The role of debt securities markets

Masazumi Hattori and Előd Takáts[1]

Abstract

Debt securities markets in emerging market economies (EMEs) have grown over the past decade. The growth was particularly strong for domestic debt securities, which have increased from around one third of EME GDP to around one half. Although international debt securities have demonstrated slower growth, bonds still overtook bank loans in international financing flows. This growth was, however, heterogeneous, reflecting economy-specific factors. While bonds bring economic benefits, especially in funding diversification, the rapid growth in debt securities markets also raises financial stability risks.

Keywords: Debt securities, bonds, emerging markets

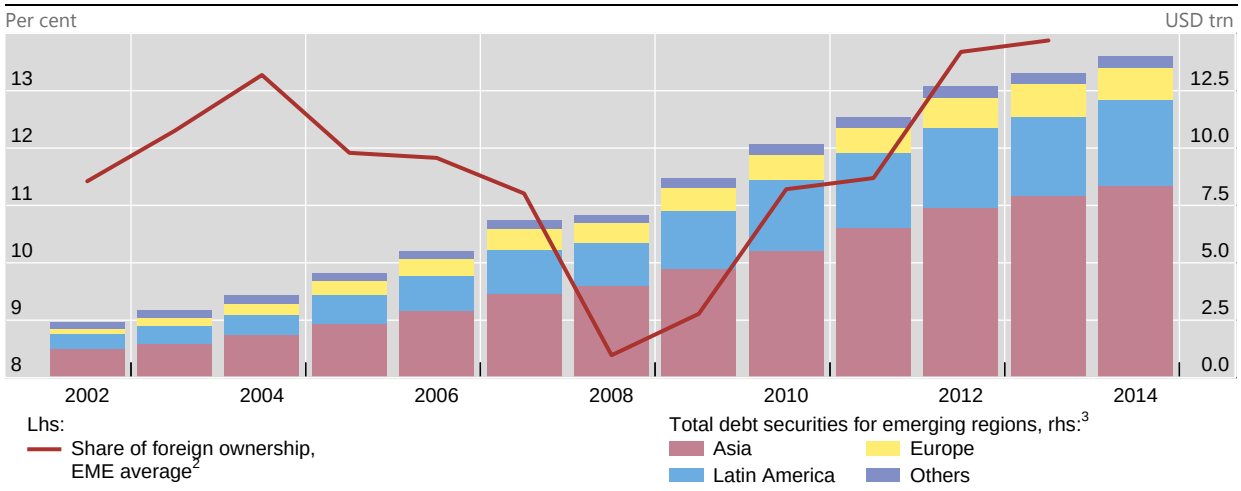
JEL: F21, F65, G15

[1] Bank for International Settlements. Agne Subelyte and Diego Urbina provided excellent research assistance. Any remaining errors are the authors' own.

Introduction

Debt securities issuance in emerging market economies (EMEs) has surged in the past decade: the volume outstanding went from around USD 2.5 trillion in 2002 to over USD 14 trillion in 2014 (Graph 1). The role of foreign financing also grew after the financial crisis: not only did international issuance increase fast, but foreign investors bought domestic bonds in large quantities (red line). As a result, bonds overtook loans in *international* financing flows after the financial crisis – the so-called "second phase" of global liquidity (Shin (2013)). This expansion brings benefits; however, as the taper tantrum in May 2013 shows, it also raises new risks.

The growth of total debt securities and foreign ownership[1] Graph 1



[1] By residence. Total debt securities for Brazil, Chile, Colombia, India, Indonesia, Korea, Mexico, the Philippines and South Africa are calculated as the sum of international debt securities by residence and domestic debt securities by residence; for 2014, data up to Q2. [2] Foreign ownership results from the IMF *Coordinated Portfolio Investment Survey* (Table 16.2: Derived Portfolio Investment Liabilities, Total Debt Securities). [3] For Asia, sum of China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand; for Latin America, sum of Argentina, Brazil, Chile, Colombia, Mexico and Peru; for Europe, sum of the Czech Republic, Hungary, Poland, Russia and Turkey; for others, sum of Israel, Saudi Arabia and South Africa.

Sources: IMF, *Coordinated Portfolio Investment Survey*; BIS securities statistics; BIS calculations.

This note explores these issues. The first section summarises recent developments in debt markets; the second discusses key benefits and risks.

1. Trends in debt security issuance

In this section, we mostly rely on the BIS debt securities statistics, which provide a comprehensive database on all EME sectors' issuance. Importantly, these data may deviate from country information received through questionnaire responses – in

some cases substantially.[2] While these discrepancies are not entirely unexpected,[3] they suggest that some caution be exercised in interpretation. Reconciling the databases is an area for future work and research. Furthermore, wherever required, the analysis is supplemented by the questionnaire data relating to maturities and other issuance terms.

Domestic and international debt securities

Debt securities can be classified as either domestic or international, depending on the place of issue. Most debt securities are issued domestically, ie by EME residents in their local market, typically in local currency (Gruić and Wooldridge (2012)). Domestic debt securities comprise approximately 80% of the total outstanding, which was around USD 12 trillion at end-2014 (Graph 2, first panel). Traditionally, the public sector, with around one half of the total volumes, dominates domestic issuance. However, local currency bond issuance by EME non-financial corporations has grown at a much faster pace since 2007, with the stock quadrupling to around USD 2 trillion by end-2014 (second panel).

Not surprisingly, the stock of *domestic* debt securities increased strongly also relative to GDP, from less than one third in 2002 to almost one half in 2014 (Graph 2, first panel, red line). While debt issuance by the public sector largely reflects the size of fiscal deficits, debt issuance by firms depends more on their funding model. For instance, in spite of the relatively small size of Korea's economy compared with China's, corporates from these two countries had almost equal amount of debt securities outstanding in 2014.

EME *international* debt securities issuance has also grown rapidly, reaching USD 2.5 trillion in 2014 based on the nationality of the issuer – ie the location of the issuer's headquarters rather than the residence of the issuing unit (Graph 2, third panel).[4] From the early 2000s, international debt issuance by governments declined in importance as borrowing shifted more to the domestic market. In contrast, issuance by both banks and (private) non-banks has picked up sharply since 2009 (fourth panel). With the outstanding stocks exceeding USD 1.2 trillion in 2014, non-bank corporations accounted for around half of all international debt securities. International issuance by non-banks has been traditionally strong in Korea – but also accelerated in other countries, such as Brazil.

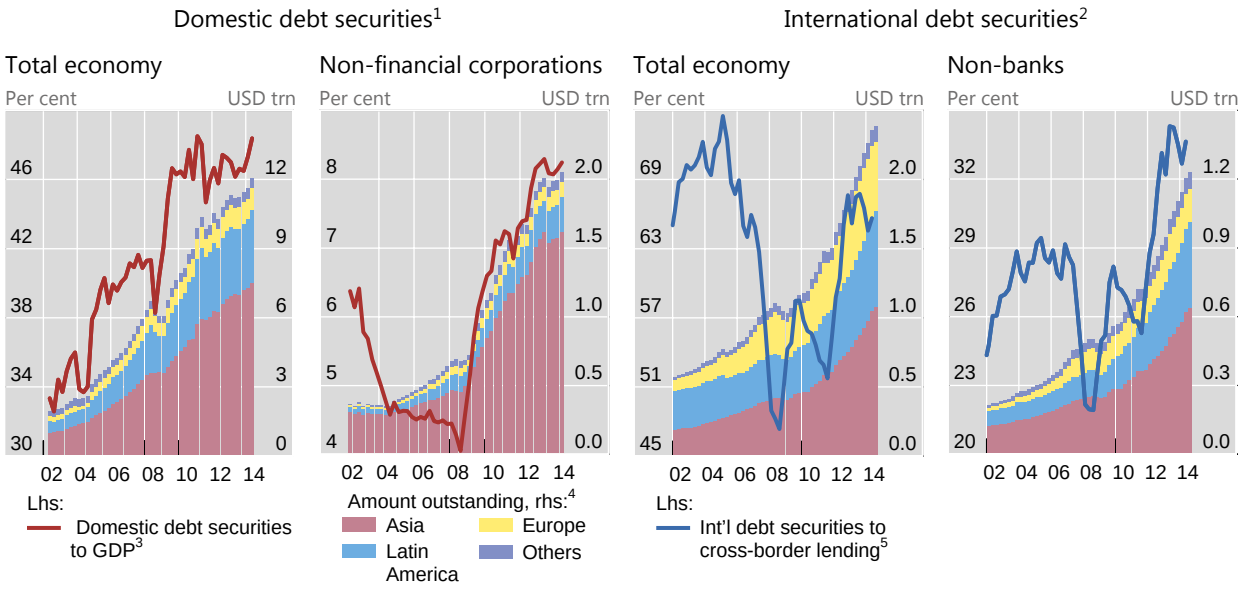
[2] For the differences for total debt securities, see Appendix Table A1. The differences tend to be smaller for government debt securities (Appendix Table A2) than for financial and non-financial corporations (Appendix Tables A3 and A4, respectively).

[3] For instance, Borio et al (2013) find that, even for the United States, figures from BIS data on external bank loans considerably exceed those based on flow of funds.

[4] In the following, we will use data based on nationality. The main reason, as the Box explains in more detail, is that it better reflects financial risks than residence-based statistics do. Furthermore, international debt securities statistics are able to distinguish between banks and non-banks as opposed to just financial vs non-financial corporations. This is relevant because many non-financial corporations use their non-bank financial subsidiaries to issue debt securities internationally – and thereby the non-bank category reflects the risks taken by non-financial corporations more accurately.

Domestic and international debt securities

By sector and region — Graph 2



[1] By residence. For the Czech Republic, Hong Kong SAR and Poland, calculated as the difference between total debt securities by residence and international debt securities by residence. [2] By nationality. [3] For the total economy, as a percentage of nominal GDP. [4] For Asia, sum of China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand; for Latin America, sum of Argentina, Brazil, Chile, Colombia, Mexico and Peru; for Europe, sum of the Czech Republic, Hungary, Poland, Russia and Turkey; for others, sum of Israel, Saudi Arabia and South Africa. [5] Sectoral international debt securities as a percentage of the sum of all BIS reporting countries' cross-border loans vis-à-vis emerging market economies.

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

Clearly, in many EMEs, international debt issuance has grown faster than cross-border bank lending post-crisis. Taking EMEs as a whole, the evolution of international debt issuance relative to cross-border bank lending resembles a V-shaped pattern – the sharp decline during the 2008 financial crisis ushered in a strong recovery (Graph 2, third and fourth panels, blue lines).[5] This pattern owes much to the non-bank sector, which has stepped up securities issuance after the financial crisis.

Properties of debt securities

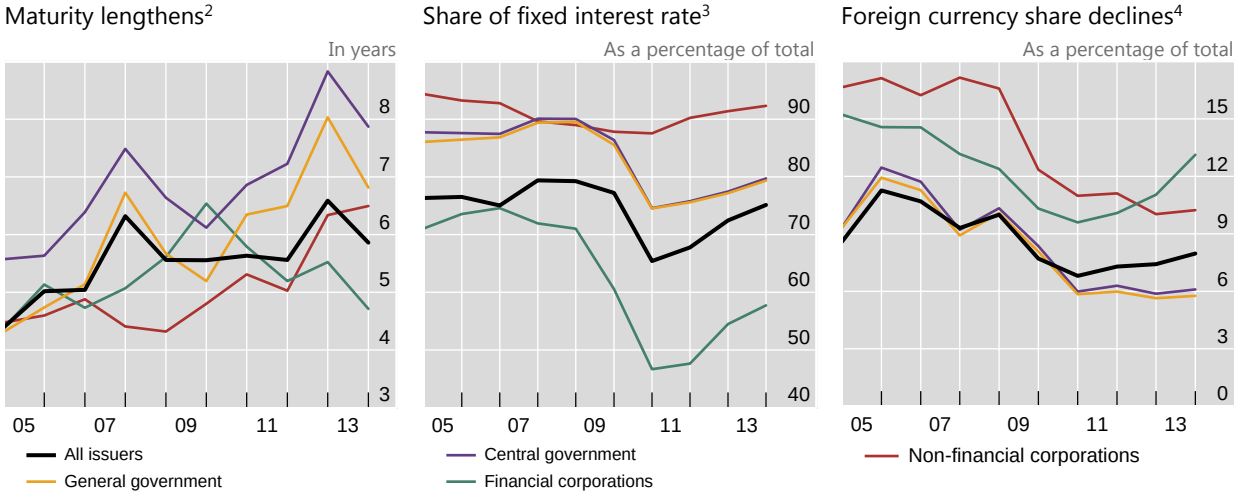
A key fact about EMEs' debt issuance is the lengthening maturity (Graph 3, left-hand panel). While this has been true for all borrowers (black line), it has been particularly marked for non-financial corporations (red line).[6] That said, many EMEs are still likely

[5] Strictly speaking, the two data series are not fully comparable. The locational cross-border bank loan series show how much residents of a given EME borrow from banks resident in other (BIS reporting) countries, whereas the international debt securities nationality-based data series show how much debt securities EME firms and their foreign subsidiaries issue outside their local markets. In other words, the bank lending series is defined based on the residence of the borrower *relative to the residence of the lender*, whereas the international debt securities series is defined based on the residence of the borrower *relative to the market of issuance*.

[6] The often used, but incomplete, Dealogic database on debt securities suggests a less pronounced increase in maturities (Appendix Graph A4).

to face large debt redemptions in the next few years (Appendix Graph A2). And, naturally, the duration has increased, as roughly three quarters of bonds have been issued at fixed interest rates (centre panel).[7]

Properties of debt securities[1] Graph 3



[1] Total debt securities, by residence; aggregated for the following EMEs: Algeria, Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. [2] For maturity, weighted average of the countries listed in footnote 1, excluding Argentina, Hungary, Mexico, Poland and Saudi Arabia. [3] For fixed interest rate, weighted average of the countries listed in footnote 1, excluding Algeria, Argentina, India, Indonesia, Saudi Arabia and Singapore. [4] For foreign currency share, weighted average of the countries listed in footnote 1, excluding Argentina and Mexico.

Source: BIS questionnaires; for detailed country-specific data, see Appendix Tables A5–A7.

Furthermore, the foreign currency share of total debt securities has declined slightly (Graph 3, right-hand panel). The main reason has been the rise in local currency-denominated domestic issues. Among foreign currencies, the dollar is the dominant currency for most EME borrowers, representing slightly less than three quarters of all issues (Appendix Graph A2, right-hand panel). The dollar's role strengthened further post-crisis, as many issuers and investors shied away from the euro. However, the euro's share rebounded after 2011, and by 2014 it had returned to its 2007 level.

Heterogeneity in growth and foreign ownership

Despite these broad trends, there are cross-country differences. Consider first the evolution of total debt securities in relation to GDP between 2007 and 2013 (Graph 4, left-hand panel). Taking all EMEs together, the share of total debt securities increased from around 47% to 53% of GDP (blue dot). Across countries, however, the share ranged from close to zero (in Saudi Arabia) to over 100% (in Brazil, Hong Kong SAR, Korea, Malaysia, Singapore) at end-2013. Moreover, between 2007 and 2013 the share actually declined in China among a few other countries, while it increased

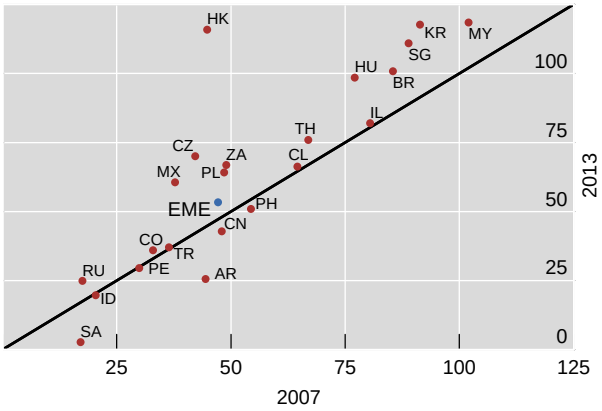
[7] The Dealogic database would suggest an even larger share of fixed-term instruments than the questionnaire response (Appendix Graph A3; and Graph A4, centre panel).

rapidly in most of the rest (red dots above the 45° line). The share more than doubled in Hong Kong SAR.

Debt securities: role in the economy and foreign ownership

In per cent — Graph 4

Total debt securities as a share of GDP[1, 2]



Foreign ownership share of total debt securities[1, 2, 3]

AR = Argentina; BR = Brazil; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; HK = Hong Kong SAR; HU = Hungary; ID = Indonesia; IL = Israel; 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. EME = weighted average.

[1] Total debt securities for Brazil, Chile, Colombia, Indonesia, Korea, Mexico, the Philippines and South Africa are calculated as the sum of international debt securities by residence and domestic debt securities. [2] For Chile, Q1 2008 instead of Q4 2007. [3] Foreign ownership results from the IMF *Coordinated Portfolio Investment Survey* (Table 16.2: Derived Portfolio Investment Liabilities, Total Debt Securities).

Sources: IMF, *Coordinated Portfolio Investment Survey* and *International Financial Statistics*; national data; BIS securities statistics; BIS calculations.

Non-resident investors have been especially eager buyers: their share of total debt securities increased from around 11% in 2007 to 14% in 2013 (Graph 4, right-hand panel, blue dot).[8] The increase also reflects changing investor behaviour: while traditionally non-residents invested mostly in international issues, they have become increasingly active in domestic markets post-crisis. As in other respects, the divergence across countries is large: foreign ownership ranged from less than 10% in China to almost 50% in Hungary at end-2013 (see vertical axis). The increase of foreign ownership was particularly strong in Indonesia, Mexico, Poland and Turkey.

[8] The share of foreign-owned securities needs to be treated cautiously because its evolution also reflects changes in *valuation*. In the calculation of the share, the numerator, ie foreign holdings of EME debt securities, is (mostly) based on market value (IMF CPIS), while the denominator, total debt securities, is based on book value (BIS securities database). This implies, for instance, that the rapid increase in foreign ownership after 2008 partly reflects the recovery in bond prices. The aim of limiting these valuation effects also motivates using 2007 as a base for comparing post-crisis developments.

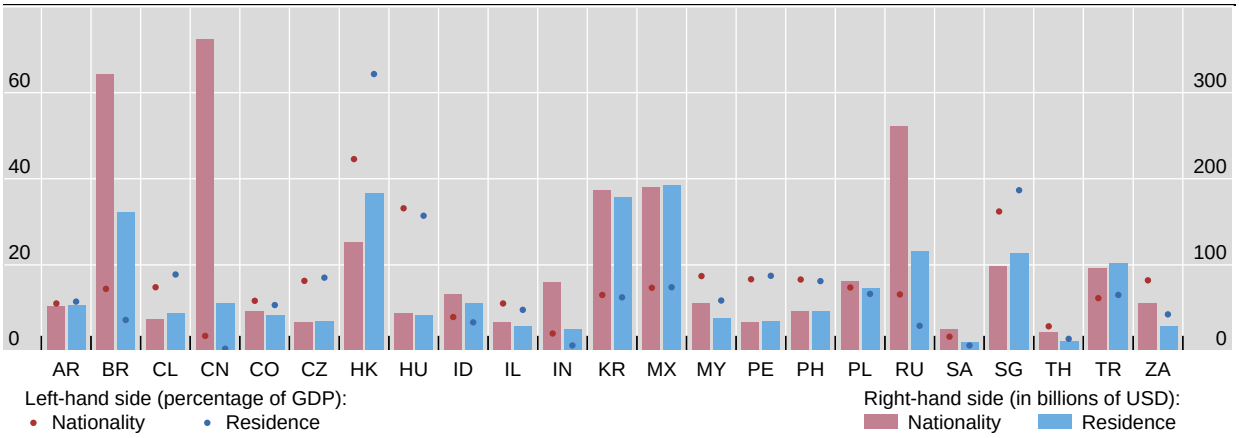
Nationality and residence basis for international debt securities

In the case of international debt securities, ie debt securities issued by EME residents in other jurisdictions, it is relevant to distinguish between residence- and nationality-based data. (While the same differentiation between residence and nationality basis could also be applied to domestic debt securities, the difference there is marginal.) A simple example illustrates the difference. A subsidiary of a Brazilian company registered in the Cayman Islands issues bonds to international investors in London. The bonds are clearly international, as they are issued by an EME resident outside the domestic market. However, it is not straightforward to which economy to link the issue. Based on the *residence* of the issuer, the bond is linked to the Cayman Islands. However, based on the *nationality* of the issuer, it is linked to Brazil.

The difference between residence- and nationality-based international debt securities is substantial in many EMEs, but by no means in all (Graph A). The difference, which in aggregate points to higher issuance on a nationality basis, started to emerge after 2005 and grew post-crisis (Appendix Graph A1, right-hand panel). In absolute terms, five economies are responsible for most of the difference: Brazil, China, Hong Kong SAR, India and Russia (compare the heights of red and blue bars). In some cases, this reflects capital account restrictions, which offshore issuance can avoid. Offshore issuance, of course, benefits financial centres, for which residence-based issuance is therefore higher. For instance, this is true of Hong Kong SAR, where Chinese corporations are very active. Although Singapore shows the same pattern, the difference there is small. In financial centres, the debt securities stock is also higher relative to the GDP (dots).

International debt securities[1]

Outstanding stocks at Q2 2014, all issuers — Graph A



AR = Argentina; BR = Brazil; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; 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; ZA = South Africa.

Sources: National data; BIS securities statistics; BIS calculations.

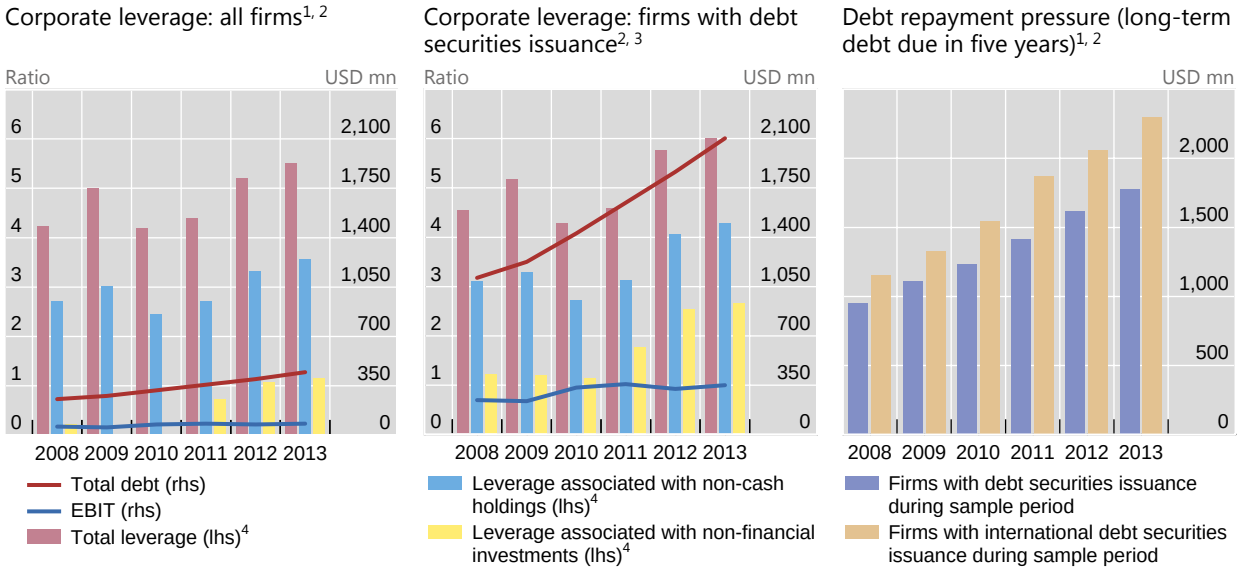
In principle, the use of residence or nationality should depend on the question at hand. In this paper, we tend to use the nationality basis when describing international debt securities, for two main reasons. First, the nationality based data may better reflect the location of the financial risks, by allocating it to the jurisdiction where the corporation is headquartered. For instance, in crises the liabilities of these non-residents can be swiftly transferred to residents and ultimately to the public. Second, the risks posed by non-resident entities, which are shown by the nationality based data, are hardly visible in traditional residence-based statistics, such as the balance of payments.

2. Benefits and risks

Corporates' access to funds and financial health

The development of debt securities markets, as described in the previous section, has broadened the financing options of EME corporates. Bonds complement, and in some cases replace, traditional bank financing. This has several benefits. Increased access to debt markets can diversify firms' funding sources, thus protecting them against dysfunctions in a single intermediation channel. From an economy-wide viewpoint, debt markets mitigate concentration of credit and maturity risks on the banking system, reducing potential disruption to credit supply (the so-called "spare tyre" role of bond markets). And, increased competition in various funding markets can also increase efficiency in financial intermediation, which in turn can reduce funding costs.

Corporate leverage and repayment pressure — Graph 5



[1] All non-financial corporations listed throughout the sample period in the Emerging Market Deputy Governors' Meeting (EMDGM) participating countries. [2] Simple averages across all firms. [3] Non-financial corporations listed throughout the sample period and with debt securities issuance during the sample period in the EMDGM participating countries. [4] Total leverage is total debt divided by earnings before interest and taxes (EBIT). For leverage associated with non-cash holdings, cash and equivalents are subtracted from total debt. For leverage associated with non-financial investments, financial assets (cash and equivalents, stock holdings, bond holdings and total lending) are subtracted.

Source: Capital IQ.

Additionally, the development of domestic currency bond markets leads to more complete financial markets. Not only do they help to develop benchmark yield curves and hedging markets but, by fostering a broader domestic investor base, they also enable more risk transfer among investors.[9, 10] Thus, domestic currency bond markets

[9] The benefits of the development of domestic currency bond markets and its impediments for EMEs have been much discussed. See, for example, CGFS (2007).

[10] Avalos and Moreno (2013) discuss how a broadened investor base helped deepen domestic FX derivatives markets, which lessened the stress in FX markets in Chile at the time of the Lehman bankruptcy.

can help to widen investment opportunities and increase the resilience of the economy to external shocks, particularly by reducing the risk of currency mismatches. As highlighted in the notes from Hong Kong SAR and Peru, these expected benefits have in many cases given rise to government initiatives to develop domestic currency bond markets.

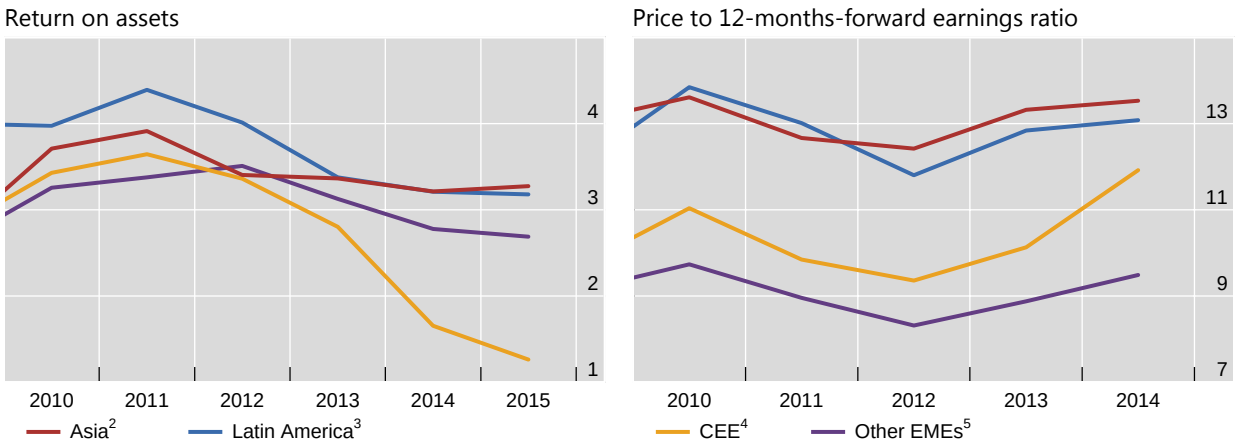
Indeed, in recent years, non-financial investment grew faster in EME corporations' which had access to bond markets (Graph 5, compare yellow bars in left-hand and centre panels). While this partly reflects favourable global funding conditions, it suggests that access to bond markets can boost non-financial investment, and thereby growth in EMEs. In particular, some sectors such as oil and gas are especially known to have used the international debt markets to substantially increase production capacity.

At the same time, this greater access to bond financing has also gone hand in hand with increased leverage in relation to earnings (Graph 5, left-hand and centre panels). Again, this increase in leverage is particularly pronounced for firms that have issued debt securities (centre panel). The resulting higher leverage and increased indebtedness can expose EME corporations to potential vulnerabilities, especially if and when the current relatively easy funding conditions become tighter. Several channels might play a role.

Corporate profitability and equity valuation[1]

Ratio

Graph 6



[1] Simple averages across the countries in the region. [2] China, India, Indonesia, Hong Kong SAR, Korea, Malaysia, the Philippines, Singapore and Thailand. [3] Argentina, Brazil, Chile, Colombia and Mexico. [4] The Czech Republic, Hungary and Poland. [5] Israel, Russia, South Africa and Turkey.

Sources: Bloomberg; Datastream.

First, easier access to funds from debt securities issuance can distort corporate investment decisions and reduce profitability – which would, in turn, make firms more vulnerable to changes in the external environment. While the asset size of EME corporations has expanded, return on assets has fallen, suggesting that many EME corporations might have levered up excessively (Graph 6, left-hand panel). Investors' valuation of EME equities measured by the price-to-earnings ratio has also risen since 2012, suggesting that equities are now more expensive (right-hand panel). This higher

valuation might, in turn, imply that a deterioration in funding conditions or the external environment might trigger a correction (right-hand panel).

Second, the risk of currency mismatches is significant (Graph 3 and Appendix Graph A2, right-hand panel). In fact, the recent dollar appreciation has already created difficulties for many EME corporates that have issued US dollar-denominated debt securities.

Finally, the refinancing risk may have grown, as gross debt repayments by EME firms have increased substantially over the past six years (Graph 5, right-hand panel). These pressures are clearly higher for firms that have accessed international debt securities markets (compare the beige with the blue bars).

In sum, recent evidence suggests that easy access to debt securities financing has potentially increased corporate leverage and reduced profitability thereby possibly sowing the seeds of vulnerabilities. On top of those, the sharp decline in oil prices in recent months could add to the vulnerabilities of many EME oil-exporting firms. To the extent that lower oil prices lead to a deterioration of oil-exporting firms' balance sheets, it will negatively affect the pricing of their debt securities, making debt rollover and new issuance difficult.[11]

Corporate debt securities issuance and domestic financial stability

Beyond the conventional measures of corporate health, increasing international corporate debt issuance, unless properly managed, could potentially raise systemic risks for financial institutions. Graph 7 illustrates how this may occur (Shin (2013)).[12] Corporate deposits provide a particular channel through which banks' balance sheets are closely interlinked with those of non-corporate firms. Easier global monetary conditions may in particular result in higher corporate bank deposits as firms deposit parts of the proceeds from increased debt securities issuance. This link can lead to procyclical bank lending as corporate deposits increase bank funding exactly when international monetary conditions are relatively easy, and reduce bank funding when they are tighter – amplifying the impact of banks own funding. Hence, changes in global financing conditions would affect banks and, in turn, through them even those firms, such as SMEs, which are otherwise sound and profitable – and are not exposed to international financial markets directly.

In fact, debt issuance and corporate deposits seem to be closely related in many EMEs. In particular, higher debt issuance often coincides with larger corporate deposits (Appendix Table A8). Moreover, greater financial investment by non-financial firms, possibly backed by funding from debt issuance, seems to have made

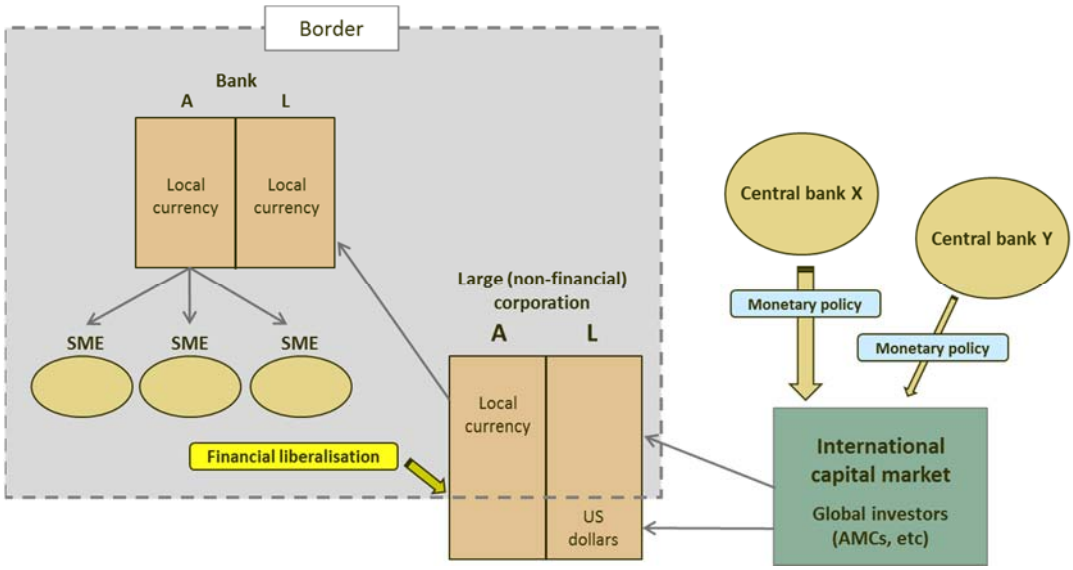
[11] BIS (2015) discusses financial aspects of the recent sharp decline in oil prices. Faced with higher debt service costs, oil-producing firms may respond to lower oil prices by increasing rather than decreasing oil production, which can precipitate further price declines. In addition, a pullback by swap dealers from oil derivatives markets might force these firms to deal directly in those markets, thus increasing oil price volatility.

[12] We have seen a past case in point: Japan in the late 1980s. Non-financial corporations, especially large corporations, tapped international capital markets after financial liberalisation and deposited the funds in the domestic banking system. Domestic banks used the increased deposits for lending to small and medium-sized enterprises (SMEs) and to sectors related to real estate (Appendix Graph A5).

banks' deposit funding more fragile one in many EMEs by reducing the share of retail deposits compared to corporate "demand" deposits (Graph 8; and Graph 5, centre panel).

Debt securities in the context of global financial intermediation

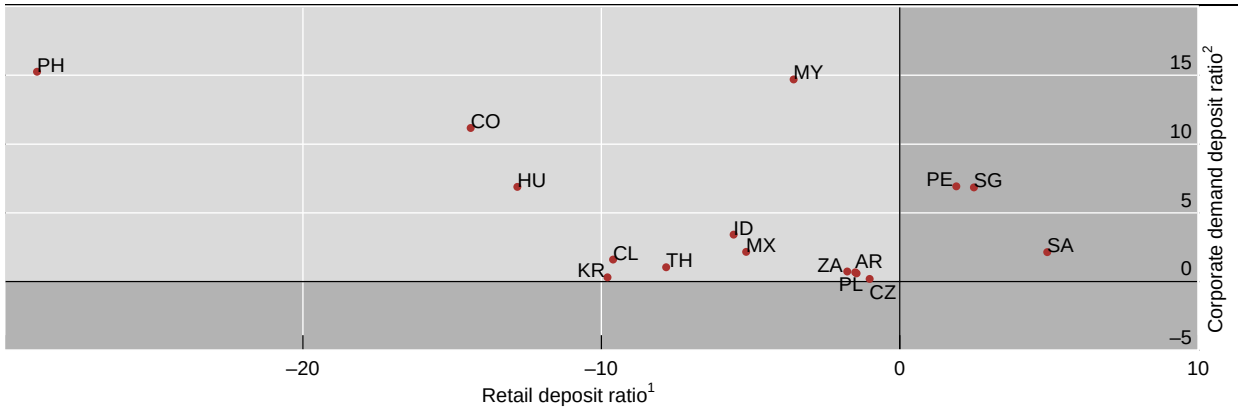
Graph 7



The changing structure of bank deposit funding

In percentage points

Graph 8



AR = Argentina; CL = Chile; CO = Colombia; CZ = Czech Republic; HU = Hungary; ID = Indonesia; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; SA = Saudi Arabia; SG = Singapore; TH = Thailand; ZA = South Africa.

[1] Absolute change in the ratio of retail deposits to total deposits between 2004 and 2013. [2] Absolute change in the ratio of corporate demand deposits to total deposits between 2004 and 2013. For South Africa, between 2008 and 2013.

Source: BIS questionnaire.

Although this negative correlation is partly mechanical, it could also be a source of risk to financial stability. Retail deposits are the most stable source of funding for banks. In contrast, corporate deposits, especially demand deposits, are more volatile in times of stress. This interconnectedness between non-financial corporates' balance

sheets and banks' balance sheets could pose risks particularly when external funding conditions deteriorate.[13]

Foreign ownership of EMEs' debt and potential market volatility

Another aspect of EME vulnerability arises from the behaviour of foreign investors that hold considerable amounts of EME debt securities, in both domestic and international markets. There is no question that increased foreign participation has brought many benefits, including an enlarged investor base and enhanced liquidity. With a broader investor base, EME bond issuers have more financing options in terms of instruments and currency denomination. However, a greater presence of foreign investors can also create potential stress, if a change in global financial conditions causes them to run for the exit, driving prices down and straining market liquidity.

In particular, the behaviour of global asset management companies (AMCs) that are major investors in EME debt securities can significantly influence market volatility. Asset managers face various constraints in their investment decisions, such as relative performance targets, internal risk limits and minimum ratings of securities to purchase that may motivate them to chase yields in relatively illiquid EME assets. This short-term focus on the part of AMCs can make EME bond prices more vulnerable to repricing risks and sudden stop dynamics and can amplify shocks emanating from changing global monetary conditions.

Ultimate investors may also contribute to this volatility. Shin (2010) argues that institutional investors such as pension funds can destabilise markets with their procyclical investment strategy to match market values of their assets with liabilities. And retail investors might not be very stable investors either.

[13] As discussed in the note from Bangko Sentral ng Pilipinas, banking system stability should be assessed from various standpoints, such as banks' profitability and their capital and asset quality. Our focus here is on funding risks resulting from the deposit structure.

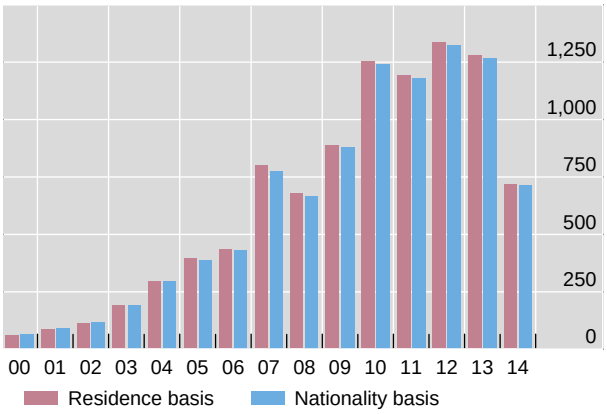
Appendix

Appendix Graphs

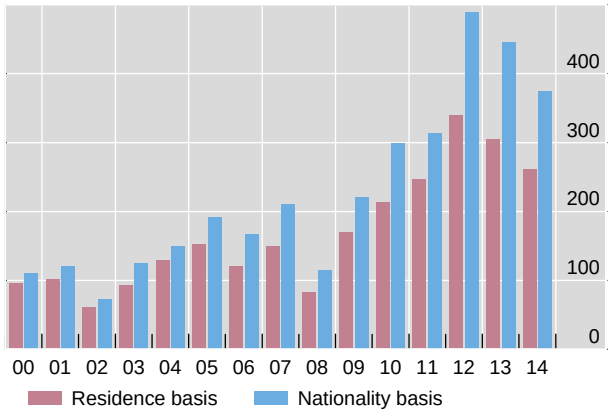
Annual gross issuance[1]

In billions of US dollars — Graph A1

Domestic debt securities



International debt securities



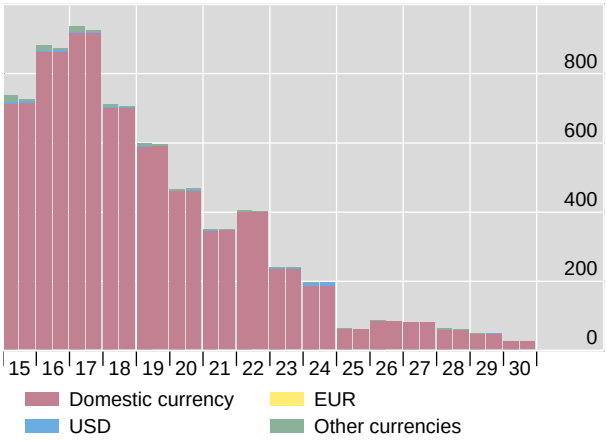
[1] Sums across Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand, Turkey, the United Arab Emirates and Venezuela.

Sources: Dealogic; BIS calculations.

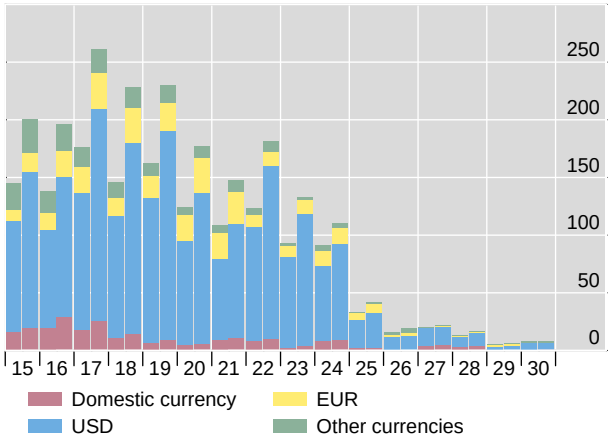
Redemption schedule

By currency denomination, by residence (first bar) and nationality basis (second bar), all sectors, in billions of US dollars — Graph A2

Domestic debt securities (DDS) basis



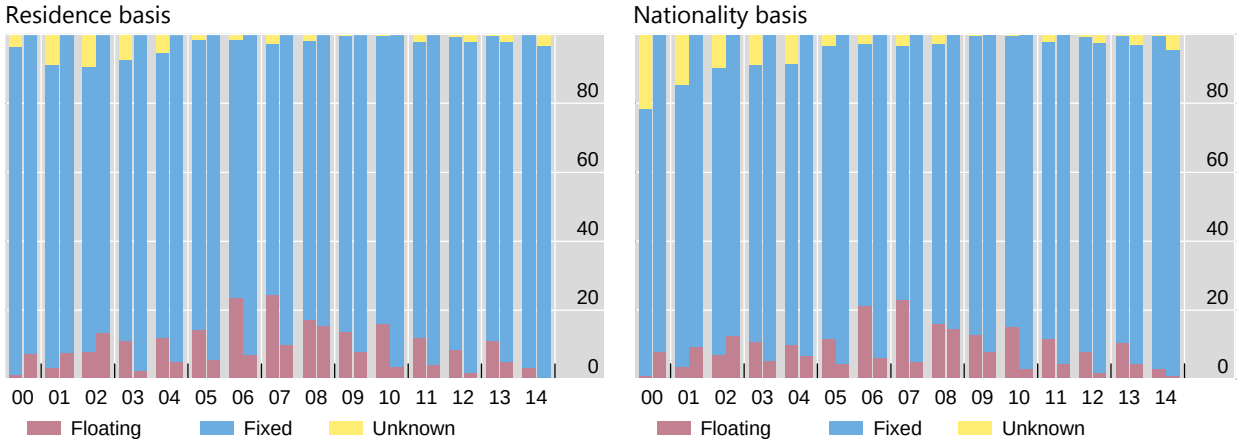
International debt securities (IDS) basis



Sources: Dealogic; BIS calculations.

Types of interest rate in non-financial corporate sector issuance[1]

As a percentage of total issuance — Graph A3

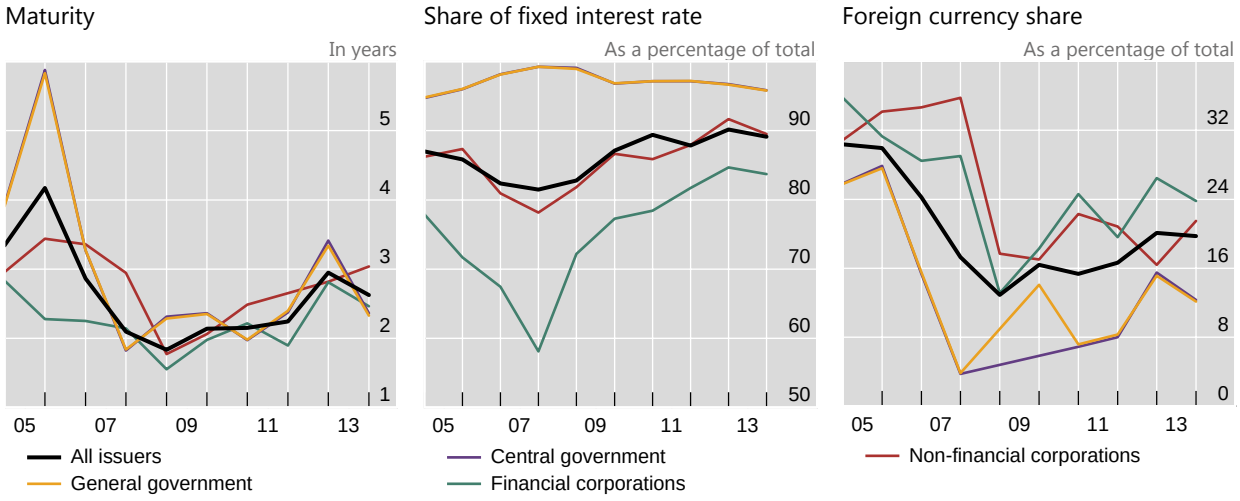


[1] DDS (first bar) and IDS (second bar).

Source: Dealogic.

Properties of debt securities[1]

Graph A4



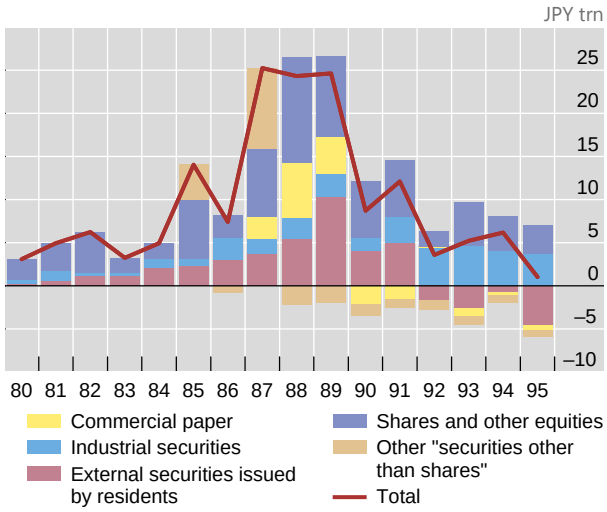
[1] Weighted average for IDS and DDS, by residence; aggregated for the following EMEs: Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey.

Sources: Dealogic; BIS calculations.

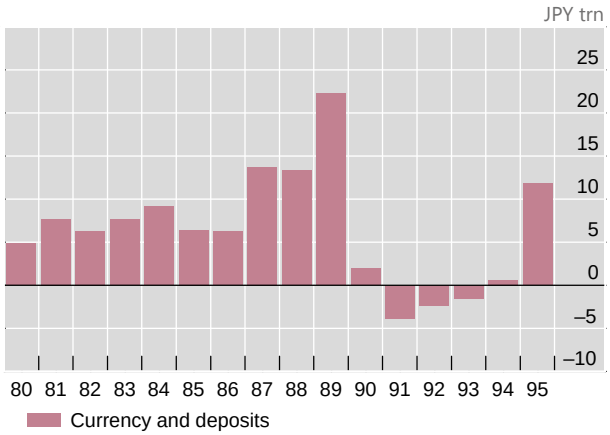
Link between global capital market and domestic banking system: Japan's bubble economy in the late 1980s[1]

Graph A5

Security fund-raising by non-financial corporations (flow)



Financial investment by non-financial corporations (flow): currency and deposits



[1] See Hattori et al (2009) for more detailed analyses.

Source: Bank of Japan, Flow of Funds Accounts.

Appendix Tables

Comparison of total debt securities from BIS statistics with those from questionnaires[1]

Percentage point deviation between the questionnaire as base to BIS, total debt securities data — Table A1

	04	05	06	07	08	09	10	11	12	13
Emerging Asia										
China	19.00	35.48	46.78	38.77	41.13	27.58	20.52	6.58	–0.31	–9.53
Hong Kong SAR	7.48	11.55	15.81	23.12	28.85	22.25	16.38	8.96	0.97	–2.05
Korea[2]	0.11	0.09	0.21	0.60	1.76	1.41	1.43	1.27	0.95	0.62
Malaysia	…	16.36	20.43	10.30	19.34	13.15	11.45	11.38	10.08	11.56
Philippines[3]	2.57	1.07	–0.04	–2.25	–4.54	–7.85	–7.05	–5.14	–7.20	–2.69
Singapore	0.27	0.13	0.16	–4.11	0.24	–0.21	–0.56	4.74	8.91	17.95
Thailand	11.44	0.00	–1.65	0.00	–0.45	0.15	–0.30	–0.45	–0.14	–0.51
Latin America										
Brazil[3]	…	…	…	…	…	…	38.48	41.26	45.65	46.55
Chile[2, 4]	…	…	…	…	38.51	42.84	19.47	17.23	10.45	4.26
Colombia[3, 5]	–3.11	–0.45	0.49	1.37	–0.20	–4.17	–9.41	–6.91	–7.23	–4.51
Mexico[2]	…	…	…	…	…	–1.37	–1.57	–0.44	–0.18	0.16
Peru[2, 5]	89.98	55.36	46.62	68.69	47.35	38.34	53.99	39.56	60.44	31.26
Central and eastern Europe										
Czech Republic	…	…	–0.01	1.02	–1.34	–1.54	–4.70	–3.69	–2.31	–0.15
Hungary	–0.36	0.23	–0.62	–0.28	1.83	0.18	–0.63	0.67	–0.09	–0.17
Poland[6]	7.54	11.60	8.75	7.57	4.45	7.74	10.90	12.73	12.94	14.89
Other EMEs										
Israel[7]	48.12	54.62	50.11	45.37	25.87	32.29	24.41	21.60	21.41	12.76
Russia	–68.17	–0.45	0.07	0.02	1.30	–3.28	–1.73	–1.85	–0.59	–0.18
South Africa[2]	17.93	15.39	15.42	16.33	19.91	23.97	23.91	22.08	19.10	16.81
Turkey	0.66	0.49	0.53	0.13	1.18	0.53	–0.14	–0.26	0.17	0.58

[1] On a residence basis. [2] Comparison using BIS domestic debt securities. [3] BIS total debt securities calculated as the sum of international and domestic debt securities. [4] Data sent in questionnaire are obtained from the Budget Office and may not tally exactly with the external debt data published by the Central Bank of Chile, given different methodologies. [5] BIS debt securities calculated using publicly available data. [6] Data for financial corporations other than banks and for non-financial corporations comprise only securities issued domestically. Bonds issued by Bank Gospodarstwa Krajowego for the National Road Fund are presented as general government debt. [7] Data sent in questionnaire are for securities tradable only in Israel.

Sources: BIS securities statistics; BIS questionnaires.

Comparison of general government debt securities from BIS statistics with those from questionnaires[1]

Percentage point deviation between the questionnaire as base to BIS, total debt securities data — Table A2

	04	05	06	07	08	09	10	11	12	13
Emerging Asia										
China	–11.67	–11.20	–8.18	–4.70	–4.30	–3.13	–3.02	–2.51	–2.89	–3.16
Hong Kong SAR	–0.02	0.01	0.03	–0.06	0.00	–0.02	–0.01	0.01	0.00	0.00
India	–91.97	–88.24	–87.45	–86.51	–85.70	–86.55	–90.93	1.90	4.14	1.52
Korea[2]	0.01	–0.07	0.02	–0.01	0.00	0.00	0.01	0.02	0.00	0.00
Malaysia	…	6.24	4.19	2.84	1.03	–2.33	–1.62	–2.80	–4.21	–4.08
Philippines[3]	1.22	1.36	1.62	1.15	1.81	1.25	1.04	2.18	0.02	4.62
Singapore	0.19	–0.08	–0.19	–0.02	–0.27	–0.20	–0.28	–0.67	–0.44	–0.37
Thailand	–0.36	0.00	–1.65	0.01	–0.45	0.15	–0.30	–0.45	–0.14	–0.33
Latin America										
Argentina	…	…	14.02	11.52	9.71	0.24	–1.78	–15.75	–23.07	–28.56
Brazil[3]	55.67	42.27	37.28	37.62	47.86	52.40	47.02	48.07	52.97	54.39
Chile[2, 4]	…	…	…	…	37.34	29.78	7.92	0.77	–1.73	1.31
Colombia[3, 5]	13.37	15.58	14.36	15.05	13.04	8.75	3.91	5.22	4.78	4.05
Mexico[2]	…	…	…	…	…	–1.94	–2.22	–0.26	–0.18	0.16
Peru[2, 5]	–35.04	–11.20	–6.98	–1.41	–0.75	–0.42	–0.03	0.49	0.86	0.81
Central and eastern Europe										
Czech Republic	…	…	–0.01	1.34	–2.11	–2.88	–7.72	–5.13	–3.78	–0.14
Hungary	–0.53	0.17	–0.71	–0.46	1.76	0.12	–0.58	0.73	–0.02	–0.04
Poland	–2.49	–0.42	0.23	0.55	–0.89	–1.44	–2.29	–1.50	–2.05	–2.30
Other EMEs										
Israel[6]	32.66	33.53	31.29	26.83	21.13	19.62	17.74	16.60	16.64	15.55
Russia	…	–0.68	0.38	0.06	3.74	0.26	0.25	0.15	0.30	0.45
South Africa[2]	11.51	12.37	14.20	15.99	20.44	29.61	29.23	27.80	25.26	23.03
Turkey	0.68	0.49	0.52	0.14	1.17	0.54	–0.16	–0.26	0.16	0.57

[1] On a residence basis. [2] Comparison using BIS domestic debt securities. [3] BIS total debt securities calculated as the sum of international and domestic debt securities for general government. [4] Data sent in questionnaire are obtained from the Budget Office and may not tally exactly with the external debt data published by the Central Bank of Chile, given different methodologies. [5] BIS debt securities calculated using public available data. [6] Data sent in questionnaire are for securities tradable only in Israel.

Sources: BIS securities statistics; BIS questionnaires.

Comparison of financial corporations' debt securities from BIS statistics with those from questionnaires[1]

Percentage point deviation between the questionnaire as base to BIS, total debt securities data — Table A3

	04	05	06	07	08	09	10	11	12	13
Emerging Asia										
China	83.46	116.94	126.24	112.58	114.69	82.19	71.22	30.12	14.97	4.10
Hong Kong SAR	–8.97	0.46	4.17	14.83	29.31	54.37	38.25	16.60	–0.89	–6.19
Malaysia	…	109.29	143.24	43.62	66.34	46.95	8.87	15.23	–1.14	5.22
Singapore	0.05	0.10	0.47	0.72	0.61	–0.53	–0.91	20.24	34.28	52.07
Thailand	…	0.00	–1.65	0.00	–0.45	0.15	–0.30	–0.45	–0.14	–0.33
Central and eastern Europe										
Czech Republic	…	…	–0.01	0.61	–0.17	0.19	–0.26	–1.47	–0.11	–0.14
Hungary	0.71	0.69	–0.13	0.30	1.81	0.08	–0.66	0.55	–0.38	–0.10
Poland[2]	172.15	285.15	169.74	143.80	154.44	431.29	692.98	417.83	330.93	352.36
Other EMEs										
Israel[3]	124.39	198.79	159.56	176.79	130.21	122.30	81.92	66.20	61.75	6.37
Russia	–0.94	–0.39	–0.41	–0.53	3.14	–1.33	–1.68	–2.11	–1.23	–0.60
Turkey	–5.34	…	13.32	–2.55	2.75	–4.28	–0.35	–0.15	0.11	0.54

[1] On a residence basis. [2] Data for financial corporations other than banks and for non-financial corporations comprise only securities issued domestically. Bonds issued by Bank Gospodarstwa Krajowego for the National Road Fund are presented as general government debt. [3] Data sent in questionnaire are for securities tradable only in Israel.

Sources: BIS securities statistics; BIS questionnaires.

Comparison of non–financial corporations' debt securities from BIS statistics with those from questionnaires[1]

Percentage point deviation between the questionnaire as base to BIS, total debt securities data — Table A4

	04	05	06	07	08	09	10	11	12	13
Emerging Asia										
China	–24.27	–9.35	–1.25	4.31	–8.79	–8.66	–13.20	–14.71	–19.36	–35.51
Hong Kong SAR	134.17	98.31	110.40	107.56	81.62	64.68	41.49	17.08	12.71	11.59
Korea[2]	84.05	86.47	84.55	94.72	111.55	104.09	117.04	113.90	125.13	125.65
Malaysia	…	0.82	–1.02	0.52	19.34	19.87	30.64	29.87	39.66	39.35
Philippines[3]	–4.35	–7.85	–18.19	–31.55	–25.99	–37.14	–38.39	–25.03	–28.67	–18.40
Singapore	0.60	0.47	0.28	0.35	0.68	0.18	–0.70	0.10	–0.48	–0.02
Thailand	–0.36	0.00	–1.65	0.01	–0.45	0.15	–0.30	–0.45	–0.14	–1.29
Latin America										
Brazil[3]	…	…	…	…	…	…	80.34	99.70	92.99	84.69
Chile[3, 4]	–48.47	–58.52	–65.99	–69.91	3.97	5.98	3.64	4.90	6.39	4.90
Colombia[3, 5]	–68.17	–72.33	–67.71	–60.29	–58.47	–44.78	–47.37	–36.91	–32.98	–12.27
Mexico[2]	…	…	…	…	…	51.65	61.60	70.77	78.01	80.22
Peru[2, 5]	68.62	36.42	17.79	4.26	8.79	–2.67	–1.04	2.84	2.34	–20.62
Central and eastern Europe										
Czech Republic	…	…	0.01	0.57	–0.18	0.21	–0.28	–1.48	–0.10	–0.13
Hungary	–3.77	–0.88	–1.12	1.35	5.17	5.14	–1.48	0.58	0.89	–5.11
Poland[6]	172.09	142.36	75.75	64.22	36.31	47.27	46.61	38.49	51.52	69.14
Other EMEs										
Israel[7]	269.65	157.33	100.37	56.89	0.43	31.61	15.70	9.66	9.63	8.67
Russia	–0.31	0.00	–0.02	0.41	–2.05	–7.08	–3.54	–3.39	–0.91	–0.38
South Africa[2]	0.06	0.63	0.90	0.61	–0.69	–0.50	–0.16	–0.67	–0.28	–0.31
Turkey	…	…	…	…	…	…	0.04	–2.74	1.43	0.40

[1] On a residence basis. [2] Comparison using BIS domestic debt securities. [3] BIS total debt securities calculated as the sum of international and domestic debt securities. [4] Data sent in questionnaire are obtained from the Budget Office and may not tally exactly with the external debt data published by the Central Bank of Chile, given different methodologies. [5] BIS debt securities calculated using publicly available data. [6] Data for financial corporations other than banks and for non-financial corporations comprise only securities issued domestically. Bonds issued by Bank Gospodarstwa Krajowego for the National Road Fund are presented as general government debt. [7] Data sent in questionnaire are for securities tradable only in Israel.

Sources: BIS securities statistics; BIS questionnaires.

Average maturity at issuance by residence of borrower

In years; all sectors — Table A5

	04	05	06	07	08	09	10	11	12	13
Emerging Asia										
China	4.40	6.40	5.50	8.40	6.00	5.90	7.00	6.60	7.20	6.10
Hong Kong SAR	2.20	2.10	1.70	2.10	1.60	1.00	1.00	1.00	1.00	1.00
Korea[1]	4.00	4.20	4.50	4.70	4.90	5.10	5.40	5.80	6.20	6.70
Malaysia	4.36	3.12	3.05	3.61	4.08	4.42	4.41	4.72	5.18	5.49
Thailand	…	…	…	…	…	6.43	6.47	6.73	6.92	7.55
Latin America										
Brazil	…	…	…	…	…	…	3.60	3.50	6.00	3.60
Colombia	6.50	5.70	8.70	5.60	5.40	7.50	6.00	5.90	9.70	7.40
Peru	5.80	4.70	1.60	2.80	1.40	1.20	1.00	2.10	1.40	1.80
Other EMEs										
Russia[2]	4.93	4.57	5.69	6.54	6.64	4.57	5.04	5.50	6.37	7.18
Turkey	3.83	4.38	5.05	5.17	5.63	5.51	5.92	6.54	6.74	7.66

[1] Based on maturity at bond issuance. [2] Weighted average of international and domestic debt securities.

Source: BIS questionnaires.

Share of foreign currency denomination by residence of borrower

In per cent; all sectors

Table A6

	04	05	06	07	08	09	10	11	12	13
Emerging Asia										
China	0.00	0.40	0.50	0.50	0.30	0.30	0.20	0.10	0.00	0.00
Hong Kong SAR	45.80	46.70	46.20	43.90	41.30	22.20	25.40	38.40	47.20	53.10
Korea	0.00	0.00	0.01	0.02	0.05	0.05	0.03	0.02	0.02	0.02
Malaysia	0.00	0.00	0.00	0.00	0.00	0.01	1.09	1.15	0.97	1.01
Philippines	40.40	38.90	38.30	34.80	33.50	34.00	32.30	31.50	27.40	28.00
Thailand	9.57	7.96	6.32	4.31	4.02	3.07	2.28	1.87	2.25	3.73
Latin America										
Brazil	…	…	…	…	…	…	4.50	5.60	5.70	5.40
Chile	35.10	29.20	28.30	21.70	21.80	19.80	22.60	25.90	26.10	28.60
Colombia	22.20	16.90	15.40	14.60	16.00	11.10	9.60	18.00	18.20	16.80
Peru	50.10	39.10	35.40	25.50	23.70	22.40	18.50	16.80	13.00	13.20
Central and eastern Europe										
Czech Republic	12.60	14.90	8.60	9.20	14.30	17.10	21.10	20.90	22.90	24.60
Hungary	21.80	27.00	30.30	31.00	34.60	32.80	32.40	34.50	31.20	31.00
Poland[1]	14.00	21.00	21.00	18.00	21.00	21.00	22.00	24.00	24.00	22.00
Other EMEs										
Israel[2]	0.90	1.00	1.03	2.03	1.60	1.31	1.04	1.03	0.89	0.66
Russia	0.00	56.65	52.98	50.45	50.70	44.12	41.97	38.99	40.30	42.25
Turkey	30.00	27.80	28.20	23.60	24.50	20.10	17.80	20.80	21.90	27.90

[1] Data for financial corporations other than banks and for non-financial corporations comprise only securities issued domestically. Bonds issued by Bank Gospodarstwa Krajowego for the National Road Fund are presented as general government. [2] In Israel data sent in questionnaire are only for tradable securities.

Source: BIS questionnaires.

Share of fixed interest rate products by residence of borrower

In per cent; all sectors — Table A7

	04	05	06	07	08	09	10	11	12	13
Emerging Asia										
China	60.30	56.93	54.99	71.28	70.54	74.07	75.63	82.40	88.84	90.24
Hong Kong SAR	79.40	80.80	79.60	77.60	79.50	87.60	89.30	89.00	87.30	88.60
Korea	95.30	97.30	97.90	98.00	98.10	97.30	97.00	97.60	97.30	97.50
Thailand	…	…	…	…	…	75.93	75.61	75.41	75.14	77.65
Latin America										
Brazil	…	…	…	…	…	…	16.80	15.90	16.60	16.60
Chile	96.21	98.70	98.72	99.04	82.25	98.70	95.09	99.42	99.12	96.55
Colombia	79.80	84.90	58.00	55.70	61.30	49.20	48.00	53.90	48.10	58.90
Mexico	…	…	…	…	…	46.21	48.09	46.43	47.09	47.61
Peru	97.40	98.80	95.70	97.90	99.40	99.00	99.20	99.10	97.80	96.60
Central and eastern Europe										
Czech Republic	100.00	100.00	100.00	100.00	100.00	99.99	100.00	99.98	99.99	100.00
Hungary	73.70	77.80	78.00	77.30	75.30	66.50	68.80	66.90	66.00	63.80
Poland	84.66	84.90	83.83	80.90	82.52	85.23	83.33	82.12	77.01	75.51
Other EMEs										
Israel[1]	76.21	78.82	82.46	78.99	81.61	83.12	78.01	90.29	92.11	91.82
South Africa	22.00	21.00	23.00	24.00	70.00	71.00	71.00	70.00	68.00	69.00
Turkey	…	…	66.10	68.00	68.20	66.60	70.90	75.50	78.10	82.10

[1] Debt information is for securities tradable only in Israel.

Source: BIS questionnaires.

Change in the role of debt securities and corporate deposits in the economy

Changes between 2004 and 2013, in percentage points

Table A8

	Ratio of debt securities outstanding to nominal GDP		Ratio of corporate debt securities outstanding to nominal GDP[1]		Ratio of corporate deposits to total deposits
Hong Kong	73.2	Hong Kong	44.0	The Philippines	28.9
Czech Republic	57.3	Israel	21.7	Colombia	19.6
Thailand	43.7	China	20.6	United Arab Emirates	15.1
Hungary	35.3	Hungary	20.3	Korea	12.1
Malaysia	28.5	Thailand	20.0	Hungary	10.4
Korea	26.0	Chile	15.3	South Africa	8.9
Israel	25.4	Czech Republic	12.8	Indonesia	7.1
China	19.2	Russia	11.6	Thailand	6.3
Chile	18.7	Singapore	9.1	Peru	5.9
Poland	16.0	Malaysia	8.5	Mexico	5.1
South Africa	12.7	South Africa	7.9	India	4.5
Russia	8.7	Korea	6.2	Singapore	3.0
Singapore	5.3	Turkey	5.7	Malaysia	2.9
Colombia	3.2	Poland	2.8	Chile	1.6
Peru	2.0	Colombia	1.7	Argentina	1.5
Algeria	–5.6	The Philippines	1.7	Poland	1.4
Turkey	–8.5	Peru	–1.9	Czech Republic	1.0
The Philippines	–13.7			Saudi Arabia	–4.9
				Algeria	–38.0

[1] For Thailand, change between 2005 and 2013. For Czech Republic, change between 2006 and 2013.

Source: BIS questionnaire.

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