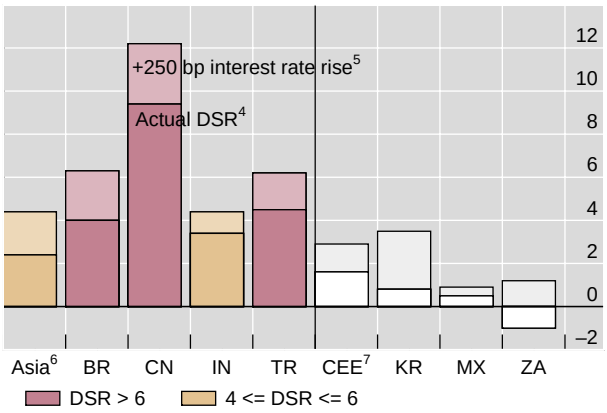
Early warning indicators for domestic banking crises signal risk ahead[1]

Graph 3

Credit-to-GDP gap, latest figures[2, 3]



Debt service ratio (DSR) – impact of a 250bp increase in interest rates[4, 5]



AR = Argentina; BR = Brazil; CEE = central and eastern Europe; CL = Chile; CN = China; CZ = Czech Republic; HK = Hong Kong SAR; HU = Hungary; ID = Indonesia; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PL = Poland; RU = Russia; SG = Singapore; TH = Thailand; TR = Turkey; ZA = South Africa.

[1] Thresholds for red bars are chosen by minimising false alarms, conditional on capturing at least two thirds of the crises over a cumulative three-year horizon. A signal is correct if a crisis occurs in any of the three years ahead. The noise is measured by the wrong predictions outside this horizon. Beige bars for the credit-to-GDP gap are based on guidelines for countercyclical capital buffers under Basel III. Beige bars for DSRs are based on critical thresholds if a two-year forecast horizon is used. For a derivation of critical thresholds for credit-to-GDP gaps, see Drehmann et al (2011). For debt service ratios, see Drehmann and Juselius (2012). [2] Difference of the credit-to-GDP ratio from its long-run, real-time trend calculated with a one-sided HP filter using a smoothing factor of 400,000, in percentage points. [3] Q3 2014 for the Czech Republic, Hungary, Korea and Mexico; Q2 2014 for other countries. [4] Assuming that an increase of 2.50 percentage points in interest rates is fully transmitted to lending rates and that all the other components of the DSRs stay fixed. [5] Difference of DSRs from country-specific long-run averages since 1985 or later depending on data availability and when five-year average inflation fell below 10% (for Russia and Turkey, the last 10 years are taken). [6] Hong Kong SAR, Indonesia, Malaysia and Thailand. [7] The Czech Republic, Hungary, Poland and Russia.

Sources: National data; BIS; BIS calculations.

Increases in interest rates are also a source of market risks, given banks' debt securities holdings. In some economies, total debt securities holdings exceed 20% of total assets. Unless banks are fully hedged against interest rate risks, a rise in interest rates would induce losses. In particular, government bonds, which can be of relatively long maturity in an increasing number of EMEs, carry notable duration risk. For instance, for bonds with a duration of seven years and a yield of 3.5%, a 250 basis point increase in interest rates would cause a loss of roughly 17%. In some economies, government bond holdings represent more than 15% of total bank assets (Hungary, India, Poland and Turkey). In many jurisdictions, banks are required to hold capital against interest rate risk and may be hedged. Nevertheless, very large increases in interest rates could expose unhedged positions and squeeze banks' equity buffers.

To the extent banks are not hedged against interest rate increases, these would also increase funding costs. This could, in turn, squeeze banks' operating margins and reduce buffers against potential credit losses. Higher financing costs would be especially felt where banks rely heavily on non-core debt liabilities. A proper assessment of interest rate risk would require detailed knowledge of the maturities of liabilities and the use of hedging instruments. Nevertheless, a relevant dimension covered in the BIS survey is the share of fixed and flexible rate loans. Among respondents, the banking sector charges flexible interest rates on more than 50% of outstanding loans (Graph 4, right-hand panel, and Appendix Table A10). While this may help insulate banks to some extent, deposits have shorter average maturities and

pay interest rates that are adjusted more frequently. In addition, in many banking sectors the share of variable-rate deposits is also high; sometimes higher than that for loans (the Czech Republic, Malaysia and Brazil).

Another dimension of potential credit and interest rate risks is foreign currency lending. Loans to non-financial corporates and households in foreign currency – mostly US dollars outside CEE – are a feature of the banking sector in a number of EMEs. A concern is that higher US interest rates and further dollar appreciation might raise the debt burdens. In some countries, a large share of bank assets is denominated in foreign currency, suggesting that bank borrowers may be exposed to substantial currency mismatch (Appendix Tables A6 and A7).

3.2. Funding risks

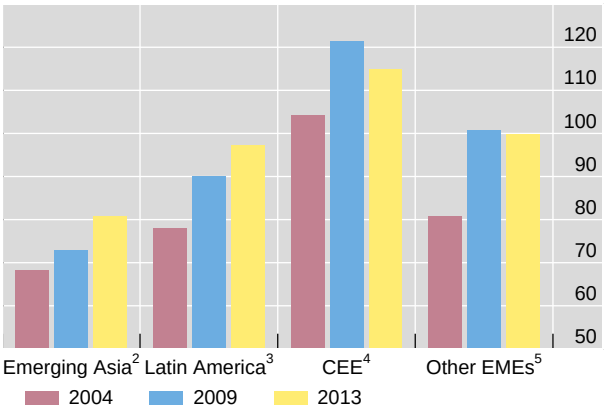
High loan-to-deposit ratios (LDRs) are a potential source of funding risk. LDRs have increased over the last 10 years – and from relatively high levels (Graph 4, left-hand panel). Out of the 24 countries in the sample, 14 had LDRs greater than 90% in 2013, and nine above 100%. In some cases LDRs have declined since 2008, but from very high levels (see Appendix Table A8).

A sudden withdrawal of deposits would force banks to switch to other funding sources or to fire-sale assets. Attracting additional deposits would likely require higher rates. And tapping capital or interbank markets might prove difficult if financial conditions deteriorated. A concern is the possible behaviour of large corporate depositors (see second background paper on "The role of debt securities"). The median share of corporate deposits in total deposits increased from 33% in 2004 to

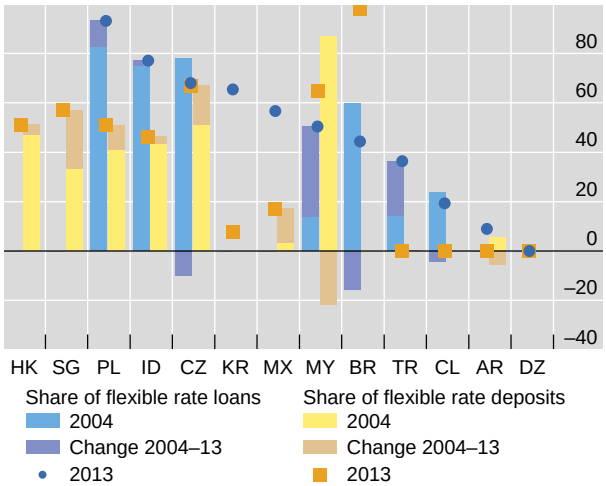
Loan-to-deposit ratios and variable vs fixed rate contracts

In per cent — Graph 4

Median loan-to-deposit ratios[1] in major EM regions



Share of variable rate bank loans and deposits



AR = Argentina; BR = Brazil; CEE = central and eastern Europe; CL = Chile; CZ = Czech Republic; DZ = Algeria; HK = Hong Kong SAR; ID = Indonesia; KR = Korea; MX = Mexico; MY = Malaysia; PL = Poland; SG = Singapore; TR = Turkey.

[1] Gross loans over total deposits. [2] Emerging Asia = China, India, Indonesia, Hong Kong SAR, Korea, Malaysia, the Philippines, Singapore and Thailand. [3] Latin America = Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [4] Central and eastern Europe = the Czech Republic, Hungary and Poland. [5] Other EMEs = Algeria, Israel, Russia, Saudi Arabia, South Africa, Turkey and the United Arab Emirates.

Source: BIS questionnaire.

44% in 2009, after which it stabilised. In a few countries, non-financial corporate deposits now exceed those of households (Algeria, Colombia and South Africa; see also Appendix Table A2).

4. Role of international banks and their business models

International banks have historically played a substantial role in private sector financing in EMEs. After the Lehman default in 2008, however, foreign bank lending declined considerably. And in the wake of the euro area crisis in late 2011, European banks retreated further from cross-border lending, driven by their deteriorating financial health (Avdjiev et al (2012)). Have international bank business models become more local in response? Have regional banks stepped into the void?

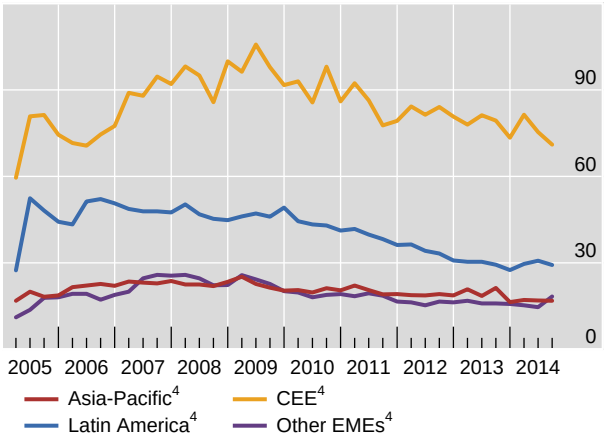
4.1. The role of international bank credit in EMEs

Overall, the role of international bank credit in EMEs has declined (Graph 5, left-hand panel). In Latin America, the median ratio of foreign bank credit (cross-border plus local bank credit by foreign banks) to domestic bank credit for the non-bank sector was around 50% in 2004. Since then, it has declined to roughly 30%. In central and eastern Europe, the same ratio dropped from 100% in 2009 to roughly 75% at the end of 2013. In some Latin American countries, foreign bank credit used to be of

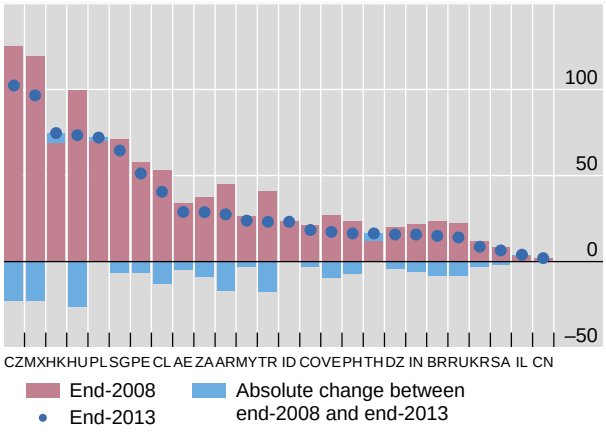
Cross-border and local claims by foreign banks to the private sector[1, 2]

As a percentage of domestic bank credit to non-financial private sector — Graph 5

By recipient region[3]



By recipient country



AE = United Arab Emirates; AR = Argentina; BR = Brazil; CEE = central and eastern Europe; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; DZ = Algeria; HK = Hong Kong SAR; HU = Hungary; ID = Indonesia; IL = Israel; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; SA = Saudi Arabia; SG = Singapore; TH = Thailand; TR = Turkey; VE = Venezuela; ZA = South Africa.

[1] Outstanding foreign claims on the non-bank private sector on an ultimate borrower basis. Foreign claims comprise international claims (cross-border claims in all currencies and local claims of foreign bank offices in foreign currencies) and local claims of foreign bank offices in local currency. [2] Data from all the BIS consolidated reporting countries. [3] Median value of the region. [4] For a definition of the regions see the footnotes to Graph 4.

Sources: IMF, *International Financial Statistics*; national data; BIS consolidated banking statistics.

similar importance in the late 1990s, but by end-2013 the ratio was significantly below 50% in most countries (Graph 5, right-hand panel). Despite this decline, foreign credit remains an important funding source in many EMEs. In many emerging Asian economies, the relative importance of foreign bank has traditionally been smaller and has not changed dramatically over the last 10 years.

4.2. International bank business models and regionalisation

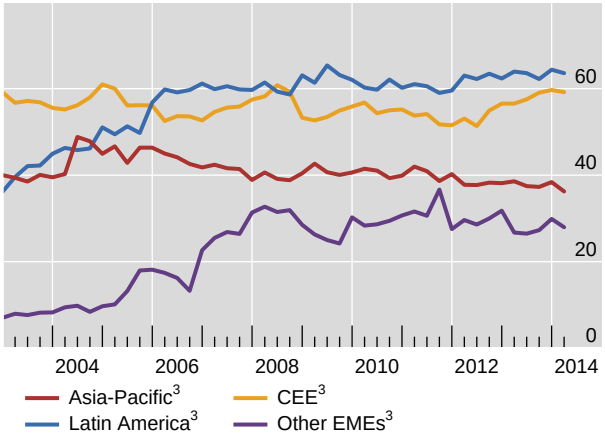
International banks' locally intermediated lending is considered to be less volatile than cross-border lending (García-Herrero and Martínez Pería (2007), McCauley et al (2012)). Already prior to 2008, a gradual new trend toward more localised banking models had emerged (intermediation through local offices, branches and subsidiaries).

This trend continued after 2008, except in emerging Asia. The trend is most visible in Latin America: from 2004 to 2013, the ratio of claims denominated in local currency from local offices in total foreign bank claims rose from about 45% to over 60% (Graph 6, left-hand panel). In central and eastern Europe, the same ratio declined slightly after 2008, but has since recovered to around 60% for the median country. In emerging Asian economies, it has generally not increased since 2008 (Graph 6, right-hand panel).

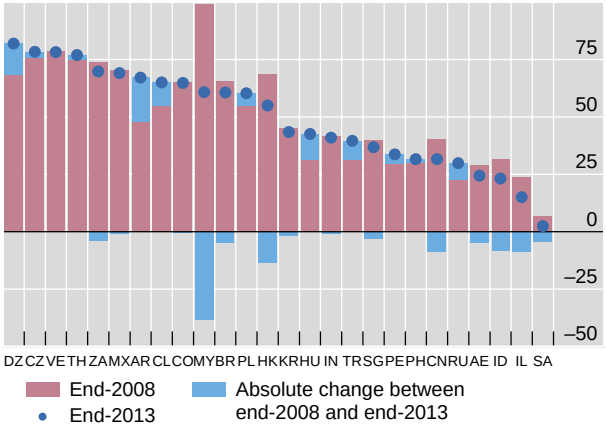
Channels of foreign bank intermediation

As a percentage of total foreign claims[1, 2] — Graph 6

Local claims of foreign bank offices in local currency by counterparty region[2]



Local claims of foreign bank offices in local currency by counterparty country[2]



AE = United Arab Emirates; AR = Argentina; BR = Brazil; CEE = central and eastern Europe; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; DZ = Algeria; HK = Hong Kong SAR; HU = Hungary; ID = Indonesia; IL = Israel; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; SA = Saudi Arabia; SG = Singapore; TH = Thailand; TR = Turkey; VE = Venezuela; ZA = South Africa.

[1] Outstanding foreign claims on an immediate borrower basis. Foreign claims comprise international claims (cross-border claims in all currencies and local claims of foreign bank offices in foreign currencies) and local claims of foreign bank offices in local currency. [2] Data aggregated across 26 BIS reporting countries which report local claims of foreign bank offices in local currency: Australia, Austria, Belgium, Brazil, Canada, Chinese Taipei, Denmark, Finland, France, Germany, Greece, India, Ireland, Italy, Japan, Korea, the Netherlands, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. [3] For a definition of the regions, see the footnotes to Graph 4.

Source: BIS consolidated banking statistics.

For the part of foreign bank credit that is locally intermediated, lending via subsidiaries appears to have been less volatile than that via branches during the financial crisis (Hoggarth et al (2013)). Since 2009, local intermediation is increasingly taking place through subsidiaries (Appendix Table A12), probably in response to the financial crisis. Local funding ratios are generally quite high for subsidiaries (Appendix Table A13). This helps to better insulate them from funding shocks to the parent bank. The subsidiary-based model clearly prevails in Latin America and most countries in central and eastern Europe (as well as in Turkey). In some emerging Asian countries, however, branches remain the prevalent form of local presence. This likely reflects more stringent regulation on branches in some countries.

Appendix

Banking sector assets: ownership

As a percentage of total assets — Table A1

	Private domestic			Foreign-owned			State-owned		
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China	17	24	29	2	2	2	65	60	52
Hong Kong	32	30	28	68	70	72			
India	19	20	21	7	8	7	74	72	73
Indonesia	41	40	43	13	13	13	41	39	36
Korea	52	47	48	6	12	9	23	22	24
Malaysia	72	70	69				7	7	7
The Philippines	75	76	77	14	11	10	11	13	13
Singapore	25	27	32	75	73	68			
Thailand	64	58	57	9	14	14	17	20	21
Latin America									
Argentina	31	31	28	29	28	28	39	39	43
Brazil[1]	33	37	35	19	18	15	44	43	48
Chile	44	44	49	40	38	34	16	16	16
Colombia	55	63	69	15	18	18	15	5	5
Mexico[2]	17	22	24	66	62	58	17	15	16
Peru	57	59	58	26	22	24	12	11	8
Central and eastern Europe									
Czech Republic[3]	0	0	1	97	97	95	3	3	4
Hungary	26	27	27	63	64	62	5	4	5
Poland	3	5	8	65	68	63	26	21	22
Other EMEs									
Algeria	3	0	0	4	11	14	93	89	86
Israel	99	98	98	1	2	2			
Russia	54	42	40	8	18	15	38	39	44
Saudi Arabia									
South Africa	94	70	74	6	27	26			
Turkey	58	53	51	4	15	19	38	32	31
United Arab Emirates	13	18	18	23	19	19	64	63	64

[1] For Brazil, figures on state-owned banking corporations include development banks. The percentage shares of development banks' assets in total banking sector assets were 12.6%, 13% and 13.6% in 2004, 2009 and 2013, respectively. [2] For Mexico, figures on state-owned banking corporations include only development banks. [3] For Czech Republic, 2013 figure on private domestic banking corporations and figures on state-owned banking corporations are confidential.

Source: BIS questionnaire.

Banking sector assets and liabilities: main categories

As a percentage of total assets — Table A2

	Assets								
	Cash and deposits with central bank			Credit (debt securities and loans)					
				Total			Of which loans		
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China		14	14		72	64	60	54	51
Hong Kong	3	5	3	51	54	61	30	31	38
India	6	6	4	75	72	75	36	48	52
Indonesia	18	18	12	78	77	76	44	57	66
Korea	2	2	2	62	58	60	45	45	48
Malaysia	13	12	9	70	62	64	59	50	52
The Philippines	8	14	26		72	67		48	48
Singapore	1	1	2	40	49	59	27	34	48
Thailand	2	2	2	77	75	77	65	62	65
Latin America									
Argentina	14	18	20	56	66	72	30	44	57
Brazil[1]	9	5	8	64	65	64	38	47	48
Chile	5	6	6	68	71	67	51	57	58
Colombia	5	6	6			69	44	52	55
Mexico[2]		7	6		66	64	37	37	41
Peru	19	16	20	61	57	59	46	46	53
Central and eastern Europe									
Czech Republic	17	10	13	90	89	91	68	70	71
Hungary[3]	7	3	4	65	69	76	50	47	46
Poland	4	5	4	79	85	86	58	66	65
Other EMEs									
Algeria	25	37	30	57	50	58	39	41	50
Israel	4	11	11	71	69	81	62	59	68
Russia	4	4	4	73	79	81	63	67	70
Saudi Arabia							49	52	56
South Africa	2	2	2	85	81	91	78	76	85
Turkey	7	7	12	72	75	75	32	43	58
United Arab Emirates	9	9	10	72	74	66	64	68	60

[1] For Brazil, holdings of cash and deposits with central bank and holdings of debt securities by development banks are excluded. [2] For Mexico, development banks are excluded. Bank loans include transfers to deposit insurance scheme (IPAB). [3] For Hungary, total bank loans do not include loans to non-residents.

Source: BIS questionnaire.

Banking sector assets and liabilities: main categories

As a percentage of total assets — Table A2 (cont)

	Deposits								
	Total			Corporate			Retail		
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China									
Hong Kong	54	60	54						
India	80	77	75	14	19	16	47	45	44
Indonesia	76	78	74	18	20	23	47	47	42
Korea	40	33	41	13	15	18	23	15	19
Malaysia	76	68	65	37	36	34	30	24	23
The Philippines	62	70	71	11	24	33	51	46	38
Singapore	36	44	44	11	14	15	10	12	13
Thailand	70	65	65	13	13	16	49	44	40
Latin America									
Argentina	39	51	54	19	25	27	20	26	27
Brazil									
Chile	56	57	57	35	36	36	18	12	12
Colombia	56	57	58	22	32	34	21	14	13
Mexico[1]	58	51	51	31	28	30	27	23	21
Peru	59	52	54	21	24	22	28	20	26
Central and eastern Europe									
Czech Republic	61	56	54	21	18	19	40	38	35
Hungary	50	40	46	17	13	20	31	22	22
Poland	56	55	57	17	19	18	39	36	38
Other EMEs									
Algeria	64	63	68	64	39	42		24	26
Israel	77	80	82				48	41	40
Russia	61	58	61				28	25	30
Saudi Arabia	74	72	76	23	21	20	51	51	56
South Africa	74	74	72	40	46	46	20	17	18
Turkey	47	43	36				39	37	29
United Arab Emirates	65	63	60	22	28	29	25	18	23

[1] For Mexico, development banks are excluded.

Source: BIS questionnaire.

Banking sector assets and liabilities: main categories

As a percentage of total assets — Table A2 (cont)

	Other liabilities (non-core financing)						Equity		
	Total non-core financing			Of which bond financing					
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China				5	6	7	4	6	7
Hong Kong	42	36	42	4	1	6	4	4	4
India	14	16	18				6	7	7
Indonesia	13	11	13	2	1	1	11	11	13
Korea	54	61	51	7	8	6	6	6	8
Malaysia	16	21	25	0	2	2	8	11	11
The Philippines	25	19	18	1	3	4	13	11	11
Singapore	60	51	51	2	2	4	4	5	5
Thailand	19	22	23		8	4	11	13	12
Latin America									
Argentina	50	36	34				11	12	12
Brazil						21	11	11	9
Chile	36	36	35	5	9	13	8	7	8
Colombia	38	36	33				6	7	9
Mexico[1]	34	38	39		7	6	8	11	10
Peru	30	39	36	4	3	2	11	10	10
Central and eastern Europe									
Czech Republic	29	33	34		6	6	11	11	12
Hungary	41	52	44	10	11	10	9	8	10
Poland	36	37	33	1	1	2	8	9	10
Other EMEs									
Algeria	32	31	25				4	6	7
Israel	16	14	12	1	5	8	7	6	6
Russia	26	26	27	1	2	3	13	16	12
Saudi Arabia	16	14	11				10	13	13
South Africa	17	20	20	2	4	6	8	7	8
Turkey	41	45	54				13	12	11
United Arab Emirates	25	22	27				10	15	13

[1] For Mexico, development banks are excluded.

Source: BIS questionnaire.

Banking sector assets: outstanding credit by recipient sector

As a percentage of total bank credit[1] Table A3

	Households			Non-financial corporations			Public sector			Non-residents		
	2004	2009	2013	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia												
China					50	49						
Hong Kong	21	16	13							33	39	37
India	17	21	27				53	44	40	0	0	0
Indonesia	24	34	39	27	30	37	46	34	21	1	1	1
Korea	32	29	31	41	46	48	17	13	11			
Malaysia	44	44	45	42	37	37	8	14	12	0	2	4
The Philippines		9	12		24	34		32	29		13	7
Singapore	18	15	17	16	16	23				45	48	44
Thailand	38	44	47	46	36	32	12	16	17	2	2	3
Latin America												
Argentina	16	28	34	21	32	36	61	40	30	1	0	0
Brazil[2]	24	32	34	33	39	40	39	24	20	1	1	1
Chile	33	36	38	41	44	46	14	12	6	2	2	2
Colombia			33			39			23			3
Mexico[3]		21	24		39	40		36	32		1	1
Peru	17	23	25	58	58	62	15	15	9	2	1	0
Central and eastern Europe												
Czech Republic	13	26	25	20	21	19	47	33	37	17	15	14
Hungary	27	33	29	46	33	29	21	29	38			
Poland	26	47	46	28	23	21	30	26	28	17	4	3
Other EMEs												
Algeria	0	7	6		78	81	31	15	13	0	0	0
Israel	28	35	39	50	43	36	12	12	13	9	10	11
Russia	10	15	21	64	54	45	11	7	4	8	15	13
Saudi Arabia												
South Africa		42	38		31	27		8	6		8	18
Turkey	13	21	26	30	35	50	56	42	22	2	2	1
United Arab Emirates	7	6	7	55	61	51	14	16	24	22	9	11

[1] Total bank credit = loans + debt security holdings by banks. [2] For Brazil, holdings of debt securities by development banks are excluded. [3] For Mexico, development banks are excluded. Public sector loans include transfers to deposit insurance scheme (IPAB).

Source: BIS questionnaire.

Banking sector assets: holdings of debt securities and other financial instruments

As a percentage of total assets — Table A4

	Total holdings of debt securities and other financial instruments[1]			Holdings of private debt securities			Holdings of government or central bank debt securities		
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China					9	9		10	5
Hong Kong	20	23	23	15	14	15	5	9	8
India	41	28	27	5	2	2	33	22	21
Indonesia	33	20	10	2	2	2	31	19	8
Korea	17	14	12	8	7	6	9	6	5
Malaysia	37	32	33	5	5	5	5	8	7
The Philippines		25	20		5	4		18	14
Singapore	15	17	13	10	10	6	4	5	4
Thailand	12	13	13	6	4	3	7	8	9
Latin America									
Argentina	25	22	16	2	2	2	23	20	14
Brazil[2]	27	18	17	3	4	6	23	14	11
Chile	17	14	10	8	6	6	9	8	4
Colombia			14			2			13
Mexico[3]		29	23		11	9		18	14
Peru	15	10	6	6	2	1	9	9	5
Central and eastern Europe									
Czech Republic	23	21	22	9	8	6	13	12	14
Hungary	28	37	34	4	3	4	11	19	26
Poland	21	19	21	1	1	2	20	18	19
Other EMEs									
Algeria	18	9	8	0	1	0	17	7	8
Israel	23	19	19	2	4	3	7	7	9
Russia	10	11	11	3	7	9	7	4	2
Saudi Arabia									
South Africa	24	19	18	2	1	1	5	5	5
Turkey	80	63	33	1	1	1	39	31	16
United Arab Emirates	8	6	6	7	4	4	1	2	2

[1] Excludes cash holdings and deposits with central bank. [2] For Brazil, holdings of debt securities by development banks are excluded. [3] For Mexico, development banks are excluded.

Source: BIS questionnaire.

Banking sector assets: loans by recipient sector

As a percentage of total loans — Table A5

	Households			Non-financial corporations			Public sector			Non-residents		
	2004	2009	2013	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia												
China					65	57						
Hong Kong	35	28	20	45	46	43				11	20	30
India	36	31	39	41	38	35	17	19	18	0	0	0
Indonesia	42	47	45	47	41	42	10	12	12	1	0	0
Korea	45	38	38	47	50	52	2	2	2			
Malaysia	51	54	55	43	39	37	1	2	2	1	2	3
The Philippines		14	17		34	44		10	11		12	4
Singapore	27	22	21	20	21	25				36	40	44
Thailand	45	53	56	49	40	36	4	6	5	2	2	3
Latin America												
Argentina	30	42	43	33	43	43	36	14	14	2	1	0
Brazil	41	45	47	54	51	48	4	3	4	1	1	1
Chile	44	45	45	54	54	53	1	1	1	1	1	1
Colombia	43	42	42	48	50	49	8	7	5	1	1	4
Mexico[1]	27	37	38	36	46	46	36	15	15	1	2	1
Peru	23	28	29	76	71	70	1	0	0	0	0	0
Central and eastern Europe												
Czech Republic	18	33	32	26	27	23	43	25	29	13	15	16
Hungary	36	49	48	60	48	47	5	3	5			
Poland	35	60	61	37	30	27	7	6	8	22	4	4
Other EMEs												
Algeria	0	9	7	100	91	93	0	0	0	0	0	0
Israel	33	41	47	57	49	42	3	3	2	7	7	9
Russia	12	18	25	72	59	50	1	1	2	7	14	13
Saudi Arabia	35	25	30	54	69	65	9	4	4	3	2	1
South Africa		45	41		33	28		2	1		9	18
Turkey	28	36	34	66	60	64	3	2	1	3	2	1
United Arab Emirates	8	6	8	62	66	56	15	15	23	14	6	8

[1] For Mexico, development banks are excluded. Public sector loans include transfers to deposit insurance scheme (IPAB).

Source: BIS questionnaire.

Banking sector assets: currency composition by categories

Percentage share in foreign currency — Table A6

	Loans			Debt securities			Mortgages		
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China	6	6	6						
Hong Kong	23	27	44	63	65	73	0	0	0
India									
Indonesia	22	15	17	5	5	13	35	65	22
Korea	7	9	7	5	6	4			
Malaysia	3	2	4		3	8			
Philippines		21	15		47	44			
Singapore	49	55	60						
Thailand	7	3	6		0	0	0	0	0
Latin America									
Argentina	11	13	4	25	17	12	2	5	2
Brazil[1]	13	8	8	7	6	7	2	0	0
Chile	12	12	14	17	3	6	0	0	0
Colombia	6	4	9			1	0	0	0
Mexico[2]	12	11	12			0		0	0
Peru	75	51	46	44	26	30	93	57	39
Central and eastern Europe									
Czech Republic	17	17	19	18	13	15	6	2	0
Hungary	31	61	52	4	12	9	8	75	62
Poland	34	34	30	6	4	5	57	65	50
Other EMEs									
Algeria	0	0	0	0	0	0		0	0
Israel	29	18	17	24	29	20			3
Russia	30	30	23	30	19	18	45	20	4
Saudi Arabia	13	11	6						
South Africa			10			9		0	0
Turkey	40	32	33	34	19	18	0	0	0
United Arab Emirates							32	9	8

[1] For Brazil, holdings of debt securities by development banks are excluded. [2] For Mexico, development banks are excluded. Bank loans include transfers to deposit insurance scheme (IPAB).

Source: BIS questionnaire.

Banking sector assets: loans by recipients – currency composition

Percentage share in foreign currency — Table A7

	Domestic households			Non-financial corporations			Domestic government and public sector corporations			Non-residents		
	2004	2009	2013	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia												
China												
Hong Kong	3	3	5	21	22	41				85	73	75
India												
Indonesia	1	1	2	40	27	30	18	23	30	94	82	87
Korea												
Malaysia			0	5	3	7	63	1	0	40	38	47
The Philippines		1	1		17	18		2	1		100	99
Singapore												
Thailand	0	0	0	9	6	11	5	0	2	92	59	70
Latin America												
Argentina	5	3	1	19	26	9	4	0	0	100	100	100
Brazil			1	21	14	13			1	100	100	100
Chile	0	0	0	19	20	24	16	25	73	93	97	100
Colombia	0	0	0	10	7	13	5	1	4	37	37	46
Mexico[1]	3	1	0	28	19	22	1	9	8	99	56	91
Peru	61	37	34	80	57	51	10	33	4	100	57	77
Central and eastern Europe												
Czech Republic	0	0	0	19	19	22	7	7	6	70	67	78
Hungary	13	66	54	43	58	50	22	24	55			
Poland	24	37	32	24	25	25	6	9	17	75	83	80
Other EMEs												
Algeria	0	0	0	0	0	0	0	0	0			
Israel	4	3	2	35	20	15	15	8	0	100	100	100
Russia	16	11	2	27	25	19	2	0	0	89	81	81
Saudi Arabia							21	32	14	100	79	71
South Africa			0			3			2			47
Turkey	3	2	0	51	47	49	100	55	57	93	80	81
United Arab Emirates												

[1] For Mexico, development banks are excluded. Public sector loans include transfers to deposit insurance scheme (IPAB).

Source: BIS questionnaire.

Banking sector: leverage, asset growth and loan-to-deposit ratio

Table A8

	Asset-to-equity ratio			Change in assets[1]		Loan-to-deposit ratio[1]		
	2004	2009	2013	2009/04	2013/09	2004	2009	2013
Emerging Asia								
China	25	18	15	152	90			
Hong Kong	26	27	25	49	59	56	52	70
India	17	14	14	165	83	46	62	70
Indonesia	9	9	8	99	96	58	73	90
Korea	18	16	13	73	10	111	136	117
Malaysia	12	9	9	81	50	78	73	81
The Philippines	8	9	9	54	61		69	68
Singapore	24	22	21	40	29	74	77	108
Thailand	9	8	8	41	61	93	95	99
Latin America								
Argentina	9	8	8	82	159	78	86	105
Brazil	9	9	11	127	91			
Chile	13	14	12	92	55	91	100	102
Colombia	16	14	11	102	82	77	90	95
Mexico[2]	12	9	10	69	40	63	72	79
Peru	9	10	10	146	68	78	90	97
Central and eastern Europe								
Czech Republic	9	9	9	60	24	112	124	131
Hungary	11	12	10	103	–9	100	116	99
Poland	13	12	10	96	33	104	121	115
Other EMEs								
Algeria	23	16	14	90	41	61	65	73
Israel	14	16	16	30	17	81	74	83
Russia	8	6	8	314	95	103	116	116
Saudi Arabia	10	8	8	107	39	66	72	75
South Africa	12	15	13	109	29	105	103	117
Turkey	8	8	10	172	108	68	101	164
United Arab Emirates	10	7	8	247	36	99	108	100

[1] In per cent. [2] For Mexico, development banks are excluded. Bank loans include transfers to deposit insurance scheme (IPAB).

Source: BIS questionnaire.

Banking sector assets: residential mortgage loans

Table A9

	As a percentage of total assets			As a percentage of household loans		
	2004	2009	2013	2004	2009	2013
Emerging Asia						
China						
Hong Kong	9	7	6	81	77	72
India						
Indonesia	3	5	6	14	18	21
Korea	12	11	13	62	65	68
Malaysia	15	13	15	50	49	51
The Philippines		3	4		51	45
Singapore	5	5	8	67	73	76
Thailand	10	12	11	34	35	29
Latin America						
Argentina	4	5	4	47	26	18
Brazil	2	3	7	13	15	30
Chile	20	17	17	90	67	66
Colombia	10	8	8	54	37	35
Mexico[1]	4	7	8	44	51	49
Peru	6	7	9	57	53	62
Central and eastern Europe						
Czech Republic	10	19	18	81	82	78
Hungary	11	18	18	64	78	80
Poland	7	21	24	33	52	60
Other EMEs						
Algeria		2	3		57	89
Israel	15	17	22	73	68	69
Russia	0	3	5	3	28	27
Saudi Arabia		4	6		29	34
South Africa	23	26	22		77	63
Turkey	1	5	6	9	34	32
United Arab Emirates	2	10	8	44	229	176

[1] For Mexico, development banks are excluded.

Source: BIS questionnaire.

Banking sector assets: loans – contractual terms of interest rate charged

Table A10

	Fixed rate[1]			Variable rate[1]			Average contractual repricing interval[2]		
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China									
Hong Kong									
India									
Indonesia	23	22	22	75	77	77			
Korea			35			65			
Malaysia	87	70	50	14	30	50			
The Philippines								2.4	3.0
Singapore							0.9	0.6	0.5
Thailand									
Latin America									
Argentina			91			9			
Brazil	40	50	56	60	50	44			
Chile	76	77	81	24	23	19	2.8	3.2	3.5
Colombia									
Mexico		49	43		51	57		0.1	0.1
Peru									
Central and eastern Europe									
Czech Republic	22	26	32	78	74	68	2	2	2
Hungary							3	3	3
Poland	17	9	7	83	91	93			
Other EMEs									
Algeria	100	100	100	0	0	0			
Israel									
Russia									
Saudi Arabia									
South Africa									
Turkey	86	60	64	14	40	36		1	2
United Arab Emirates	100	100	100						

[1] As a share of total loans, in per cent. [2] Average maturity in years.

Source: BIS questionnaire.

Banking sector liabilities: deposits – contractual terms of interest rate paid

Table A11

	Fixed rate[1]			Variable rate[1]			Average contractual repricing interval[2]		
	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia									
China									
Hong Kong SAR	53	47	49	47	53	51			
India									
Indonesia	52	49	49	43	47	46	2.7	2.9	3.4
Korea			92			8	18.6	8.5	7.7
Malaysia	13	21	35	87	79	65	0.4	0.4	0.4
Philippines								0.6	1.4
Singapore	67	54	43	33	46	57	0.4	0.3	0.3
Thailand									
Latin America									
Argentina	95	98	100	5	2	0	0.1	0.1	0.1
Brazil			2			98			
Chile	100	100	100	0	0	0	0.6	0.4	0.4
Colombia									
Mexico	97	87	83	3	13	17	0.3	0.8	1.8
Peru									
Central and eastern Europe									
Czech Republic	49	45	33	51	55	67	0.6	0.5	0.6
Hungary							0.2	0.3	0.3
Poland	59	51	49	41	49	51			
Other EMEs									
Algeria	100	100	100	0	0	0			
Israel									
Russia									
Saudi Arabia									
South Africa									
Turkey	100	100	100	0	0	0	0.2	0.2	0.2
United Arab Emirates	100	100	100						

[1] As a share of total deposits, in per cent. [2] Average maturity in years.

Source: BIS questionnaire.

Banking sector assets: residential mortgage loans – contractual terms of interest rate charged

As a percentage of residential mortgage loans — Table A12

	Fixed interest rate			Variable interest rate		
	2004	2009	2013	2004	2009	2013
Emerging Asia						
China						
Hong Kong SAR	5	1	1	95	99	99
India						
Indonesia	2	1	5	99	99	95
Korea		5	26		95	75
Malaysia		29	28		72	72
Philippines						
Singapore	Minority	Minority	Minority	Majority	Majority	Majority
Thailand	0	0	0	100	100	100
Latin America						
Argentina			71			29
Brazil	100	100	100	0	0	0
Chile	70	80	86	30	20	14
Colombia	13	88	86	87	12	14
Mexico		96	96		4	4
Peru						
Central and eastern Europe						
Czech Republic	Majority	Majority	75	Minority	Minority	25
Hungary						
Poland	9	2	0	91	98	100
Other EMEs						
Algeria		100	100		0	0
Israel			25			75
Russia						
Saudi Arabia						
South Africa						
Turkey	100		100	0		0
United Arab Emirates						

Source: BIS questionnaire.

Banking sector assets: total assets and loans of foreign bank subsidiaries and branches

In per cent

Table A13

	Subsidiaries						Branches					
	Assets as a share of total foreign-owned banks' assets			Loans as a share of their total assets			Assets as a share of total foreign-owned banks' assets			Loans as a share of their total assets		
	2004	2009	2013	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia												
China		84	87		53	43		16	13		58	48
Hong Kong SAR	34	38	39	43	37	36	66	62	61	13	13	17
India	0	0	0				100	100	100	44	37	41
Indonesia	33	40	40	61	59	69	67	60	60	41	49	58
Korea	0	0	0				100	100	100	10	5	8
Malaysia				55	50	55						
The Philippines	12	14	14		47	49	88	86	86		41	42
Singapore	5	7	9	0	9	27	95	93	91	7	9	14
Thailand	12	33	35	72	67	67	88	67	65	61	62	56
Latin America												
Argentina	73	81	88	47	47	63	27	19	12	39	35	53
Brazil												
Chile	86	98	99	71	66	75	14	2	1	58	10	17
Colombia	100	100	100	57	60	66	0	0	0			
Mexico	100	100	100	39	38	42	0	0	0			
Peru	100	100	100	56	54	60	0	0	0			
Central and Eastern Europe												
The Czech Republic	90	88	90	58	63	61	10	12	10	59	39	51
Hungary	100	90	88	51	56	55	0	10	12		37	33
Poland	99	92	96	45	59	61	1	8	4	20	60	33
Other EMEs												
Algeria	59	81	76	95	52	51	41	19	24	19	23	36
Israel	0	29	38		77	70	100	71	62	56	24	28
Russia												
Saudi Arabia											81	56
South Africa	6	82	80	14	3	1	94	18	20	19	24	20
Turkey	86	98	99	47	59	60	14	2	1	7	14	10
United Arab Emirates												

Source: BIS questionnaire.

Banking sector assets and liabilities: loans and liabilities – currency composition

In per cent

Table A14

	Subsidiaries						Branches					
	Local currency loans as a share of total subsidiaries loans			Funding raised from local sources in local currency as a share of total liabilities			Local currency loans as a share of total branches loans			Funding raised from local sources in local currency as a share of total liabilities		
	2004	2009	2013	2004	2009	2013	2004	2009	2013	2004	2009	2013
Emerging Asia												
China		64	74					41	47			
Hong Kong	91	89	74	65	62	50	62	64	41	20	17	16
India										68	57	60
Indonesia	35	54	48	30	40	27	52	50	36	30	20	22
Korea							59	40	33	59	41	43
Malaysia	90	95	89	62	68	65						
The Philippines		66	81		57	70		87	91		37	38
Singapore				2	9	24				8	11	10
Thailand	96	97	88	95	68	73	62	90	75	63	66	41
Latin America												
Argentina	91	84	96	78	74	89	92	87	98	74	76	87
Brazil	80	93	90	80	87	83						
Chile	86	92	85	65	76	73	90	38	42	59	60	50
Colombia	92	95	94	98	97	97						
Mexico	89	89	87	63	56	54						
Peru	26	48	54	90	83	87						
Central and eastern Europe												
Czech Republic	92	93	93	71	73	69	92	80	86	40	43	50
Hungary	59	31	41	31	34	32		37	42	0	3	3
Poland	69	62	64	71	68	72	70	54	75	74	43	28
Other EMEs												
Algeria	100	100	100	54	63	69	100	100	100	56	59	75
Israel		100	100		97	99	36	31	34	39	51	49
Russia	59	85	87	49	54	66						
Saudi Arabia								91	90		38	55
South Africa			81			83			73			59
Turkey	66	74	83	34	37	47	0	67	60	60	17	19
United Arab Emirates										36	38	31

Source: BIS questionnaire.

References

Acharya, V and P Schnabl (2010): "Do global banks spread global imbalances? Asset-backed commercial paper during the financial crisis of 2007–09", *IMF Economic Review*, vol 58, no 1, pp 37–73.

Adrian, T, P Colla and H S Shin (2012): "Which financial frictions? Parsing the evidence from the financial crisis of 2007–9", *NBER Working Papers*, no 18335.

Adrian, T and H S Shin (2010a): "Liquidity and leverage", *Journal of Financial Intermediation*, vol 19, no 3, pp 418–37.

——— (2010b): "The changing nature of financial intermediation and the financial crisis of 2007–2009", *Annual Review of Economics*, vol 2, pp 603–17.

Avdjiev, S, Z Kuti and E Takáts (2012): "The euro area crisis and cross-border bank lending to emerging markets", *BIS Quarterly Review*, December, pp 37–47.

Basel Committee on Banking Supervision (2010): *"Guidance for national authorities operating the countercyclical capital buffer"*, December.

Basel Committee on Banking Supervision (2014): *Basel III: the net stable funding ratio*, October.

Bank for International Settlements (2014): *84th Annual Report*, Chapter IV, pp 65–83.

Borio, C and M Drehmann (2009): "Towards an operational framework for financial stability: 'fuzzy' measurement and its consequences", *BIS Working Papers*, no 284, June.

Borio, C and P Lowe (2002): "Assessing the risk of banking crises", *BIS Quarterly Review*, December, pp 43–54.

Drehmann, M and K Tsatsaronis (2014): "The credit-to-GDP gap and countercyclical capital buffers: questions and answers", *BIS Quarterly Review*, March, pp 55–73.

Drehmann, M, C Borio and K Tsatsaronis (2011): "Anchoring countercyclical capital buffers: the role of credit aggregates", *International Journal of Central Banking*, vol 7, no 4, pp 189–240.

Drehmann, M and M Juselius (2014): "Evaluating early warning indicators of banking crises: Satisfying policy requirements", *International Journal of Forecasting*, vol 30, no 3, 759-780.

García–Herrero, A and M S Martínez Pería (2007): "The mix of international banks' foreign claims: determinants and implications", *Journal of Banking and Finance*, vol 31, no 6, pp 1613–31.

Hahm, J-H, H S Shin and K Shin (2013): "Noncore bank liabilities and financial vulnerability", *Journal of Money, Credit and Banking*, vol 45, no 8, pp 3–36.

Hoggarth, G, J Hooley and Y Korniyenko (2013): "Which way do foreign branches sway? Evidence from the recent UK domestic credit cycle", *Bank of England Financial Stability Papers*, no 22.

Hong Kong Monetary Authority (2015): "Monetary Authority Announces Countercyclical Capital Buffer for Hong Kong", January, http://www.hkma.gov.hk/eng/key-information/press-releases/2015/20150127-4.shtml.

Lowe, P (2002): "Credit risk measurement and procyclicality", *BIS Working Papers*, no 116.

Ma, G and A Villar (2014): "Internationalisation of emerging market currencies", *BIS Papers*, no 78, August, pp 72–86.

McCauley, R, P McGuire and G von Peter (2012): "After the global financial crisis: From international to multinational banking?", *Journal of Economics and Business*, vol 64, no 1, January-February, pp 7–23.

Mohanty, M and P Turner (2008): "Monetary policy transmission in emerging market economies: what is new?", *BIS Papers*, no 35.

——— (2010): "Banks and financial intermediation in emerging Asia: reforms and new risks", *BIS Working Papers*, no 313.