International banks, new liquidity rules and monetary policy in EMEs

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1. Introduction

Globalisation has allowed emerging market economies to capitalise on their comparative advantage and reap rewards in terms of rapid economic development and rising living standards. Capital movements became more responsive to changes in saving and investment patterns globally. International banks have facilitated these capital flows, and in many countries have also transferred valuable banking technology and expertise.[2] However, the recent financial crisis has also revealed the vulnerability of the international financial system and of international banks. This has raised question about the impact of international banks on monetary policy choices and transmission in EMEs. The crisis has also led to the development of the first internationally agreed framework for measuring and monitoring bank liquidity, which could have important implications for international bank operations and monetary policy in EMEs.

To provide a background for the discussion of these issues, this paper discusses the impact of international banks' activities on the domestic financial system and monetary policy in emerging markets; how the new liquidity rules are likely to affect the operations of internationally active banks in emerging markets; and, in this light, how far banks in emerging markets might need to fund themselves by issuing long-term debt securities. The discussion is based on central bank papers and questionnaire responses prepared for this meeting.

We find that the differences between foreign and domestically owned banks in emerging markets have diminished over the past 15 years. International banks have significantly increased the lending provided from deposits collected locally in emerging markets. Their entry also seems to have improved competitiveness in local EME banking sectors. The new liquidity standards are expected to significantly strengthen EME banking system stability. In some cases, however, the new standards could result in lower cross-border and domestic bank lending in EMEs.

The paper is organised as follows. Section 2 discusses the impact of international banks on monetary policy choices and transmission mechanism in emerging markets. Section 3 discusses the likely implications of tighter liquidity rules for banks and monetary policy in EMEs. Section 4 looks at the need for domestic banks in EMEs to increase issuance of longer-term debt. Section 5 concludes.

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[1] The authors thank Stephen Cecchetti, William Coen, Dubravko Mihaljek, Philip Turner, Andrew Willis and Jingchun Zhang, and participants of the meeting for helpful comments. Emese Kuruc, Jimmy Shek and Agne Subelyte provided research assistance.

[2] Recent literature taking the perspective of advanced economies distinguishes between "international banks", ie those focusing on cross-border lending from head offices in developed countries to banks and the non-bank sector in emerging markets; and "multinational banks", ie foreign-headquartered banks mainly lending from local branches or subsidiaries in emerging markets (see McCauley et al (2010)). From the perspective of emerging market economies this distinction is less important than that between domestically owned and foreign-owned banks. Therefore, in this paper we shall use the term "international banks" to cover the activities of all foreign-owned banks operating in EMEs.

2. International banks and domestic monetary policy transmission

How has the increased role of international banks in emerging markets affected their domestic financial systems and monetary policy? This section aims to answer this question by looking at the role and key characteristics of international banks in emerging markets and considering their impact on monetary policy transmission.

2.1 The role of international banks

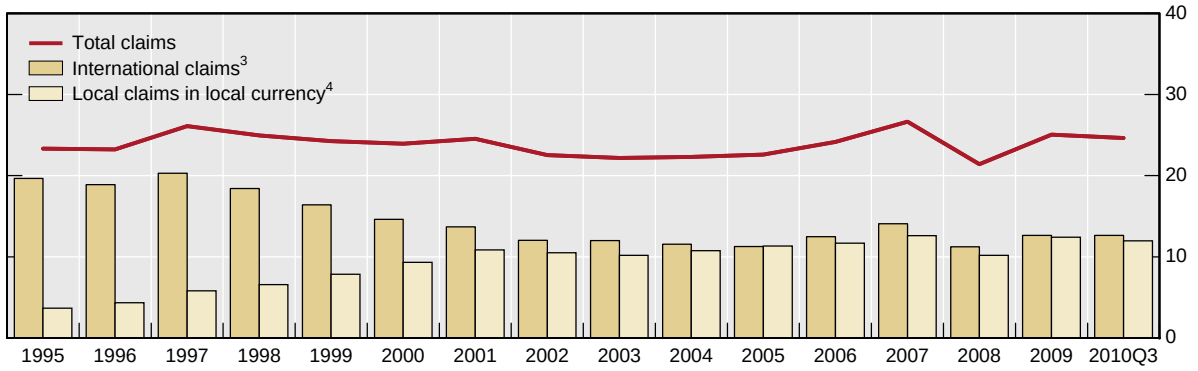
Globalisation has contributed to the rapid development of economic activity of EMEs, in which international banks have played an important role. International bank lending falls into two main categories: "international claims" (light brown bars in Graph 1), which capture lending of head offices and foreign currency lending of local subsidiaries and branches; and local claims in local currencies ("local-in-local" claims; beige bars in Graph 1), which capture local currency lending of foreign bank branches and subsidiaries in EMEs.

Measured in terms of GDP and total credit, the role of internationally active banks in EMEs has been fairly constant: international and local-in-local claims increased from around 23% to 25% of EMEs' GDP between 1995 and 2010 (Graph 1). This has primarily reflected strong GDP growth in emerging markets, as total claims of international banks on EMEs more than tripled over the period, from around $1.2 trillion in 1995 to $4 trillion in 2010. Domestic credit in EMEs increased even faster, so that the share of claims by international banks in total bank credit of EMEs declined from more than 40% in 1995 to less than 30% in 2010 (Graph A1 in the Appendix).

Graph 1

BIS reporting banks' consolidated lending to emerging market economies[1]

As a percentage of GDP[2]



[1] Consolidated emerging market positions of banks headquartered in 30 reporting countries. Data are not adjusted for exchange rate movements. Emerging market economies: Algeria, Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand, Turkey and Venezuela. [2] Annual GDP data on current prices. [3] International claims comprise consolidated cross-border claims in all currencies and local claims in foreign currencies. [4] Local claims in local currency comprise local currency claims of reporting banks' foreign offices with local residents.

Sources: BIS consolidated banking statistics on an immediate borrower basis; IMF, *World Economic Outlook.*

International bank lending fell sharply during the Asian crisis of 1997–98 and more recently during the global financial crisis in 2008–09 (Appendix Graph A2). In the recent financial crisis many emerging markets experienced substantial declines in cross-border lending even though the crisis did not originate in EMEs. This suggests the presence of some common

lender effects and, in particular, the supply constraints of international banks (Takáts (2010); Chui et al (2010)). However, there is also some evidence that the presence of foreign banks had stabilising effects on emerging markets during the crisis, especially in central and eastern Europe (EBRD (2010); Herrmann and Mihaljek (2010)).

Over the past 15 years, lending by international banks shifted in a major way from international claims to local-in-local claims. The share of local claims in local currencies increased from around one sixth in 1995 to around half of total lending of BIS reporting banks since 2005 (Graph 1). International banks' activity is thus more evenly balanced between foreign and domestic currency lending than in the past.

The composition of international bank lending differs across regions. Local-in-local claims have increased in all EME regions (Appendix Graph A3). Local-in-local claims have increased particularly fast in emerging Europe and Latin America. Relative to GDP, the growth has been slowest in emerging Asia, reflecting the rapid GDP growth in the region.

Developments in international claims have been even more diverse (Graph A4 in the Appendix). International claims have actually fallen relative to GDP in emerging Asia and Latin America, reflecting both economic growth and changes in international banks' business strategy. In Africa and the Middle East, international claims have developed in step with the regional economy. In emerging Europe, however, international claims have increased rapidly, roughly doubling relative to regional GDP, reflecting the strength of foreign bank lending funded mostly by parent banks after 2000.

Regional differences reflect not only the heterogeneity of EMEs but also that of internationally active banks. Some internationally active banks operate under centralised liquidity management, capital structure and lending activities (eg Deutsche Bank and UBS). Others operate in a more decentralised manner (eg BBVA and HSBC). Banks that operate under decentralised regimes are reported to be more similar to local banks, in the sense that they respond more to domestic than to international developments. They also seem to collect more local currency deposits and provide more local currency lending, so that they might be less liable to sudden stops in cross-border lending. In fact, some emerging market regulators and central banks do not see much difference between decentralised international and local banks. However, quantitative inferences seem to be hard to obtain as there is no consistent information on the distribution of international banks with different organisational structures across different EMEs.

It has been suggested that the volume of lending and, in particular, the stability of local-in-local claims, might also depend on the way international banks organise their international activities. However, the results of an unpublished BIS study cannot confirm that organisational form, ie branch vs subsidiary structure, is a major driver of the stability of local-in-local lending. One complicating factor is that regulations concerning branches and subsidiaries are quite dissimilar across EMEs. Branches in some countries are required to hold capital locally and do not differ significantly from subsidiaries in other countries.

2.2 Key characteristics of international banks

International banks' business models differ somewhat from those of local banks because they have different comparative advantages. First, international banks provide direct cross-border loans from their head offices to individual emerging markets mostly in foreign currencies (Appendix Graph A2).

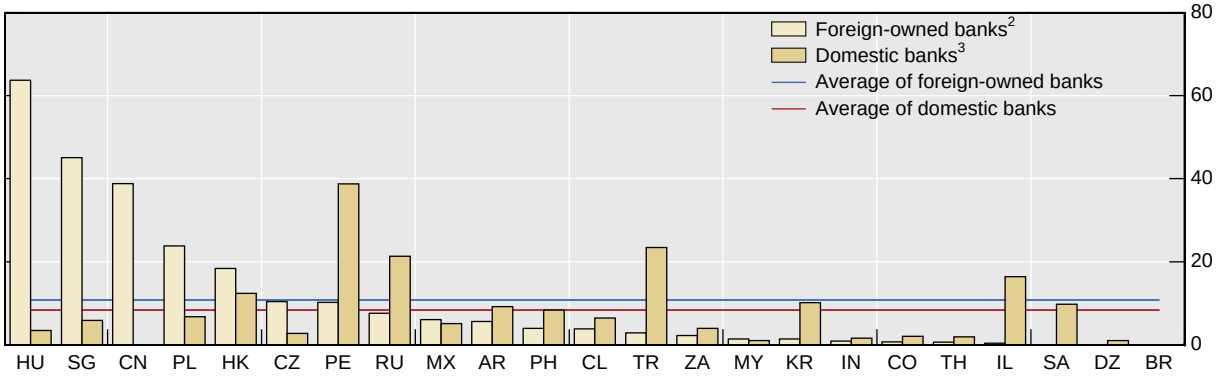
Second, international banks also operate locally in emerging markets. Because of parent banks' comparative advantage in accessing international credit markets, local offices of foreign banks might be expected to provide more foreign currency loans than domestically owned banks in EMEs. As shown in Graph 2, this is the case in a few emerging markets, in particular Hungary and Poland. Though foreign currency lending is present in Hong Kong SAR and Singapore, these financial centres are special cases, as foreign currency loans

provided by local offices of foreign banks are mostly provided to other foreign clients rather than the local economy. Foreign currency lending by foreign-owned banks is also higher than that of domestically owned banks in the Czech Republic and Mexico, but in both countries the share of FX lending in total credit is low.

The actual volume of foreign currency lending, and thus the impact on monetary policy, also depends on the relative size of foreign banks. On this measure, foreign banks in our sample of countries provide on average marginally more foreign currency loans than domestic banks (Graph 2). However, this is largely due to the four outliers noted above. In many EMEs, local offices of foreign banks provide hardly any FX loans; in other cases (eg Argentina, Peru, the Philippines, Russia, Turkey), they provide between 5–10% of total loans only.

Graph 2

Foreign currency lending claims in emerging market economies[1]



AR = Argentina; BR = Brazil; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; DZ = Algeria; HK = Hong Kong SAR; HU = Hungary; 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; ZA = South Africa.

[1] Share of FX lending by foreign and domestic banks in their total lending in the host economy, in per cent. Reference dates differ across economies (from Mar 2009 to Dec 2010). Definitions are according to the central bank's classifications. [2] Share of foreign bank FX lending in total (domestic and foreign) bank lending. In the case of China the total means total foreign bank lending. [3] Share of domestic bank FX lending in total (domestic and foreign) bank lending. Data are not available for China.

Sources: BIS questionnaire; BIS calculations.

In some countries there might be an additional channel through which foreign banks affect the level of FX lending – in a competitive environment, foreign banks may lead in the provision of FX loans and domestic banks may feel obliged to follow in order to keep their market shares. For instance, Király et al (2008) provide some evidence that foreign banks in Hungary competed more by offering higher-risk products such as foreign currency loans, than by offering lower interest rates. Domestic banks followed this approach and expanded their own foreign currency lending. This implies that, even if the observed differences between foreign and domestic banks in terms of FX lending are small, the presence of foreign banks may have raised the overall level of FX loans in some countries.[3]

[3] More detailed empirical investigations are inconclusive. Basso et al (2007) and Luca and Petrova (2008) found that banks with better access to foreign currency funding tended to lend more in foreign currency. However, Haiss et al (2009) and Brown and de Haas (2010) found that foreign bank presence did not affect foreign currency lending after controlling for relevant macroeconomic and industry factors.

One should note that the presence of foreign currency lending is probably more related to economic policy and regulation than to the presence of foreign banks. In particular, managing exchange rates or dampening exchange rate volatility in the presence of free capital flows might contribute to higher foreign currency lending.

There are also other differences between international and domestic banks that are relevant for monetary policy in EMEs. Foreign banks are often seen as less likely to fund small, informationally opaque firms (Brown et al (2010)). This could in principle affect the efficiency of the banking sector and the growth potential of the economy. However, evidence on this effect is mixed. De Oliveira (2008) shows that lending to large firms in Brazil declined much less than lending to small firms during the latest crisis, both for domestic and foreign-owned banks. However, the discrepancy seems to be explained mainly by easier access of large firms to credit from the national development bank (BNDES).

One should note that foreign as well as domestic banks evolve and change over time. On theoretical grounds one would expect that many differences, especially in know-how and expertise, would fade as domestic banks develop. In other words, ownership may have become less important for lending decisions. Comparing the evidence from past BIS questionnaires (from 1999 and 2004; see Mihaljek (2006)) and the questionnaire prepared for this meeting suggests that the differences between foreign and domestic banks are indeed becoming smaller. Domestic and foreign banks allocate credit more similarly across corporate, household and government sectors today than they did five or 10 years ago (Graph 3 and Appendix Graphs A5 and A6).

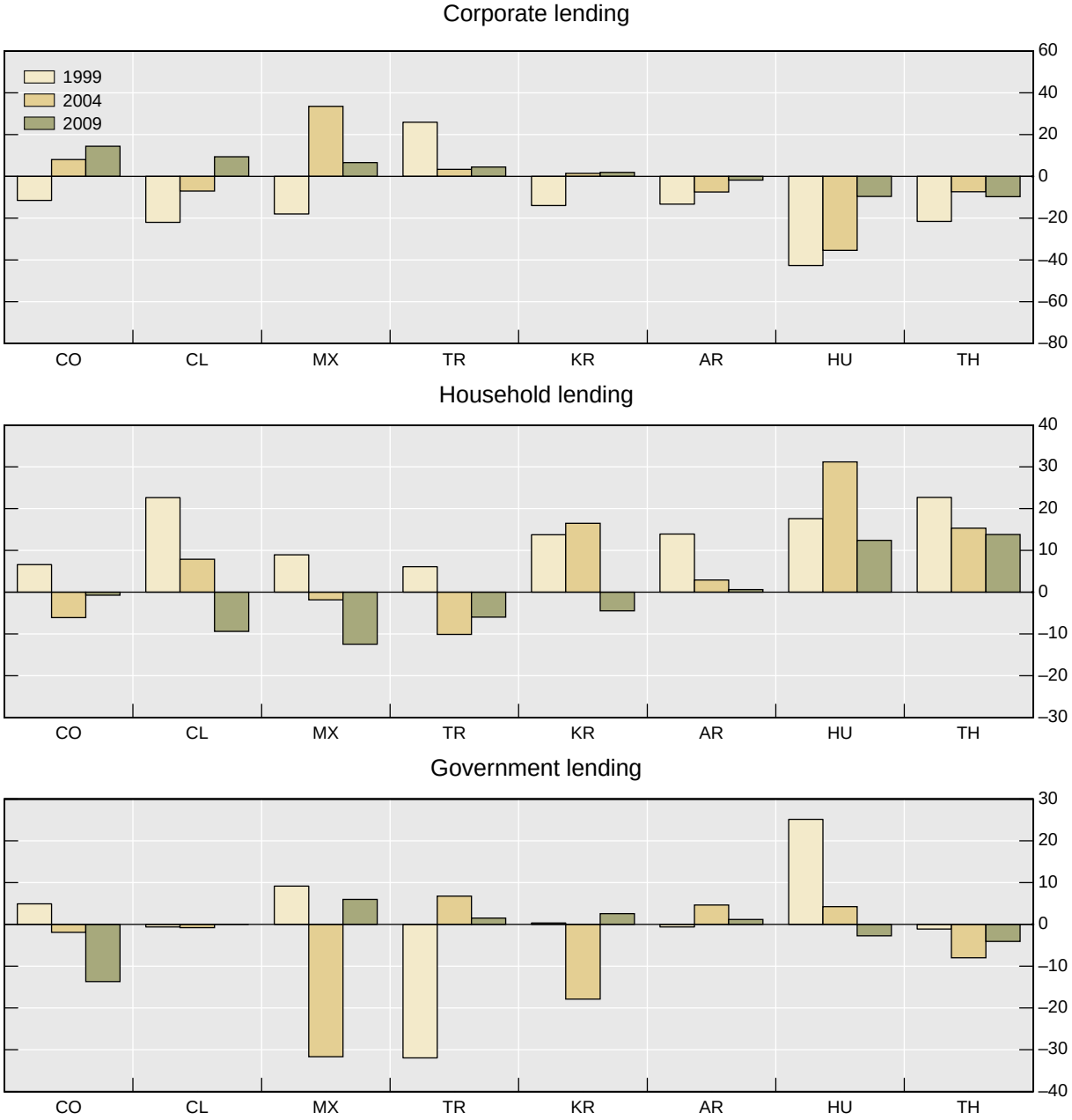
Finally, international banks seem to have intensified competition in the EMEs' banking industry. Two main channels could have played a role. First, the entry of international banks as new market participants intensified competition. Furthermore, the privatisation and selling of former state-owned banks to internationally active banks has improved competitiveness in the banking sector (Mihaljek (2006)). The Bank of Korea highlights the contribution of foreign banks to the development of the economy via more efficient resource allocation. Banai et al (2010) note that increasing foreign bank presence together with bank privatisations improved the functioning of the banking sector in Hungary. Even in markets where the volume of international banking activity remained subdued, such as trade finance and FX derivatives, foreign-owned banks have played a relatively large role in improving competitiveness.

The second channel worked through the transfer of know-how and banking expertise and was particularly relevant at the early stage of development in emerging markets. It was, for instance, an important goal of the first wave of privatisations in many EMEs (Hawkins and Mihaljek (2001)). An interesting question is whether this largely positive role of international banks in diffusing information will be re-evaluated after the financial crisis. On the one hand, the emerging market banks have acquired substantial know-how and are better placed to understand local market characteristics. This would imply that international banks' initial advantage is on the decline and might become less important in the future. On the other hand, financial markets in most EMEs still lag behind advanced economies. As rapid economic growth requires commensurate development of financial services, the constantly evolving expertise of international banks will continue to be useful to EMEs.

Graph 3

Distribution of lending by sector

Difference between domestic and foreign-owned banks, in percentage points[1]



AR = Argentina; CL = Chile; CO = Colombia; HU = Hungary; KR = Korea; MX = Mexico, TH = Thailand; TR = Turkey.

[1] Difference between the share of corporate/household/ government loans in total loans for private domestic and foreign-owned banks. Positive number means that the share of the corporate/household/government loans is higher for private domestic banks than for foreign-owned banks; negative number means that a given share is higher for foreign-owned banks. Reference dates differ across economies (from Dec 2009 to Nov 2010). Definitions are according to the central bank's classifications. Government lending data are not available for Chile for 2009.

Sources: BIS questionnaire; BIS calculations.

2.3 Monetary policy transmission

The substantial role of foreign banks seems to affect three main channels of monetary transmission: the interest rate, the exchange rate and the credit (or bank lending) channel. The other two channels identified in the literature – the asset price and the expectations channels – are not explicitly discussed in this section. Given that there is little empirical evidence for the relative importance of different transmission channels in EMEs, this section focuses on the qualitative effects identified in the literature and central bank practice.

Interest rate channel. All three major characteristics of internationally active banks could in principle affect the interest rate channel. First, cross-border lending in foreign currencies does not respond directly to domestic monetary policy. Normally, changes in the policy rate affect the term structure of interest rates and ultimately the real economy. However, cross-border lending may not respond to the domestic policy rate, but rather it may be affected by international financing conditions. In fact, higher domestic rates might increase the demand for cross-border loans.

In this regard, the Central Bank of the Republic of Turkey argues that higher reserve requirements together with tighter macroprudential policies can be used alongside lower interest rates to simultaneously curb capital inflows and limit domestic credit expansion. In a sense, the policy followed by the Central Bank suggests that the interest rate channel might work differently when substantial capital inflows (and cross-border lending) are present.

Second, foreign currency lending might also weaken the interest rate channel, as noted by the Magyar Nemzeti Bank. As the reference rate for foreign currency loans is not the local policy rate, but rather the foreign policy rate plus the country risk premium, monetary policy tightening might even lead to additional FX lending through larger interest rate differentials. This would in turn weaken the interest rate channel of monetary transmission.

Third, more competitive banking sectors should improve the efficiency of the interest rate channel – in more competitive markets, the oligopolistic mark-ups are generally smaller. This implies that changes in costs should be transmitted to lending and deposit rates faster in those EMEs where the presence of foreign-owned banks is larger.

In summary, the impact of international banks on the interest rate channel is ambiguous. Some arguments suggest that the impact of changes in policy rates on economy-wide interest rates is stronger when foreign banks are present, while others suggest the opposite. The net effect will depend on the individual characteristics of each economy.

Exchange rate channel. Foreign currency lending is also likely to weaken the exchange rate channel of monetary policy. Monetary easing usually depreciates the exchange rate through uncovered interest rate parity. Depreciation stimulates the export sector through increased external competitiveness. Though clearly important, the expansionary effect of depreciation is hard to quantify empirically because many EME exports have high import content, and because large depreciations usually coincide with economic crises and financial turmoil. Furthermore, the existence of large unhedged FX positions in the corporate and household sectors can partially reverse the positive effect of currency depreciation, as the rising domestic currency value of FX loans leads to financial losses on the balance sheets of firms and households. Foreign currency debt and interest payments measured in domestic currency also increase immediately, reducing the funds available for consumption and investment.

The exchange rate channel is discussed in the contributions to this volume by the central banks of Colombia, Hungary, Peru and Poland. In Hungary and Poland, the large volume of foreign currency mortgages is important for monetary policy because depreciation has a negative impact on the balance sheets of households. The National Bank of Poland notes that the balance sheet effect could even reverse the expansionary effect of monetary easing if accompanied by the weaker zloty. The balance sheet effect is also discussed by the Bank of Korea. By contrast, the absence of currency mismatches in Colombia facilitates large exchange rate adjustments.

Furthermore, exchange rate depreciation might adversely affect the liquidity position of the banking sector. Banks, unlike households and corporations, usually hedge their foreign currency positions in the FX derivatives markets. When the currency depreciates, margin calls on some derivative products reduce the FX liquidity of banks and may therefore lead to lower lending to the economy, as happened for instance in Hungary in late 2008.

Credit channel. The separate credit (or bank lending) channel operates through the non-price elements of bank lending. There is evidence that during the financial crisis the supply constraints of major international banks adversely affected lending to emerging markets (Cetorelli and Goldberg (2008 and 2009); Takáts (2010) and Chui et al (2010)). However, there is also evidence that the presence of foreign-owned banks helped to stabilise cross-border lending to EMEs (EBRD (2010); Herrmann and Mihaljek (2010)). Still, policymakers may need to consider international banks as a separate credit channel that does not entirely respond to domestic regulatory policies.

3. Liquidity rules and internationally active banks

This section discusses the potential impact of new bank liquidity standards agreed by the Basel Committee on Banking Supervision (2010) on bank operations and monetary policy frameworks in EMEs. The aim of the new standards is to strengthen global liquidity regulations and thus promote a more resilient banking sector (Box 1). They are expected to significantly improve the banking sector's ability to absorb shocks arising from financial and economic stress, thereby reducing the risk of spillovers from the financial sector to the real economy. Recent discussions have also indicated that the new liquidity standards might lead to some reduction in and a simultaneous redistribution of claims in the portfolios of internationally active banks. However, these potential downsides have to be weighed against improvements in bank liquidity buffers and risk management that the new liquidity standards are likely to bring. Separately, the ongoing rise in other capital flows to EMEs and the positive reassessment of emerging market country risk will further mitigate the potentially negative implications of new liquidity rules on credit supply. To some extent, the impact on EMEs will also depend on the manner in which the agreed framework will be implemented at global and national levels.

This section starts with a discussion of business models of banks in EMEs and the liquidity risk (Section 3.1). Next we discuss the main concerns raised by the new internationally agreed liquidity standards (Section 3.2). Finally, we consider the potential impact of new liquidity rules on monetary policy in EMEs (Section 3.3).

3.1 Banks' business model and liquidity: what are the risks?

The current business model of banks is well known. Banks operate the payment system and extend credit to business, households, government and, to a lesser extent, other financial institutions. Their role in the credit market gives them the power to decide for themselves the size of their balance sheet subject to regulatory capital. Jointly with the size of their balance sheet, banks decide on the liability management strategy that encompasses different types of domestic and foreign borrowing and issuance of deposits, securities or equity to finance their activities. To maximise their profits, banks would consider the alternative with the lowest financial cost, although arbitrage should equalise the risk-adjusted return of each source of funding.

Box 1

The internationally agreed liquidity framework

Issued in December 2010 by the Basel Committee on Banking Supervision, the *Basel III: International framework for liquidity risk measurement, standards and monitoring* document presents the details of global regulatory standards on bank liquidity as agreed by the Governors and Heads of Supervision, and endorsed by the G20 Leaders in November 2010. This framework represents the first internationally agreed set of rules governing minimum liquidity requirements for banks. It rests on the earlier regulatory standard, the *Principles for sound liquidity risk management and supervision*, published in September 2008.

The new liquidity framework represents the liquidity portion of the Basel Committee's reforms to strengthen global capital and liquidity regulations with the goal of promoting a more resilient banking sector. The objective of the reforms is to improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spillover from the financial sector to the real economy.

The new liquidity framework has two separate but complementary objectives:

(i) The Liquidity Coverage Ratio (LCR) aims to ensure that a bank maintains an adequate level of unencumbered, high-quality liquid assets that can be converted into cash to meet its liquidity needs for a 30-calendar-day time horizon under a significantly severe liquidity stress scenario specified by supervisors. At a minimum, the stock of liquid assets should enable the bank to survive until Day 30 of the stress scenario, by which time it is assumed that appropriate corrective actions can be taken by management and/or supervisors, and/or the bank can be resolved in an orderly way.

(ii) The Net Stable Funding Ratio (NSFR) aims to promote more medium- and long-term funding of the assets and activities of banking organisations. It is structured to ensure that long-term assets are funded with at least a minimum amount of stable liabilities in relation to their liquidity risk profiles. The NSFR thus aims to limit over-reliance on short-term wholesale funding during times of buoyant market liquidity and to encourage better assessment of liquidity risk across all on- and off-balance sheet items. In addition, the NSFR approach offsets incentives for institutions to fund their stock of liquid assets with short-term funds that mature just outside the 30-day horizon for that standard.

The standards are expected to be reported from the start of 2012 and an observation period has been introduced in order to address unintended consequences. The LCR, including any revisions, will be introduced in 2015, and the NSFR, including any revisions, will become a minimum standard by 2018.

By its nature, the banking business model involves a number of risks. One is the risk of "overborrowing" or "overextension" and the possibility that banks can become insolvent. A second is liquidity risk. The exposure of banks to liquidity risk is inherent to their business: banks tend to invest in relatively illiquid assets (eg loans) because risk-adjusted returns on such assets are higher than those on liquid assets such as cash or central bank deposits. Another source of liquidity risk arises from maturity mismatch, the funding of longer-term assets with short-term liabilities. Given the differences in maturity between assets and liabilities, banks cannot redeem their total liabilities at par at any given moment.[4] A third source of liquidity risk is the possibility of a sudden drying-up of a funding source – interbank markets or deposit runs have on many occasions in the past exposed banks to liquidity problems.

Market liquidity risk is probably greater in emerging than in mature markets. For instance, in past financial crises in EMEs, it has often been the case that government bonds became less liquid as confidence waned and government credibility came under closer scrutiny by the markets. For instance, although Mexico was not at the centre of the international financial

[4] Diamond and Dybvig (1983) is the best known reference. In this model there is no uncertainty, so illiquidity is the outcome of a (rational) "bank run" equilibrium due to the irreversibility of investment.

crisis in 2008–09, the liquidity of its government bonds decreased after the collapse of Lehman Brothers. In late October 2008, the government announced an increase in the share of borrowing in foreign currency. It also shortened the duration of its new debt issuance in order to meet the strong demand for short-dated government paper and address the steepening of the local yield curve. There is an additional twist: the return differential between foreign assets and domestic government bonds in EMEs results in larger government bond holdings by banks, which increases the exposure of banks to liquidity risk.

Finally, some internationally active banks operating in EMEs rely on money markets as their main source of funding – their deposit base is relatively narrow so they "acquire" funding indirectly through the interbank market. This funding pattern might appear similar to that of a foreign bank in a mature economy; however, its liquidity risk is greater, as interbank lending and borrowing are more volatile (and costlier) in EMEs.

Foreign currency liquidity. Cross-border financing, which tends to be denominated in foreign currency, compounds the liquidity problems of banks in EMEs. Securing FX liquidity in EMEs might not be easy: interbank markets in foreign currencies in emerging markets are usually shallow, and in many jurisdictions foreign currency deposits are not allowed. In addition, central bank intervention often absorbs a significant share of foreign currency flows to the non-bank private sector in many EMEs.

More importantly, there is often no "outside" source of foreign currency liquidity in EMEs other than the internationally active banks. During the recent financial crisis in 2008, some central banks in EMEs set up facilities to supply foreign currency liquidity to domestic banks. However, such policy efforts arguably have limits. First, the amount of FX reserves is restricted. Given the size of reserves, the authorities' room for manoeuvre is inversely related to the size of the financial sector and its degree of internationalisation. And second, the events in 2008 illustrate that in a financial crisis in global markets, even the supply of foreign currency liquidity by major international banks can shrink.

These considerations indicate the need for a truly "outside" source of liquidity. During the latest crisis, the central banks of some advanced economies set up temporary FX swap lines with central banks in a few EMEs where financial institutions from the advanced economies had a large presence. However, the success of such arrangements requires policy credibility – in times of turbulence, policy needs to get ahead of the markets and provide credible evidence that the FX swap lines would be available; otherwise expectations of the private sector can turn quite volatile.[5]

Another concern is that the outside sources of liquidity might be at the root of the problem. The existence of a safety net to assist banks with liquidity problems can give rise to moral hazard problems. In the context of foreign liquidity assistance to banks, the additional complication is that international lending involves exposure to sovereign risk. Under these conditions, using commercial bank rather than public funds to set up an emergency foreign currency liquidity source might be sensible. In this way, the central bank would have an additional instrument for expanding or contracting liquidity in the financial system (Guidotti (2000)).

3.2 Liquidity requirements: benefits and some issues

Benefits. The build-up of liquidity buffers for stress periods is expected to contribute significantly to the stability of EME banking systems. Banking crises often arise from the risks

[5] Some observers argue that weak fundamentals are the ultimate cause of the crises, as they do not anchor expectations in the presence of policy uncertainty. Others argue that structural factors such as incomplete reform effort are the main cause of the crises (Calvo (2005)).

accumulated in the system over longer periods, eg a credit boom lasting several years. In such a case, the new liquidity requirements should enhance banks' capacity to provide credit when the cycle turns, thereby contributing to financial stability.

International lending aspects. The development of the world's first internationally agreed liquidity standards is a notable achievement. However, in the absence of the long experience and extensive data that have guided the development of the capital standards, the new liquidity framework could entail some unintended consequences. One concern is the potential impact of new liquidity standards on wholesale funding markets and the activities of international banks in EMEs. The liquidity coverage ratio reduces the credit multiplier: for each unit of short-term liabilities banks will have to keep on their balance sheet a certain percentage of assets in cash, deposits at the central bank or high-quality liquid assets. International banks may therefore end up with fewer assets, and EMEs may experience some cut-backs in credit.

The new liquidity requirements could also affect the foreign currency loans of international banks, especially if such loans are funded by foreign currency deposits collected in EMEs. The implementation details would be crucial. In the computation of liquidity requirements, deposit funding is weighted positively; however, foreign currency deposits in EMEs could be considered a more volatile source of funding and ignored in the calculations, ie banks could be required to hold liquid assets against them. Liquidity standards applied to the international bank headquarters could result in further requirements for liquid assets, even if foreign currency lending is funded from the FX deposits raised in EMEs. Finally, the liquidity requirements would probably raise the demand for eligible liquid assets: foreign currency deposits raised in EMEs will generate a demand for claims on economies other than EMEs.

On the upside, enhanced liquidity buffers could reduce the volatility of cross-border banking flows and strengthen the domestic banking systems in EMEs, making a positive contribution to macroeconomic stability. They may also contribute to the financial stability of the EMEs by reducing the inflows of short-term "hot money", which have been a concern of many EMEs.

Eligible securities. The new liquidity framework explicitly recognises governments bonds issued by so-called "non-zero risk-weighted" sovereigns as high-quality liquid assets.[6] However, during a crisis the market value of government bonds tends to fall more sharply in emerging markets than in advanced economies. For instance, between early September and late October 2008, heightened risk aversion in global markets led to sharp increases in spreads for emerging market sovereign bonds.[7] Yields rose dramatically, and markets became very volatile. While volatility also rose for returns on advanced economy bonds, the increase for emerging markets was much bigger. One puzzling development was also that the yield on dollar-denominated bonds in Brazil, Hungary, Indonesia and Turkey rose more sharply than the yield on these countries' local currency bonds.[8]

As a result of these developments, government bonds were in some cases no longer considered to be liquid by the markets, and ended up being transferred from the balance sheets of financial institutions to the balance sheet of the central bank. In Mexico, for

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[6] Articles 40(d) and 40(e) of the liquidity framework list as so-called Level 1 assets "non-0% risk-weighted sovereigns, sovereign or central bank debt securities issued in domestic currencies by the sovereign or central bank in the country in which the liquidity risk is being taken or in the bank's home country"; and, "non-0% risk-weighted sovereigns, domestic sovereign or central bank debt securities issued in foreign currencies, to the extent that holding of such debt matches the currency needs of the bank's operations in that jurisdiction".

[7] Total returns on emerging market bonds, hedged for exchange rate risk, fell by 2½% between mid-September and end-October 2008, compared with an increase of 1½% for comparable advanced economy bonds (CGFS (2009); Table H1, p 115). Unhedged returns on emerging market bonds fell by almost 16%.

[8] One explanation for this pattern is that the investor base in EMEs is more stable in domestic markets during the crisis; another points to official policies supporting local currency bond markets.

instance, the central bank held in its balance sheet an equivalent of almost 28% of GDP in government debt securities at the end of 2009, of which about 10 percentage points represented the inflow during the year.

In principle, in a highly volatile environment the central bank could apply a haircut to government bonds when accepting them as collateral. However, this seems highly unlikely for political economy reasons. Thus, while emerging market government bonds will remain high-quality liquid assets from the perspective of financial institutions and regulators in the new liquidity framework, this might not be the case from the market's perspective during a crisis. As a result, the central bank may end up holding the assets considered to be illiquid by the market. This could in turn affect the credibility of its monetary and exchange rate policy. By contrast, in major advanced economies the credibility problem generally does not arise, so that the central bank can more easily expand its liabilities to accommodate a liquidity shock.

After the financial crisis of 2008 and the relatively good performance of several EMEs, there is an increasing sense of confidence that a more lasting solution to the policy credibility problem in emerging markets has been found. The strong performance of EMEs was interpreted as a vindication of their policy frameworks. However, one should not forget that several emerging market countries had to tighten fiscal and monetary policies or change their debt management strategy when the business cycle turned. In addition, international financial assistance had to be extended to several EMEs.

A related issue is that in some EME jurisdictions there is a perceived scarcity of government bonds. Where financial policies have resulted in a low stock of government debt, there is a concern that government bonds would not be available to comply with the new liquidity requirements. This could be a problem in several Asian EMEs. The new liquidity framework addresses this issue by allowing a transition period before the full implementation of a quantitative approach that would determine eligibility of certain assets (see Box 1). The Basel Committee will be also reviewing alternative treatments to address this issue for the very small number of jurisdictions that might be affected.

Regulators in EMEs recognise some of these challenges, as indicated by recent proposals to deal with these issues. One proposal is the establishment of new contractual committed liquidity facilities, which would be provided by central banks at a fee and would count towards the coverage ratio. One advantage of this proposal is that it implies no "real" resources. While the fee charged might be internalised by the banks in their activities and lead to a reduction in the liquidity risk, the liquidity ratio would not demand "real" resources given that the central bank can create liquidity. This proposal shares some similarity with a proposal to levy "liquidity charges" on banks (similar to Pigouvian taxes) to discourage them from taking liquidity risk (Perotti and Suarez (2009)). However, contractual liquidity facilities might be preferable, in the sense that they provide a source of liquidity that is credible, given that the revenue from "liquidity charges" would be supplemented by central bank resources.

Another proposal is to permit greater opportunities for creating liquid assets out of banks' claims on the private sector. These claims should be of superior risk quality and rather short maturity, so that they could be relied upon to enhance liquidity (Allen (2009)). One major drawback of this proposal is that, because of its "inside credit" nature, the liquidity of these instruments would fluctuate with the cyclical position of the economy. Another potential drawback is that these instruments would draw on the liquidity pool available inside the banking sector and its private sector clients, whereas in crisis periods the "outside" supply of liquidity to the banks and the economy more generally would matter the most.

One should acknowledge that the adjustment that liquidity buffers would impose on internationally active banks might in the end have a smaller impact than feared. Internationally active banks that operate as autonomous financial units in EMEs may have already internalised the costs of higher liquidity buffers in their international operations. Reduced reliance on liquidity from headquarters; pricing of cross-border credit lines at

market rates; and reduced funding from domestic interbank market could all lessen the impact of higher liquidity requirements.

3.3 Impact on monetary policy frameworks and operations

Liquidity requirements are prudential policy instruments. Though reserve requirements are generally viewed as a monetary policy instrument, they also have similar prudential characteristics. Reserves are usually met with cash or balances at the central bank. Though reserve requirements can be remunerated they are often either not remunerated or carry a lower return than the interest paid on bank deposits.

What are the implications for monetary policy of higher liquidity buffers? Interbank markets have an important role in monetary policy frameworks in several EMEs – for instance, the policy rule often targets a short-term interbank interest rate. One concern arises from the observed relationship between reserve requirements and money market volatility. The literature has found a positive and significant correlation between the level of reserve requirements and volatility in money markets (Brunner and Lown (1993)). High reserve requirements make banks more concerned about the possibility of not complying, so they become less responsive to policy rate changes. With low reserve requirements, the risk of not complying is small and banks become more concerned with the level of the policy rate and its impact on the whole array of money market rates, given that the full pass-through of policy rate changes occurs over a relatively short period of time.

The cost of adjusting to a policy of higher liquidity buffers could affect the monetary policy transmission mechanism. High reserve requirements usually delay the transmission of the monetary policy impulse and make it less complete. Monetary policy might become less effective and the central bank might need to introduce larger changes in its policy interest rate. Higher liquidity buffers could adversely affect the transmission mechanism – if higher liquidity requirements reduce the size of the interbank market, policy rate changes could be transmitted less effectively to market rates, creating uncertainty about the workings of the monetary transmission mechanism.

The transmission channels are usually more diverse in EMEs (Agenor (2004)) and are related to the substitution possibilities between different forms of financing. Domestic interest rates affect only a fraction of the financing of expenditures in many EMEs, and private sector long-term borrowing through banks and capital markets is limited. To maintain control of monetary aggregates, the monetary authority could instead increase reserve requirements, which tend to stabilise the demand for money, particularly in the context of targeting of monetary aggregates. However, to be effective, reserve ratios need to be high, which can be costly and inefficient for the economy. These costs are likely to be passed on to borrowers in the form of higher interest margins.

Higher liquidity requirements could also affect the response of the economy to fluctuations in the exchange rate. Liquidity buffers that encompass foreign currency deposits and are met with foreign assets could reduce the balance sheet effects of exchange rate fluctuations. In the event of depreciation, the exchange rate losses would be reduced and bank solvency would suffer less. However, the liquidity requirements would need to be made up of assets that are not subject to foreign exchange risk (ie foreign currency deposits held abroad). In the event of appreciation, which is presently a major concern to many EMEs, liquidity requirements would limit the gains from revaluation of the domestic assets.

Finally, it should be acknowledged that higher reserve and liquidity requirements would strengthen the solvency and stability of the financial system (Fernandez and Guidotti (1995)). This opens up one additional route for higher liquidity buffers to improve the transmission mechanism – liquidity requirements can be used as collateral when borrowing, in order to mitigate information and incentive problems that would otherwise limit the ability of banks to borrow. This might be particularly relevant for emerging market economies, where banks'

assets are difficult to value, given that the agency costs of financial intermediation drive a large wedge between the internal cost of funds to the banks and the cost of external (or monitored) financing.

4. Need for issuing longer-term debt

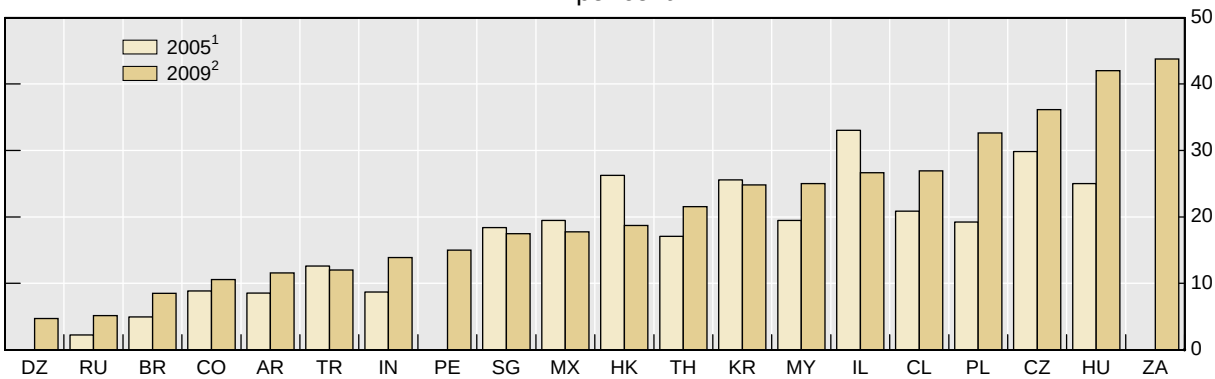
If tighter liquidity rules require international and perhaps domestic banks to reduce their maturity transformation activities, the question arises whether the banks active in emerging markets should start issuing more long-term debt to fund their lending. This question will be addressed here from the perspective of supply of and demand for long-term debt issued by banks. We find that banks in many EMEs could benefit from issuing longer-term debt, and that capital market developments in EMEs should allow the issuance of such debt.

The duration of bank lending has increased fast in most EMEs. A number of factors have contributed to the rapid development of long-term lending. First, the reduction of international risk premia on emerging market assets has helped to boost longer-term investments. Second, there are large infrastructure investment needs in most EMEs, which require long-term financing. For instance, the ADB has projected that East Asia and the Pacific need well over US$4 trillion in infrastructure investments between 2010 and 2020 (ADB Institute (2009)). Although direct capital market financing is likely to increase, there is also room for long-term bank lending to grow. Moreover, income and house price increases in recent years have led to the rapid development of housing markets in many EMEs. As Graph 4 shows, the share of housing loans in total bank loans there was already high in 2005, and in many countries it has increased further in the past five years.

Graph 4

Share of housing loans in total private loans

In per cent



AR = Argentina; BR = Brazil; CL = Chile; CO = Colombia; CZ = Czech Republic; DZ = Algeria; HK = Hong Kong SAR; HU = Hungary; IL = Israel; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PL = Poland; RU = Russia; SG = Singapore; TH = Thailand; TR = Turkey; ZA = South Africa.

[1] End of year data. Data are not available for Algeria, Peru and South Africa. [2] Definitions are according to the central bank's classifications. Total private loan means the total minus the government lending. Reference dates differ across economies (from Mar 2009 to Dec 2010).

Sources: BIS questionnaire; IMF, *International Financial Statistics*; CEIC; Datastream; central banks; national data; BIS calculations.

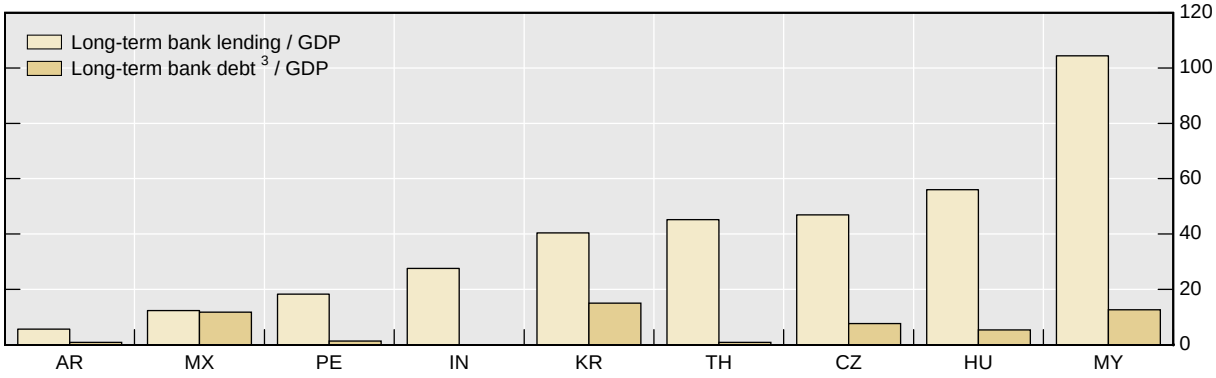
The main argument favouring greater issuance of longer-term debt by banks is that it limits the extent of maturity transformation taking place in the banking system, as well as the reliance of banks on short-term and foreign currency funding.[9] Currently, banks in EMEs fund their lending mostly from short-term deposits, as domestic debt and interbank markets are generally poorly developed (see Appendix Graph A7). However, private sector deposits have been growing much more slowly than bank lending in recent years. As a result, emerging market banks have increasingly turned to external funding. While rapidly developing EMEs with a structural saving-investment imbalance will continue to rely on foreign funding for many of their long-term investments including infrastructure development, most other EMEs would benefit from developing longer-term funding from domestic sources.

However, the costs and benefits of issuing longer-term debt need to be carefully considered, along with the costs and benefits of alternative approaches.[10] The existing market for long-term bank debt in most EMEs is small. As shown in Graph 5, emerging market banks tend to issue substantially less long-term debt than they provide long-term loans. Although this is not unusual, the size of the gap between the banks' long-term funding and lending gives an indication of the significant need in emerging markets for greater issuance of longer-term bank debt.

Graph 5

Long-term bank debt and lending[1]

As a percentage of GDP[2]



AR = Argentina; CZ = Czech Republic; HU = Hungary; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; TH = Thailand.

[1] Reference dates differ across economies (from Mar 2009 to Oct 2010). Definitions are according to the central bank's classifications. [2] Annual GDP data on current prices for the corresponding economies for 2009. [3] Long-term domestic debt securities issued by financial institutions.

Sources: BIS questionnaire; BIS IBFS; BIS calculations; IMF, *World Economic Outlook*.

The costs associated with creating and developing markets for longer-term bank debt will depend on the characteristics of individual EMEs (Zettelmeyer et al (2010)). The

[9] For instance, the European Bank for Reconstruction and Development (EBRD) argues for issuing longer-term local currency bonds in its local capital market development initiative.

[10] Alternatively, banks could securitise their assets, thereby limiting maturity transformation and on-balance sheet liquidity risks. The benefits of securitisation in terms of financial stability are largely similar to those of issuing longer-term debt. However, securitisation seems to be even more demanding than long-term debt issuance in terms of market infrastructure needs, because not only individual banks but individual asset bundles need to be placed and priced efficiently.

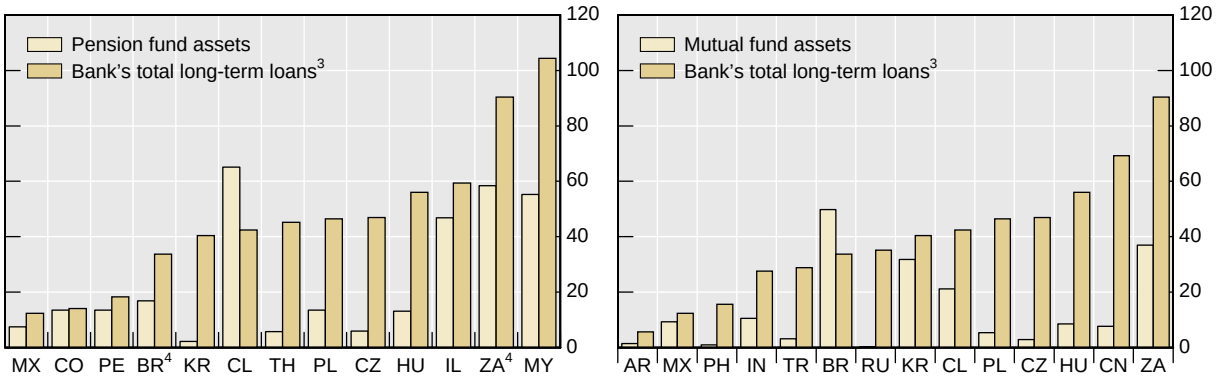
development of long-term government securities markets provides some useful insights in this respect. Where government bond markets are large relative to banks' long-term lending – eg in Argentina, Mexico and Turkey (Appendix Graph A8) – it should be easier for banks to issue larger amounts of long-term bonds.[11] For instance, long-term government securities provide useful benchmarks for long-term bank debt issues. However, one should keep in mind that in some cases the small size of the government bond market may reflect strong public finances, while at the same time private capital markets may be well developed. This would of course facilitate the issuance of long-term debt by banks. In other cases, large government securities markets could signal large demand for savings by the public sector, which could crowd out private bond issuance.

An alternative indication of the likely demand for long-term bank debt is the relative strength of capital market institutions such as pension funds and mutual funds (Graph 6). Many emerging markets have partially privatised their pension systems. These pension funds have reached substantial size (left-hand panel), and might accommodate longer-term debt issues by banks in their country. Similarly, mutual funds have developed fast in many EMEs and could in principle also absorb some of the new debt issued by banks (right-hand panel). The sheer size of these institutions does not necessarily indicate their ability to absorb long-term bank debt. Pension funds are often required to hold a substantial share of their assets in government bonds. Moreover, many pension funds consciously build globally diversified portfolios, which could further reduce their ability to invest in domestic long-term bank debt. Similarly, some mutual funds focus on other asset classes or shorter maturities, so that only a part of institutional investors' portfolio would be available for investing in longer-term bank debt.

Graph 6

Pension fund assets, mutual fund assets and banking system total long-term loans in 2009[1]

As a percentage of GDP[2]



AR = Argentina; BR = Brazil; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; HU = Hungary; IL = Israel; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; TH = Thailand; TR = Turkey; ZA = South Africa.

[1] Reference dates differ across economies (from Dec 2009 to Dec 2010). [2] Annual GDP data on current prices for the corresponding economies for 2009. [3] Definitions are according to the central bank's classifications. [4] For pension fund assets, 2007 data.

Sources: Investment Company Institute, *2010 Investment Company Fact Book*; OECD, *Global Pension Statistics*; BIS questionnaire; national data.

[11] Note that data in the Appendix Graph A8 provide only a snapshot of the situation as it was in 2009–10; for a more accurate assessment one would need to take a longer time perspective.

A related issue is that domestic institutional investors would need to develop their capacity to evaluate the risks of domestic banks. Creating initial liquidity in the market is likely to require discounts from first issuers, whose bonds will be illiquid. Government action might therefore be required to coordinate demand and supply side development, and especially to offset the "first mover" disadvantage.

5. Conclusion

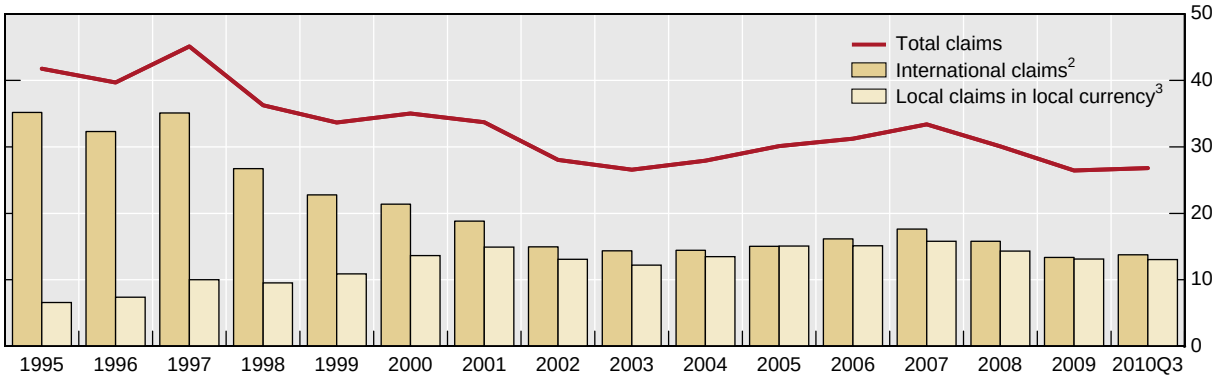
International banks have played a major role in financing EMEs over the past 15 years. This has helped emerging markets to develop their economies and allocate capital and financial know-how efficiently across countries. However, the substantial role of international banks also poses some challenges for monetary policy and financial stability in emerging markets. This paper investigated three such challenges. First, the more substantial role of international banks might affect monetary policy in EMEs because international banks sometimes operate differently from domestic banks. Second, the new tighter liquidity rules are expected to strengthen banking system stability in EMEs. In some cases, tighter liquidity rules could result in cutbacks in credit; however, the overall ability of banks to provide credit through the cycle should improve. Finally, should global liquidity conditions change, local long-term debt issued by banks might provide a viable source of domestic funding.

Appendix

Graph A1

BIS reporting banks' consolidated lending to emerging market economies[1]

As a percentage of domestic credit



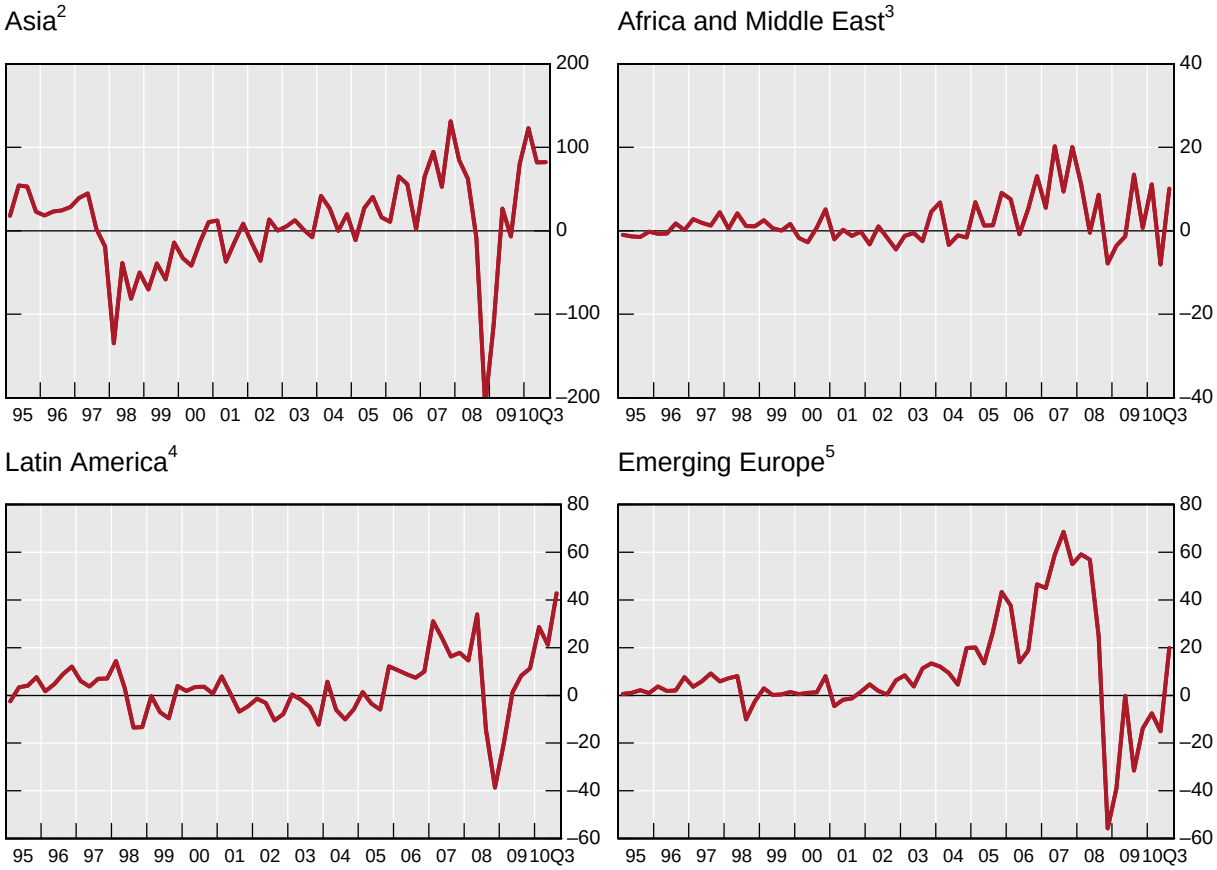
[1] Consolidated positions of banks headquartered in 30 reporting countries vis-à-vis EMEs. Data are not adjusted for exchange rate movements. Emerging market economies: Algeria, Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand, Turkey and Venezuela. [2] International claims comprise consolidated cross-border claims in all currencies and local claims in foreign currencies. [3] Local currency claims of reporting banks' foreign offices with local residents.

Sources: BIS consolidated banking statistics on an immediate borrower basis; IMF, *International Financial Statistics.*

Graph A2

BIS reporting banks' external assets vis-à-vis emerging market economies[1]

Estimated exchange rate adjusted changes, in billions of US dollars



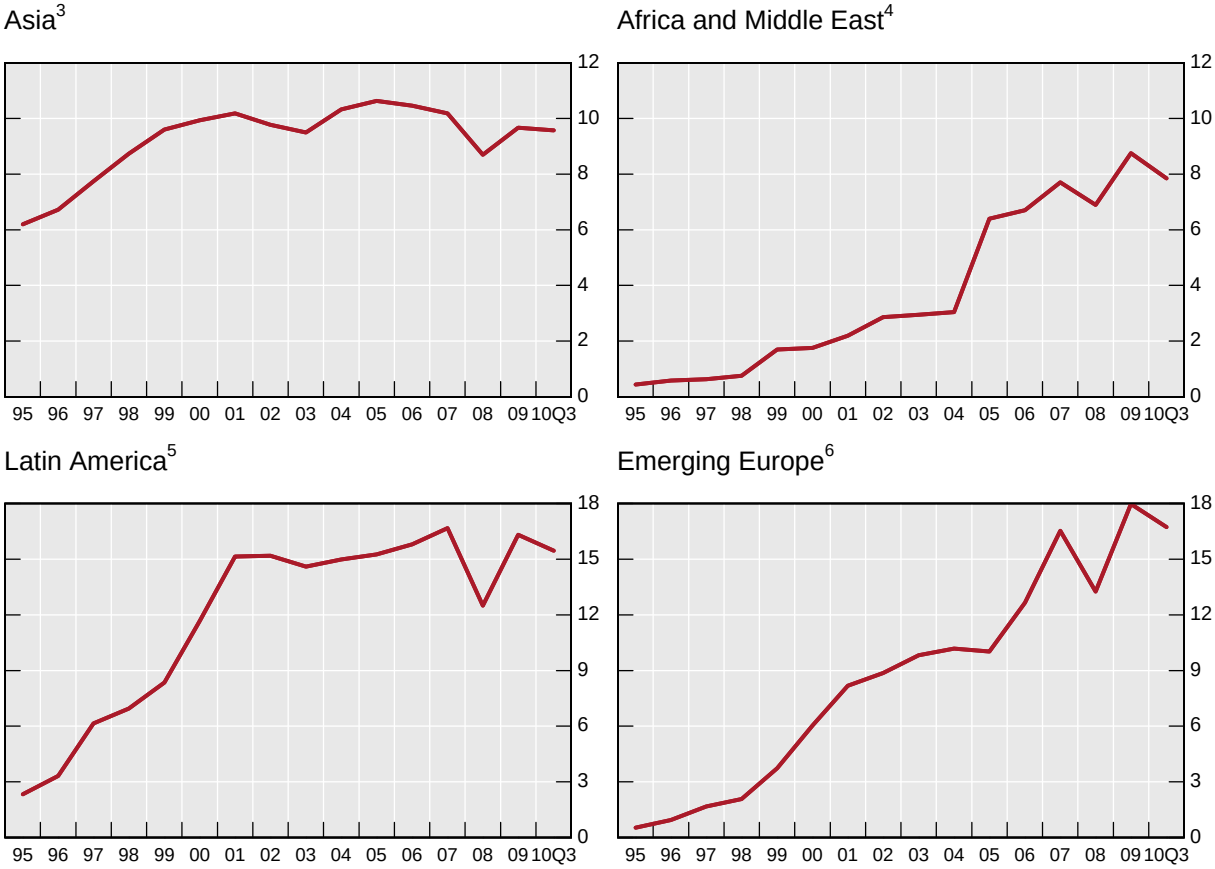
[1] External assets of banks headquartered in 43 reporting countries vis-à-vis emerging market economies. Data are calculated on a gross basis. [2] China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand. [3] Israel, Saudi Arabia and those African economies for which data are available. [4] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [5] Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Turkey and Ukraine.

Source: BIS locational banking statistics.

Graph A3

BIS reporting banks' consolidated lending to emerging market economies[1]

Local claims in local currency, as a percentage of GDP[2]



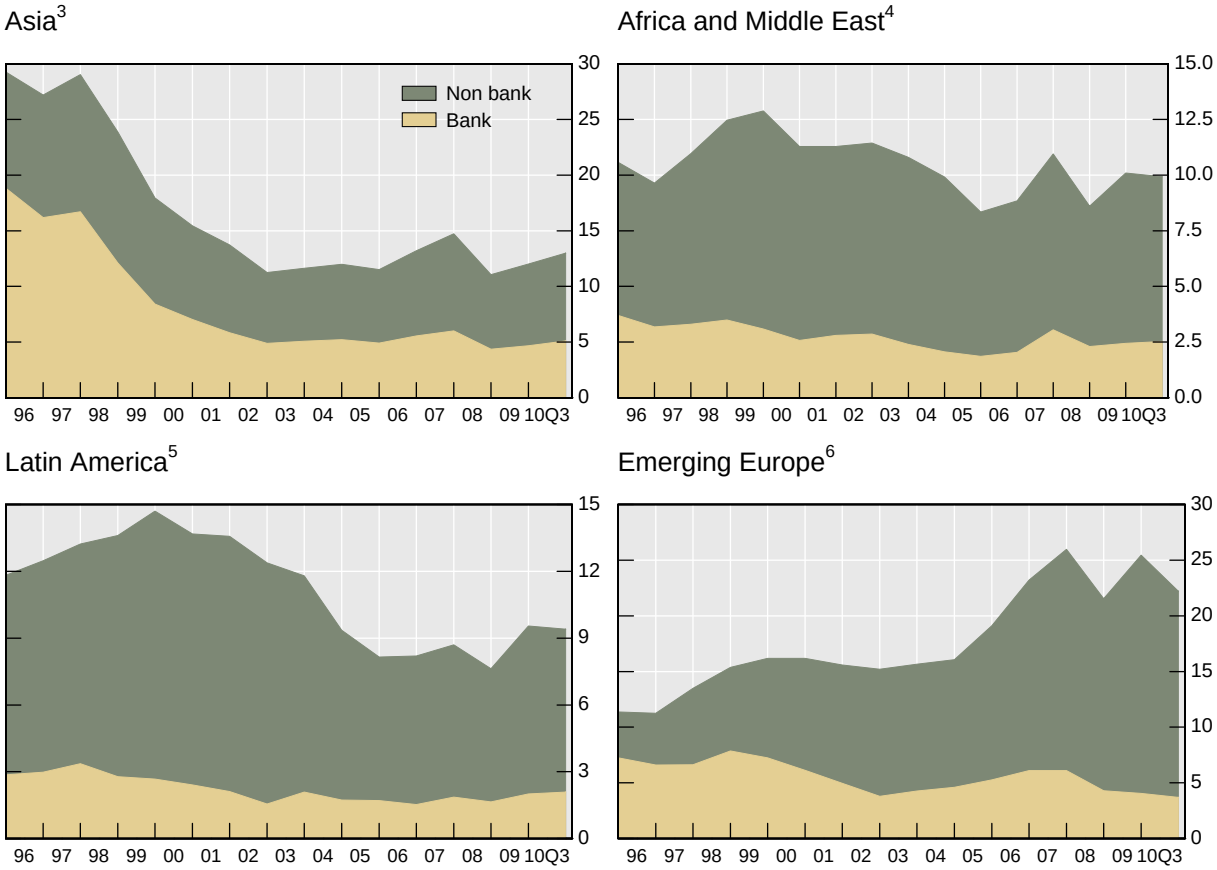
[1] Consolidated emerging market positions of banks headquartered in 30 reporting countries. Data are not adjusted for exchange rate movements. [2] Local claims in local currency comprise local currency claims of reporting banks' foreign offices with local residents. Annual GDP data on current prices. [3] China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand. [4] Israel, Saudi Arabia and those African economies for which data are available. [5] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [6] Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Turkey and Ukraine.

Sources: BIS consolidated banking statistics on an immediate borrower basis; IMF, *World Economic Outlook*.

Graph A4

BIS reporting banks' consolidated lending to emerging market economies[1]

International claims, as a percentage of GDP[2]



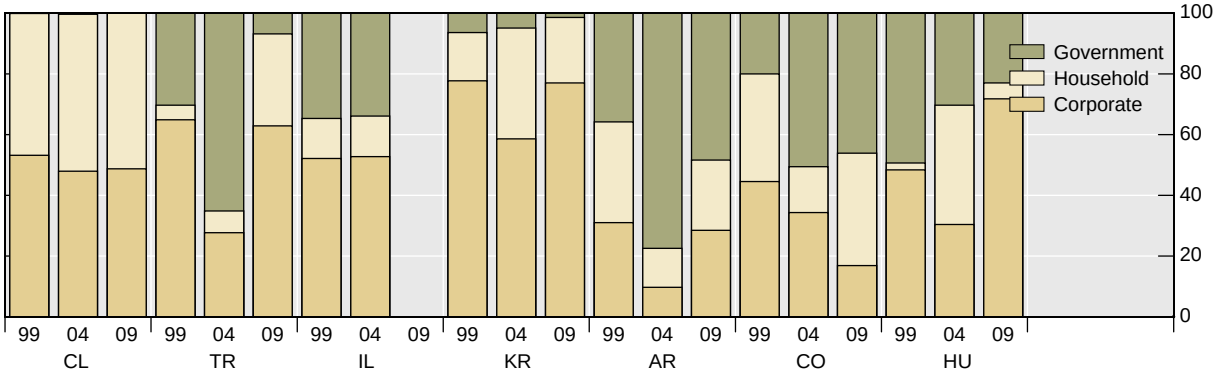
[1] Consolidated emerging market positions of banks headquartered in 30 reporting countries. Data are not adjusted for exchange rate movements. [2] International claims comprise consolidated cross-border claims in all currencies and local claims in foreign currencies. Annual GDP data on current prices. [3] China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand. [4] Israel, Saudi Arabia and those African economies for which data are available. [5] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [6] Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Turkey and Ukraine.

Sources: BIS consolidated banking statistics on an immediate borrower basis; IMF, *World Economic Outlook*.

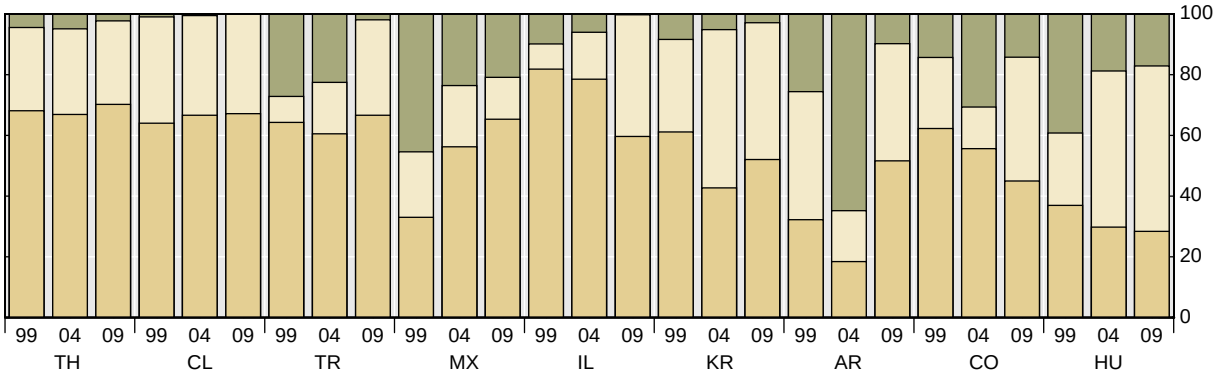
Graph A5

Composition of lending, 1999–2009[1]

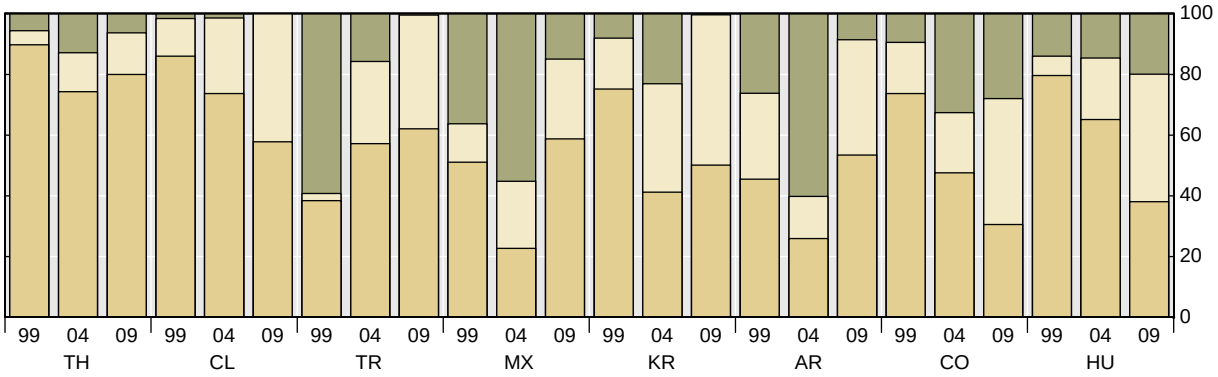
State-owned banks, in per cent



Private domestic banks, in per cent



Foreign-owned banks, in per cent



AR = Argentina; CL = Chile; CO = Colombia; HU = Hungary; IL = Israel; KR = Korea; MX = Mexico, TH = Thailand; TR = Turkey.

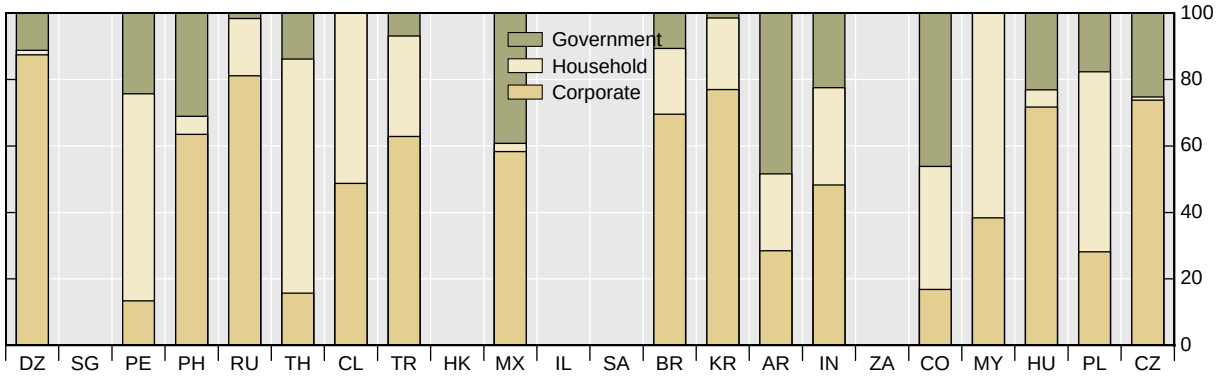
[1] As a percentage of the total of the household, corporate and government lending. Reference dates differ across economies (from Dec 2009 to Nov 2010). Definitions are according to the central bank's classifications. Government lending data are not available for Chile for 2009, and state-owned bank lending data are not available for Israel for 2009.

Sources: BIS questionnaire; BIS calculations.

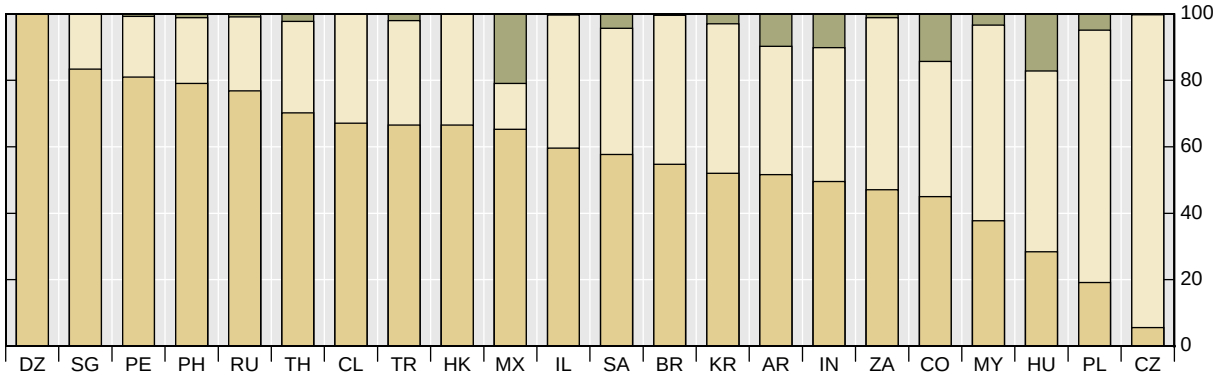
Graph A6

Composition of lending in 2009[1]

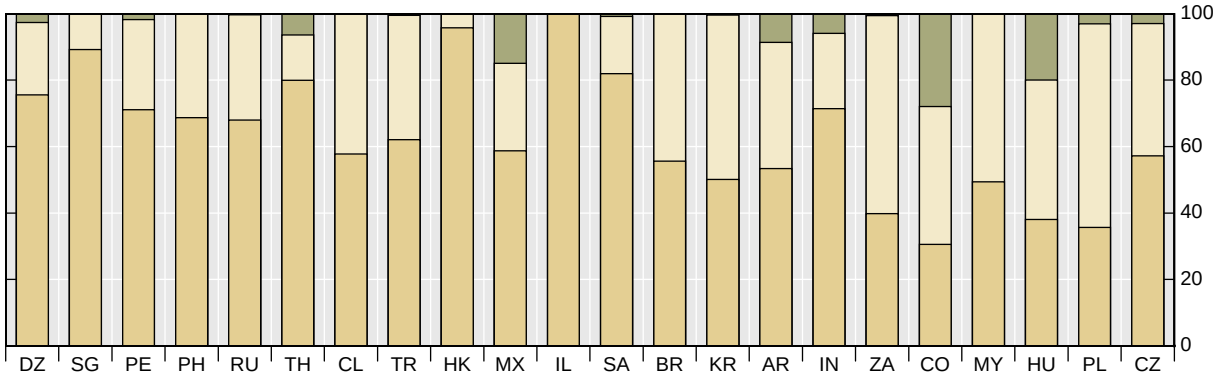
State-owned banks, in per cent



Private domestic banks, in per cent



Foreign-owned banks, in per cent



AR = Argentina; BR = Brazil, CL = Chile; CO = Colombia; CZ = Czech Republic; DZ = Algeria; HK = Hong Kong SAR; HU = Hungary; 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; ZA = South Africa.

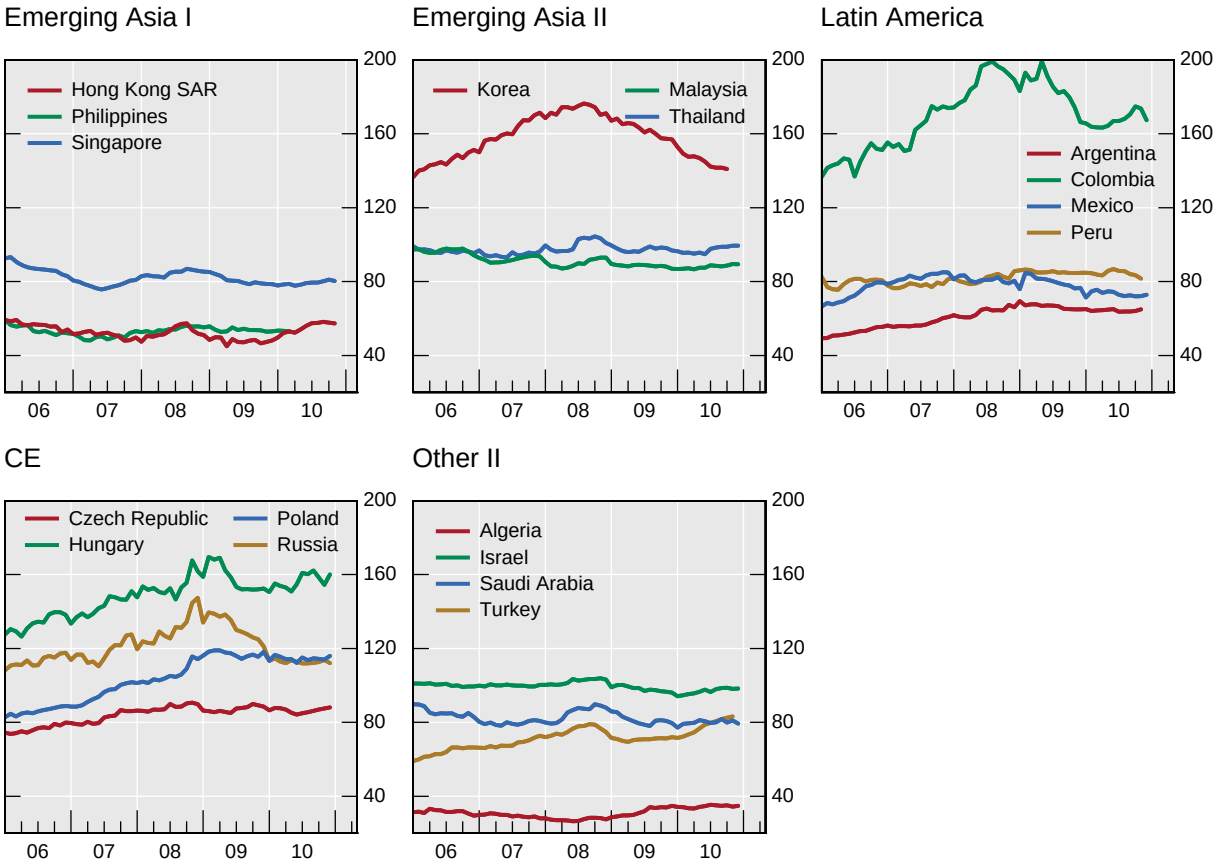
[1] As a percentage of the total of the household, corporate and government lending. Reference dates differ across economies (from Mar 2009 to Dec 2010). Definitions are according to the central bank's classifications. State-owned bank lending data are not available for Israel and not applicable for Hong Kong SAR, Saudi Arabia, Singapore and South Africa, and government lending data are not available for Chile.

Sources: BIS questionnaire; BIS calculations.

Graph A7

Loan-to-deposit ratios[1]

In per cent



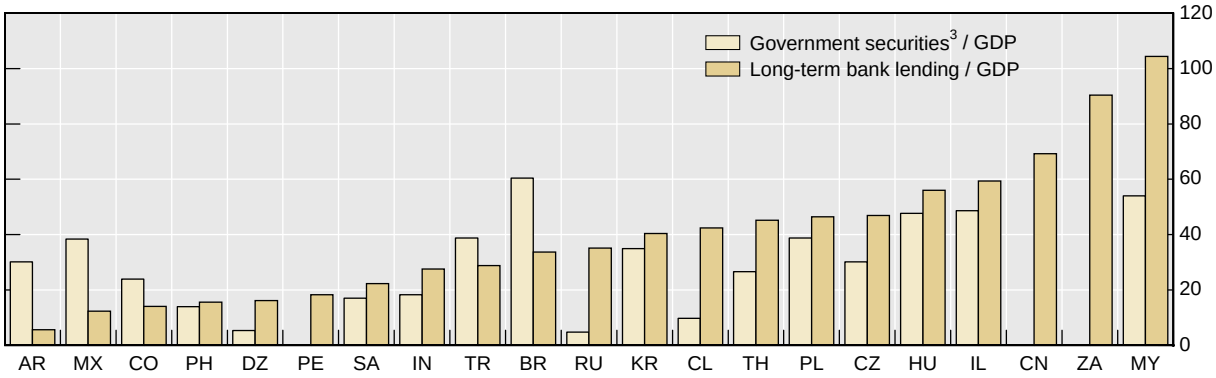
[1] Claims on other (line 22s) or private sector (line 22d) as a percentage of total deposits (the sum of lines 24 and 25).

Source: IMF, *International Financial Statistics*.

Graph A8

Government securities and long-term bank lending[1]

As a percentage of GDP[2]



AR = Argentina; BR = Brazil; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; DZ = Algeria; HU = Hungary; IL = Israel; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; SA = Saudi Arabia; TH = Thailand; TR = Turkey; ZA = South Africa.

[1] Reference dates differ across economies (from Mar 2009 to Dec 2010). Definitions are according to the central bank's classifications. [2] Annual GDP data on current prices for the corresponding economies for 2009. [3] Government securities data are not available for China, Peru and South Africa.

Sources: BIS questionnaire; BIS calculations; IMF, *World Economic Outlook*.

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