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Implications of financial market development for financial stability in emerging market economies

By Philip Wooldridge

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Note submitted to the G20 International Financial Architecture Working Group

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1. Introduction

Over the past two decades, financial markets in emerging market economies (EMEs) have grown bigger, broader and more liquid. Their development has strengthened the financial system's overall resilience, not least by helping EMEs realise the benefits of capital flows while addressing the challenges associated with their volatility. The expansion of local currency bond markets in particular has enabled governments to borrow in their own currency rather than foreign ones, thus reducing the currency mismatches that exacerbated earlier EME crises. That said, financial market development has altered rather than eliminated EMEs' vulnerability to large swings in capital flows and exchange rates.

The changed nature of EMEs' vulnerability was forcefully exposed in early 2020, when the Covid-19 outbreak sparked a global retreat from risk. Portfolio rebalancing by investors led to sharp currency depreciations, which amplified portfolio outflows and falls in EME asset prices. To counter potentially destabilising market dynamics, EME central banks expanded their policy toolkit, by introducing bond purchase programmes among other measures.

While central banks' actions helped to stabilise markets, the Covid-19 crisis highlighted that market development in EMEs remains incomplete. To be sure, the crisis caused dislocation even in well developed markets. In many EMEs, market stress was exacerbated by the lack of a large base of domestic institutional investors and liquid hedging markets. More generally, weaknesses in macroeconomic fundamentals and other aspects of the enabling environment – such as market autonomy, strong legal frameworks, and effective regulatory regimes – continue to hold back market development (CGFS (2019)).

In reports by central bank committees and studies by BIS researchers, the BIS has extensively analysed the development of financial markets and the implications for financial stability. This note highlights recent analysis. It first reviews trends in market development, based mainly on CGFS (2019). It then discusses the impact on domestic financial stability and cross-border vulnerabilities, summarising Cantú and Chui (forthcoming).[2] The final section outlines policy challenges, drawing on BIS (2019) and BIS (2020).

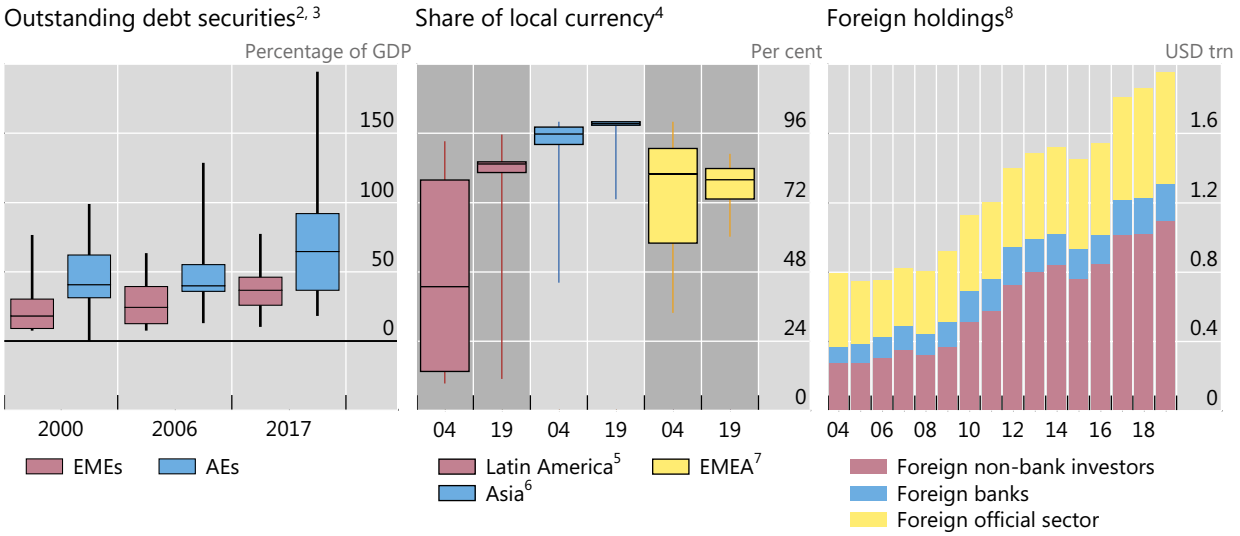
2. Trends in financial market development

Since the financial crises of the 1990s, EMEs have encouraged the development of local capital markets, including that of the complementary hedging and short-term funding markets. Equity markets have tended to develop before fixed income markets, but the latter have caught up along several dimensions. Nevertheless, progress has been uneven across EMEs, and markets in most EMEs remain less developed than in advanced economies (AEs).

[2] Cantú and Chui (forthcoming), as well as Mehrotra and Schanz (forthcoming), were prepared for a meeting of senior central bank officials held at the BIS in February 2020. The meeting focused on the implications of financial market development for monetary policy and financial stability in EMEs.

EME government securities markets[1]

Graph 1



[1] Box and whisker plots show median, interquartile range and range. [2] EMEs: AR, BR, CL, CN, CO, CZ, HK, HU, ID, IL, IN, KR, MX, MY, PE, PH, PL, RO, RU, SA, SG, TH, TR, ZA. AEs: AU, BE, CA, CH, DE, DK, ES, FR, GB, IT, JP, NL, NO, NZ, SE, US. [3] Includes debt securities issued in international markets. [4] Bonds denominated in local currency as a share of outstanding bonds. [5] AR, BR, CL, CO, MX, PE. [6] CN, HK, IN, ID, KR, MY, PH, SG, TH. [7] Europe, Middle East and Africa = CZ, HU, IL, PL, RU, SA, ZA, TR. [8] Non-resident investors' outstanding holdings of government bonds denominated in local currency.

Sources: Cantú and Chui (forthcoming); CGFS (2019); IMF *Sovereign Debt Investor Base* and *World Economic Outlook* databases; national data; BIS debt securities statistics.

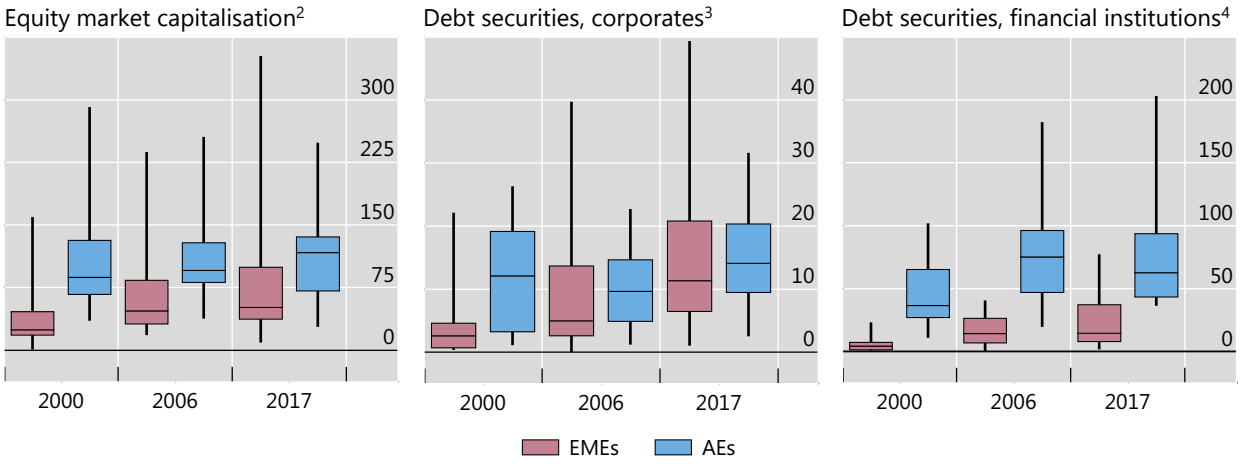
Government securities markets saw especially impressive advances over the past two decades. They roughly doubled in size, from a median of 18% of GDP in 2000 to 37% in 2017 (Graph 1, left-hand panel). In terms of the length of maturities and diversity of instruments, they increasingly resemble government securities markets in AEs, despite their smaller size.

In tandem with the growth of local bond markets, the share of government debt denominated in local currencies rose significantly. Whereas two decades ago a sizeable number of EME governments borrowed mainly in foreign currencies, now only a handful do (Graph 1, centre panel). The shift was especially impressive in Latin America, where the median share of government bonds denominated in local currencies increased from 43% to 85% between 2004 and 2019.

The shift from foreign- to local-currency issuance was accompanied by greater foreign participation in government securities markets. Foreign holdings of debt denominated in EME currencies increased from $800 billion in 2004 to almost $2 trillion in 2019 (Graph 1, right-hand panel). Investment funds and other institutional investors accounted for much of the increase. The factors that drove their participation in local markets included improving fundamentals, an easing of restrictions on capital account transactions, and demand for higher-yielding assets amid low global interest rates (Cantú and Chui (forthcoming)).

Corporate securities markets[1]

Amounts outstanding, as a percentage of GDP — Graph 2



[1] Box and whisker plots show median, interquartile range and range. For a list of countries classified as EMEs or AEs, see footnote 2 in Graph 1. [2] Excluding HK, where in 2017 equity capitalisation was 1,274% of GDP. [3] Non-financial corporations. Includes debt securities issued in international markets. [4] Banks and non-bank financial corporations. Includes debt securities issued in international markets.

Source: CGFS (2019); IMF *World Economic Outlook* database; national data; BIS debt securities statistics.

Corporates in EMEs have also increasingly turned to bond markets. The amount of corporate debt securities outstanding almost quadrupled over the 2000–17 period, from a median of 7% of GDP to 26%. The median capitalisation of EME equity markets doubled over the same period, yet it was still larger at 50% of GDP in 2017 (Graph 2, left-hand panel). In AEs, banks and other financial institutions are the dominant issuers of corporate debt securities, with about five times more outstanding than non-financial corporates (centre and right-hand panels). In contrast, in EMEs the market for financial institutions' debt is not much larger than that for non-financial corporate debt.

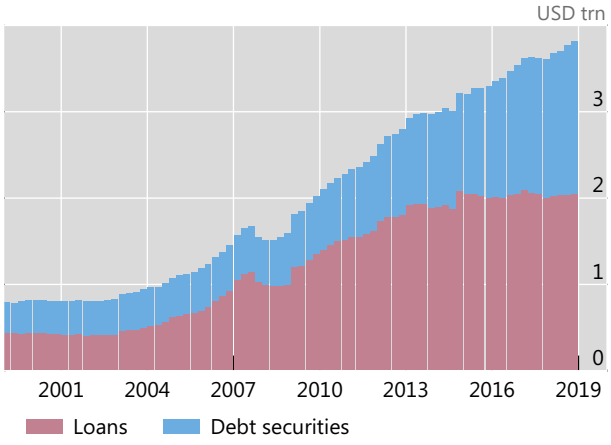
In contrast to government bond issuance, foreign currency debt still accounts for a high share of corporate issuance. For example, over the 2009–19 period, the dollar debt of non-bank borrowers in EMEs rose from $1.6 trillion to $3.8 trillion, and their euro debt doubled from €0.4 trillion to €0.8 trillion (Graph 3, left-hand panel). The increase was driven mainly by corporate borrowing in international debt securities markets. Corporates' dependence on foreign currency debt differs across EMEs. Over the 2009–17 period, non-financial corporates in eastern Europe and Latin America issued predominantly in foreign currencies, whereas bonds issued by corporates in Asia were denominated mostly in local currencies (right-hand panel).

Notwithstanding the growing size and breadth of local capital markets, progress along other dimensions of market development was more mixed. Market liquidity remains fragile. Local currency government bond markets in several EMEs enjoy liquidity conditions similar to those in AEs. But there is a long tail of EMEs where liquidity is poor, with wide bid-ask spreads and large price moves in response to trades (Graph 4, left-hand panel). In most EME equity markets, turnover relative to capitalisation was lower in the 2009–17 period than in 2003–08 and remained well below that in AEs (right-hand panel).

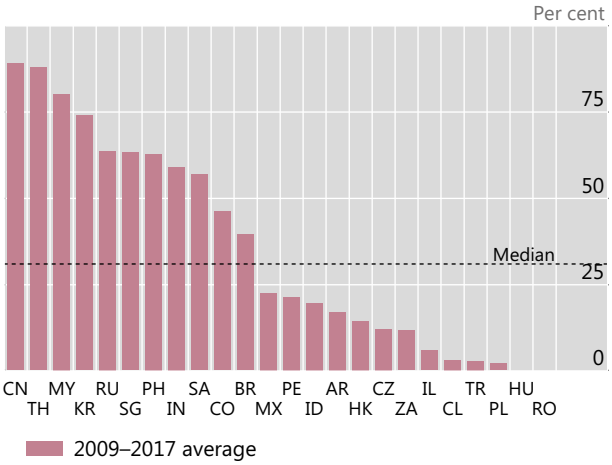
Foreign currency borrowing by EME corporates

Graph 3

US dollar credit, by instrument[1]



Local currency share of bond issuance[2]



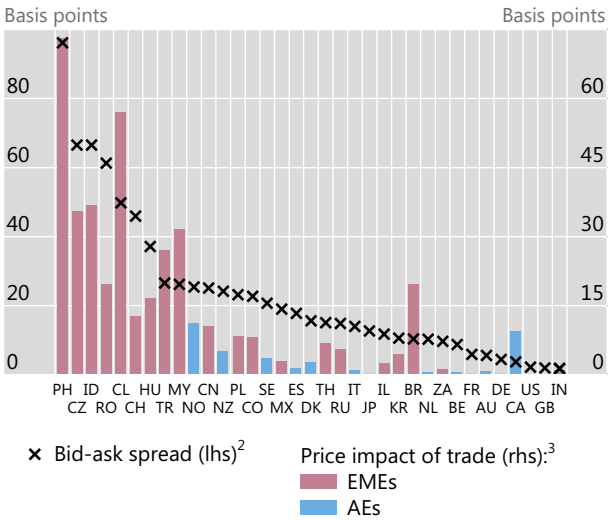
[1] Outstanding credit extended to non-bank borrowers resident in EMEs in the form of bank loans and debt securities. [2] Bond issuance denominated in local currency as a share of bonds issued by non-financial corporates. Corporates are classified by country according to the nationality of their parent.

Sources: CGFS (2019); Dealogic; BIS global liquidity statistics.

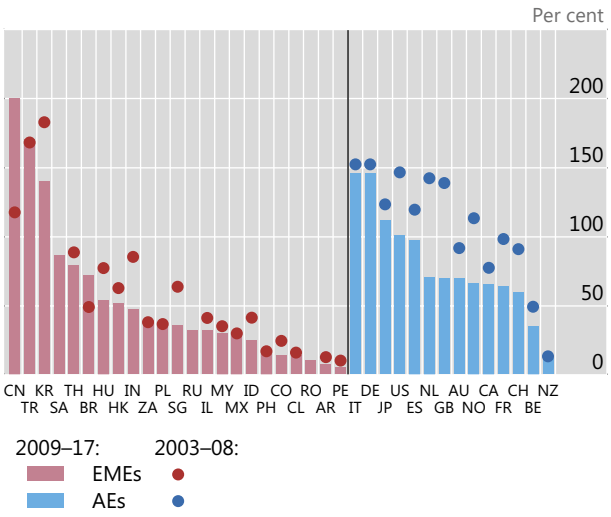
Market liquidity

Graph 4

Government bond market liquidity[1]



Equity market turnover[4]

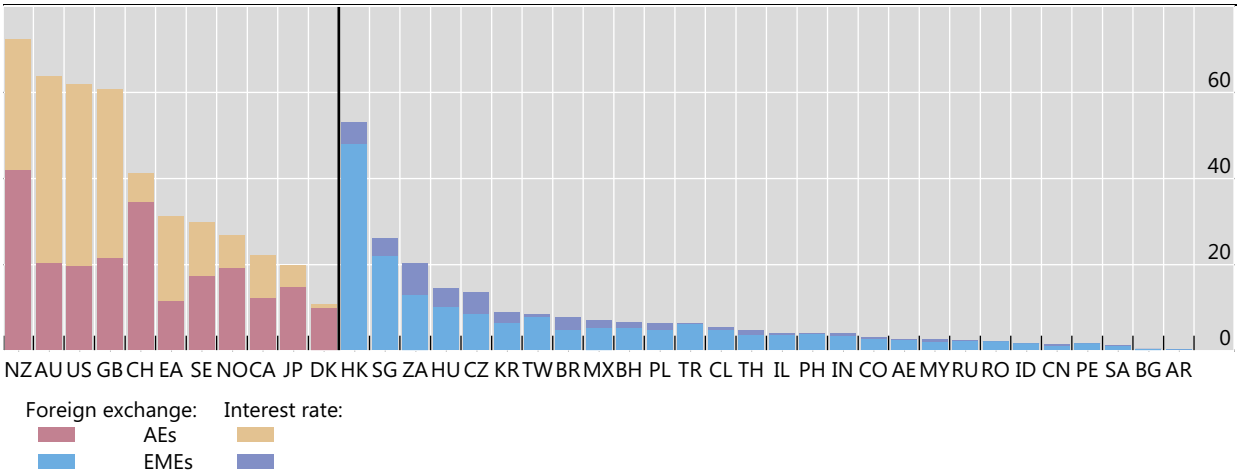


[1] Ten-year benchmark local currency government bonds. [2] Average of daily bid-ask spreads in May 2018, defined as: (ask price – bid price) / bid price * 100, ie the return cost of executing a round-trip transaction in the bond. [3] Based on USD 10 million transaction amount using estimates from the Bloomberg Liquidity Assessment function. Data based on 6 June 2018 17:00 Tokyo closing time, except for Korea, which is 5 June 2018 17:00 Tokyo time, and Sweden, which is 16:00 New York time. [4] Ratio of the value of equities traded each year to the average domestic market capitalisation. For BE, FR, NL, 2009–14. For NZ, excludes 2011.

Source: Bloomberg; CGFS (2019); Datastream; World Federation of Exchanges.

Interest rate and FX derivatives turnover[1]

As a percentage of GDP Graph 5



[1] Average daily turnover in April 2019 of exchange-traded and over-the-counter derivatives denominated in the currency of the respective country, as a share of the country's annual 2019 GDP. Turnover includes trading in offshore markets.

Sources: Euromoney TRADEDATA; Futures Industry Association; IMF *World Economic Outlook* database; The Options Clearing Corporation; BIS derivatives statistics.

The development of complementary markets – derivatives, repo and securities lending markets – lagged that of capital markets. Derivatives markets complement cash markets by making it easier to hedge and take positions, while repo and securities lending markets help market participants fund their positions, supporting liquidity and price discovery (CGFS (1999)).

The turnover of derivatives denominated in EME currencies has been rising steadily, driven in recent years by offshore trading (Patel and Xia (2019)). Nevertheless, in 2019 daily turnover of foreign exchange and interest rate derivatives for the median EME currency was still well below that for the median AE currency: 5% of GDP compared with 32% (Graph 5). The turnover of interest rate derivatives was especially low for all but a handful of EME currencies.

3. Risks to domestic financial stability

Financial markets contribute to domestic financial stability in two main ways. First, they enhance the allocation of capital to its most productive use. Deep and liquid markets reduce asset price volatility and improve the price signals that inform decisions to borrow and invest. They support the efficient allocation of resources and thereby boost growth prospects.

Second, financial markets facilitate risk-sharing. They enable borrowers to diversify their funding sources and creditors their investments. For example, well developed markets provide borrowers with a wider range of instruments with which to manage their exposure to currency and maturity risks, reducing balance sheet vulnerabilities. They also act as a spare tire, providing an alternative source of financing when banks are under stress.

Notwithstanding these benefits, financial market development can also exacerbate vulnerabilities. The expansion of financial markets typically eases financing conditions and thus can lead to higher leverage and debt service burdens (Cantú and Chui (forthcoming)). Even when credit remains low as a share of GDP, a rapid expansion can be a source of systemic risk. The difference between the credit-to-GDP ratio and its long-term trend – the credit gap – has been shown to be a useful early warning indicator for banking crises (eg Aldasoro et al (2018), Borio et al (2018)).

Rising debt levels are a source of concern in some EMEs, although there is considerable heterogeneity in their balance sheet vulnerabilities. Credit to EME households has risen steadily for many years, predominantly in the form of bank lending. Credit to EME corporates rose rapidly in the first half of the 2010s and, while it has since stabilised, the large share of foreign currency debt and the deterioration in borrowers' credit quality add to corporates' fragility. Corporate risks are mitigated to some extent by the long maturity of foreign currency bonds and some corporates' foreign currency assets or revenues, or use of currency hedges (Avdjiev et al (2020)).

The development of markets can also be associated with a build-up of risks among non-bank investors. To the extent that such investors engage in maturity or liquidity transformation, as banks do, they can become a source of systemic risk directly as well as through their connections to other parts of the financial system. The events of March 2020 illustrated that, even in the well developed US dollar market, strains on money market funds can severely disrupt the functioning of markets (Eren et al (2020)).

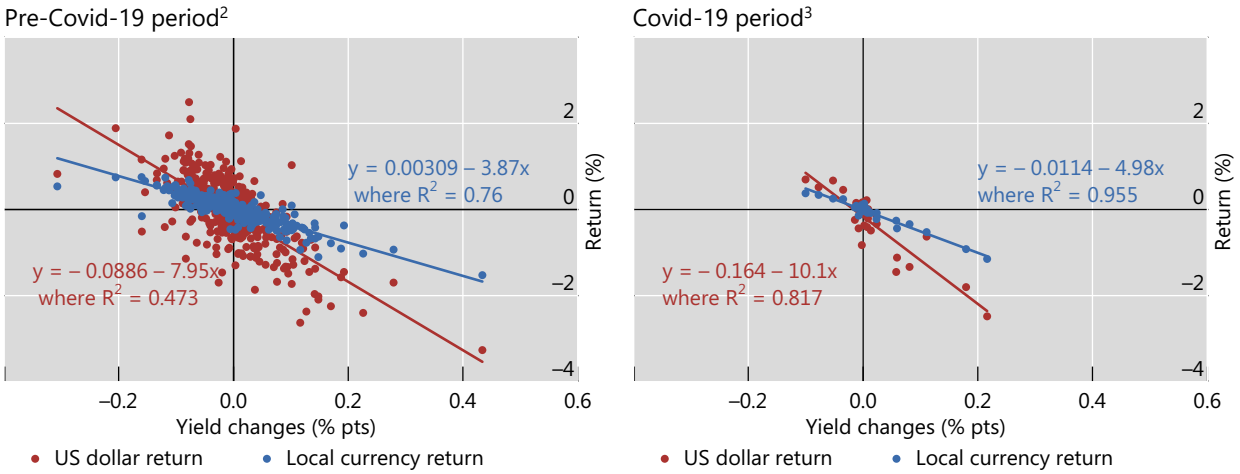
4. Cross-border vulnerabilities

Turning to the cross-border dimension, the development of local currency markets helped EMEs to overcome the "original sin" of not being able to borrow internationally in their own currency but, as alluded to earlier, it did not eliminate the risks associated with currency mismatches. Instead, the development of local currency markets shifted these risks from borrowers to creditors – a phenomenon dubbed "original sin redux" by Carstens and Shin (2019). In recent years, periods of global market volatility, including the events of March 2020, have demonstrated that financial conditions in EMEs are still vulnerable to feedback loops between capital flows, exchange rates and asset prices.

Foreign participation in local financial markets changes but does not eliminate EMEs' exposure to the financial channel of the exchange rate (BIS (2019)). Historically, EMEs' susceptibility to creditor runs and currency crises was linked to currency mismatches combined with maturity mismatches (CGFS (2007)). A depreciation of the local currency would weaken unhedged borrowers' balance sheets, leading to a tightening of financial conditions. Today, borrowers can borrow in their local currency and so are less likely to have currency mismatches, yet they might still face a tightening of financial conditions because of mismatches on the balance sheets of foreign investors.

Investors incur currency mismatches whenever they do not hedge their foreign asset holdings into their home currency. An EME currency depreciation would reduce the value of their EME assets, and such a mark-to-market loss might trigger risk limits

Sensitivity of US dollar and local currency returns to yield changes[1] Graph 6



[1] JP Morgan GBI-EM Broad index, 5–7 years, principal return in US dollars and local currency against yield change. [2] January 2013 to 10 February 2020, weekly data. [3] 11 February 2020 to 23 March 2020, daily data.

Sources: Hofmann et al (2020); JPMorgan Chase.

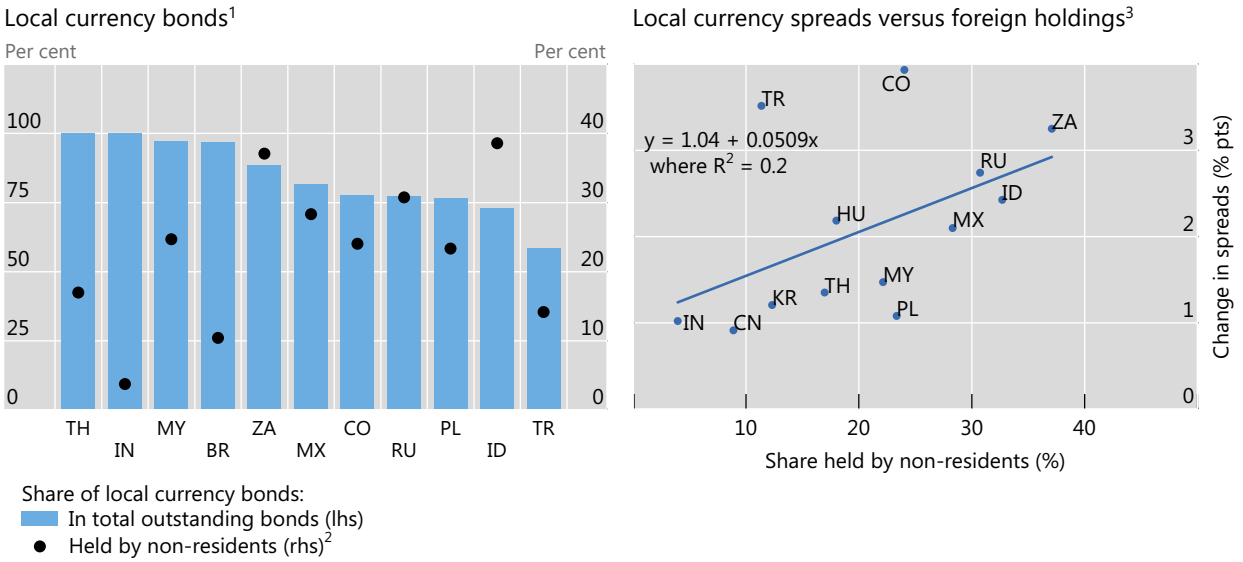
or margin calls. In turn, this might lead to sales or ex post hedging, which would further push down EME asset prices. The result is a mutually reinforcing loop between capital outflows and currency depreciation. When EME exchange rates appreciate, the same mechanism plays out in reverse: appreciation amplifies the gains to foreign investors, leading to more inflows.

The financial channel is reflected in the relationship between bond returns and exchange rates in EMEs. In Graph 6, the red lines showing US dollar returns are steeper than the blue lines showing local currency returns. This means that the sensitivity of EME bond returns to changes in long-term interest rates tends to be higher in US dollar terms than in local currency terms. The higher sensitivity of US dollar returns is because exchange rate moves tend to reinforce the impact of interest rate changes. In other words, exchange rates depreciate when sovereign yields rise, thereby amplifying investors' losses. This general pattern has been evident since at least 2013 and was on display again when the outbreak of Covid-19 sparked a global retreat from risk (right-hand panel).

In March 2020, bond markets across EMEs experienced huge portfolio outflows and sharp increases in sovereign spreads and yields. Significantly, this negative relationship was stronger in some EMEs than others. Markets characterised by low liquidity, high foreign participation, high exchange rate volatility or high sovereign spreads experienced the sharpest increases in yields for a given bond portfolio outflow (Hördahl and Shim (2020)).

Moreover, these characteristics had a larger influence during the recent crisis than during calmer times. For example, prior to the crisis, foreign participation seemed to have only a mild influence on the sensitivity of yields to flows (Hördahl and Shim (2020)). Yet, in early 2020, there was a clear positive relationship between the share of local currency bonds held by foreign investors and increases in sovereign spreads (Graph 7, right-hand panel).

Foreign holdings of local currency government bonds Graph 7



[1] Amounts outstanding at end-2019. For IN and TR, end-2018. [2] Central government debt. [3] For change in spreads, maximum change relative to 3 January 2020 over the period up to 12 June 2020 in five-year generic local currency sovereign yield spread over the US Treasury of the same tenor. For foreign holdings, share at end-2019 (for ID and MY, as of end-March 2020).

Sources: BIS (2020); Bloomberg; Hofmann et al (2020); IMF *Sovereign Debt Investor Base* database; national data; BIS debt securities statistics.

In general, the participation of foreign investors in markets that are not as well developed as those in AEs potentially heightens asset price volatility (Miyajima and Shim (2014)). In this context, the sheer size of global asset managers and the way that they manage assets become potential concerns. A small number of large players dominate the global asset management industry, managing portfolios that are often large relative to EME markets, and they tend to herd, for instance by following a small number of benchmark indices.

These costs must be weighed against the significant benefits that foreign participation brings. These benefits include expanding the potential pool of savings, enabling cross-country risk-sharing, increasing the diversity of investment preferences and hedging needs, and promoting the implementation of international best practices and standards (CCGFS (2019)).

5. Policy implications

Capital flows and associated exchange rate volatility pose challenges to EMEs because inflation processes are less well anchored than in AEs and financial systems less well developed. The development of local financial markets is one part of a multi-pronged effort by EMEs to address these challenges. EME central banks have also contributed to this effort through adjustments to their monetary policy frameworks. They have adopted monetary policy frameworks that combine inflation targeting with varying degrees of foreign exchange intervention, together with the active use of macroprudential and capital flow management tools (BIS (2019)). This framework has served EMEs well, as indicated by their macroeconomic performance over the past two decades.

The Covid-19 crisis led EME central banks to further expand their toolkit for coping with the influence of capital flows and exchange rates on domestic financial conditions. In March–April 2020, central banks in at least 13 EMEs introduced bond purchase programmes (BIS (2020)). Most programmes focus on local currency government bond purchases in secondary markets and are relatively modest in size.

The aim of EMEs' bond purchase programmes is to address market dislocations, particularly those arising from heightened risk aversion among foreign investors (Arslan et al (2020)).[3] EMEs' programmes do not aim explicitly to provide credit or monetary stimulus. Instead, they aim to address the feedback loop between exchange rates and asset prices. The programmes seek to reassure investors by signalling that EME central banks are prepared to act as dealers and buyers of last resort.

The targeted provision of liquidity by EME central banks, complemented by US dollar swap and repo facilities, helped to stabilise markets and ease financial conditions from late March 2020. This episode offers lessons for the role of central banks in supporting the functioning of markets, as well as the need for a credible and effective global financial safety net.

The efficacy of EME central banks' efforts to strengthen the resilience of financial conditions to external financial shocks depends on improvements in other areas. In many EMEs the enabling environment for market development leaves room for improvement. Sound fiscal policies, independent regulators and efficient and fair legal frameworks are but a few of the factors necessary to foster the development of robust markets (CGFS (2019)).

In addition, there are two specific areas where further market development could support financial stability. One is the development of derivatives markets (Avalos and Moreno (2013), Cantú and Chui (forthcoming)). In many EMEs, derivatives markets are small and hedging costs are correspondingly high, making it difficult for borrowers and investors to tailor their currency and other risk exposures to their preferences.

Another priority area is the development of a larger base of domestic institutional investors (BIS (2019), Carstens and Shin (2019)). A larger base of domestic investors could dampen financial market volatility arising from the behaviour of foreign investors. Financial intermediation in most EMEs remains heavily bank-based, with banks controlling assets that are many times larger than the assets of pension funds, asset managers and other non-bank financial institutions.

[3] With the same intent, some central banks introduced duration swaps, where long-term securities were swapped for short-term ones via auctions (Hördahl and Shim (2020)).

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