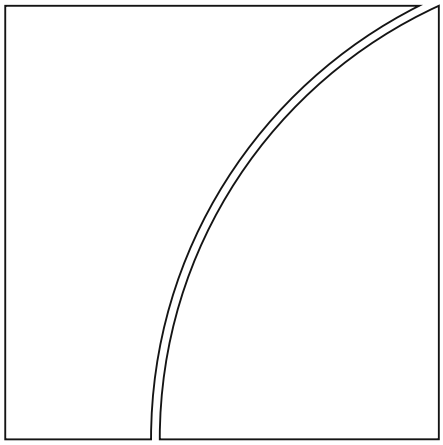
Committee on the Global Financial System

CGFS Papers

No 62

Establishing viable capital markets



Report submitted by a Working Group established by the Committee on the Global Financial System

The Group was chaired by Viral V Acharya (Reserve Bank of India) and Li Bo (People's Bank of China)

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Preface

All central banks have a keen interest in healthy and efficient capital markets. Capital markets provide an important channel of financing for the real economy, they help allocate risk, and they support economic growth and financial stability.

In an effort to promote capital market development, the Committee on the Global Financial System (CGFS) mandated a working group co-chaired by Viral V Acharya (Reserve Bank of India) and Li Bo (People's Bank of China) to examine trends in capital market development and identify the factors that foster the development of robust capital markets.

The following report presents the Group's conclusions on the establishment of viable capital markets. It discusses the importance of a strong enabling environment characterised by macroeconomic stability, market autonomy, strong legal frameworks, and effective regulatory regimes. In addition, drivers that are more directly linked to specific capital market functions – such as better disclosure standards, investor diversity, internationalisation, and deep hedging and funding markets, as well as efficient and robust market infrastructures – also play a key role in market development. The report's recommendations across six broad areas outline practical ways in which policy can enhance these drivers, while recognising that some lie outside central banks' powers.

I hope that this important report can serve as a resource for policymakers as well as market participants seeking to strengthen their domestic capital markets.

Philip Lowe

Chair, Committee on the Global Financial System
Governor, Reserve Bank of Australia

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Executive summary

Developed and deep capital markets can play a key role in financing economic growth as well as influencing financial stability and the transmission of monetary policy. As economies develop and investment projects become larger and more complex, efficient resource allocation and risk-sharing are facilitated by the information aggregation activity and variety of financial claims provided by capital markets. Moreover, capital markets have played an important role in financing the recovery from the Great Financial Crisis (GFC), a reminder of their "spare tyre" role in the financial system.

Consistent with the mandate of the Committee on the Global Financial System to further the understanding of financial markets' underpinnings and promote improvements to their functioning and stability, this report assesses recent trends in capital market development and identifies both key drivers in the enabling environment and other factors more specific to capital market functions. It concludes by providing policy recommendations that aim to enhance the effectiveness of capital markets in serving the real economy. The breadth of the recommendations reflects the broader role of central banks in promoting capital market development in addition to their direct regulatory responsibilities.

There still remain significant differences in the size of capital markets across economies. Indicatively, the largest equity, government bond and corporate bond markets relative to GDP in advanced economies (AEs) are approximately twice the size of those at the 75th percentile, which in turn are twice the size of those at the 25th percentile. A similar pattern holds across markets in emerging market economies (EMEs).

Fixed income markets have seen strong growth over the past two decades, bringing current amounts outstanding closer to equity market capitalisation. In terms of market functioning, market participants report the least concerns about government securities markets and the greatest concerns about markets for corporate bonds, with equities somewhere in between.

EME capital markets are catching up, but a gap relative to AE markets remains. In EME government securities markets, the instrument mix and liquidity have improved. At the same time, EME corporate securities markets have experienced a broad deepening. However, they remain on average smaller than those in AEs and their growth has been somewhat flattered by issuances from state-owned firms and companies with large insider holdings. Moreover, EME corporates still have less access to longer-maturity, local currency debt securities; and compared with AEs, fewer small firms access EME equity markets. Overall, EME markets still appear less resilient to volatility than AE markets.

This diversity in capital market development across AEs and EMEs and capital markets' evolution over time is explained by a number of factors. Underlying much of the heterogeneity in capital market development are differences in the strength of the enabling environment. An environment of low and stable inflation and sustainable fiscal management contributes to lowering the costs of capital market finance for both public and private sector issuers. Market autonomy to determine allocations, free from repressive policies such as excessive requirements to hold government securities or paternalistic management of stock prices through initial public offering (IPO) quotas, facilitates information creation and investor base diversity. A supportive

legal environment ensures the efficient and fair enforcement of arm's length financial contracts and transactions, while efficient and predictable insolvency regimes provide greater assurance about the recovery value of distressed assets. Finally, independent regulators with well defined objectives, adequate resources and credible enforcement powers are better able to protect investors, lower issuance costs and ensure that capital markets are fair, effective and transparent.

Beyond the enabling environment, there are other drivers which are more closely linked to capital market-specific functions. High quality and timely information is the lifeblood of effective and viable capital markets. Thus, the provision of high-quality information at low cost through well developed disclosure regimes gives investors the means to value securities. A broad and diversified investor base provides a source of stable demand that supports liquidity, depth and stability. Greater bi-directional openness to international investors and issuers expands the pool of savings and investment products as well as promoting implementation of international best practices and standards. But openness may also increase the sensitivity of domestic capital markets to global spillovers. Deeper complementary markets such as those for derivative, repo and securities lending spur liquidity and broader participation by facilitating the hedging and funding of capital market positions. Finally, robust and efficient market infrastructures with fair and open access boost liquidity by making it safer and cheaper to trade, hold and value capital market securities.

The report concludes with six broad policy recommendations. The relevance of these policy takeaways varies by economy, and some of them fall outside direct central bank control. Nevertheless, they impact the vibrancy of capital markets and central banks' ability to meet their objectives. The broad range of drivers identified also suggests that comprehensive initiatives that take into account the range of dimensions identified are likely to prove more successful in developing viable capital markets.

First, **greater market autonomy** would enhance capital market pricing and funding allocations. In particular, policymakers need to address vestiges of financially repressive policies and fix market failures. These include policies that create preferential financing terms for the public sector as well as paternalistic policies that override private allocations. In many cases, repressive measures exacerbate market volatility by reducing investor diversity and suppressing securities issuance.

Second, capital market development can be placed on firmer foundations by **strengthening legal and judicial systems for investor protection**. Policies that ease access to legal recourse lower the cost of private contract enforcement and sanctioning breaches of duty. In addition, raising the efficiency, consistency and fairness of legal proceedings, eg through the creation of specialised financial courts, could usefully boost investor protection, as would policies that raise the predictability and efficiency of insolvency procedures.

Third, **enhancing regulatory independence and effectiveness** is a key factor in striking a balance between investor protection and issuer costs. Clear and well focused objectives and strong governance frameworks for regulators strengthen operational autonomy, thereby protecting against unwarranted influence. Enhancing investigative powers as well as ensuring the adequacy of resources would facilitate effective enforcement of regulations and timely diagnosis of market failures and vulnerabilities. Regulators can also strengthen investor protection by raising accounting and disclosure standards, and promoting best practices in corporate governance. In addition, authorities can supplement regulatory efforts by

encouraging the private sector to develop standards and codes that may help market practices keep pace with evolving market innovations.

Fourth, many economies have scope to **increase the depth and diversity of the domestic institutional investor base**. Policies to promote greater penetration on the part of institutional investors such as pension funds and insurance companies can dampen volatility as well as create a domestic constituency that raises corporate governance standards and the broader efficiency of capital markets. Achieving greater financialisation of household savings by facilitating cost-effective, transparent and well regulated collective investment products and fostering greater financial literacy would further boost capital market development.

Fifth, a **broad and bi-directional opening of capital markets** can exert a general positive influence on domestic capital market development. But to reap the benefits, policymakers need to actively engage with potential market entrants and prepare for spillover risks. Calibrating the pace and sequencing of opening and creating macro policy buffers can help contain the associated risks and provide margins for coping with volatility.

Finally, enhancing market ecosystems by **developing deep complementary markets for derivative, repo and securities lending** requires a coordinated effort along multiple dimensions. These include a supportive legal and regulatory environment, regulatory coordination to broaden the investor base in these markets, and robust and efficient market infrastructures such as central counterparties and trade repositories to manage potential financial stability risks.

1. Introduction

Developed and deep capital markets can play a key role in financing economic growth as well as influencing financial stability and the transmission of monetary policy. Frameworks that promote safety and operational effectiveness underpin the ability of capital markets to serve the real economy. While the initiative in creating robust markets typically belongs to the private sector and securities market regulators, central banks are also stakeholders as financial market depth and liquidity interact with central bank policy objectives and responsibilities.

In many economies, central banks play a key role in enhancing the capital market ecosystem. They often play a leading role in government bond markets, in partnership with the finance ministry; and in EMEs, where local fixed income markets may be less developed, central banks often oversee the development of trading and issuance venues. They typically contribute to the oversight of important aspects of the payment infrastructure, including for repo and fixed income and currency derivatives markets, in part through their oversight of banks. Central banks have also generally had a leading role in the design and modification of capital and interest rate controls and other prudential policies which impact capital market development. Moreover, they closely monitor the functioning of domestic capital markets as part of their macroeconomic and financial stability responsibilities. Thus, central banks can contribute their expertise to cross-agency capital market initiatives, leveraging their insights into the functioning of domestic markets, their broad convening powers and their interest in well functioning and robust market transmission mechanisms.

The Committee has long considered the analysis of the drivers of capital market strength a topic of interest. It established a Working Group to examine trends in capital market development and identify the various factors (legal, institutional, structural and conjunctural) that foster the development of robust capital markets, as well as to consider the role of policy. The Working Group's mandate focused on issues related to the development of markets in headline bond and equity securities, which are arguably of greater relevance to EME jurisdictions, but also issues related to markets for other securities.

The Group's analysis and recommendations, expressed in this report, are based on a review of the existing academic and policy literature. The report also draws on hard data along with information from market participants collected through a written survey, a Roundtable Workshop with industry representatives and interviews with market participants in institutions with significant activity in international capital markets.

The report is organised in four sections. Section 2 assesses key trends in capital market development. Section 3 identifies key drivers of capital market development. Section 4 concludes with six broad policy recommendations.

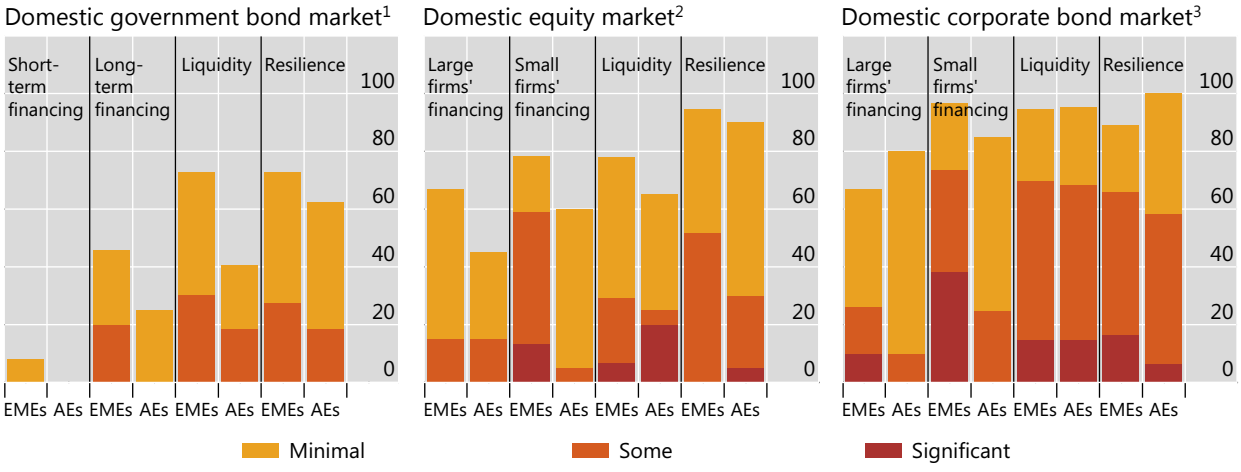
2. Trends in capital market development

Capital market functioning has many facets, and it is not easy to condense it into a single summary statistic. The Working Group has characterised market development along four dimensions. The first dimension is market **size** relative to GDP, which gauges the capacity to support the investment needs of the real sector. Market **access** captures the breadth of issuers who meet their funding needs in capital markets and represents the second dimension together with the trading of diverse instruments that transfer risks among market participants. **Liquidity** metrics measure the ease at which the value embedded in securities can be realised by investors and some of the costs of transacting. Finally, **resilience** metrics capture the ability of capital markets to fulfil their functions in periods of stress. To gauge progress along these dimensions, the Working Group reviewed available statistical indicators and analysed the results from the Group's survey of market participants. The following sections present the results of this analysis along the four dimensions.

Three broad stylised messages emerge from the trends in capital market development over the past 20 years. First, there are persistent and significant differences in capital market size relative to GDP across economies. Second, fixed income markets have seen strong growth that has brought current amounts outstanding closer to equity market capitalisation. Finally, EME capital markets are catching up but have not closed the gap relative to AEs.

Concerns about domestic capital market functioning

In per cent — Graph 1



The bars show cross-jurisdiction averages of the share of market participants' responses to the Working Group's survey questions. Responses of "no concerns" are not reflected in the bars, but account for the remaining shares. See Annex 1 for more details.

[1] Survey questions – Financing: "Are there concerns with respect to the efficiency and stability of the market as a source of short/long-term funding for the government?"; Liquidity: "Are there concerns with respect to the liquidity across the curve?"; Resilience: "Are there concerns with respect to the resilience to domestic and global shocks?". [2] Survey questions – Financing: "Are there concerns with respect to the effectiveness of the market as a source of capital for large/small non-financial firms?"; Liquidity: "Are there concerns with respect to the liquidity and/or volatility in normal times?"; Resilience: "Are there concerns with respect to the resilience in the face of domestic shocks and/or global spillovers?". [3] Survey questions – Financing: "Are there concerns with respect to the efficiency and stability of the market as a source of long-term funding for large/small non-financial firms?"; Liquidity: "Are there concerns with respect to secondary market liquidity?"; Resilience: "Are there concerns with respect to the resilience of the issuance market in the face of domestic shocks and/or global spillovers?".

Source: CGFS Working Group survey.

A high-level summary of responses to the Working Group's survey regarding market functioning provides a useful preview of the messages from the discussion in subsequent sections (Graph 1). Across all dimensions, market participants expressed the least concerns about government bond markets (left-hand panel) and somewhat greater concerns about equity markets (centre panel). The greatest concerns were expressed about corporate bond market functioning (right-hand panel). In terms of access, the most concerns were expressed about smaller firms, especially those in EMEs. Liquidity and resilience were of greater concern to market participants than the provision of capital market finance for large issuers.

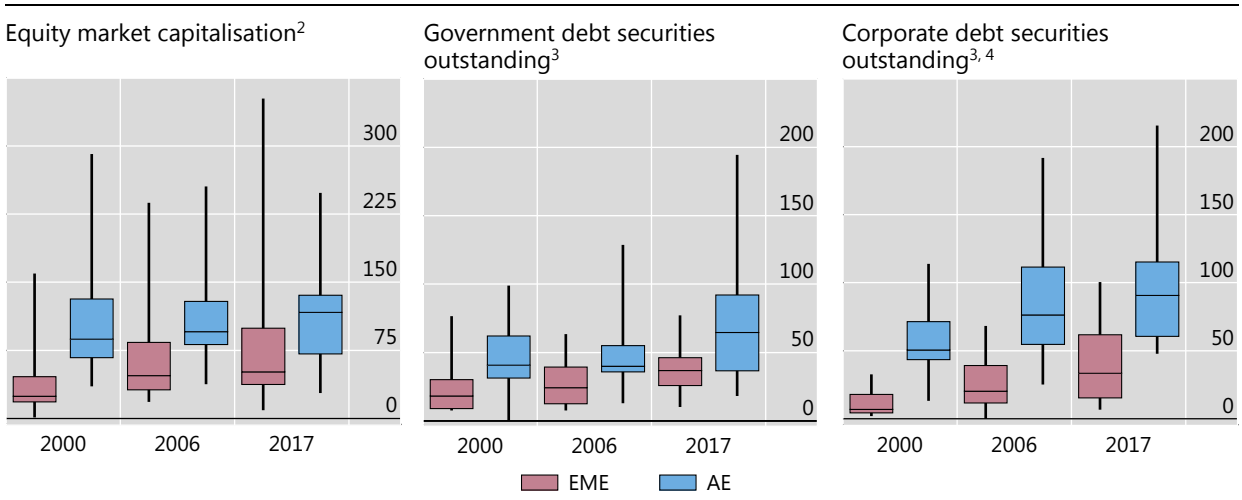
2.1 Market size

The total market value of outstanding securities relative to GDP remains a popular gauge of market size, but must be interpreted with the caveat that, besides cumulative net issuance, it also reflects valuation changes, which can be quite significant in the period around the GFC. With that in mind, equity market size has remained relatively flat on average, while fixed income markets have grown. In general, capital markets in EMEs have experienced a broad deepening, but remain smaller than those in AEs.

Heterogeneity in capital market size remains significant, as can be seen from the undiminished cross-sectional dispersion of the box charts in Graph 2. Indicatively, AE equity and fixed income markets double in size, moving from the smallest to the one at the 25th percentile (the distance between the bottom of the line and the bottom of the box), from the 25th to the 75th percentile (the height of the box), and again from the 75th percentile to the largest (the top of the line). The rule holds across EME markets, though more roughly.

Size of securities markets[1]

As a percentage of GDP — Graph 2

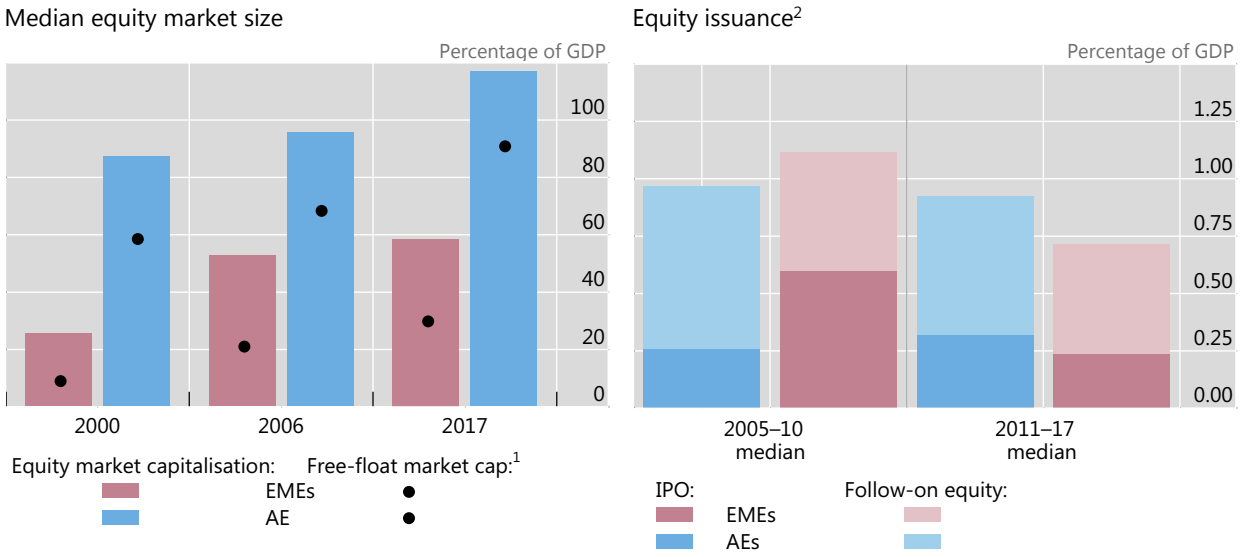


[1] Box and whisker plots show median, interquartile range and range. Depending on data availability, the jurisdiction sample in these charts and throughout the report comprises AR, AU, BE, BR, CA, CH, CL, CN, CO, CZ, DE, DK, ES, FR, GB, HK, HU, ID, IL, IN, IT, JP, KR, MX, MY, NL, NO, NZ, PE, PH, PL, RO, RU, SA, SE, SG, TH, TR, US and ZA. See Annex 2 for additional details. [2] Excluding HK, where in 2017 equity market capitalisation was 1,274% of GDP. [3] Total debt securities, by residence. If total debt securities are not available, then the sum of domestic and international debt securities. [4] Financial and non-financial corporate sector, by residence.

Sources: IMF, *World Economic Outlook*; World Bank; Datastream; national data; BIS debt securities statistics.

Free–float equity market capitalisation and IPO issuance

Graph 3



[1] Market capitalisation excluding shares held by individual owners, by small group of controlling shareholders and by the government. [2] Median across economies. For each IPO, the corresponding amount in national currency is converted into USD, using the historical conversion rate (actual exchange rate values as of the fiscal year end). IPO data selected according to the geographical location (headquarter) of the issuer.

Sources: IMF, *World Economic Outlook*; World Bank; Datastream; MSCI; S&P Capital IQ.

Equity markets remain generally larger than fixed income markets in both AEs and EMEs, as can be gauged across the three panels of Graph 2. The size gap between AE and EME equity market capitalisation has narrowed (Graph 3, left-hand panel). For the median AE equity market, capitalisation grew from around 85% to 115% of GDP between 2000 and 2017, while the same metric for the EME group has more than doubled, from around 25% to nearly 60% of GDP. Measured by free float (ie the value of shares excluding holdings of insiders, such as management, controlling shareholders or governments), the gap between AEs and EMEs is larger. In the median EME, the free-float share is only around 50% of total equity market capitalisation compared with 80% in AE equity markets (Graph 3, black dots). Measured by issuance, however, EME and AE equity market sizes are more similar. In AEs, around 0.95% of GDP has been raised annually through equity issuance on average since 2005 (Graph 3, right-hand panel). In EMEs, the median amount of annual equity issuance was just under 0.75% of GDP in 2011–17, declining from more than 1% of GDP in the previous five years.

Bond markets have been catching up with equities over the past two decades (Graph 2, centre and right-hand panels). In AEs strong financial bond issuance in the years preceding the GFC was followed by strong government issuance, while in EMEs both non-financial corporate and government debt securities outstanding have increased steadily over the past two decades.

In AEs, median government securities outstanding increased from around 40% of GDP in 2000 to 50% in 2017 (Graph 2, centre panel). But the size gap within AEs has widened considerably, reflecting the GFC-related surge in government bond issuance in some jurisdictions. Over the same period, the median size of government securities markets in EMEs increased from around 20% to 35% of GDP.

Corporate bond markets are larger than those for government securities across most AEs, but similar in size in many EMEs (Graph 2, centre and right-hand panels). Financial corporations are the dominant issuers of bonds (Graph 4, left-hand panel). Despite a decline in the outstanding volume of AE financial sector debt securities after the GFC, in 2017 the median stood at around 60% of GDP, around four times the volume issued by non-financial corporates (Graph 4, centre panel). In EMEs, this difference is less pronounced due to the surge in bonds outstanding issued by non-financial corporates, which reached 10% of GDP by 2017, a level comparable to that in AEs. Growth in China has been particularly strong. Between 2006 and 2017, non-financial sector international debt securities outstanding in the median EME have grown around 50% more slowly than total debt securities (Graph 4, right-hand panel). By contrast, in AEs non-financial sector international debt securities outstanding have grown somewhat faster than total debt securities.

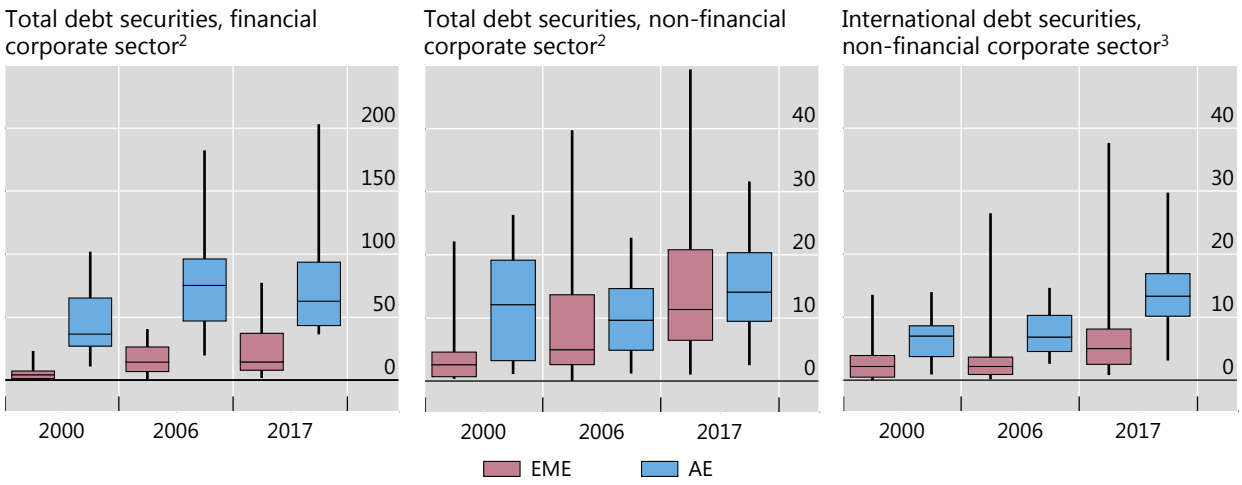
The growth in bond markets is also evident from the declining share of bank credit to non-financial corporates in the aftermath of the GFC. The average share of bank credit is around 60% in both EMEs and AEs, down from around 80% in 2008. However, there is significant heterogeneity. In 2017, the most bank-dependent economies were Hungary, Spain, Sweden and Turkey and the least bank-dependent Mexico, the United Kingdom and the United States (Graph 5).

Derivative, repo and securities lending markets support capital market activity by providing instruments to hedge risks and fund positions. Moreover, derivatives play a prominent role in price discovery. Yet there is substantial heterogeneity in the development of these supporting markets.

This heterogeneity is confirmed by the Working Group's survey, where 20% of EME respondents expressed significant concerns about the functioning of these supporting markets, compared with just 2% in AEs (Graph 6, left-hand panel).

Size of corporate debt securities markets[1]

As a percentage of GDP — Graph 4



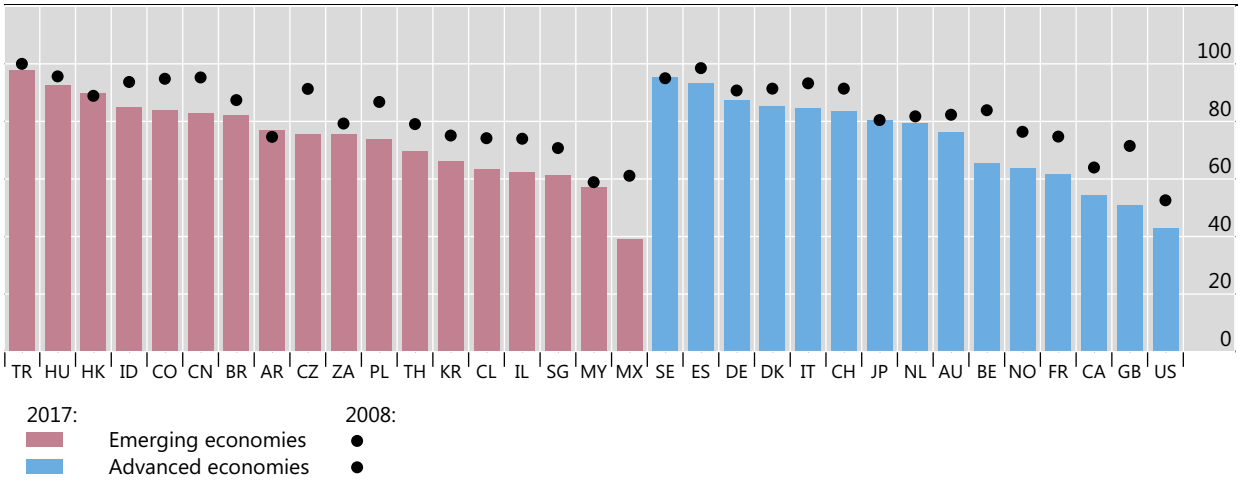
[1] Box and whisker plots show median, interquartile range and range of debt securities outstanding as a share of GDP. If total debt securities are not available, then the sum of international and domestic debt securities. [2] By residence. [3] By nationality.

Sources: IMF, *World Economic Outlook*; Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national data; BIS debt securities statistics; BIS calculations.

Share of bank credit to the private non-financial corporate sector[1]

As a percentage of bank credit and debt securities

Graph 5



[1] Non-financial corporate sector debt securities measured as total debt securities if available, or domestic debt securities plus international debt securities.

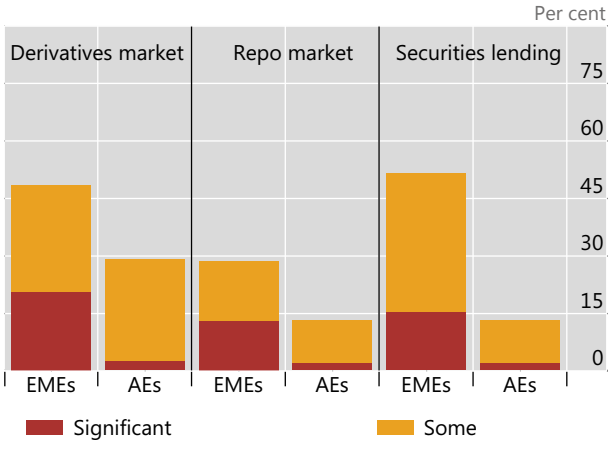
Sources: National data; BIS debt securities statistics.

In derivatives markets, where data availability is best, median EME derivatives market volume is roughly 5% of annual GDP (Graph 6, right-hand panel), well below the median for AEs, which is close to 20%. Even EMEs with relatively developed derivatives markets register lower volumes relative to GDP than most AEs, even in economies such as Australia, Canada, New Zealand, Norway and Sweden that are neither major financial centres nor issuers of a reserve currency.

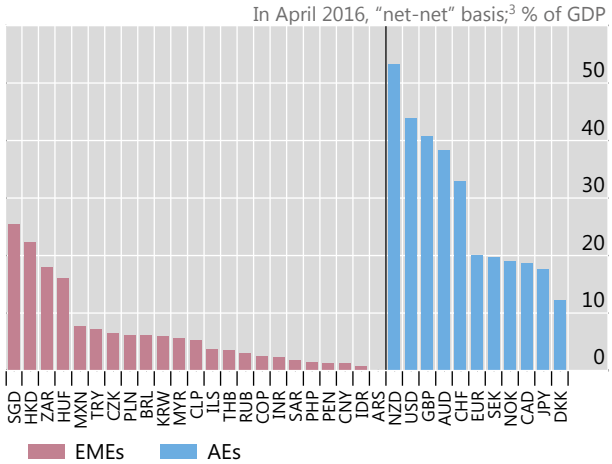
Development of complementary markets

Graph 6

Concerns about breadth and functioning of...[1]



Average daily volume in derivatives markets[2]



[1] Cross-jurisdiction averages of market participants' responses to the Working Group's survey across government bond, corporate bond and equity markets. "No concerns" and "minimal concerns" are not shown in the bars, but accounted for in the calculations. [2] Volume is defined as the gross value of all new deals entered into during a given period, and is measured in terms of the nominal or notional amount of the contracts. [3] Over-the-counter (excluding spot transactions) and exchange-traded derivatives adjusted for inter-dealer double-counting within and across economies.

Sources: Upper and Valli (2016); CGFS Working Group survey.

2.2 Access

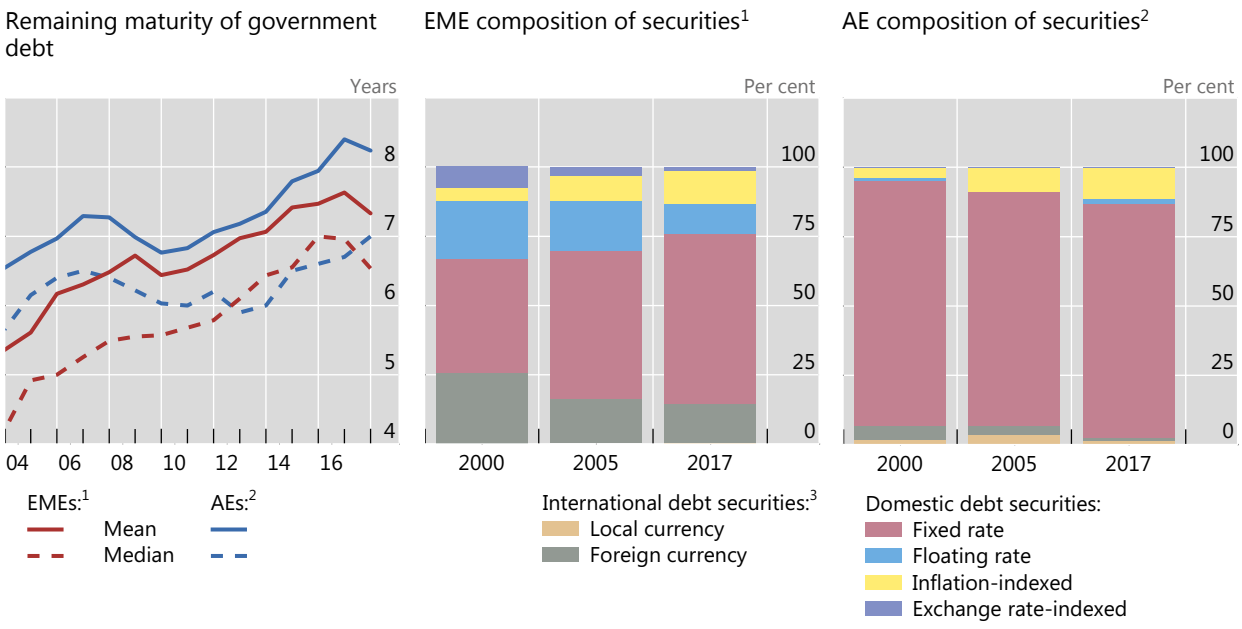
Metrics of access to markets measure both the breadth of issuers able to meet their funding needs in capital markets as well as the existence of instruments that transfer risks from debtors to creditors. Both dimensions have been policy priorities in recent years. These priorities include increasing the issuance and maturity of domestic currency debt in EMEs and facilitating capital market access for smaller firms in both AEs and EMEs.

The composition of EME government bond markets increasingly resembles that of AEs. The remaining maturity of government debt securities has lengthened such that the median now stands around seven years in both AEs and EMEs (Graph 7, left-hand panel). Since the early 2000s, EME sovereigns have also halved the share of debt that is denominated in foreign currency, exchange rate-linked or with floating rates (Graph 7, centre panel). The issuance of inflation-linked securities has increased in both AEs and EMEs, arguably reflecting demand from institutional investors (Graph 7, right-hand panel).

AE corporates continue to have greater access to long-term bond market funding than EME corporates (Graph 8, left-hand panel). Since the early 1990s, the average maturity of non-financial AE corporate issuance has fluctuated around 10 years, while that for EMEs borrowers has risen, from six years in 1991 to nine years in 2017. Cyclical factors appear to have a strong influence on the choice of the maturity of debt issued. Cortina et al (2018) link the location and (possibly) the currency of issuance to the maturity of the bond. In particular, while domestic EME issuance is of shorter maturity than that in AEs, international issuance has a similar maturity structure.

Government bond markets

Graph 7

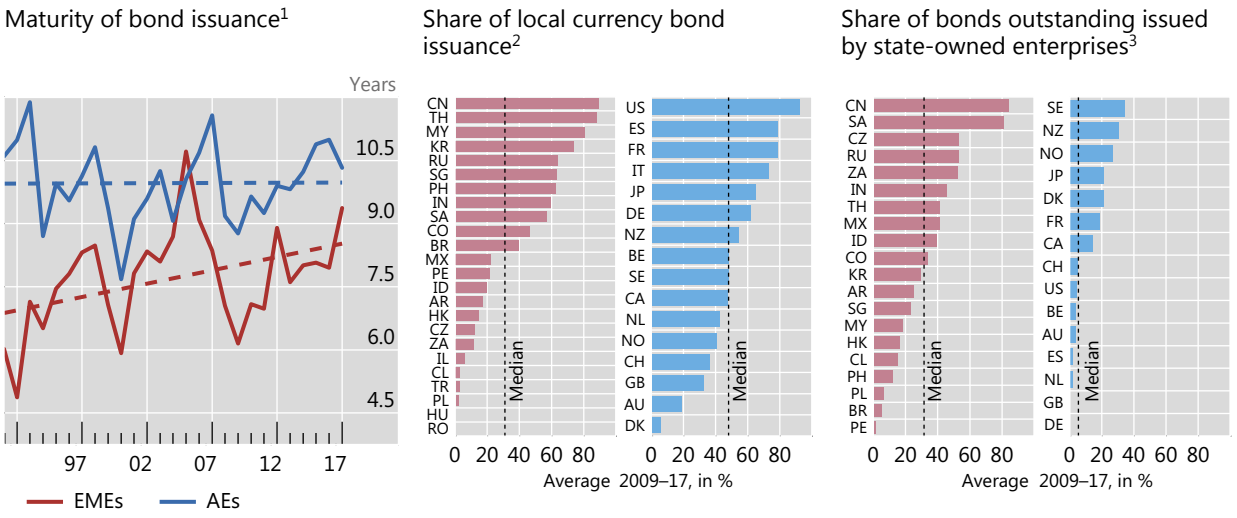


[1] AR, BR, CL, CO, CZ, HU, HK, ID, IL, IN, KR, MY, MX, PE, PH, PL, RU, TR, SA, SG and ZA. [2] AU, BE, CA, DE, ES, GB and US. [3] By residency.

Sources: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national data; BIS debt securities statistics; BIS calculations.

Access to non-financial corporate debt securities markets

Graph 8



[1] Maturities weighted by value; dashed lines denote linear trend. [2] By nationality. [3] Domestic issuance by nationality. "State-owned" defined as government majority-owned enterprises.

Sources: Cortina et al (2017); Dealogic.

In terms of issuance in local currency, non-financial corporates in the median EME issue a smaller share of debt securities in local currency (Graph 8, centre panel). Between 2009 and 2017, the median share of local currency issuance by EME non-financial corporates stood at around 35%, reflecting reliance on international issuance, while that of AEs stood at around 50%. The medians, however, mask a bi-modal distribution. Many Asian EMEs have high shares of local currency issuance (for example, in China, Korea, Malaysia and Thailand the share of local currency bonds exceeds 75%), while the opposite is true for their peers in central and eastern Europe and Latin America (with shares often below 20%). In AEs, the local currency share is well above the median in Japan, the United States and much of the euro area, but lower in economies such as Australia, Denmark, Switzerland and the United Kingdom.

The improvements described above in EME access indicators are, to some extent, flattered by firms where the government is the majority owner (Graph 8, right-hand panel). In EMEs, the median share of bonds outstanding issued by these enterprises in domestic markets has averaged around 30% of total non-financial issuance since the GFC compared with around 5% in the median AE. The Working Group survey also indicates an access gap in EMEs between state-owned and large private issuers. While concerns about financing for state-owned corporates were virtually identical at around 5%, 26% of EME respondents expressed at least some or significant concerns about bond funding for large private corporates compared with just 10% in AEs (Graph 9, left-hand panel).

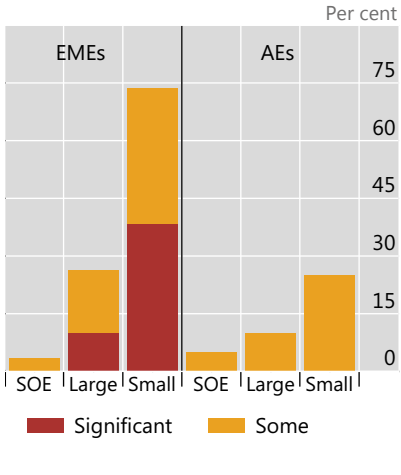
The survey also indicates greater concerns about domestic bond market access for small firms in EMEs (Graph 9, left-hand panel). That said, access measured by the number of unique issuers has grown strongly in recent years, suggesting a marked improvement in bond market access (Graph 9, centre panel, red lines).

Compared with AEs, fewer small firms access EME equity markets. Measured either by market capitalisation or by the size of IPOs, the generally larger size of firms

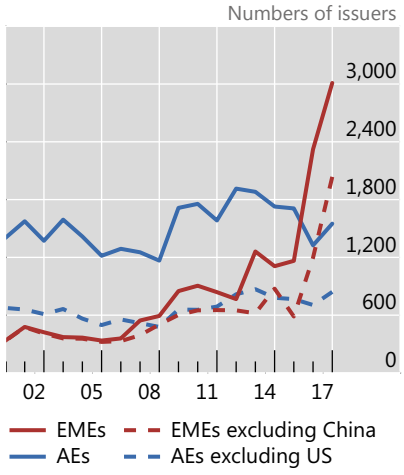
Corporate securities market access

Graph 9

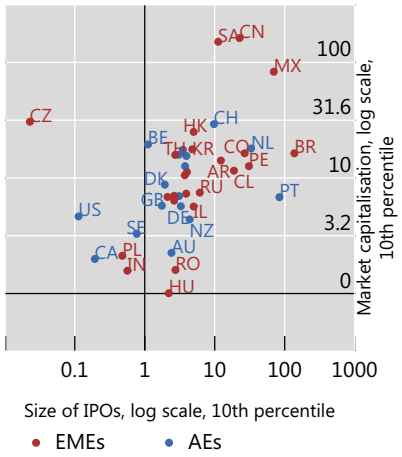
Concerns about domestic corporate bond market as a source of financing for…[1]



Number of unique non-financial corporate bond issuers[2]



Market capitalisation of firms and size of IPOs at the 10th percentile of the distribution of firms[3]



[1] "SOE" = state-owned enterprises; "Large" = large non-financial firms; "Small" = medium- and smaller-sized non-financial firms. Cross-jurisdiction averages of market participants' responses to the Working Group's survey question: "Are there any areas of concern with respect to the effectiveness of the market as a source of long-term funding for state-owned (or government-guaranteed) firms / large non-financial firms (non-state-owned) / medium- and smaller-sized non-financial firms (non-state owned)?". [2] On a nationality basis. [3] In millions of 2010 US dollars; market capitalisation, 2010–17 average; IPOs between 2000 and 2017.

Sources: Datastream; S&P Capital IQ; ThomsonOne; CGFS Working Group survey.

in EMEs at the 10th percentile of the distribution suggests that market access is harder for smaller firms (Graph 9, right-hand panel). Chinese and Latin American equity markets stand out with very poor access metrics, where the smallest firms are over 10 times larger than those in the United States. Relative to other AEs, equity market access in the Netherlands and Switzerland also appears low.

2.3 Liquidity

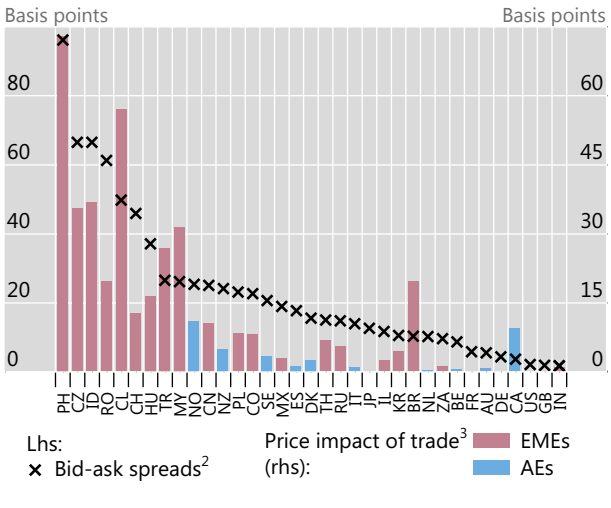
In markets where prices are relatively insensitive to large buying or selling order flows, investors will require a lower liquidity premium to hold these assets. Accurate and comparable data on liquidity metrics are often scarce, particularly for local currency corporate bond markets.

Reflecting significant progress in the development of local currency government bond markets, bid-ask spreads and estimates of the price impact of trade, in some EMEs, are similar to those in the most liquid AE government bond markets (Graph 10, left-hand panel). For example, bid-ask spreads on the price of 10-year benchmark bonds in India are around 2 basis points, similar to those in the United Kingdom, and those in Korea and South Africa are around 10 basis points, similar to those in the Netherlands. However, bid-ask spreads are higher in most EMEs, and a tail of EMEs including Chile, the Czech Republic, Hong Kong, Indonesia and the Philippines have significantly higher spreads. Turnover ratios in EMEs now often exceed those in AEs. In terms of liquidity trends, turnover ratios in many AEs have experienced declines as outstanding amounts have grown, while the experience in EMEs has been mixed (Graph 10, right-hand panel).

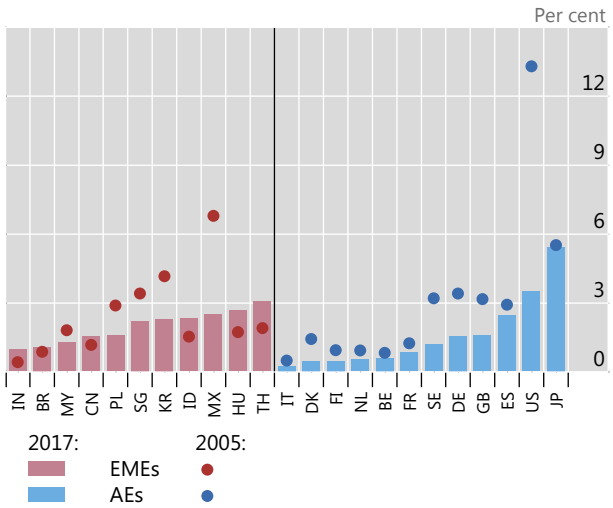
Liquidity in government bonds

Graph 10

Ten-year benchmark government bond market liquidity[1]



Average daily government bond market turnover[4]



[1] HK excluded (bid-ask spread = 88.25 basis points; price impact of trade = 266.53 basis points). [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 (LQA) function. Data based on 6 June 2018 5 pm Tokyo closing time, except for Korea, which is 5 June 2018 5 pm Tokyo time, and Sweden, which is 4 pm New York time. [4] Calculated as average daily trading volume divided by total amount outstanding. Definitions may vary depending on data availability. For 2005 observations: BE is 2014, BR is 2008, FR is 2006 and NL is 2011. Data up to 2016 for NL.

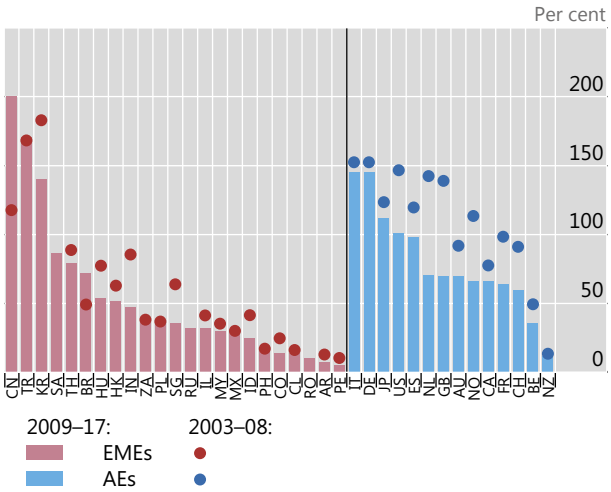
Sources: Afme Finance for Europe; AsianBondsOnline; Bloomberg; SIFMA; national data; BIS calculations.

The Working Group's survey indicates greater concerns about liquidity in corporate securities markets relative to those over government securities. Within equity markets, liquidity concerns were greater in the AE markets sampled, with around 20% of respondents reporting significant concerns about liquidity compared with just 5% in EMEs (Graph 1, centre panel). This may reflect recent trends in equity

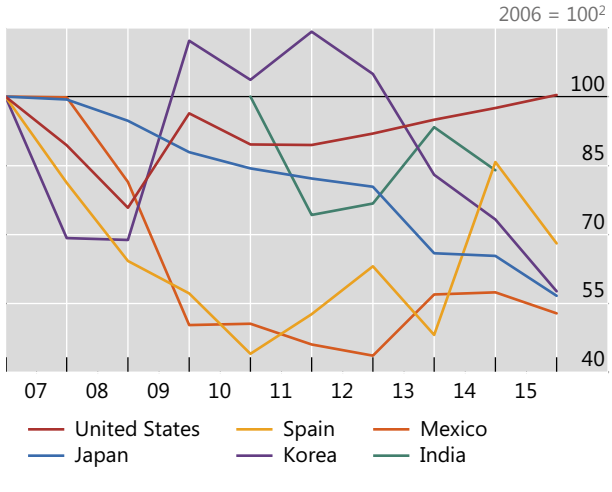
Equity and corporate bond market turnover

Graph 11

Average annual equity market turnover ratio[1]



Corporate bond market annual turnover ratio



[1] Turnover computed as the sum of the values of shares traded each year, divided by the average domestic market capitalisation. Data for BE, FR and NL from 2009–14. Data for NZ exclude 2011. [2] India, 2010 = 100

Sources: CGFS (2016); Bank of Italy; World Bank, World Development Indicators; Datatream; World Federation of Exchanges.

market liquidity, such as the broad-based declines in AE turnover ratios since the GFC (Graph 11, left-hand panel). Nevertheless, despite these declines, AE turnover ratios remain higher on average than those in EMEs.

In corporate bond markets, the degree of liquidity concerns in the surveyed AE and EME markets was similar on average. However, the survey did not cover corporate bond markets in the United States, which are some of the most liquid. Corporate bond turnover metrics have declined across many economies in recent years with the exception of the United States (Graph 11, right-hand panel).

2.4 Resilience

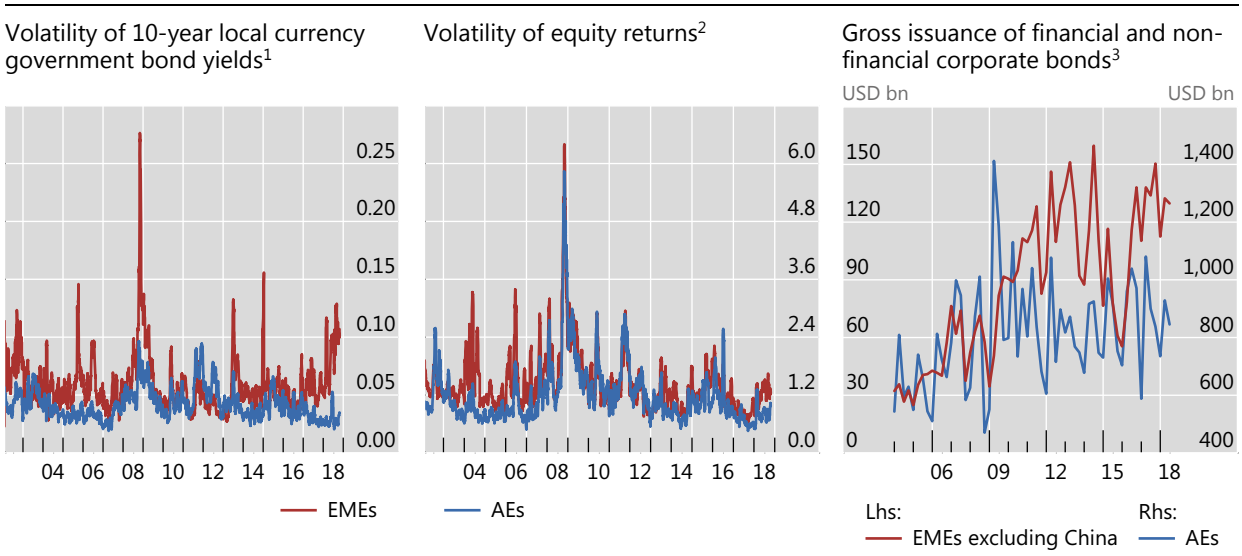
Resilience metrics capture the ability of capital markets to function well in times of stress. However, measurement is complicated by changes in price or issuance reflecting not only technical conditions in the market, but also changes in investor perceptions of broader macroeconomic and credit fundamentals.

Acknowledging this caveat, a simple measure of market resilience is the height and duration of spikes in annualised volatility of local currency government bond yields and equity prices. Between 2009 and 2013, the volatility in EME yields declined, becoming broadly similar to that in AEs (Graph 12, left-hand panel). The prolonged period of low interest rates, however, seems to have dampened volatility. Indeed, over the past 18 months, the average volatility of EME domestic yields has risen to pre-crisis levels and is comparable to that experienced by some AEs during the euro area sovereign debt crisis. The Working Group's survey also finds somewhat greater concerns about EME government bond market resilience (Graph 1).

In AE and EME equity markets, both the Working Group's survey and the volatility of returns indicate more similarity in the levels of resilience (Graph 12, centre panel). However, over the past year, EME equity market volatility has again been higher than that in AEs, similar to the pre-GFC period.

Market resilience

Graph 12



[1] Simple cross-jurisdiction average of rolling 20-day standard deviation of daily changes in bond yields. [2] Simple cross-jurisdiction average of rolling 20-day standard deviation of daily log returns. [3] Quarterly totals.

Sources: Bloomberg; Datastream; ThomsonOne; BIS calculations.

Finally, the Working Group's survey suggests somewhat greater concerns about corporate bond market resilience in EMEs, with around 20% of respondents expressing significant concerns (Graph 1, right-hand panel). Despite significant stresses in financial markets over the past decade, corporate bond markets in AEs have shown an ability to recover quickly. Following the Lehman default, gross issuance in AEs declined strongly but recovered quickly in 2009. Issuance in EME markets has been somewhat less resilient. In 2015, following concerns about EME growth and US monetary policy tightening, EME gross issuance volumes declined for several quarters and recovered only towards the end of 2016 (Graph 12, right-hand panel).

3. Drivers of capital market development

Researchers have identified multiple drivers of capital market development that have given rise to the diversity in capital market size and functioning not only within AEs and EMEs but also between these groups. These drivers can be broadly categorised into two groups: those that are part of an overall enabling environment; and those that are more directly linked to specific capital market functions. Macroeconomic stability, a broad respect of market autonomy, fair and efficient legal and judicial systems, and an effective and efficient regulatory regime are all factors that create conditions favourable for financial contracts and enable financial market development. Other drivers are more closely focused on facilitating the arm's length nature of capital market relationships and well functioning trading of securities. These drivers include easy access to high-quality information, diversity in the investor base, openness towards international investors, an efficient market ecosystem for trading, hedging and funding securities, and robust market infrastructures.

3.1 Enabling environment

3.1.1 Macroeconomic stability

An environment of low and stable inflation, moderate external borrowing needs, and sustainable fiscal management all contribute to lowering the cost of capital market finance for issuers, from both the public and the private sector. These factors also facilitate steady growth and reduce uncertainty, which encourages investment and hence demand for external finance. Thus the improvement in EME macroeconomic stability since the late 1990s has provided an important support for capital market growth in those economies.

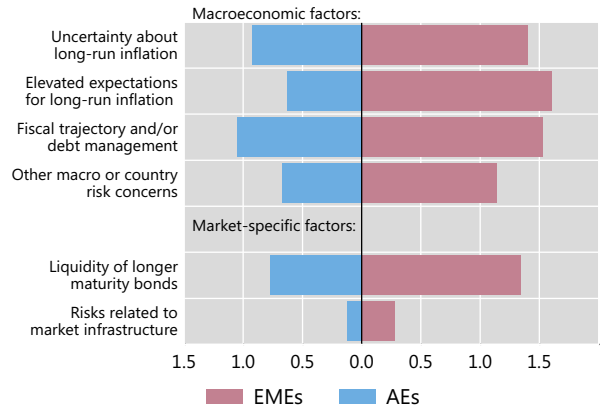
Market participants appear to attach high importance to macroeconomic factors when pricing government bonds. According to the Working Group's survey, risk premia for factors such as high and uncertain inflation and fiscal trajectory are similar or exceed those for more market-specific factors such as liquidity and market infrastructure risks (Graph 13, left-hand panel). As the yield curve of government securities generally serves as the benchmark for pricing corporate sector credits, these premia feed through to the cost of capital for private issuers.

Indeed, the right-hand panel of Graph 13 shows that corporate capital market size is positively correlated with country credit ratings, which are known to be higher

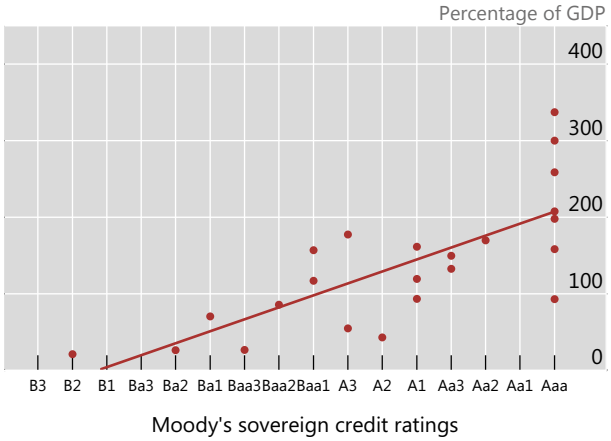
Macroeconomic stability and capital market development

Graph 13

To what extent has the domestic government bond market priced in yield premia in recent years for…?[1]



Credit ratings and size of corporate capital markets[2]



[1] The scores range from 0 to 3, where a higher score indicates that a larger premium is priced into government bond yields. Based on the Working Group's survey question: "To what extent has the domestic government bond market priced in yield premia in recent years (especially at the longer end of the curve) for concerns about [the listed factors]?". [2] Corporate capital market size measured as the sum of equity market capitalisation and total debt securities issued by the corporate financial and non-financial sectors.

Sources: World Bank; Datastream; Moody's; national data; CGFS Working Group survey; BIS debt securities statistics.

in jurisdictions with greater macroeconomic stability. Burger and Warnock (2006) find that the size of the domestic corporate bond market is significantly correlated with macro variables such as inflation variability. However, the empirical literature has found mixed results regarding the roles of fiscal variables and corporate capital market size. For example, Burger and Warnock (2006) and Eichengreen and Luengnaruemitchai (2006) did not find significant explanatory power for fiscal deficits for corporate bond market size, while de la Torre and Schmukler (2007) found that lower fiscal deficits helped explain greater equity market capitalisation.

An economy's stage of development also matters for securities market size. The academic literature has identified the level of GDP per capita, domestic savings and investment rates as key determinants of equity market size. Economic development increases not only the size of capital markets but also market access such that firms in economies with higher GDP per capita are able to issue longer-maturity debt (Cortina et al (2018)).

Capital markets are likely to be relatively smaller in economies with a greater share of production in small and medium-sized firms. High fixed costs associated with issuing equity or debt securities include the payment of underwriting and listing fees, the costs of retaining accountants, auditors and lawyers to prepare the necessary documentation, and the payment for a rating in the event of a debt issue. While some costs may increase with the size and complexity of a firm, in general the larger the issue, the lower is the overhead cost per unit of finance raised in the public markets. Further lowering the cost of larger issues is their general higher degree of liquidity, as investors prefer more liquid instruments that are traded more actively in secondary markets and covered by analysts. As a result, smaller equity issues are typically priced at a lower earnings multiple, and smaller debt issues might require higher yields. Therefore, for many small and medium-sized firms, issuing securities may not be cost-effective.

The size of the economy itself may be less of a barrier to the extent that firms in small open economies are able to achieve scale through international trade and foreign operations. For example, much of Switzerland's relatively large domestic equity market capitalisation is accounted for by Swiss multinationals (eg in pharmaceuticals and banking) that earn significant revenues from exports and/or activities in other countries.

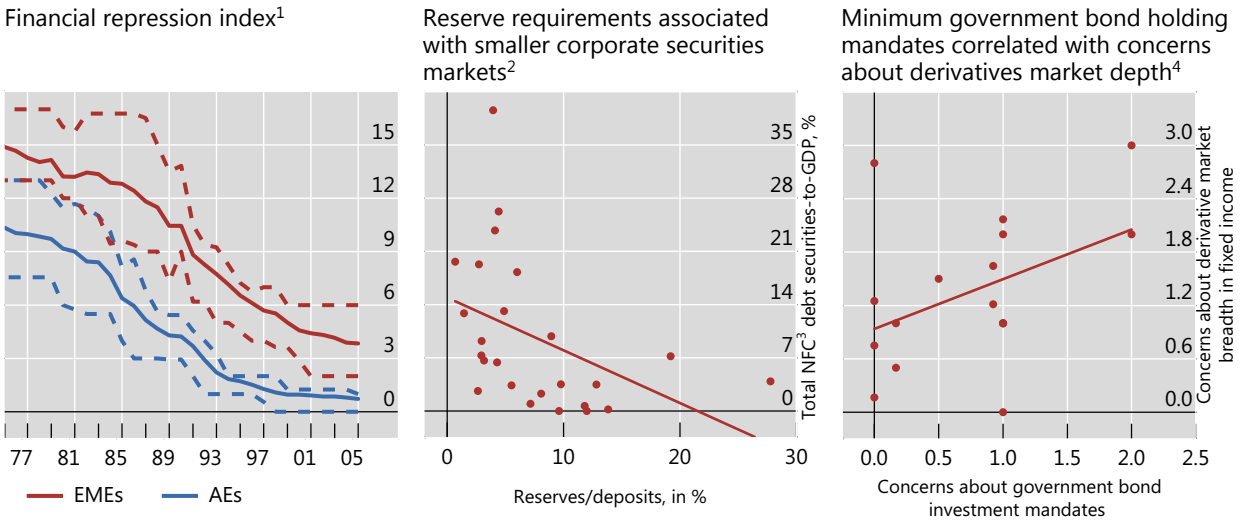
3.1.2 Market autonomy

A broad trend towards greater market autonomy has supported capital market development over the past 40 years. In AEs, the process of relaxing financially repressive policies began somewhat earlier, and by the mid-1990s was largely complete (Graph 14, left-hand panel). Many countries liberalised or eliminated controls on interest rates and credit allocation, reduced reserve requirements and other portfolio-allocation constraints, increased the reliance on securities auctions to price and fund governments, and took other steps to bolster the foundations of local corporate securities markets.

In EMEs, the financial liberalisation process occurred somewhat later, and typically started from a different level, but it too has exerted a positive influence on capital market development (see Box A on India's experience in enhancing market autonomy in its government securities market). This greater market autonomy has enabled capital markets to better reflect the views and information of dispersed investors, as well as rewarding them for the information they bring to the market and risks they take.

Financial repression and capital market functioning

Graph 14



[1] Solid lines show mean for jurisdictions in the Working Group sample, based on Abiad et al (2010), but excluding index of controls on international capital movements. Maximum possible value for any given jurisdiction is 18. Dashed lines show 25th and 75th percentiles. [2] Averages for the period 2000–08. [3] NFC = non-financial corporate. [4] Each dot is a jurisdiction asset class-specific observation. The scores range from 0 to 3, where higher scores indicate greater concerns about the factor based on the Working Group's survey. Horizontal axis question: "Are there concerns with respect to the impact of mandates for minimum bond holdings or liability matching on government bond markets?". Vertical axis question: "Are there concerns in the domestic government bond / corporate bond markets with respect to the breadth and functioning of associated derivatives markets?".

Sources: Abiad et al (2010); IMF; national data; CGFS Working Group survey; BIS debt securities statistics.

But to varying degrees, particularly in some emerging and developing economies, there are significant vestiges of financial repression. In some cases, this takes the form of inadequate regulations, such as paternalistic restrictions on IPO issuance to prop up stock market valuations that can create regulatory failures. In others, regulatory instruments such as monetary and prudential policy instruments can be misused to direct resources to preferred borrowers and to enable governments to borrow at below-market rates.

Such constraints on market autonomy impair market functioning through several channels. Policies which direct financing to particular securities or restrict capital market access crowd out financing for other securities. For example, the size of non-financial corporate bond markets is negatively correlated with banking system

Box A

India's government securities market: enhancing autonomy

Mitigation of financial repression has played an important role in the development of Indian bond markets in recent decades, although some important elements remain which pose challenges for banks and policymakers. The limited role of market forces in India prior to 1990 was reflected in the phenomenon of governments borrowing at below market-clearing interest rates (often below inflation). Such a policy represents an effective tax on savers that transfers wealth from lenders to borrowers. A sequence of policy reforms undertaken since the 1990s have helped move the Indian bond markets to a system of market-determined interest rates. Nevertheless, banks are still induced to hold large government security portfolios with high duration risks, leaving bank profitability and capital exposed to adverse yield movements.

A series of important reforms that have facilitated market determination of interest rates include: (i) introduction of auctions for primary market-based price discovery; (ii) phasing-out of the automatic monetisation of fiscal deficits through the two Supplemental Agreements between the Government of India and the Reserve Bank in 1994 and in 1997, which brought an end to the fixed rate 4.6% discount ad hoc T-bills that were created to finance deficits; (iii) fresh floatation of market loans once the Government of India utilises 75% of its Ways and Means Advances limit provided by the central bank; (iv) curbing of the monetisation of debt through enactment of the Fiscal Responsibility and Budget Management Act 2003 that has prevented the Reserve Bank from subscribing to primary issuances since April 2006; (v) deregulation of most interest rates; and (vi) the gradual reduction of the statutory liquidity ratio (SLR), which specifies minimum holdings of government bonds by banks, with a calibrated phasing-in of the Basel III Liquidity Coverage Ratio (LCR).

These landmark steps have spurred trading volumes. However, the government securities market is still impacted by vestiges of repressive measures. The mandated SLR, which peaked at 38.5% of banks' net demand and time liabilities in 1990, was brought down to 19.5% by the end of 2018, with announced plans to reduce it to 18% over the next 18 months. This means that today about a third of the stock of outstanding government bonds are effectively mandated to be held by banks. Over half of banks' bond holdings are held to maturity and are thus not required to be marked to market. Insurance firms are also mandated to hold 20% (for non-life) to 25% (for life) of their assets in government bonds. Moreover, government ownership of the large insurance firms and the dominance of public sector banks have often helped facilitate government debt issuance.

Large exposures of financial institutions to government securities can create tensions between fiscal policy, financial stability and macroeconomic policy, posing challenges for central banks. At times, financial stability considerations have led the central bank to attenuate rising yields through open market operation purchases and provide relief through regulatory dispensation or liquidity infusions. However, the gradual reduction of the SLR, in conjunction with efforts to broaden the investor base for government bonds, has substantially reduced this exposure. Banks holdings of the stock government securities have declined to 40%, from 51% in 2007. Moreover, steps to facilitate non-resident access to interest rate derivatives markets may further help banks to hedge their interest rate risks and improve central bank policy trade-offs.

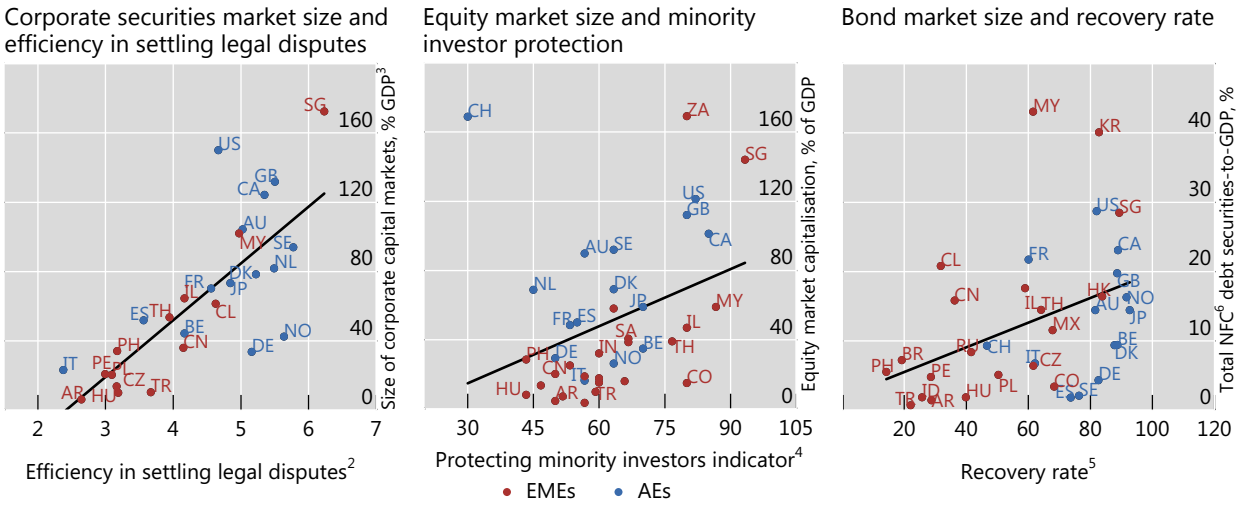
reserve-to-deposit ratios, an imperfect but often used measure of financial repression (Graph 14, centre panel). Similarly, in the Working Group's survey a positive correlation is evident between respondents' concerns about minimum government bond investment mandates and the availability of bond market financing for non-financial corporates.

Moreover, such policies reduce capital market diversity. Coercing financing from specific types of financial institutions can drive other players out of the market. This, in turn, can spill over into thinner hedging markets as the underlying assets become concentrated in the hands of investors with similar balance sheets and funding structures. Indicatively, the Working Group's survey shows that, in jurisdictions where market participants report greater concerns about minimum government bond investment mandates, they also report greater concerns about the depth of fixed income derivatives markets (Graph 14, right-hand panel).

3.1.3 Rule of law and an efficient legal and judicial framework

Nobel Laureate Douglass North argued that "how effectively legal contracts are enforced is the single most important determinant of economic performance" (North (1991)). Indeed, the arm's length nature of capital market financing relies heavily on a supportive legal environment that ensures efficient and fair enforcement of financial transactions and contracts. In particular, the possibility of legal redress and shareholder action can limit the scope for company managers and controlling shareholders to direct a company's resources for their own benefit, to the detriment of other shareholders or debt holders. Strong and effective creditor rights and efficient and predictable insolvency regimes provide greater assurance that debts will be paid in full and on time and minimise investor losses in the event of borrower difficulties that jeopardise repayment.

Corporate securities markets, legal efficiency, investor protection and insolvency[1] Graph 15

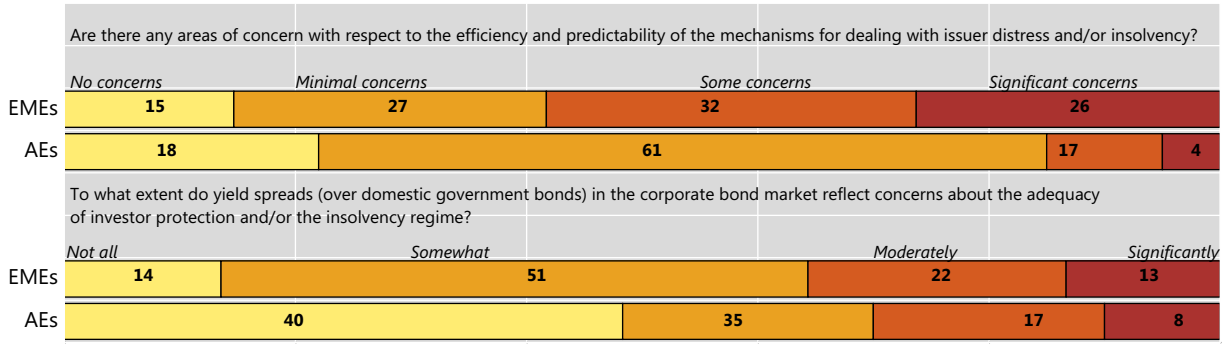


[1] Based on 2010–16 averages. Higher scores on horizontal axis indices indicate better ratings. [2] World Economic Forum, Executive Opinion Survey measure. [3] Corporate capital market size defined as the sum of market capitalisation of domestic equity markets plus total debt securities issued by the non-financial corporate sector. [4] 2010–14 average of the World Bank Doing Business distance to frontier measure; excluding HK. [5] Recovery rate in cents on the dollar from the World Bank Doing Business database. [6] NFC = non-financial corporate.

Sources: IMF, *World Economic Outlook*; World Bank; World Economic Forum; Datastream; national data; BIS debt securities statistics.

Greater concerns about insolvency regimes in EME corporate bond markets

In per cent — Graph 16



Source: CGFS Working Group survey.

Researchers have identified a number of ways in which effective legal systems can support capital markets. Specifically, a number of studies have shown that the general strength and impartiality of the legal system and observance of the rule of law correlate well with capital market development. Effective legal systems also typically exhibit greater judicial protection of private property rights, more efficient litigation processes, and, perhaps most importantly, greater respect and support for enforcing private contracts (La Porta et al (2008)). Today, private sector perceptions of judicial system efficiency in settling legal disputes continue to be positively and strongly correlated with corporate securities markets size (Graph 15, left-hand panel). Overall, EMEs continue to have less efficient legal systems, although there is significant heterogeneity across AEs.

A dispersed investor base supplying external financing is particularly vulnerable to expropriation by insiders, due to monitoring and enforcement costs. Thus, stronger protections for minority investors reduce the scope for misuse of corporate assets for personal gain. Indicatively, better legal protection for small and medium-sized shareholders leads to higher levels of dividend payments, a way of ensuring that minority shareholders share profits (La Porta et al (2007)). And equity markets are generally larger in economies that rank highly in terms of protecting minority investors (Graph 15, centre panel). This is particularly so for global financial centres such as Hong Kong, Singapore, the United Kingdom and United States and regional financial centres such as Malaysia and South Africa.

As firms approach the edge of bankruptcy, effective insolvency regimes specify procedures for firms to either work through their financial difficulties by reorganising, or minimise further losses through the sale of assets and the liquidation of claims and debts. Of particular importance for dispersed capital market investors are efficient procedures that reduce costs and increase recovery rates. These, in turn, lower premia and make bond issuance more attractive, thereby supporting larger market size (Graph 15, right-hand panel).

The Working Group's survey of market participants suggests materially greater concerns about insolvency regimes in the surveyed EMEs, where on average 26% of respondents expressed "significant concerns", compared with just 4% in the surveyed AEs (Graph 16, upper bars). These greater concerns appear to raise funding costs for EME corporates, with 35% stating that this would at least "moderately" raise corporate

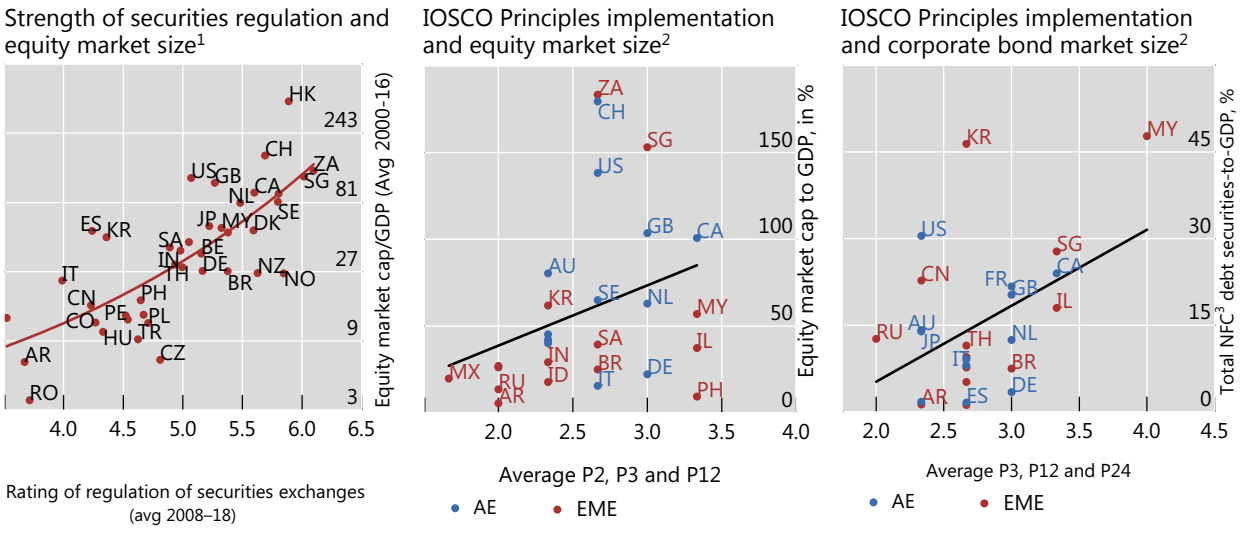
bond risk premia compared with 25% in AEs (Graph 16, lower bars). In addition, the survey indicates that offshore issuance is considered more attractive in economies with greater concerns about domestic legal and institutional frameworks. Discussions with investors active in cross-border investing in EMEs also indicated concerns about the reliability and efficiency of local bankruptcy regimes. A number of these investors noted a strong preference for gaining exposure to EME corporate bonds through international bonds, subject to UK or US law, rather than local bonds subject to often little-tested local legal regimes.

3.1.4 Effective and efficient regulatory regime

Regulators play an important role in enforcing laws and regulations that protect investors and ensure that markets operate fairly and efficiently. Effective regulatory regimes complement effective legal regimes, by specifying the obligations of firms to their investors. In principle, regulatory enforcement can also compensate for less than optimal legal frameworks in encouraging appropriate behaviour by corporate insiders. Regulators also oversee the licensing, operation and risk management practices of market intermediaries, trading systems and exchanges, rating agencies and fund managers, and detect and deter unfair trading practices. Reviews of the implementation of internationally agreed standards for securities market regulation suggest scope remains to improve the enforcement powers, adequacy of resources and independence of regulators. Efficient regulation also needs to carefully balance the trade-off between investor protection and issuer costs.

The importance of effective regulation for sustained market growth is illustrated by the strong correlation between the perceived strength of securities market regulation, as measured by surveys of market participants, and the size of local equity markets (Graph 17, left-hand panel). However, the available surveys have the

Effectiveness of regulation and capital market size — Graph 17



[1] World Economic Forum Rating of the strength of regulation of securities exchanges; higher scores indicate better ratings. [2] Higher scores indicate greater implementation of selected IOSCO Principles for securities regulation on a scale of 1 to 4. Individual Principles included – P2: The Regulator should be operationally independent and accountable in the exercise of its functions and powers; P3: The Regulator should have adequate powers, proper resources and the capacity to perform its functions and exercise its powers; P12: The regulatory system should ensure an effective and credible use of inspection, investigation, surveillance and enforcement powers and implementation of an effective compliance program; P24: The regulatory system should set standards for the eligibility, governance, organisation and operational conduct of those who wish to market or operate a collective investment scheme. Market size at time of rating. [3] NFC = non-financial corporate.

Sources: IMF; World Bank; World Economic Forum; Datastream; national data; BIS debt securities statistics.

limitation of not identifying specific concerns and areas for improvement. By contrast, assessments of the implementation of the IOSCO Principles for securities regulation (the Principles), which have begun to be published in recent years, score the degree of implementation for each of the Principles, and also provide detailed commentary on the rationale for the ratings.

The Principles have the goals of protecting investors, maintaining fair, efficient and transparent markets, and reducing systemic risk. For regulators, the Principles specify that their responsibilities should be clearly and objectively stated, that they should be operationally independent and accountable, and that they should have adequate enforcement powers, resources and capacity. The Principles also call for clear and consistent regulatory processes, carried out by staff who observe the highest professional standards, and who maintain active efforts to avoid, disclose or manage conflicts of interest and incentive misalignments. Regulators should also have or contribute to a process to identify and manage systemic risk, and regularly review the perimeter of regulation.

A 2002 IMF-World Bank review of the initial experience with assessments against the IOSCO Principles found that implementation of securities law and regulations was the greatest challenge facing jurisdictions, and that this often reflected capacity-related issues, particularly in emerging and developing economies.[1] Of the first 22 country assessments, mostly for emerging and developing economies, the overwhelming majority scored high to moderately high for having clear and objective responsibilities and regulations. However, a substantial fraction was, at best, only partially compliant with the standards for independence and accountability, adequate powers and resources, and comprehensive enforcement powers. More recent assessments generally document important progress, but concerns remain in a number of cases.[2]

For the 27 major economies with published assessments, mostly published after 2011, average implementation scores across the full set of Principles correlate with market participant scores, albeit with some notable disagreements, such that the averages correlate only weakly with equity market size. This low correlation may reflect in part a limited dispersion in scores for many standards. However, using a measure focused on ratings for regulatory independence (P2), adequacy of powers and resources (P3) and effective and credible use of inspection and enforcement powers (P12) results in a stronger correlation with equity market size (Graph 17, centre panel). Fuller implementation of the Principles is somewhat more strongly correlated with non-financial corporate bond market size, with scores for regulatory independence (P2), credible use of enforcement powers (P12) and high standards for the eligibility and governance of collective investment schemes (P24) being particularly important in driving this correlation (Graph 17, right-hand panel).

Effective regulation also needs to appropriately balance the trade-off between stronger investor protection and higher issuer costs. While effective regulation clearly brings benefits, overly burdensome regimes can materially raise issuance, compliance and legal costs, and if an approval regime produces lengthy delays, issuers may face

[1] Assessments against the full set of 38 IOSCO Principles have been integrated into the Financial Sector Assessment Program (FSAP), conducted by the IMF-World Bank, and the Peer Review Programme, conducted by the FSB. These assessments follow an agreed methodology designed and periodically updated by IOSCO.

[2] Periodic assessments began in the 1990s. More recently, a number of countries, including most G20 and countries with systemically important financial systems, have begun allowing publication of the assessments, when completed as part of the FSAP review process.

costly uncertainty about the timing and pricing of funding. For example, following the Worldcom and Enron scandals in the United States, the Sarbanes-Oxley Act significantly tightened investor protections. However, this also raised costs for publicly quoted firms, contributing to a substantial fall-off in primary issuance and equity listings in the United States (US Treasury (2017)). Moving in the other direction, the JOBS Act of 2012 spurred an increase in IPOs by introducing a number of provisions that reduced issuance costs for smaller firms, with the aim of facilitating issuance for capital formation, particularly for business startups. Similarly, in recent years the Italian government has introduced a series of policy initiatives to facilitate capital market finance, which include reducing regulatory burdens for small and medium-sized enterprises, encouraging greater use of equity finance and broadening the investor base, which are discussed in Box B.

In both AEs and EMEs, many survey respondents viewed regulatory costs and delays as at least somewhat limiting corporate issuance in the domestic market, with the constraints typically greater in EMEs and for equities (Graph 18, left-hand panel). It is also notable that, in economies where respondents expressed greater concerns about the costs of meeting regulatory requirements, they also mentioned greater concern, on average, about the effectiveness of capital markets as a source of finance for non-financial corporates (Graph 18, right-hand panel).

Given the high fixed costs associated with capital market issuance, the efficiency and predictability of securities issuance systems are also important factors determining market access. More efficient issuance procedures reduce the initial fixed costs, while predictability, especially in terms of the time required to fulfil issuance requirements, makes issuers more willing to pay the upfront cost to issue in capital markets. Indeed, the Working Group's survey indicates that offshore issuance is considered more attractive for issuers in economies with greater delays in securing regulatory approval. These issues, together with questions about investor protection, especially the efficiency of the legal and judicial system, inform the choice between merit-based and disclosure-based regulatory frameworks for screening capital market securities issuance, which is examined in Box C.

Experimentation and competition between exchanges, regulators and jurisdictions to attract issuance also affects the balance between investor protection and issuer costs. Exchanges and regulatory bodies may be motivated to be more issuer-friendly to attract issuance that generates more trading activity and revenues. At the same time, they also need to maintain a reputation for listing companies that meet sufficient standards. In some cases, issuers may actually choose more "burdensome" venues, precisely to signal their ability to meet stringent registration requirements, and tap into a potentially broader investor base.

In jurisdictions where capital markets are underdeveloped due to high regulatory barriers, experimentation and competition can potentially play a useful role in optimising this balance. This includes introducing clearly differentiated listing segments with graduated levels of stringency for disclosure, governance and compliance obligations. Such segments lower the initial fixed costs of issuing capital market instruments but allow firms to signal their quality by adopting more stringent standards, which ultimately lowers funding costs. For example, in Brazil, Bovespa provides listing segments graduated by the stringency of disclosure, governance and compliance obligations. Similarly, in Italy, bonds issued under Borsa Italiana's ExtraMOT Pro scheme are characterised by less stringent and less costly admission requirements compared with MOT but use the same technological platform and controls, as discussed in Box B.

Box B

Initiatives to promote capital market financing in Italy

In recent years, the Italian government has introduced several complementary initiatives to increase the attractiveness of capital market finance and reduce corporate leverage, especially for smaller firms. The measures have sought to reduce regulatory burdens, address tax disincentives, improve access to trading venues and incentivise market demand. Results to date have been encouraging, as securities issuance by small and medium-sized enterprises (SMEs) has increased and non-financial corporate leverage has declined. However, producing lasting effects of relevance to companies and investors is likely to require the new measures to remain in force for a sufficiently long period of time.

Facilitating the financing of small and medium-sized enterprises: SMEs are often considered the backbone of the Italian economy. They are particularly dependent on bank finance, and in most cases they do not access bond markets. As a result, SMEs have faced funding difficulties in recent years as Italy's banking system has faced pressures. Against this backdrop, four main initiatives have aimed at raising SMEs' access to capital market finance.

First, a new regulatory regime for debt instruments issued by unlisted companies (*mini-bonds*) was introduced in 2012. It removed legal and tax barriers that penalised unlisted companies. In particular, the same favourable tax treatment applicable to bonds issued by listed companies was extended to unlisted ones.

Second, in February 2013 Borsa Italiana launched *ExtraMOT Pro*, a new market segment of the *ExtraMOT* market created specifically for SMEs. By using the same technological platform and controls as the *MOT* bond market (*Mercato Telematico delle Obbligazioni* – used for large corporate issues and government securities), the *ExtraMOT Pro* platform guarantees transparency and efficiency in the price formation mechanism, while being characterised by less stringent and costly admission requirements. Currently, most *mini-bonds* are listed on the *ExtraMOT Pro* segment.

Third, Borsa Italiana instituted the *Elite* programme to coach SMEs on corporate governance and capital-raising, making it easier to raise capital before seeking a stock market listing. Many of the unlisted companies that issued *mini-bonds* took part in this programme. Furthermore, the process for SMEs' listing on the stock exchange was simplified by establishing a dedicated market (*Alternative Investment Market*, *AIM Italia*), with minimum entry requirements.

Fourth, investment savings plans called *PIR* (*Piani Individuali di Risparmio*, or *Individual Savings Plans*) were introduced by the Italian government in 2016. *PIRs* offer favourable tax treatment if the subscribers keep their initial investment in the scheme for at least five years. The funds obtained can be invested in different types of instruments, including shares, bonds and investment fund shares. One objective of *PIRs* is to channel funds from individual investors into SMEs, as at least 70% of these funds have to be invested in Italy-based firms, with at least 30% of that in SMEs. Through the creation of a new pool of investment capital, *PIRs* aim to foster new listings on the Italian stock market, thereby contributing to its development.

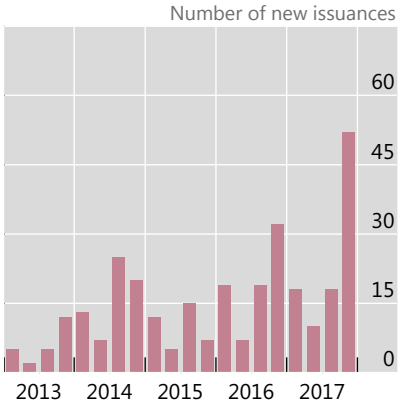
The results to date of the four initiatives have been encouraging in that markets have been playing a greater role as providers of external financing. New issuance in the *mini-bond* industry has shown steady annual growth since its start in 2012 (Graph B.1, left-hand panel), and the number of IPOs on Borsa Italiana has been following an upward trend, with the number of listings reaching the highest level since 2005 (Graph B.1, centre panel).

The tax treatment of equity and debt in Italy and the ACE tax relief: Introduced in the aftermath of the GFC, the *Allowance for Corporate Equity (ACE)* scheme aims to decrease the corporate tax distortion between debt and equity by allowing tax deductibility for equity costs. The allowance is calculated by applying a notional rate to new equity and retained earnings invested in the company. Since its introduction, financial accounts show an increase in the issuance of quoted equity finance by Italian firms (Graph B.1, right-hand panel). Italy's National Institute of Statistics published a comprehensive analysis of the effects produced by the newly adopted *ACE* tax relief (Istat (2016)). The *ACE* tax relief brought about a reduction in the effective corporate income tax (*IRES*) rate to 26%, a level below the median for non-beneficiary companies (27.4%). In 2016, about 36% of firms benefited from *ACE* tax relief. The largest share of beneficiaries were SMEs, manufacturing and service companies, and exporters. Examining a large sample of manufacturing companies, Branzoli and Caiumi (2018) estimate that the new tax benefit reduced leverage by 7 percentage points between 2011 and 2013 (from an average of 50%).

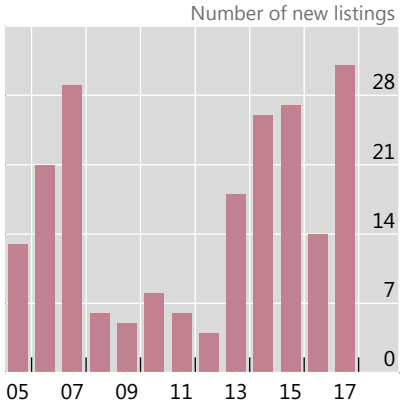
New issuance in Italian capital markets

Graph B.1

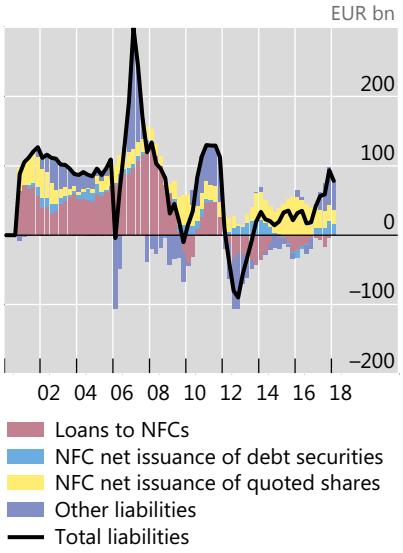
Mini-bond issuance in Italy



New IPOs in Italy



External financing of Italian NFCs[1]



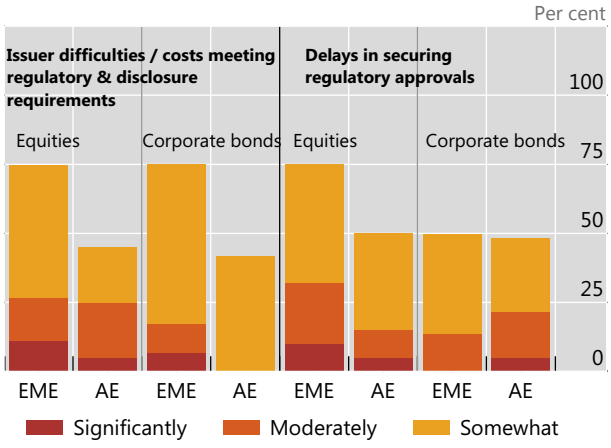
[1] Annual flows; NFCs = non-financial corporations.

Sources: Bank of Italy; Borsa Italiana; Bebeez.it; Dealogic.

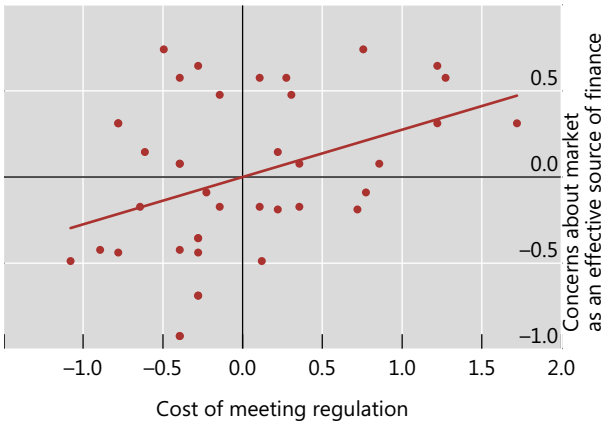
Regulatory costs and delays

Graph 18

To what extent has issuance in the domestic corporate bond or equity market been limited in recent years by factors such as…?[1]



Regulatory cost concerns correlated with domestic corporate issuance concerns [2]



[1] Cross-jurisdiction averages of market participants' responses to the Working Group's survey. Responses of "not at all" are not reflected in the bars, but accounted for in the calculations. [2] Each dot is a jurisdiction asset class-specific observation subtracting asset class fixed effects. Higher scores indicate greater concerns based on the Working Group's survey. Horizontal axis question: "To what extent have the volume and breadth of primary issuance in the domestic corporate bond / equity market been limited by issuer difficulties / costs meeting regulatory and disclosure requirements?". Vertical axis question: "Are there concerns in domestic corporate bond / equity markets with respect to their effectiveness as a source of long-term funding for large / medium- and smaller-sized non-financial firms?".

Source: CGFS Working Group survey.

Box C

Merit and disclosure based issuance systems

Broadly, there are two major alternatives for overseeing corporate securities issuance: a merit-based approval system or a disclosure-based registration system. In a merit-based system, the regulatory authorities assess the financial strength and profitability of the firm and grant approval to issue based on their assessment of the firm's adherence to merit requirements. These can include meeting requirements on past performance as well as certain standards on minority shareholder rights. By contrast, under a disclosure-based system, so long as information is adequately disclosed, firms can issue capital market securities. Disclosure-based systems leave the assessment of whether to invest to investors. The regulatory authorities instead concentrate on the adequacy of the information disclosures by the issuers, in particular whether the information is disclosed comprehensively, truthfully, accurately and on a timely basis.

In principle, merit-based approval systems may help overcome market failures and protect investors to a greater extent, especially in the initial capital market development stage. However, the regulatory authorities' scope to assess risks is also limited, and may be affected by other considerations. Merit-based systems often result in longer periods for regulatory approval and inhibit issuance by lower-rated issuers. For example, as discussed in Singh and Yusof (2005), as of the late 1990s corporate bond issues in Malaysia needed to secure a sequence of merit-based approvals from five different entities; as a result, it typically took four months or more to list a corporate bond issue on the local stock exchange. Under a merit-based approval system, government control over market access may also lead to rent-seeking behaviour, for example by influencing officials to approve IPOs and worsen adverse selection problems (Baumol (1990), Allen et al (2017)). Research by Lee et al (2017) on China's stock market shows that the merit-based IPO approval process has given rise to significant market frictions, which not only impede the ability of successful businesses to secure funding in the public markets, but also prevent unsuccessful businesses from facing market discipline.

By contrast, disclosure-based systems might be more conducive to establishing viable capital markets for younger firms and firms in new industries with limited information about past performance. The disclosure system devolves screening by letting investors make the choice as to which issuers are worthy, and at what price. For issuers, there is more assurance of fair, transparent and predictable access to the securities markets. Indeed, many well developed corporate bond markets have disclosure-based regimes, as they better meet market participant demands for short and predictable periods for bringing new debt issues to market. However, as noted in the Working Group's discussions with market participants, effective enforcement is a necessary element to tackle fraud in disclosure-based systems. In the United States, enforcement of the disclosure-based system has been assisted by the availability of class action litigation which facilitates investor-originated enforcement of contracts across a dispersed investor base. However, in many jurisdictions such investor-led actions are not possible, requiring regulators to fulfil this important enforcement role.

A disclosure-based system need not completely exclude elements of a merit review. In Hong Kong and the United States, merit reviews are typically conducted by the local exchange or local regulatory agency where the securities are listed.

3.2 Market development drivers

3.2.1 Disclosure

Reliable, publicly available information is the lifeblood of well functioning capital markets. Timely disclosure and well developed accounting systems with high levels of transparency lower the cost of information acquisition for dispersed investors, thus economising on what otherwise would be a duplicative, costly and quite asymmetric information-gathering process. Rules requiring timely disclosure of material information, and the possibility of legal or regulatory sanctions in the event of violations, provide potential investors with the means to assess the value of the securities being offered for sale in the primary and secondary market and to identify market abuse.

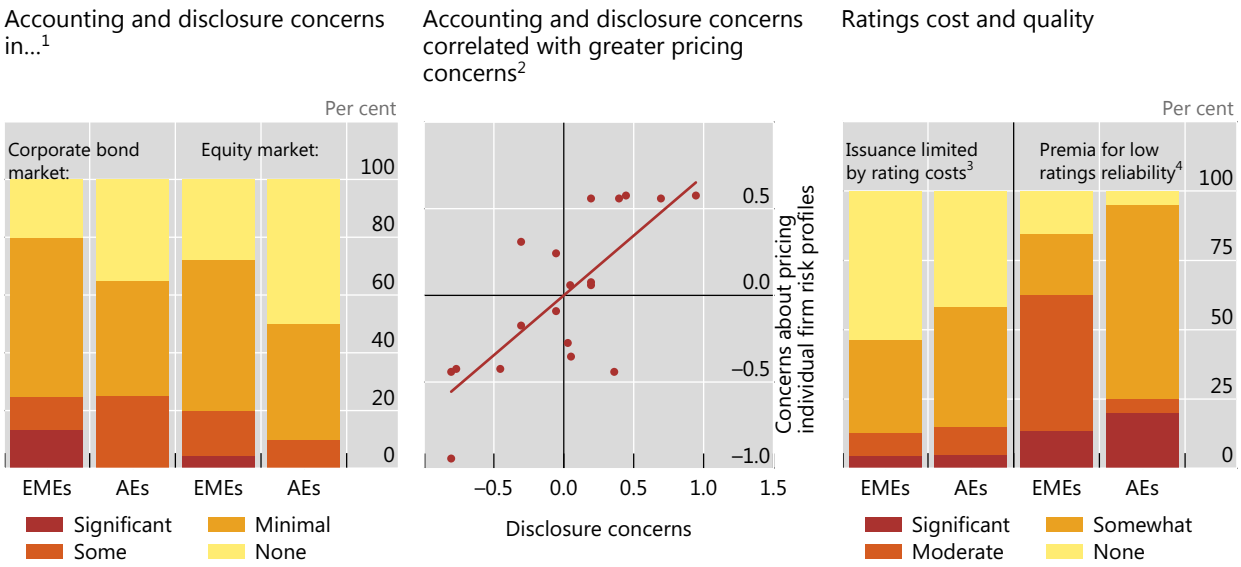
Weak disclosure impacts market functioning in various ways. First, false or misleading information released to make issuers look more attractive ahead of market issues can lead to adverse selection. Second, delayed disclosure of material information creates moral hazard by giving insiders time to make trading profits or avoid losses. Both cause investors to lose confidence in the market. By contrast, high levels of disclosure provide minority investors with information that can be used to take action to block or sanction self-dealing by insiders.

Empirical studies confirm that better disclosure reduces borrowing costs. Sengupta (1998) examined data from 103 companies between 1987 and 1991, finding that better disclosure was associated with lower issuance costs. La Porta et al (2008) show that the size of jurisdictions' capital markets is positively related to private enforcement mechanisms, such as disclosure, approval and litigation rights, that govern, and allow investors to sanction, specific related-party or self-dealing transactions. La Porta et al (2006) find that public disclosure requirements, along with liability standards for not meeting them and an efficient judiciary for enforcement, were strongly correlated with equity market size.

Results from the Working Group survey suggest somewhat greater concerns about the adequacy of disclosure regimes for corporate bond issues in surveyed EMEs (Graph 19, left-hand panel). The quality of the disclosure regime in turn affects the ability to accurately price the securities of individual firms, such that market participants' concerns about the adequacy of disclosure regimes are positively correlated with greater concerns about the ability of markets to price individual firm risk profiles (Graph 19, centre panel).

Information disclosure and pricing firm risk

Graph 19



[1] Cross-jurisdiction averages of market participants' responses to the Working Group's survey question: "Are there concerns in corporate bond/equity markets with respect to effectiveness and fairness of the accounting and disclosure regime?". [2] Each dot is a jurisdiction asset class-specific observation subtracting asset class fixed effects. Higher scores indicate greater concerns about the factor based on the Working Group's survey. Horizontal axis question: "Are there concerns in domestic corporate bond / equity markets with respect to the effectiveness and fairness of the accounting and disclosure regime?". Vertical axis question: "Are there concerns in domestic corporate bond / equity markets with respect to effectiveness in pricing risk premia appropriate for the risk profiles of individual firms?". [3] Cross-jurisdiction averages of market participants' responses to the Working Group's survey question: "To what extent has primary issuance in the domestic corporate bond market been limited by the cost of ratings from local or international agencies?". [4] Cross-jurisdiction averages of market participants' responses to the Working Group's survey question: "To what extent do spreads over domestic government bonds reflect concerns about the reliability of ratings?".

Source: CGFS Working Group survey.

Rating agencies have historically acted as influential information aggregators in corporate bond markets, summarising their views on credit risk in simple summary statistics. However, the GFC raised a number of concerns about their reliability. While the cost of ratings does not appear to be a significant factor limiting bond issuance in EMEs, their reliability is: around 70% of EME respondents reported that concerns about ratings' reliability had significantly or moderately increased risk premia on domestic corporate bonds, compared with just 25% of AE respondents (Graph 19, right-hand panel).

3.2.2 Diversified investor base

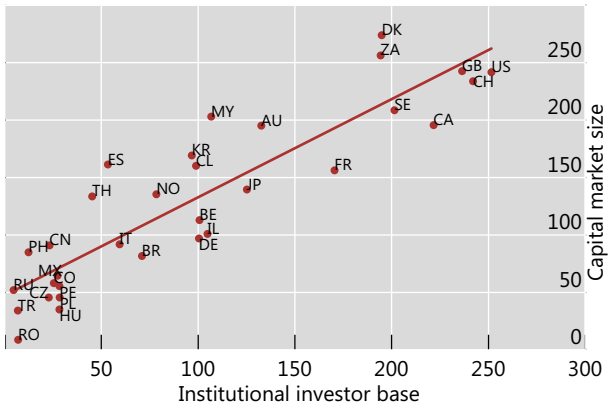
A broad and diversified investor base supports liquidity, depth and stability. With long investment horizons and low leverage, insurance companies and pension funds can be effective in providing long-term funds and are less likely to exacerbate volatility by selling into short-term corrections. They also typically press for higher disclosure standards that reduce information asymmetries and sustain market vitality. Collective investment funds, such as mutual funds, reduce the cost of diversifying risk and allow retail investors to easily access professional fund management services, thus facilitating the financialisation of savings. In addition, their shorter investment horizons can facilitate price discovery and create liquidity.

Capital market development is strongly correlated with the depth of the institutional investor base, and the correlation is robust to controlling for other institutional and macro factors (Graph 20, left-hand panel; and Table A1, Annex 3). Indeed, many of the EMEs with the largest corporate securities markets relative to GDP, including Chile, Korea and South Africa, also have larger private pension, insurance, and/or mutual fund sectors. In addition, the size of the institutional investor base exerts a positive stabilising influence on long-term government bond yields (IMF (2014)).

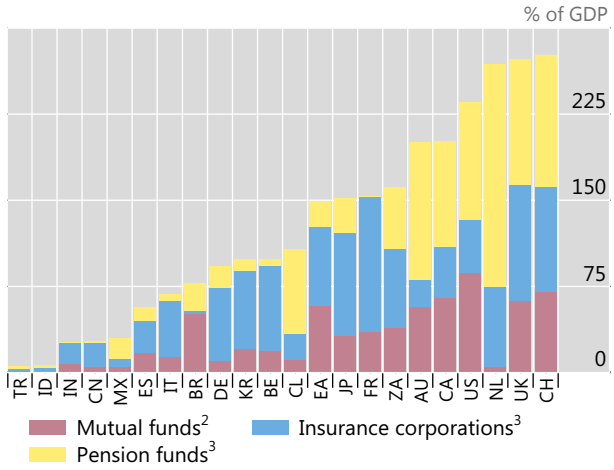
Institutional investor base

Graph 20

Corporate capital market size and institutional investor base[1]



Assets of domestic institutional investors



[1] Institutional investor base defined as the sum of pension fund, insurance company and mutual fund assets as a percentage of GDP. Capital market size defined as sum of market capitalisation of domestic equity markets and total debt securities issued by the corporate sector as a percentage of GDP. 2010–16 averages. [2] Mutual fund composition as a percentage of 2017 GDP; UCITs only for euro area (EA) economies; mutual fund data can include investments from pension funds and insurance corporations. [3] 2016 percentage.

Sources: FSB; World Bank; Datastream; efama; national data; BIS debt securities statistics; BIS calculations.

Among AEs, pension fund assets account for many of the differences in the size of the institutional investor base (Graph 20, right-hand panel). Indeed, recent academic research indicates a strong relationship between pension policies and capital market development. For example, Niggemann and Rocholl (2010) find a strong increase in equity and bond issuance in the years following reforms to raise savings in pension funds. Scharfstein (2018) presents evidence that the size of an economy's capital market is strongly influenced by the choice between prefunded and pay-as-you-go pensions, with the generosity of the latter lowering market development.

While the overall size of corporate capital markets is strongly correlated with the institutional investor base, there are significant cross-country differences in how these funds are allocated across equities, corporate financial bonds and non-financial bonds (Annex 3). This suggests that, given the size of the institutional investor base, other factors such as regulations and path dependence determine individual market development.

The relationship between institutional investors and capital markets is two-way. The development of capital markets helps increase economies of scale for collective investment funds. This contributes to lower asset management fees, thereby financialising more savings into capital market investments (Vittas (1998)).

3.2.3 Internationalisation as a driver of market development

Opening up access to international investors and issuers, and allowing domestic firms and investors greater opportunities to issue and invest abroad, can lead to a number of positive effects in jurisdictions' corporate securities markets. First, the process expands the potential pool of savings, allowing more securities issuance at lower expected yields. In addition, standard international asset pricing models predict that market liberalisation reduces the cost of capital by enabling risk-sharing between domestic and foreign agents. Second, because the circumstances, needs and expectations of foreign investors and issuers may differ from those of local investors, their entry can increase local market liquidity and depth, including for local hedging markets. It can also reduce volatility by lowering sensitivity to country-specific developments, even if it increases exposure to global spillovers. Third, the entry of foreign participants, and the prospect of foreign competition, can promote the implementation of international best practices and standards.

Moreover, empirical studies confirm that equity market liberalisations in the 1980s and 1990s, which lowered inward barriers, reduced the cost of capital and that much of the reduction derives from greater risk-sharing (Bekaert and Harvey (2000), Chari and Henry (2004) and Henry (2007)). There is also some firm-level evidence that increased openness to foreign participation spurs efficiency, profitability and lower debt levels (Mitton (2006)). Meanwhile, firms issuing abroad are generally able to place larger issues and at lower yields and longer maturities than is feasible in local markets (Gozzi et al (2015), Cortina et al (2018)).

However, some studies have raised concerns that issuance and/or trading abroad (eg via depository receipts) weakens liquidity in domestic markets. The Working Group's survey results indicate a negative correlation between domestic market liquidity and the attractiveness of offshore issuance. However, other factors such as concerns about legal frameworks were more strongly correlated with liquidity. Moreover, in discussions with Working Group members, several market participants judged that the phenomenon is less of a concern for EME equity markets compared with 10–15 years earlier.

The available evidence does suggest that attracting foreign issuers to local bond markets brings diversity to local credit markets and depth to local hedging markets. Such issuers typically seek to swap their proceeds back into their home currency, which creates a natural counterpart to domestic firms wishing to hedge foreign currency borrowings. In Australia for example, foreign issuers account for about one third of domestic corporate issuance while at the same time Australian corporations raise a large share of funds offshore (Black et al (2012)). Box D discusses in greater detail how Australia's bi-directional opening, in combination with a floating exchange rate, promoted the development of a deep and liquid FX hedging market.

Box D

Development of Australia's markets for hedging foreign exchange risk

Australia's float of the Australian dollar and liberalisation of the financial and capital account in the early 1980s resulted in significant bi-directional capital flows. The growth of Australian firms issuing foreign currency bonds offshore and non-residents issuing Australian dollar bonds onshore was supported by the emergence of vibrant foreign exchange hedging markets. Currently, around half of the foreign currency borrowing by Australian entities is directly hedged via derivatives, while Australian banks hedge nearly all of their foreign currency borrowing via derivatives on a maturity-matched basis, largely through swaps and forwards.

In the pre-float period, market participants had developed a relatively small foreign exchange derivatives market to circumvent existing exchange controls (the official market offered very limited hedging facilities).① The key element of this hedging market was that, due to the exchange controls in place at the time, contracts were based on settlement in Australian dollars, with no exchange of foreign currency. Unlike most other non-deliverable forward (NDF) markets, the Australian NDF market was onshore. The Australian authorities chose not to interfere with the development of the private hedging market.

The shift to a floating regime was the primary catalyst for the emergence of modern hedging markets and practices. Experience in the hedging market, and in trading other currency pairs in the Australian market, enabled participants to develop their trading skills and adapt quickly to the new floating exchange rate environment. Within a year, Australia's (non-deliverable) hedging and (deliverable) foreign exchange markets doubled and tripled in size, respectively (Graph D.1, left-hand panel). This growth was facilitated by the entry of around 40 new non-bank foreign exchange dealers and, later on, a number of foreign banks.

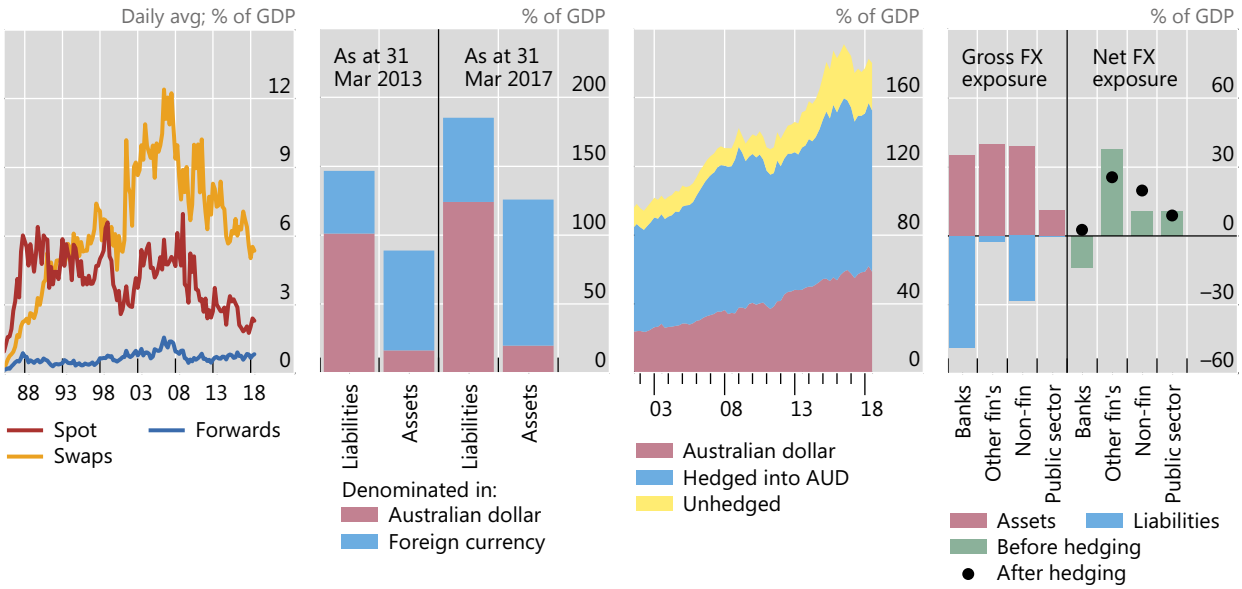
The development of the cross-currency swaps market was supported by – and contributed to – the development of the non-resident Australian dollar bond market. Non-residents (especially supranational borrowers) tend to swap Australian dollar funding into foreign currency, and are thus natural swap counterparties for Australian issuers of foreign currency bonds and require Australian dollars. Australian investors, particularly superannuation (pension) funds, seeking diversification while staying with relatively high-yielding Australian dollar assets, provide strong demand for Australian dollar bonds issued by non-residents.

Not all market participants were sufficiently aware of the risks of funding in foreign currency in the early stages of the floating exchange rate regime. In the mid-1980s, some borrowers funded themselves in Swiss francs to take advantage of low interest rates, but a sharp appreciation of the Swiss franc meant that many of these borrowers were unprepared for the rise in the Australian dollar payments. The scale of this borrowing was small enough not to have an impact on the economy, but it received publicity and provided a salutary lesson to Australian borrowers, and can partly account for the relatively high level of hedging in Australia.② According to a survey conducted at the time, the two most important factors behind the increase in non-financial sector hedging were the growth in the underlying exposure and uncertainty over future currency movements. For banks, prudential oversight was also an important factor in limiting net currency exposure by matching foreign currency liabilities with assets. Originally, the supervisory authorities imposed strict limits on FX positions of dealers, and later on required banks to calculate their FX exposures daily and comply with capital adequacy requirements on both traded and non-traded currency positions.

For Australia, a deep and liquid foreign exchange derivatives market has, over time, enabled residents to access overseas funds while effectively managing foreign exchange risk. Given the importance of hedging behaviour for reducing the vulnerability of particular sectors in the Australian economy to exchange rate movements, the Reserve Bank has tasked, and provided funding for, the Australian Bureau of Statistics to regularly survey firms' foreign currency exposures and the extent to which they are hedged. The first Survey of Foreign Currency Exposure (SFCE) was conducted in 2001, with subsequent surveys conducted every four years. The 2017 SFCE confirmed that around half of Australia's foreign currency borrowing is hedged via derivatives (Graph D.1, second and third panels). Including natural hedges, this share rises to around three quarters. In particular, the banks hedge nearly all of their foreign currency borrowing, and on a maturity-matched basis, via derivatives (Graph D.1, fourth panel). At present, cross-currency swaps and forwards account for most of the outstanding hedging activity.

The Australian market

Graph D.1



[1] As at 31 March 2017.

Sources: Reserve Bank of Australia; Australian Bureau of Statistics.

① The private forward market was based on futures markets such as the greasy wool futures market that had been in operation in Australia for some time. ② It is estimated that there were up to 3,000 foreign currency loans outstanding in 1986, with many of the smaller borrowers believed to have had little understanding of the foreign exchange risks associated with these loans. The borrowers were small to medium-sized business owners, primary producers, professionals or property investors and developers. The total amount of borrowing was very small relative to GDP (less than 5%).

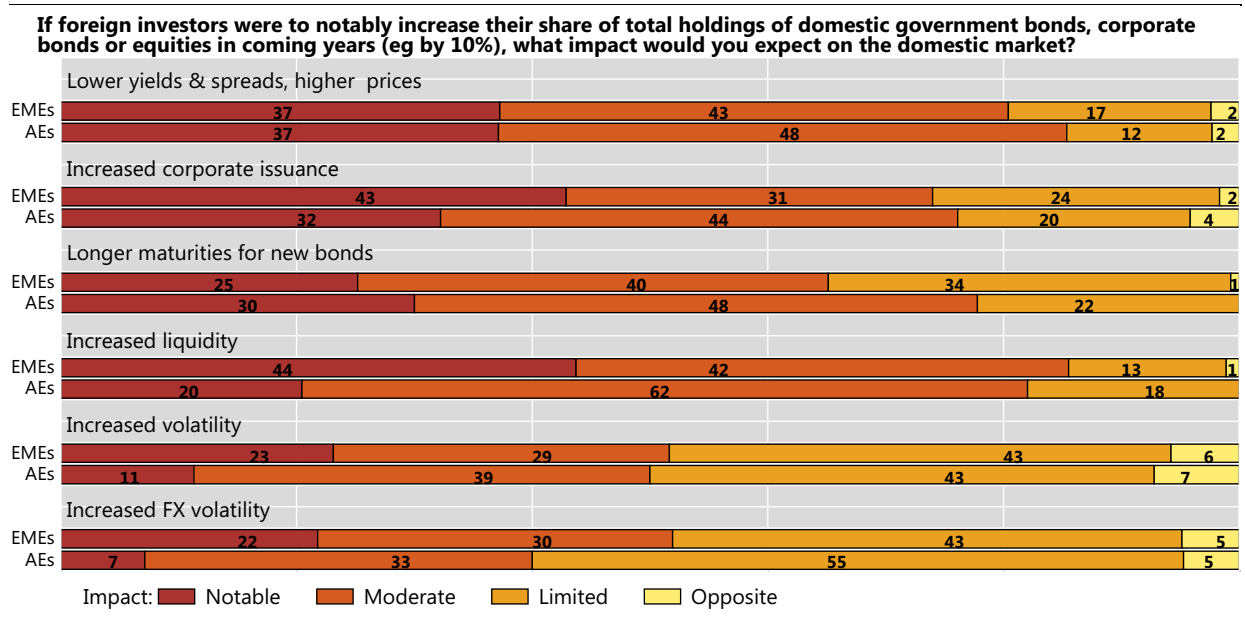
Respondents to the Working Group's survey generally shared the view that increases in foreign investment in domestic markets bring significant benefits, but that room for further gains remains. On average, about three quarters of respondents thought that a hypothetical increase in foreign participation would bring notable-to-moderate improvements in funding costs, issuance volumes, liquidity and bond maturities to their domestic markets (Graph 21, top bars). And about three quarters of EME respondents and half of AE respondents thought that risk management practices related to government bond trading would improve moderately.

On the other hand, most respondents thought that volatility would also increase at least somewhat (bottom bars). Views were mixed about the intensity of the increase: the most common expectation was for a limited rise in volatility, but about a quarter of respondents in EMEs expected notable increases in local securities and foreign exchange markets. These views are consistent with empirical evidence that, as jurisdictions have become increasingly integrated with global markets, their asset returns are becoming more sensitive to global factors, and may overreact (Yildirim (2016), IMF (2014)). However, there is also evidence, at least for equities, that total volatility often declines due to lower country-specific volatility (Umutlu et al (2010)).

Additional questions from the Working Group's survey indicate that market participants perceive stronger spillovers in EME equity markets from global market developments compared with those in AEs (Graph 22, left-hand panel). AE and EME respondents expressed similar assessments about the magnitude of spillovers into government bond markets. In domestic corporate debt securities markets, EME respondents generally saw modest to limited spillovers, whereas AE respondents had larger concerns. This result is likely to reflect the fact that, while foreign investors hold large shares of EME equities and debt (Graph 22, centre and right-hand panels), the latter paced by larger foreign holdings of local government bonds and international debt securities in recent years, foreign holdings of EME domestic corporate bonds remain quite low. In discussions with the Working Group, market participants have pointed to the low liquidity of domestic corporate bonds as the main disincentive to invest in these instruments. Uncertainty and limited confidence in local legal and insolvency regimes were also commonly cited.

Impact of a hypothetical increase in foreign holdings of domestic securities[1]

In per cent — Graph 21



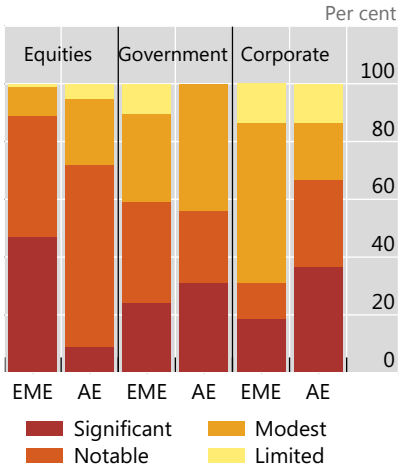
[1] Average responses across government bond, corporate bond and equity markets.

Source: CGFS Working Group survey.

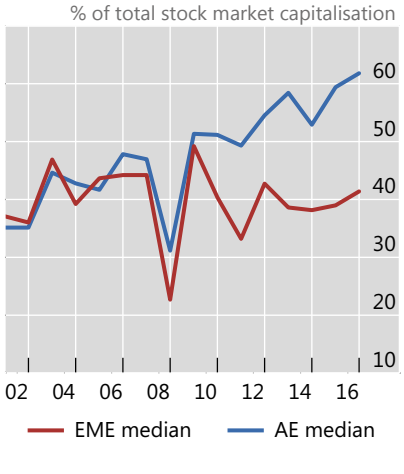
Global spillovers and non-resident holdings of capital market securities

Graph 22

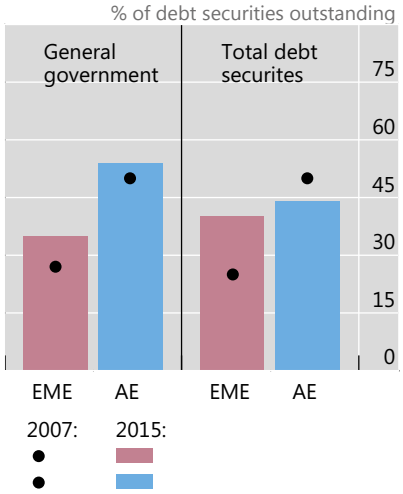
How do you assess the magnitude of foreign spillovers from global market developments?



Non-resident holdings of equity and investment fund shares



Non-resident holdings of debt securities, median across jurisdictions



Sources: Lane and Milesi-Ferretti (2017); IMF, Coordinated Portfolio Investment Surveys; World Bank; Datastream; national data; CGFS Working Group survey; BIS debt securities statistics.

A large local investor base can be an offsetting stabilising force. Studies have found that the larger the share of assets held by domestic mutual funds, pension funds and insurance companies, the smaller the effects from global financial shocks. In addition, better institutional quality – stronger rule of law, better accounting standards and increased transparency of government policy – also dampens the effects of global risk shocks (IMF (2014)).

3.2.4 Primary markets, trading systems, complementary markets and financial market infrastructures

The organisational structure of markets is an important driver of market liquidity, pricing, access and resilience (CGFS (1999)). Greater predictability and greater use of bond reopenings have lowered issuance costs and raised liquidity in government securities markets. Growth in electronic trading, particularly in government bond and equity markets, has shaped capital market development by lowering transaction costs, broadening access and increasing transparency. Transparency has also been enhanced by regulatory efforts to boost post-trade reporting, resulting in improved liquidity for inherently liquid assets. However, the overall impact on illiquid securities, for which risks of information leakage are high, is less clear. Strengthening the robustness and efficiency of financial market infrastructures, with fair and open access, has raised the safety and lowered the costs of holding and trading securities, helping to maintain confidence and resilience during periods of financial stress. Well functioning derivatives markets complement cash market development by enabling investors to better hedge risks and tailor risk exposures to their preferences, while deeper repo and securities lending markets help securities dealers fund their positions, supporting liquidity and price discovery.

Primary markets

When new issues come to market, intermediaries such as primary dealers and underwriters assist in the pricing and distribution of securities by ascertaining investor demand. In government securities markets, the introduction of predictable primary issuance mechanisms and market determination of pricing in auctions have been important drivers of market development in a number of jurisdictions. In recent years, EME governments have taken a more principles-based approach to debt management that has imparted predictability to the supply of government debt instruments. For primary dealers, greater predictability in issuance calendars has reduced the risk of being unable to find sufficient buyers of government securities, which has ultimately reduced the cost of issuing government securities. In most economies, primary dealers commit to bid in primary markets (Table 1). The bidding commitments can be general (as in the United States) or can require actual underwriting of all auctions (India). Primary dealers also often play a major role as drivers of market liquidity through their market-making activities, even in developed markets. Secondary market commitments can range from general obligations for market-making to specific price-making obligations.

Primary dealer systems

Table 1

	Advanced economies							Emerging market economies									
	DE[1]	IT	JP	NL	ES	GB	US	BR	CN	HK	IN	ID	KR	MY	PH	SG	TH
Primary obligation underwriting		✓		✓					✓		✓		✓				
Primary obligation – minimum bidding			✓			✓	✓		✓	✓		✓		✓	✓	✓	✓
Secondary market obligations – broad		✓	✓			✓	✓	✓	✓	✓	✓			✓	✓	✓	
Secondary market obligations – specific												✓	✓				✓

[1] Germany does not have formal primary dealers. Instead, broad access is granted to acquire newly issued government bonds through the so-called bidding group, which is currently composed of 36 members and is open to both domestic and foreign financial institutions. In order to stay in the group, members have to meet the comparatively low requirement of purchasing at least 0.05% of the total amount issued in the respective year. The members have no further obligation.

Source: National sources.

Reduced securities fragmentation through greater use of reopenings has further improved secondary market liquidity for government securities. Reopenings result in debt portfolios consisting of fewer securities with larger size, which increases the probability of buyers and sellers wanting to trade the same security. This method is widely used in government bond markets, accounting for about 90% of annual total issuance in Brazil, India and Spain (Graph 23, left-hand panel). Furthermore, larger issue sizes increase the probability of index inclusion, further boosting liquidity. Indeed, jurisdictions with a smaller share of securities eligible for the JPMorgan GBI index generally have higher bid-ask spreads on their benchmark 10-year government bonds (Graph 23, centre panel).

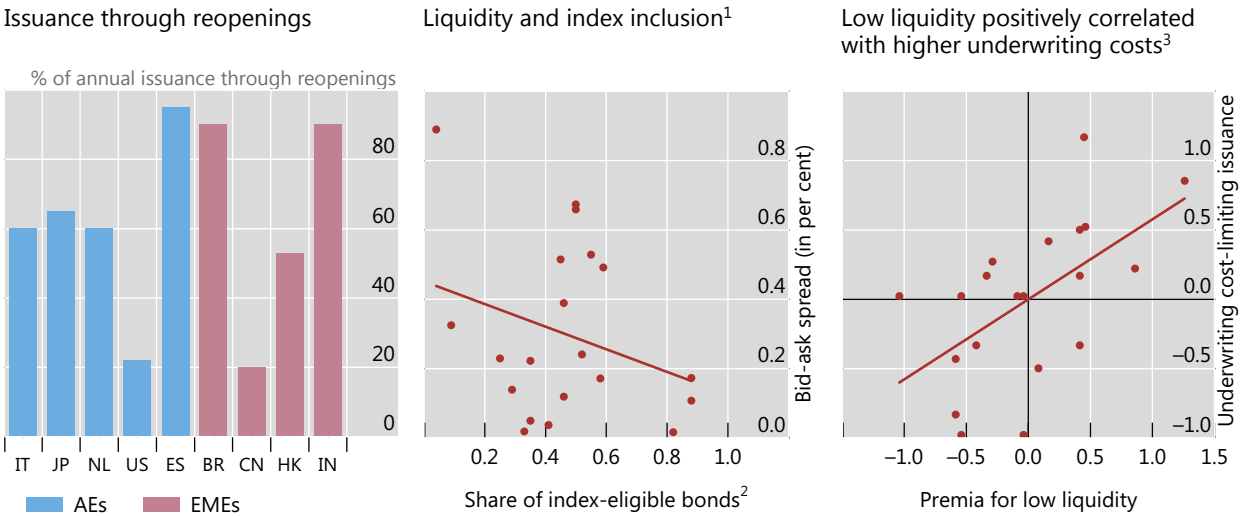
In corporate securities markets, underwriters conduct due diligence on the issuers and disseminate information to investors in addition to pricing and distributing securities. For smaller firms, underwriting fees can be an important

determinant of capital market access. Indeed, the responses from the Working Group's survey indicate that higher underwriting costs are correlated with greater concerns about SME access to capital markets (Annex Graph A1, left-hand panel). Market participants responding to the survey viewed underwriting costs, for bond and equity offerings alike, as having a greater effect on limiting issuance in EMEs than in AEs (Graph A1, right-hand panel, first two columns). One factor driving higher underwriting costs is lower secondary market liquidity, which increases the costs of ascertaining pricing for new issues and investor demand (Graph 23, right-hand panel). Efforts to boost corporate bond market liquidity include those of the Securities and Exchange Board of India, which introduced provisions to facilitate reissuance of corporate bonds and hence reduce fragmentation (see Box G below).

The efficiency of domestic capital market issuance can also be evaluated by the cost relative to other financing options. Competition from banks was one of the most important factors identified by survey respondents that limit corporate bond issuance in domestic markets (Graph A1, right-hand panel). This is particularly pronounced in AEs, where 78% of respondents indicated that better terms on bank loans had moderately limited corporate bond issuance. By contrast, competition from offshore issuance markets appeared less important: around a quarter of respondents in both EMEs and AEs viewed more attractive international issuance terms as at least a moderate factor limiting domestic issuance.

Bond reissuance, index inclusion and underwriting costs

Graph 23



[1] Number of bonds eligible for the JPMorgan GBI-EM Broad index as a share of total bonds outstanding. Bid-ask spread computed as: (ask price – bid price) / bid price on 10-year generic government bonds. [2] JPMorgan GBI-EM Broad index. [3] Each dot is a jurisdiction asset class-specific observation subtracting asset class fixed effects, where higher scores indicate greater concerns based on the Working Group's survey. Horizontal axis question: "To what extent do yield spreads (over domestic government bonds) / equity market earnings yield premia (lower P/E ratios) reflect concerns about low liquidity in recent years?". Vertical axis question: "To what extent has primary issuance in the domestic corporate bond / equity market been limited by underwriting costs and/or pricing concerns?".

Sources: National central banks; Bloomberg; JPMorgan Chase; CGFS Working Group survey.

Trade transparency

The use of exchanges for equities has historically provided high levels of trade transparency. By contrast, bond trading has generally been somewhat more opaque. Details of individual trades are often known only by the counterparties, with price or volume information not disseminated to the wider investing public.

However, fixed income markets began to experience a major shift starting in the late 1990s as electronic communication networks (ECNs) started to gain traction in inter-dealer markets for liquid sovereign bonds (Markets Committee (2016)). ECNs operate as virtually centralised marketplaces, aggregating offers to trade and matching them against incoming trade requests. By displaying the set of bids and offers at which one can trade, ECNs have provided greater pre-trade transparency to their members.

Since the early 2000s, electronic trading infrastructures have been introduced in many EMEs. In markets such as Brazil, India, Korea and Singapore, electronic inter-dealer platforms for sovereign bonds have successfully developed with public sector support: Selic in Brazil, NDS-OM in India, KTS in Korea and E-bond in Singapore. However, voice brokering continues to dominate in jurisdictions such as Hong Kong and Mexico. Box E discusses the development and positive impact of India's CCIL clearing and settlement system and NDS-OM bond trading platform, which has captured around 80% of Indian government securities trading and helped India's benchmark government bonds to become classed among the world's most liquid.

The IOSCO Principles endorse post-trade transparency, and some market analysis suggests that, by supporting competitive pricing, post-trade transparency can be an important factor influencing liquidity in corporate bond markets. The US experience sheds some light on the relationship between post-trade transparency and liquidity. Before 2002, US corporate bonds primarily traded in an opaque over-the-counter (OTC) environment with price quotes available only to market professionals, most often by telephone. Since July 2002, following the introduction of the Trade Reporting and Compliance Engine (TRACE) system, OTC trades in corporate bonds have been required to be reported within 15 minutes of the transaction. After TRACE was established, trade data became available to the public. Edwards et al (2007) find that this transparency reduced bid-ask spreads by an average of 5 basis points. Nonetheless, some market participants suggest that this improvement is concentrated in smaller trades, and that immediate disclosure reduces the liquidity available for large trades, which is important in a market in which institutional investors are predominant. As discussed in US Treasury (2017), a number of factors have weighed on liquidity in corporate bonds over the past decade, including changes in bank business models. In response, the US corporate bond market has evolved towards an agency model, in which intermediaries make best efforts to match buyers and sellers, rather than trading out of inventory (CGFS (2016)).

Recently, some Asian markets have also started to enact reporting requirements of ex post trade in OTC markets similar to or even surpassing those of TRACE. Malaysia implemented the Bond Information Dissemination System (BIDS), which requires dealers to enter trade information (price and volume) into the system within 10 minutes of a trade. The Thai Bond Market Association (ThaiBMA) requires traders to report OTC trades within 30 minutes and distributes the trade information to ThaiBMA members four times a day.

Derivatives

Derivatives facilitate the hedging or adoption of risk exposures. The ability of derivatives to unbundle risks enables investors to tailor their exposures more closely to their preferences, perceived opportunities or other constraints. In the Working Group's discussions, market participants highlighted how their decisions to enter specific capital markets and take positions depended on the ease of selectively hedging some of the risks bundled in cash securities. Some participants indicated that there were no structural differences in the key underlying factors determining portfolio allocation choices in EME and AE fixed income markets. Rather, their propensity to enter trades in EME and AE markets depended on access to instruments that enabled them to hedge out certain risks where they did not wish to take views. Indicatively, the Working Group's survey results show a positive correlation between the degree of market participant concerns about derivatives market breadth and concerns about liquidity in the cash market (Graph 24, left-hand panel).

Upper and Valli (2016) examine the factors behind smaller derivatives markets for EME currencies and interest rates. They find that the lower derivatives market turnover in EMEs reflects several factors, including a lower level of financial

Box E

Development of robust and efficient market infrastructure in Indian bond markets

Over the past 25 years, the Indian bond market has transformed from a shallow, narrow and illiquid market with captive investors into a reasonably deep and actively traded market with a broader investor base. Infrastructure developments implemented by the private sector but initiated by the central bank have helped spur market development and innovation.

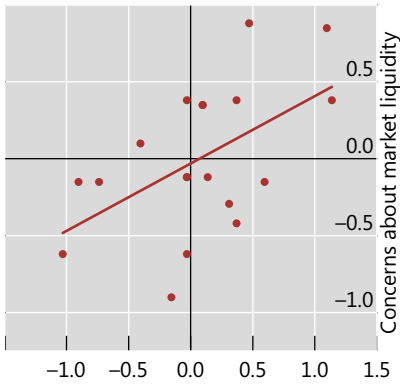
A safe clearing and settlement system and an anonymous electronic trading platform have helped make benchmark Indian government securities some of the most liquid in the world (Graph 10). The Clearing Corporation of India (CCIL), a user-owned organisation set up under the auspices of the Reserve Bank of India, has brought a number of innovations to Indian debt markets. It provides infrastructure for transactions in government securities, money market instruments, foreign exchange and other related products. For clearing and settlement, the CCIL acts as a central counterparty for all secondary market transactions in government securities, including collateralised borrowing and lending obligations and repo transactions among market participants. Since 2004, DVP III settlement has enabled the netting of both cash and securities, substantially reducing funding requirements and costs for banks and institutions by increasing multilateral netting possibilities. In addition, safety and efficiency have been enhanced by straight through processing for most of its products, with secondary market trading standardised on a T+1 basis. Non-residents in non-overlapping time zones are able to settle on a T+2 basis.

In 2005, the Reserve Bank of India also promoted the development of the Negotiated Dealing System–Order Matching (NDS-OM) trading platform to facilitate transparency, better price discovery, liquidity and increased operational efficiency. It is an electronic screen-based anonymous order-driven trading system. The system ensures complete anonymity among the participants, as CCIL acts as the central counterparty for settlement of all the trades. With the efficiency and ease of its operations, NDS-OM has today captured the major share of trading volume – around 80% – in government securities. Initially limited to banks and primary dealers, trading on this platform was gradually extended to other entities, including insurance companies, mutual funds and provident funds. Access to the platform has been further enhanced via the internet, with a separate order book for odd-lot trading, which facilitates access for retail entities. High levels of pre-trade transparency are achieved through public dissemination of live orders on NDS-OM – both buy and sell – for all traded securities, while post-trade transparency is ensured through open disclosure of price and volume of every single completed trade in every security. Archived trade-wise historical data are available for all. To facilitate valuation, end-of-day prices for all securities – traded or not – are calculated through a transparent pricing model based on traded data and published by Financial Benchmarks India Ltd.

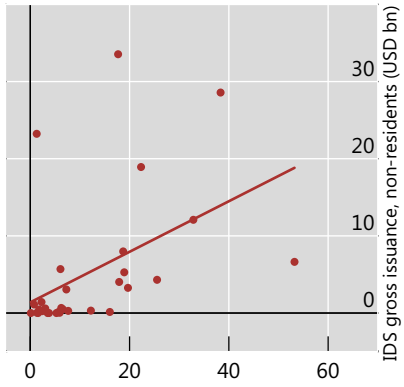
Derivatives markets and market infrastructure

Graph 24

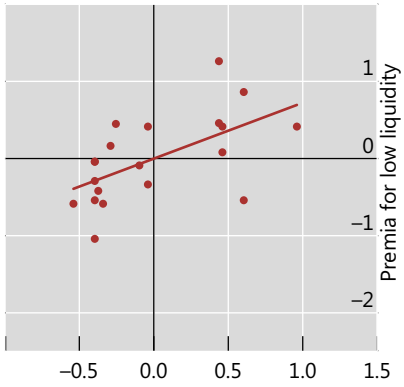
Concerns about derivatives market breadth correlated with cash market liquidity concerns[1]



Derivatives market size and issuance by non-residents[2]



Market infrastructure concerns correlated with perceived premia for low liquidity[3]



[1] Each dot is a jurisdiction asset class-specific observation subtracting asset class fixed effects, where higher scores indicate greater concerns based on the Working Group's survey. Horizontal axis question: "To what extent do you have concerns about the breadth and functioning of derivatives markets associated with domestic government bond / corporate bond / equity markets?". Vertical axis question: "To what extent do you have concerns about secondary market liquidity in domestic government bond / corporate bond / equity markets?". [2] Average daily volume in April 2016, "net-net" basis; over-the-counter (excluding spot transactions) and exchange-traded derivatives. Volume defined as the gross value of all new deals entered into during a given period, and measured in terms of the nominal or notional amount of the contracts. International debt securities (IDS); all jurisdictions excluding residents vis-à-vis all jurisdictions excluding residents, by currency. [3] Each dot is a jurisdiction asset class-specific observation subtracting asset class fixed effects, where higher scores indicate greater concerns based on the Working Group's survey. Horizontal axis question: "Are there concerns in domestic corporate bond / equity markets with respect to the efficiency and resilience of the clearing and settlement infrastructure?". Vertical axis question: "To what extent do yield spreads (over domestic government bonds) / equity market earnings yield premia (lower P/E ratios) reflect concerns about low liquidity in recent years?".

Sources: Upper and Valli (2016); CGFS Working Group survey.

development (as measured by the size of the bond market in domestic currency), less integration in the global economy (as measured by the size of international liabilities), less issuance by non-residents in domestic markets (Graph 24, centre panel) and lower per capita income. Box F, which discusses the development of Brazilian derivatives markets, highlights the breadth of factors needed to develop viable and deep derivatives markets. These stretch from a supportive legal environment and effective regulatory oversight to a diversified investor base and sound financial market infrastructures such as central counterparties (CCPs).

Repo and securities lending

Repo and securities lending markets play a key role in facilitating the flow of cash and securities around capital markets (CGFS (2017)). However, as shown in Section 2, the Working Group's survey indicates somewhat greater concerns in EMEs about the breadth and functioning of these markets relative to those in AEs.

These markets perform several functions. First, repos are used by market participants looking to finance trading activities that support market liquidity and narrow pricing discrepancies through arbitrage. Leveraged financial institutions also use repos to fund outright purchases or cover short sales. For dealers, repos support their market-making activities and the funding of trading inventories. Such intermediation can alleviate short-term mismatches between the supply of and demand for securities, enhancing secondary market liquidity. By enabling the reuse

of securities in the market and short selling, securities lending facilitates greater liquidity and price discovery.

Second, by improving the ability of investors to settle trades and meet margin requirements, repos and securities lending can support the smooth functioning of derivatives markets and contribute to capital market resilience. In Working Group discussions, market participants indicated that deeper repo markets with longer maturities would facilitate funding of positions in EME markets, thus reducing their need to exit positions in periods of market stress.

Third, repos can also be used to hedge or modify the risk profiles of portfolios. Underwriters can finance the hedging of underwriting risk on the securities they bring to the primary market. In addition, in some jurisdictions repo markets facilitate the asset and liability management of long-term investors such as pension funds. Such investors can borrow cash against government bonds and use the proceeds to reinvest in bonds of different (typically longer) duration. However, in many jurisdictions, regulations do not permit insurance companies and pension funds to access these markets because of the potential leverage risks involved.

Box F

Drivers of Brazilian derivatives markets

Since the implementation of the inflation targeting regime in 1999 and the adoption of a floating exchange rate, the development of derivatives markets has gained prominence in Brazilian financial markets. A supportive legal environment, effective regulatory oversight and a diverse investor base together with sound infrastructure built around CCPs have promoted sophisticated, deep and liquid markets that have proved resilient to financial shocks over the past two decades.

In 2001, Law 10,214/2001 enabled multilateral netting of obligations but required that any entity settling transactions through multilateral netting in systemically important markets act as a CCP. At the same time, Central Bank of Brazil (BCB) Circular 3,057/2001 defined guidelines for the regulation of clearing houses/securities settlement systems. More recently, Comissão de Valores Mobiliários (Brazilian Securities Commission, CVM) Instruction 505/2011 (replacing the earlier Instruction 387/2003) establishes rules and procedures to be observed in transactions carried out with securities in Brazilian securities markets, and Central Bank Resolution 4,373/2014 (replacing Resolution 2,689/2000) provides prudential norms for non-resident investors in the trading equity, derivatives and fixed income markets. In accordance with Brazilian regulation, the creation and operation of organised securities markets and custody and settlement systems require prior authorisation by the CVM and the central bank, depending on the market.

More recently, following the G20's commitments to reform OTC derivatives markets, all standardised OTC derivative contracts in Brazilian markets are traded on exchanges or electronic trading platforms and cleared through CCPs. Non-standardised OTC derivative contracts face higher capital requirements where a pre-set amount of collateral posted to the CCP varies with changes in market prices. According to Brazilian legislation, all securities and positions have to be registered at a trade repository and kept in a central securities depository in the name of the final beneficial owner in an indirect account holding system. This very particular feature enables a consolidated view of the position of each investor, facilitating regulatory oversight and operational procedures in pre-settlement, settlement and risk and collateral management.

Market participation in the derivatives markets is broad. Domestic institutional investors and financial institutions generally hold the largest share, with their share of open derivative contracts totalling 57.1% and 29.2%, respectively as of end-2017. The shares of non-resident investors and the non-financial sector were 9.8% and 3.4%, respectively, while the central bank had as share of 0.5%. One major characteristic is investor preference for standardised contracts that are traded and settled through CCPs. At the end of 2017, USD 1.9 trillion (79.7% of outstandings) had been traded through CCPs and USD 540 billion (20.3%) through OTC contracts.

Brazil has experienced a series of mergers which are enabling the development of integrated clearing houses for all major financial markets. In 2008, the São Paulo stock exchange (Bovespa) merged with the main futures exchange (BM&F) to from BM&FBovespa, the largest CCP in Latin America and one of the top 10 CCPs in the world. In 2017, BM&FBovespa purchased Cetip, the country's largest central depository for OTC and private securities and derivatives, and changed its name to B3. B3 has developed a post-trade integration project (IPN) to create an integrated clearing house. In August 2017, the scope of BM&FBovespa Clearinghouse was extended by migrating the equity and corporate fixed income markets into a new infrastructure integrated with the derivatives and commodities markets. Hence, BM&FBovespa Clearinghouse is responsible for clearing and settling practically all trades executed on the markets operated by B3. The process will be complete when the two remaining CCPs, BM&FBovespa Cambio (FX) and BM&FBovespa Debt Securities Clearinghouse, are integrated. At that point, B3's clearing, settlement and CCP services will have a single set of rules, a single participant structure and register, unified processes for position allocation, clearing and control, a single settlement window, a single risk management system, a single collateral pool, and a single safeguard structure. The benefits for participants consist in better liquidity management, more efficient capital allocation, more efficient margin calculation and lower operational risk.

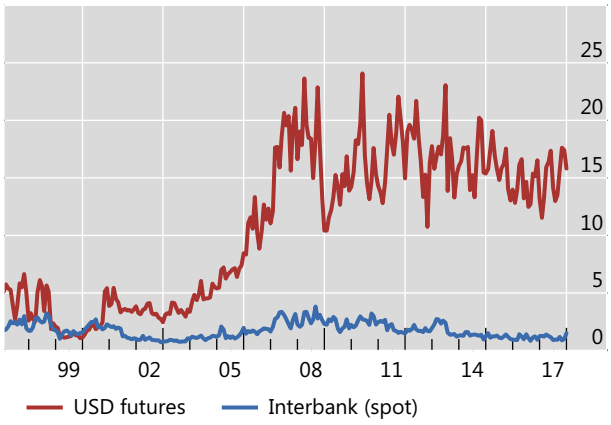
Both Brazilian FX and interest rate derivatives markets have grown strongly since the early 2000s, providing price discovery for exchange rate and interest rate markets. In recent years, the trading volumes in the USD derivatives market have been, on average, 14 times larger than trading volumes in the FX spot market (Graph G.1, left-hand panel). Of note, restrictions on the use and trading of foreign currencies incentivise the use of derivatives as a substitute for cash transactions while also explaining the preference for non-deliverable instruments settled in local currency. Recent research indicates that the Brazilian exchange rate is determined in the USD futures instead of FX spot market (Garcia et al (2014)). Over the same period, a trend rise in interest rate futures is evident (Graph G.1, right-hand panel). In recent years, trading volumes in the one-day interbank deposit rate (DI) derivatives market have been around 30 times larger than trading volumes in the DI interbank market. The DI futures yield curve has become the benchmark yield curve for fixed income instruments in Brazil.

The derivatives market has been important for the development of government bond and equity markets. Brazil's history of high inflation and high nominal interest rates has resulted in credit markets with a concentration on short-term positions (loans and debt instruments). Thus, the derivatives markets have enabled the hedging of these fluctuations, which in turn has facilitated the expansion of the government debt securities market. The existence of a robust FX derivatives market has enabled foreign investors to hedge equity positions, at least partially, through USD futures contracts. In recent years, foreign investors have been responsible for around 50% of the total trading volume in the Brazilian stock market.

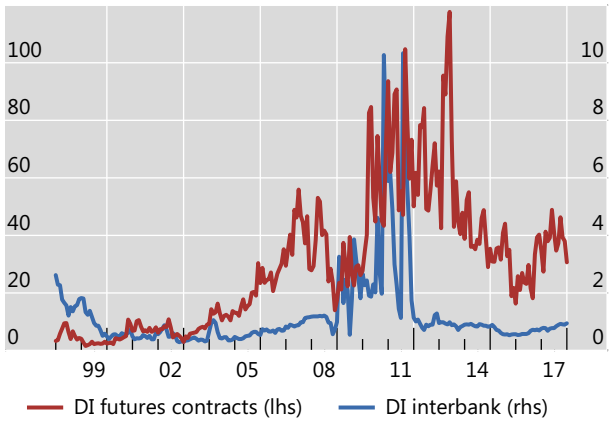
Development of Brazilian derivatives markets

In billions of US dollars, monthly averages — Graph F.1

FX market, daily trading volume



Interest rate markets, daily trading volume



Sources: Central Bank of Brazil; B3; Cetip.

Financial market infrastructures

Financial market infrastructures (FMIs) provide critical services that facilitate the clearing, settlement and recording of financial transactions, including the transfer of securities and funds. By making transactions safer and cheaper, robust and efficient infrastructures can boost trading liquidity. Indicatively, the Working Group's survey finds that, in markets where participants report greater concerns about clearing and settlement systems, they also report higher premia for low liquidity (Graph 24, right-hand panel). The significant upgrading of market infrastructure for Indian government securities and higher levels of liquidity subsequently observed vividly demonstrate the potential benefits of robust and efficient market infrastructures (Box E).

The CPMI-IOSCO Principles for Financial Market Infrastructures are the international standards for FMIs that cover payment systems, central securities depositories, securities settlement systems, CCPs and trade repositories. The 24 Principles cover six key risks: credit, liquidity, custody and investment, operational, legal and general business risks. Table 2 illustrates the relevance of the risks for different types of FMIs and examples of risk management policies and measures that meet the Principles. Based on the latest Level 1 self-assessments of implementation, as of January 2018 around 75% of the economies have self-attested to full implementation of the Principles for all types of FMIs, up from one third in 2014. Notable exceptions are less than full implementation of measures for trade repositories and CCPs in some economies.

Promoting greater use of CCPs has been a pillar of the post-GFC regulatory agenda. Central clearing can contribute to the maintenance of market confidence in times of crisis by ensuring an orderly liquidation of positions in the event of defaults by one or more participants.

Risks faced by financial market infrastructures — Table 2

	Payment systems	Central securities depositories	Securities settlement systems	Central counterparties	Trade repositories	*Example of risk management policies and measures*
Credit risk	✓		✓	✓		*Conservative collateral haircuts. Initial margin at least single-tailed 99% VaR, variation margin collected daily, stress testing with a wide range of scenarios*
Liquidity risk	✓		✓	✓		*Liquidity stress testing with a wide range of scenarios on a regular basis*
Custody and investment risk	✓	✓	✓	✓		*Investments (of eg collected margins) in instruments with minimal credit, market and liquidity risks*
Operational risk	✓	✓	✓	✓	✓	*Business continuity plan to ensure timely recovery in the event of major disruption*
Legal risk	✓	✓	✓	✓	✓	*Settlement finality by establishing a well founded, transparent and enforceable legal basis*
General business risk	✓	✓	✓	✓	✓	*Hold sufficient liquid net assets to support continued operation in the event of business losses*

However, promoting CCP use can be challenging in markets where financial products are less liquid and less standardised. Opaqueness as well as the associated inefficient price discovery and lack of reliable and timely price data complicate CCP risk management. Yet safe and efficient CCPs can themselves promote greater standardisation, facilitating greater market depth and liquidity.

Although central clearing brings diversification benefits by mutualising counterparty credit risk, important considerations for regulators include incentives to use CCPs, risk-taking behaviour of counterparties, and risk management practices of CCPs. For example, when the counterparty creditworthiness of market participants is not fully observable by a CCP, it may only attract market participants with high counterparty credit risk (Koeppl (2013), Huang (2018)). Thus, it is important to ensure there are adequate incentive mechanisms to counter such risks.

The above discussion highlights the broad range of factors that influence capital market development, including market infrastructures. Accordingly, the establishment of effective and viable capital markets may require coordinated initiatives across the multiple drivers identified in this report. Efforts by regulators to kick-start corporate bond market development in China and India, discussed in Box G, illustrate this point, as well as the potential payoff from multi-pronged initiatives.

Box G

Regulatory efforts to kick-start corporate bond markets: experience from China and India

The establishment of effective and viable capital markets can require coordinated policy initiatives across the multiple drivers identified in this report. Indeed, efforts by regulators to kick-start corporate bond market development in China and India highlight the breadth of initiatives that may be needed. Key drivers include regulatory reforms to increase market autonomy, broaden the investor base and promote greater internationalisation of the market. In addition, regulators have played a central role in upgrading financial market infrastructures and trading systems and developing supporting markets.

China's corporate bond market development

China's corporate bond market has grown strongly in recent years. Between 2005 and 2017, issuance of corporate bonds increased from CNY 207.8 billion to CNY 5.5 trillion while the amount outstanding increased from CNY 396.1 billion to CNY 16.9 trillion. Currently, the capitalisation of China's corporate bond market is the largest in Asia and third largest in the world. Trading volumes have also grown rapidly, reaching CNY 16.6 trillion in 2017 in China's interbank corporate bond market. Key drivers of the market's growth include regulatory reforms that increased market autonomy, broadened the investor base, promoted greater internationalisation of the market and upgraded financial market infrastructures.

The introduction of a more market-oriented registration system greatly improved market autonomy. By placing greater emphasis on market discipline, through greater information disclosure and credit ratings as opposed to administrative controls on issuance, the process was streamlined, became predictable and ensured adequate information to price new issues. An industry association was established to promote self-discipline in the market. Given the legacy of administrative control, moderate regulatory competition increased innovation, gave more options to market participants and fostered a more liberal environment for market development, enhancing the initiatives of all authorities.

The investor base has been broadened by allowing greater access for institutional investors. Initially, commercial banks were the only investors in China's interbank bond market. Today, securities companies, insurance companies, firms, collective portfolios and other institutional investors have access to the market, such that the share of corporate bonds held by commercial banks has fallen from 80% in 2005 to 21.7% at the end of 2017.

As part of a broader liberalisation effort, the onshore corporate bond market has also become increasingly open to foreign investors and issuers. Qualified foreign institutional investor limits have been eliminated in the interbank corporate bond market. In addition, the China-Hong Kong Bond Connect enables foreign institutional investors to purchase and sell onshore debt securities. Following the opening of Bond Connect in 2017, the Chinese interbank bond market is now more closely aligned with global rules and conventions. Foreign governments, international development institutions, financial institutions and non-financial companies have issued renminbi bonds in the Chinese market. SDR-denominated bonds have also been issued successfully.

Finally, considerable efforts have been made to develop bond market infrastructures. Market transparency and safety have been improved through a central custody system, a centralised transaction and information reporting platform, an independent clearing house and a robust settlement system.

India's corporate bond market development

Recent efforts by regulators to develop the Indian corporate bond markets have yielded partial success so far. Corporate bonds outstanding have increased, from about INR 8.9 trillion (or 11.8% of GDP) in 2011 to about INR 27.4 trillion (or 16.3% of GDP) by the end of 2017. However, around 95% of the primary corporate bond issuance is through private placement, and secondary market trading is considerably lower than that in government bonds. Although corporate bond trading has increased almost twentyfold in rupee terms over the past decade, the annual turnover ratio remains low at only about 65%.

The recent increases in issuance and trading reflect a gradual response to a series of market development measures by the regulators, including several major initiatives in the last three years. Steps taken to facilitate issuance and improve secondary market liquidity and develop supporting markets have included: development of an electronic book-building mechanism for issuing debt securities on a private placement basis; enabling provisions by the Securities and Exchange Board of India that facilitate reissuance of bonds to reduce fragmentation of issues; and enabling provisions by the Reserve Bank of India to facilitate corporate bond tri-party repos. Similar products have also been launched on the two major Indian stock exchanges: NSE and BSE.

Following these reforms, institutional investors are showing greater interest in holding corporate securities in India. Mutual funds dominate holdings, especially at shorter tenors, but foreign portfolio investors' interest is also increasing. Foreign portfolio investment is subject to limits, which in early 2018 stood at the equivalent of USD 45 billion, or about 9% of the outstanding stock. The investor base has also been broadened by issuance of rupee-denominated bonds in international markets by Indian banks (Masala bonds).

Trading remains constrained in part by settlement risk concerns. Currently, trades in corporate bonds are settled through clearing corporations of exchanges on a DVP-I basis (without settlement guarantee). Moving to DVP-III settlement (ie netting of both cash and securities obligations) could increase trading activity but is difficult to implement. Clearing corporation management standards mean that settlement cannot be guaranteed in the absence of robust credit ratings processes. Moreover, settlement guarantee funds are inadequate to take care of extreme risks. To address this issue, the securities market regulator mandated, in November 2016, enhanced standards for the credit rating agencies that are expected to reduce distortions caused by opaque rating processes for bonds and shopping for ratings.

4. Policy implications

Based on the Working Group's findings on the key drivers of capital market development, six broad areas are identified that could enhance capital market functioning: (i) promoting greater respect for market autonomy; (ii) strengthening legal and judicial systems; (iii) enhancing regulatory independence and effectiveness; (iv) deepening the domestic institutional investor base; (v) pursuing bi-directional opening to international participation while preparing for spillovers; and (vi) developing complementary markets and market infrastructures. The relevance of

these policy takeaways varies by economy, and many of them fall outside direct central bank control. Nevertheless, they impact the vibrancy of capital markets and central banks' ability to meet their objectives. The broad range of drivers identified in the previous section also suggests that comprehensive initiatives that take into account the range of relevant dimensions are likely to prove more successful in developing viable capital markets.

4.1 Promoting greater respect for market autonomy

Financial repression – policies that in various ways override market-based pricing and funding allocation – inhibits capital market development and undermines allocative efficiency in the economy. Accordingly, **addressing vestiges of repressive policies and promoting greater respect for market autonomy** is an essential first step towards enabling viable capital markets.

As discussed in Section 3, over the last several decades, capital market development has been spurred by a broad liberalisation trend that has peeled back many repressive policies, and allowed much greater scope for market-driven pricing and flows. But to varying degrees, particularly in emerging and developing economies, there are significant vestiges of financial repression. Examples in some jurisdictions are excessive requirements or incentives to hold government securities, overly conservative portfolio requirements for institutional investors, and restrictive management of the approval process for securities issuance, including de facto rationing of IPO quotas in an effort to manage stock prices.

A default preference for disclosure-based frameworks for security issuance approvals **over merit-based frameworks** can help guard against some dimensions of repression such as paternalistic substitution of the judgment of market participants to prevent losses and shielding issuance processes from politically influence (Box D). However, enhancements and stronger oversight of disclosure requirements, as well as a strengthening of the enabling environment, may be needed to facilitate development of market capacities for screening and determining market access.

The recommendations below complement a broad push towards greater market autonomy, by strengthening the ability of markets to function effectively and efficiently.

4.2 Strengthening legal and judicial systems for investor protection

Strengthening legal and judicial systems can materially contribute to capital market deepening. Experience suggests that key elements for capital markets include the efficient, timely and predictable enforcement of contracts, the possibility of sanctions and legal remedies for breaches of duty by corporate insiders, improvements to company law to strengthen the rights of minority shareholders, and efficient and predictable regimes for dealing with corporate distress and insolvency.

Reinforcing judicial systems. At the heart of any well functioning legal and judicial system is the independence of the judiciary, with well qualified judges. Accountability of courts and judges can be enhanced by making cases public and subject to higher court review. In addition, creating specialised financial courts can raise the technical competence, efficiency, consistency and fairness of legal proceedings in the financial sphere. For example, the United Kingdom set up the Financial Services and Markets Tribunal (now part of the Upper Tribunal – Tax and

Chancery) as an independent judicial body to handle financial cases; and recently, China established a financial tribunal in Shenzhen and Shanghai.

Easing access to legal recourse and lowering litigation costs increases the scope for private enforcement of contracts and fiduciary duty. Where relevant, access can be materially enhanced by reducing admissibility constraints and improving judicial procedures for accepting cases. The cost of enforcement, particularly for retail investors, may also be lowered by improving the scope for group litigation (eg through class action suits) or introducing new structures that facilitate the pooling of costs among, or on behalf of, dispersed investors. It can also be useful to establish dispute resolution mechanisms, such as through arbitration and industry organisations, subject to appropriate oversight.

Promoting well defined property and contracting rights, and facilitating adaptation to changing circumstances. Property and contracting rights are core to protecting minority investors, and where well defined can also protect firms from excessive litigation. Moreover, effective laws require mechanisms to keep up with constantly evolving capital markets. Common law legal systems often perform well in both dimensions by building upon and adapting established precedent, in a context in which the spirit of contracts is generally respected (La Porta et al (2008)). Where such flexibility is less present, eg in economies with civil law traditions where laws are largely codified by legal scholars, better protection and greater adaptability could be achieved through the creation of mechanisms to systematically draw on the lessons of experience, to allow timely amendment of judicially based rules.

Strengthening company law to give minority shareholders more influence and access to information. Better governance tends to promote more efficient management and use of capital, as well as better and more stable company valuations and less reliance on debt. The IMF's Global Financial Stability Report (IMF (2016)) noted that EMEs have made a number of recent improvements to their corporate governance frameworks, but pointed out that further progress could be facilitated by adopting the G20-OECD Principles of Corporate Governance. Key elements of the G20-OECD standards include amending company law to expand board members' powers and ensuring separation of the roles of chief executive and board chair, having mandatory and independent committees audit the board on a regular basis, giving minority shareholders more influence over board selection, having formal rules governing shareholder meetings, and strengthening rules around changes in controlling shareholders.

Finally, **enhancing predictability and efficiency of insolvency and restructuring proceedings** can broaden capital market access. This can be especially relevant for smaller, riskier and often more innovative firms. A recent OECD study (Andrews et al (2017)) draws on experience to provide a number of useful policy recommendations. In particular, many insolvency regimes can be enhanced by including design features which enable the early identification of corporate difficulties and resolution of debt distress (eg preventive restructuring frameworks such as pre-insolvency regimes). Such an approach provides an alternative to formal insolvency proceedings for viable debtors experiencing temporary strains. At the same time, for cases where formal insolvency is appropriate, enhancing procedures to reduce delays and lower costs can contain erosion of recovery values and facilitate efficient reallocation of assets and resources to more productive uses.

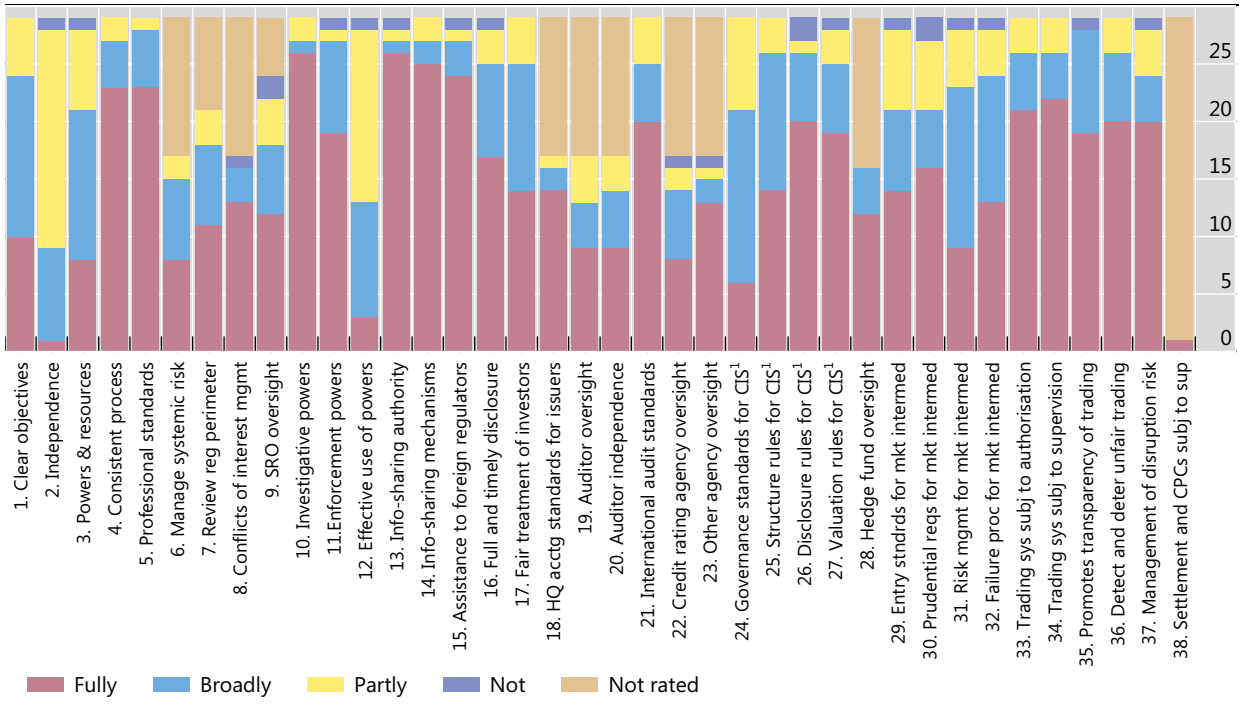
4.3 Enhancing regulatory independence and effectiveness

Regulatory agencies play a vital role in protecting investors, ensuring that markets are fair and efficient, and reducing systemic risk. The Working Group's review of securities regulation implementation assessments, however, found that there is often room for further progress (Graph 25). In particular, reinforcing the governance frameworks for regulatory agencies, based on well articulated and well focused objectives, statutory independence and appropriate accountability would provide firmer foundations for regulators to exercise operational autonomy and help insulate them from undue political influence, vested interests and contradictory objectives. It is also essential, and an ongoing challenge, to ensure that regulatory agencies have adequate financial resources and staff and investigative and enforcement powers commensurate with the size and complexity of the markets they oversee. There is also room for regulators to drive improvements in local disclosure and accounting standards and practices, but they need to be mindful of the trade-off between investor protection and issuer costs. Finally, authorities can supplement regulatory efforts by encouraging the private sector to develop standards and codes that can provide a useful and efficient complement to the direct efforts of the regulatory agencies.

Summary of public implementation assessments for IOSCO Principles on securities regulation[1]

Number of jurisdictions

Graph 25



[1] Collective investment schemes.

Sources: IMF, World Bank; IOSCO, Objectives and principles of securities regulation: detailed assessments of implementation, 29 jurisdictions, 2012–17.

Clear and well focused regulatory objectives, appropriately limited to ensuring fair and efficient markets and reducing systemic risk rather than managing markets, can enhance the quality of regulation and raise operational independence. Independence, however, goes hand in hand with **accountability** in meeting these objectives, including demonstrating that regulations are fairly and effectively implemented.

Strengthening legal foundations to raise operational independence. Statutory independence should provide regulators with sufficient autonomy to pursue these objectives. One way of enhancing operational independence is to enact legislation that clarifies that decisions of a purely regulatory character are to be made by the regulator. Another is to establish a strict selection and tenure process for board members and senior management, such as providing explicit terms of office and circumscribed criteria for their removal. This requires not only a strong legal framework that restricts political involvement in the implementation process but also de facto independence. In addition, to effectively perform their regulatory duties, staff may need adequate legal protections to implement decisions made on the basis of due diligence. Where these conditions have not been met, in the face of political interference some agencies have been guided by additional objectives, such as supporting government financing or containing market declines, forms of market repression that have ultimately hindered market development.

Ensuring adequate staffing and resources. Operational independence is of limited utility if agencies are inadequately staffed and resourced, in terms of both headcount and the technical capacity to investigate and sanction malfeasance. For a number of AEs and EMEs alike, published FSAP reviews have raised concerns about the ability of regulators to hire and retain adequate numbers of qualified personnel. Moreover, de facto independence can be weakened if budgetary allocations are subject to political vagaries, and are not allowed to grow in line with expanding local market activity and complexity. Addressing these challenges requires expanding budgetary envelopes and ensuring adequate funding over multi-year horizons, in a context in which agencies gain greater autonomy in deciding appropriate staffing and salary levels. Clearly, such an approach poses challenges, but the broader costs of inadequate regulatory oversight can be considerable, and need to be borne in mind. As a practical matter, particularly in EMEs, augmented in-house training can build staff skills for market surveillance, investigation and enforcement.

Raising disclosure and accounting standards. In a number of cases, there appears to be regulatory scope to strengthen investor protection by encouraging improvements in the quality of disclosure and accounting. As highlighted in IMF (2016), current rules in a number of EMEs could be strengthened by bringing them into line with international standards. Key elements include requiring better disclosure of "related-party" transactions, and information about board members, beneficial ownership, and control and group structures.

Balancing the trade-off between investor protection and issuer costs. In jurisdictions where capital markets are underdeveloped due to high regulatory barriers, experimentation and competition can potentially play a useful role in optimising this balance. This includes introducing clearly differentiated listing segments with graduated levels of stringency for disclosure, governance and compliance obligations. Such segments lower the initial fixed costs of issuing capital market instruments but at the same time allow other firms to signal their quality by adopting more stringent standards, which ultimately lowers funding costs.

Box H

UK authorities' approach to calibrating non-regulatory financial market intervention

Establishing and maintaining viable capital markets is a policy challenge for AEs and EMEs alike. As the GFC vividly demonstrated, markets can become fragile and vulnerable to instability if the "hard" and "soft" infrastructures supporting them fail to keep pace with innovation and to promote fairness or effectiveness.①② Policymakers, including central banks, can play a key role in developing effective, forward-looking mechanisms to identify and mitigate such risks. The Bank of England and the Financial Conduct Authority have adopted a proactive approach to financial market structure and effectiveness, in response to recommendations of the Fair and Effective Markets Review. This approach recognises that, from time to time, non-regulatory interventions may be required to ensure that market practices and standards keep up with innovation, and market infrastructures remain effective and robust to manipulation.

Market infrastructures may become outdated, unfair or ineffective for a variety of reasons. Individual market participants may lack incentives to contribute to their development and maintenance, even if they are collectively reliant on their services. Moreover, once these structures become embedded, their further evolution can be obstructed due to high switching costs, network externalities and path dependencies, as well as inertia driven by market power and other advantages of incumbent participants. This can inhibit the development of new and potentially more effective market structures.③

The UK authorities seek to identify issues in wholesale markets where coordination failures or collective action problems may be holding back developments that would materially improve the fairness and effectiveness of the market. Issues meriting attention are identified via the systematic gathering of intelligence from across the UK authorities and industry. In judging how to respond to the issues identified, the authorities have a preference for market-led action, but stand ready to intervene to guide or shape the response where market-led solutions are either not forthcoming or risk evolving in ways that may not benefit the stability, efficiency or fairness of the financial system. This may happen due to a lack of individual incentives or collective accountability to undertake initiatives which would have positive externalities on the market as a whole.

A number of non-regulatory levers are available for intervention by central banks. Moral suasion is least intrusive, as it seeks to affect behaviour via public communications, but may not always be sufficient. Convening powers – the ability of a central bank to bring market participants together to focus on a particular issue – may provide a powerful tool for achieving market consensus. Occasionally, a direct role for central banks and other authorities in infrastructure development may also be required to overcome particularly intractable coordination failures.

For example, in response to the Financial Stability Board's recommendation to develop risk-free reference rates, the Bank of England used its convening powers to establish a private sector working group to develop and implement solutions. It also directly intervened to collect money market transactions data and reform SONIA. Moreover, the Bank of England became the administrator of the reformed SONIA benchmark in April 2018.

In other instances, encouraging existing industry bodies to develop solutions to particular issues is the most appropriate course of action. For example, the UK authorities have recently encouraged the Fixed Income Currency and Commodity Markets Standards Board to produce a standard on risk management transactions for new issuance. Finally, the Bank of England is currently undertaking a project entitled *Vision 2030* in which it is engaging with stakeholders to explore issues facing the future of financial services in order to ensure that the financial system continues to function fairly and effectively.

① Hard infrastructures include: systems that collect and disseminate market information; mechanisms to establish prices and execute transactions; agreements to manage risk in open positions; and arrangements to clear and settle transactions. Soft infrastructures include clearly articulated standards and codes of conduct. ② The Fair and Effective Markets Review defined fair fixed income, currency and commodity (FICC) markets as those which: (i) have clear, proportionate and consistently applied standards of market practice; (ii) are transparent enough to allow users to verify that those standards are consistently applied; (iii) provide open access (either directly or through an open, competitive and well regulated system of intermediation); (iv) allow market participants to compete on the basis of merit; and (v) provide confidence that participants will behave with integrity. Effective FICC markets are those which also: (i) allow end users to undertake investment, funding, risk transfer and other transactions in a predictable way; (ii) are underpinned by robust trading and post-trade infrastructures enabling participants to source available liquidity; (iii) enable market participants to form, discover and trade at competitive prices; and (iv) ensure proper allocation of capital and risk. ③ See Awry (2014).

Supplementing regulatory efforts through private sector standards and codes. Codes and standards can help ensure that market practices keep pace with rapidly evolving market innovations. Moreover, they can provide practical guidance that complements high-level principles set out in regulatory frameworks. Examples include those produced by the United Kingdom's FICC Market Standards Board (FMSB), which was established by a cross section of senior market participants (including buy-side, sell-side and corporate treasurers) to improve the quality, clarity and market-wide understanding of trading practices. The broad convening powers of central banks and regulators can facilitate the creation of such private sector bodies and spur the development of market standards and codes. Along these lines, Box H above examines the United Kingdom's new, more proactive approach to identifying and catalysing needed changes in market structures and practices, which was put in place following the 2014–15 Fair and Effective Markets Review.

4.4 Deepening the domestic institutional investor base

Developing a deep and diversified domestic institutional investor base has long been recognised as an important contributor to capital market development (eg World Bank (1994), CGFS (2007)). Moreover, facilitating direct and indirect access to professional fund management services, including through collective investment products, can encourage greater financialisation of household savings, away from gold and property, supporting stronger business investment and economic growth. Key policies that influence the evolution and impact of an economy's domestic institutional investor base include: the structure of the domestic retirement savings system, particularly the role of funded versus unfunded pay-as you-go schemes; the degree to which saving via pension, mutual fund and insurance products is actively encouraged through tax treatment or requirements for participation; the quality of the supervisory framework applicable to asset managers and the confidence this imparts; the range of assets that institutional investors are allowed to hold; and the degree of financial literacy of potential clients.

Promoting the penetration of institutional investors. There is a strong correlation between the amount of accumulated retirement savings in pension funds and for pension-like products from insurance companies, and measures of local capital market depth. To be sure, designs of national retirement systems are unlikely to be guided just by market development considerations but rather reflect important social choices and differing perspectives on the appropriate role of the state. Nevertheless, complementary arrangements for funded pensions could, if grown over time, be consequential for capital market development.

Factors determining the amount of accumulated pension savings include the generosity of pay-as-you-go systems, which can crowd out funded retirement savings (Scharfstein (2018)) and incentives and/or requirements for participation. In a number of economies, such as Australia, Chile and Switzerland, contributions to funded privately managed plans have been made obligatory for many workers. Obligatory contributions are also the norm in a number of other economies where savings are often directed to and managed by a centralised provident fund. Where pension system participation is voluntary, as in the United Kingdom and the United States, and in complementary schemes in a number of jurisdictions, **tax benefits** play an important role in motivating participation, as does default enrolment in employer pension schemes. Likewise, systems that discourage early withdrawal and facilitate portability of vested funds have been shown to lead to greater net savings.

Prudent expansion of investment options can broaden the role and impact of institutional investors. In a number of cases, overly conservative risk limits on pension fund and insurance company holdings have limited investments into corporate securities in favour of government debt. Not only do such policies constrain development of local corporate bond and equity markets, but they can also encourage buy-and-hold strategies in government securities markets, which impairs market liquidity. Prudent person rules, which broaden fund managers' potential choices within an overall prudent risk envelope and permit broader product ranges (eg insurance products indexed to equity or bond returns), can offer greater benefits to savers and promote capital market development.

Where government entities such as provident funds are important managers of investable funds, increasing the use of external investment managers for government funds can help increase the diversity among capital market players, for example through diversity in investment mandates. This can also help develop a wider ecosystem of fund managers and credit rating agencies (Cifuentes et al (2002)).

Transparency and investor education can facilitate more effective choices among investment options. For private investors, the promotion of competition and transparency through investment options whose costs can be clearly compared can reduce the costs of placing funds with institutional investors. At the same time, adequate prudential supervision is needed to maintain trust and the appropriate matching of risks to preferences. But better information and increased investment options may not be enough to raise savings in capital market instruments, especially for retail clients. Evidence suggests that policymakers would also be well advised to promote greater financial literacy, through both school-based programmes and targeted adult financial education. Indeed, surveys suggest that there is a mismatch between investors' current competencies and the expectations often placed on them. For example, a recent OECD-INFE survey found that on average, across G20 economies, fewer than half of adults (48%) could answer 70% of the financial knowledge questions correctly (the minimum target). A complement is to promote fewer but well designed default savings options. For example, the European Union's Pan-European Personal Pension Product envisages limiting product offerings to at most five savings options.

4.5 Pursuing bi-directional opening to international participation while preparing for spillovers

Opening up an economy's capital markets to foreign investors and issuers can spur market development, complementing other policies. But openness also brings increased spillover risks, which need to be managed proactively. In considering how policy might best maximise the potential benefits while containing the associated risks, no single prescription appears appropriate. Rather, experience suggests that jurisdictions need to consider a portfolio of policies that, on the one hand, increase the attractiveness for foreign investors and issuers to enter the local market and, on the other, build buffers against spillovers and risks of sudden exit. Careful consideration of appropriate sequencing, commensurate with a country's stage of development, strengths and vulnerabilities, also seems warranted.

Realising the benefits of increased openness requires more than simply lifting explicit barriers to foreign participation. Often, even as direct barriers to participation are relaxed, foreign investment and issuance can be limited by concerns

or uncertainties about the legal, regulatory, tax and market environment.[3] Indeed, the policy recommendations on improving investor protections and enhancing regulatory independence and quality are at least as important for international investors and issuers as for domestic ones. Maintaining an active ongoing dialogue with foreign and domestic investors can provide domestic authorities with useful input and perspectives as they set priorities and seek to address such impediments, and broaden participation. Indeed, addressing foreign participants' concerns typically complements the domestic reform agenda and helps spur adoption of international best practices.

Maintaining a sound macroeconomic environment and macro policy framework is essential. The empirical literature on country risk and capital flows confirms that economies with sounder fundamentals experience stronger and steadier inflows (Koepke (2015)). These findings have been underscored by studies of more recent episodes of heightened global risk and their spillovers to EMEs, including the GFC, the so-called taper tantrum period of 2013 and the euro area sovereign crisis. The IMF (2018) recently presented evidence that EMEs with better anchored inflation expectations are more resilient to external shocks, while Obstfeld et al (2017) found that flexible exchange rate regimes dampen spillovers from global shocks.

Policies that promote capital market deepening also reduce spillover risk. Vulnerability to spillovers has been found to be lower in jurisdictions with deeper and more developed domestic financial markets, higher liquidity, and stronger investor protection and corporate governance (IMF (2014, 2016)). Likewise, a deep and diversified domestic institutional investor base with domestic currency liabilities can be a natural counterparty that can help offset international capital outflows if they have sufficient international assets to sell.

Phased liberalisation can have merits. Strengthening the regulatory, market environment and domestic macroeconomic policy takes time. Where conditions are not yet fully conducive to a positive outcome from domestic liberalisation, experience and some academic studies suggest adopting a phased approach. For example, Kose et al (2011) present evidence of "threshold" levels of financial and institutional development that economies need to attain (which they suggest many EMEs have not yet reached, while most AEs have) before they can derive the indirect benefits of internationalisation while reducing the risks of financial openness. They also present evidence that these thresholds are much lower for reducing barriers to equity investment than for debt, especially short-term foreign currency debt.

[3] Potential impediments include informational barriers, concerns about the depth and liquidity of domestic financial markets, and the breadth, efficiency and reliability of the local trading infrastructure. For example, limitations on the scope for managing risks through derivatives markets or for funding and hedging positions through repo markets and/or concerns about local custody and clearing or a lack of inclusion in relevant global benchmark indices can materially diminish the attractiveness of some markets to foreign investors. In this regard, investors interviewed by the Working Group frequently cited the generally low liquidity of local EME corporate bonds and the related lack of index inclusion as the leading factor behind very low foreign investor exposure to this sector.

Box I

Raising foreign participation in China's onshore securities markets

Over the past three decades, as China's onshore equity and bond markets rapidly developed, the authorities followed an opening-up policy vis-à-vis foreign investors. Foreign participation in the onshore market was narrowly restricted, but Chinese entities were nonetheless allowed to raise significant amounts of equity and debt capital from foreign investors through issuance abroad. As a result, at end-2017, foreign ownership onshore, in what had come to be the world's second largest equity market and third largest domestic bond market, totalled only 1.1% and 1.8%, respectively. By contrast, as of April 2017, the total free float of Chinese shares listed in Hong Kong and New York totalled over USD 1.5 trillion, accounting for over one third of the aggregate free-float value of Chinese shares. And on a nationality basis, the outstanding stock of Chinese international bonds totalled USD 880 billion at end-2017, equivalent to about one fourth of the total stock of international bonds issued by developing countries.

However, the situation has begun to change in recent years. Authorities have taken a number of steps to allow foreign access to the onshore market by reducing constraints on foreign investment, relaxing access limits for foreign financial institutions, and promoting greater foreign issuance in China's domestic bond market.

The steady opening-up of the onshore market to foreign investors has occurred through two channels. First, restrictions on the Qualified Foreign Institutional Investor (QFII) scheme (and RMB QFII) have been relaxed by steadily removing the lock-up period, first from one year to three months and more recently abolishing it altogether and removing the 20% cap on overseas remittances of the institution's domestic assets. In addition, an increasing number of participants have also been given permission to invest, for hedging purposes, in repos, bond lending, forwards, interest rate swaps and floating rate agreements, and to use the onshore FX market. Quota approval is no longer required at the individual investor level, and the application process was changed from approval to registration. Second, the establishment of the Shanghai-Hong Kong and Shenzhen-Hong Kong Stock Connect programmes – in 2014 and 2016, respectively – and the launch of Bond Connect in mid-2017 have allowed foreign institutional investors to purchase and sell onshore equity and debt securities, respectively, using offshore RMB (CNH). Such flows are subject to daily aggregate quotas, but the stock quotas were quadrupled in 2018.

Greater access for foreign financial institutions to onshore markets has been facilitated by raising the foreign ownership cap for securities firms companies to 51%, with a commitment to eliminate foreign ownership caps by 2021. Moreover, regulatory changes have permitted foreign ownership of domestic rating companies.

Foreign participation in onshore markets has also been promoted for issuers. In 2005, Chinese regulatory authorities released the Provisional Regulations on the Issuance of Renminbi-denominated Bonds by International Development Agencies, which allowed qualified international development organisations to issue renminbi bonds in the interbank market (Panda bonds). In 2013, the People's Bank of China extended its scope to allow issuance by foreign non-financial enterprises, financial institutions and governments. More recently, guidelines have made the issuance process simpler and more aligned with international bond market best practices for accounting, auditing and information disclosure policies for cross-border issuance.

The steady efforts are helping to raise internationalisation of the onshore market. By March 2018, 877 foreign institutional investors had entered the Chinese inter-bank bond market, with total outstanding investment at CNY 1.35 trillion. In parallel, foreign issuers, including foreign non-financial enterprises, international commercial banks, international development institutions and foreign governments, had issued CNY 164.46 billion in Panda bonds by June 2018.

The authorities have also maintained a dialogue with several leading global index providers. The various efforts have borne some fruit, although further measures and a track record of implementation appear necessary for more material inclusion of Chinese securities. In 2017, MSCI announced intentions to incorporate a small subset of Chinese domestic shares in its benchmark emerging market index, effective in two steps in 2018; and in March 2018, Bloomberg announced that Chinese local bonds could begin to be included in the Bloomberg-Barclays Global Bond index starting in April 2019. The Bloomberg inclusion will follow operational enhancements to be implemented by the authorities, and will entail a 20-month phase-in. Once full phase-in has been achieved, Bloomberg estimates that the share of Chinese bonds in the global aggregate could reach around 5.5%.

In practice, a number of EMEs liberalised foreign access to their local equity markets well ahead of liberalising access to local debt markets. Although many of the larger and wealthier EMEs have now largely or completely liberalised access to local equity and debt markets, as evidenced by significant foreign participation, China's and India's local markets remain segmented in significant ways, particularly on the debt side. But important changes are now in train in both countries. Many analysts believe that such moves could eventually lead to a notably higher foreign participation in China's onshore debt and equity markets, which could in turn have global implications (Box I). In India, the pace of liberalisation has accelerated over the past decade and a half (Box J).

Box J

India's path to greater financial market openness

The 1991 balance of payments crisis served as a window to open up capital markets, an opportunity that Indian policymakers seized and subsequently built upon. However, rather than pursuing quick capital account convertibility, India embarked on a gradual path of liberalisation, which picked up speed in the early 2000s and accelerated further after the GFC with no significant reversal. Today, India's capital account is more open, though still short of full convertibility.

The journey towards opening capital markets has been broadly sequenced through a gradual relaxation of restrictions on longer-term flows of foreign direct investment (FDI) and foreign portfolio investment (FPI) in equities, while those on Indian debt securities were relaxed later.

Access to foreign portfolio capital commenced with the opening-up of equity markets to registered foreign institutional investors (FIIs) in 1992. Single FIIs were allowed to invest in up to 5% of a company's issued capital, with a cap on total FII investment at 24%. With the objective of raising international participation, the FII access and ceilings were gradually relaxed starting in the early 2000s. From 2007, registered FIIs were permitted to short-sell equity securities as well as lend and borrow stock, subject to certain conditions. Currently, the aggregate ceiling of 24% for FII investment can be raised up to the applicable sectoral cap/statutory ceiling, subject to the approval of the company's board and the passing of a special shareholder resolution. Several leading firms have FII limits of 49% or higher, with limits as high as 100% in a few instances.

International investor access to Indian debt securities started later, with major reforms launched in the mid-2000s. In 1995, the Securities and Exchange Board of India (SEBI) released regulations for FIIs in Indian debt markets which capped investment at USD 1–1.5 billion. FIIs were allowed to invest in debt markets via the 70:30 rule, such that equity investments should be no less than 70% of total funds, with a maximum 30% of investment in debt. A year later, the SEBI allowed FIIs to invest 100% of their funds in debt securities. Between 1998 and 2004, there were no major changes in regulation of FII investment in debt markets. However, since 2004, debt limits for FPI in government and corporate debt securities have been gradually increased. In 2010, new changes were introduced to encourage a shift in FII investments towards longer-dated debt securities and infrastructure bonds by having different ceilings for investments in debt securities with maturities greater than five years. Moreover, the use of limits became more market-friendly through auction-based allocation. Limits were raised in 2015 to 5% of government bonds, phased in until 2018, and more recently they were raised again, to 6%, phased in at 0.5% a year.

FPI investment in corporate bonds is also subject to aggregate ceilings, which are nominally lower than the aggregate ceiling on government bonds but represent a higher percentage of outstanding corporate debt securities, at 9%. The authorities also recently relaxed the maturity limits on FPI debt holdings, lowering the minimum maturity to one year, from the previous three-year limit. As of end 2017, the FPI limits were nearly fully utilised, with aggregate holdings of government and corporate debt securities above 90% of the ceiling, following strong inflows in 2017. Utilisation rates have declined in 2018 as Indian markets have been impacted by the broader foreign pullback from EME bonds.

Building buffers through reserve accumulation, macroprudential regulation and capital flow management tools can reduce ex ante risks and provide policy margins for responding to shocks. But such buffers are not a panacea. For example, Sahay et al (2014) find that FX sales had a stabilising effect during the taper tantrum period in cases where jurisdictions had adequate reserves and appropriate policies, but was counterproductive in jurisdictions with weak reserve coverage, or that had yet to announce needed adjustment measures. Moreover, empirical studies suggest that the scale of intervention may need to be quite large to have a meaningful impact (Adler et al (2015), Chamon and Garcia (2016)).

In the aftermath of the GFC, opinion has shifted in policy and academic circles about the potential merits of countercyclical capital flow management tools, such as outright restrictions (controls), taxes or various types of prudential reserves. Such controls are now seen as sometimes playing a useful role, but they are not a perfect substitute for policy adjustments (IMF (2012)). In practice, however, countercyclical capital flow management has been much more the exception than the rule, even in the post-GFC period. The more common pattern has been for jurisdictions to change capital controls infrequently and generally in one direction, driven by domestic financial and institutional development, rather than macroeconomic or external conditions (Eichengreen and Rose (2014), Fernández et al (2015)). Working Group discussions with market participants also stressed how the lack of predictability in implementation of controls deterred long-term foreign participation. Moreover, tightening controls can send an adverse signal about the ability of authorities to maintain stability through more conventional instruments.

4.6 Developing complementary markets and market infrastructure

Deep and liquid derivative, repo and securities lending markets support market growth by facilitating hedging and funding activity. As highlighted by Brazil's experience in developing its onshore derivatives market (Box F), **developing these markets requires a coordinated effort along several of the dimensions identified in this report**.

First, a **supportive legal and regulatory environment** that facilitates activities such as netting, transfer of securities and short selling enables development of these markets. Second, **regulatory coordination to broaden the investor base** can bring diversity in balance sheets and trading strategies that generate volume and liquidity. In less mature markets, objectives to broaden market access can at times clash with prudential and macroprudential objectives. For example, insurance or pension regulations often focus on immunisation strategies that aim to match the duration of assets and liabilities but constrain active risk management through derivatives. Although foreign investors can bring diversity to these markets, these benefits need to be weighed against additional risks that may arise from larger capital flows. Thus, a comprehensive view is needed to strike a balance between competing objectives.

Third, **robust and efficient market infrastructures and mandated reporting** can mitigate financial stability risks. Sound infrastructures with sufficient transparency on pricing and volumes can help maintain confidence in periods of financial market stress, provide information on the build-up of risks, reduce market abuse and deter other predatory practices in capital markets. This is particularly relevant for derivative, repo and securities lending claims due to their complexity, ability to facilitate leverage and propensity to increase reliance on short-term funding. Recent policy initiatives

by CPMI-IOSCO to promote and strengthen central clearing and mandated reporting of OTC derivative contracts to trade repositories as well as CPMI-IOSCO-FSB guidelines to standardised reporting help facilitate management of financial stability risks arising from these markets. These measures include appropriate standards governing the maintenance of adequate margins, for both bilateral and centrally cleared transactions. The recent experience in September 2018 of Nasdaq Clearing AB dipping into its default fund to manage the default of a clearing member in relatively benign market condition is a timely reminder of the need for adequate safeguards for margining practices that are crucial in sustaining market activity in stressed market conditions.

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Annexes

Annex 1: Working Group's surveying of market participants

As part of the Working Group's fact-finding exercise, the views of market participants were gathered through three channels: (i) a written survey which asked multiple choice questions about the functioning of domestic capital markets; (ii) a Roundtable Workshop with industry representatives in Shanghai; and (iii) interviews with market participants at institutions that have significant activity in international capital markets.

Background to the Working Group survey

The Working Group produced three surveys, covering domestic government bond, domestic corporate bond and domestic equity markets. Working Group members distributed the surveys and collected responses from market participants in their jurisdictions. Members of the Working Group started sending the survey out to respondents in late February 2018. The final responses were received by late April.

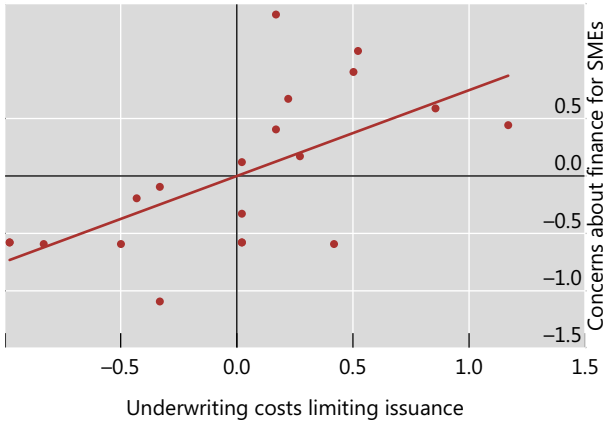
Survey respondents were asked, in a multiple choice format, to indicate their views about the functioning of these markets. The questions were structured around six themes: (i) strength of concerns about current market functioning; (ii) strength of concerns about specific drivers of market functioning; (iii) importance of factors in driving risk premia; (iv) importance of factors limiting issuance; (v) investor base composition; and (vi) impact of spillovers from global markets.

The CGFS Working Group survey results presented in this report cover responses from 10 Working Group member jurisdictions. Five were EMEs: Brazil, China, Hong Kong SAR, India and Mexico; and five were AEs: Australia, Italy, Japan, Spain and the United Kingdom. The individual responses were aggregated at the jurisdiction asset class level. Data are presented either at the jurisdiction asset class level through scatter plots or as EME and AE aggregates that are equally weighted averages of the jurisdiction-level results. The survey results inform the analysis throughout the report, and selected results have been included in the individual sections.

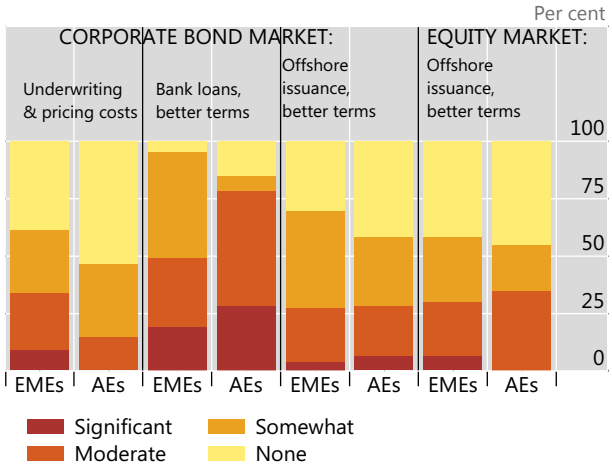
Corporate security issuance and underwriting costs

Graph A1

Greater underwriting cost concerns correlated with concerns about SME access to capital markets[1]



Domestic issuance limited by…[2]



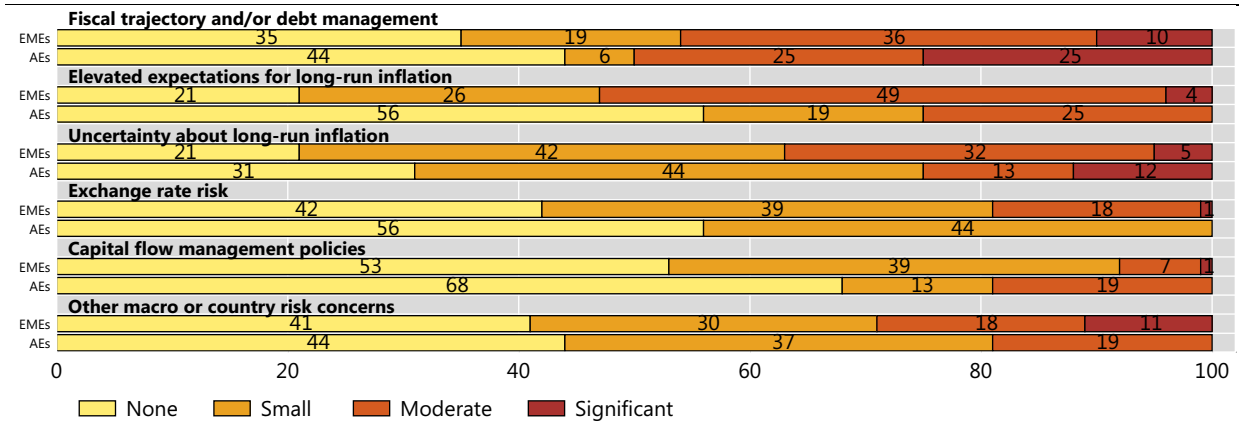
[1] Each dot is a jurisdiction asset class-specific observation subtracting asset class fixed effects, where higher scores indicate greater concerns based on the Working Group's survey. Horizontal axis question: "To what extent has primary issuance in the domestic corporate bond / equity market been limited by underwriting costs and/or pricing concerns?". Vertical axis question: "Are there concerns in domestic corporate bond / equity markets with respect to effectiveness as a source of long-term funding/capital for medium- and smaller-sized non-financial firms?". [2] Cross-jurisdiction averages of responses to the question: "To what extent has the volume or breadth of primary issuance in the domestic corporate bond / equity market been limited in recent years by…?".

Source: CGFS Working Group survey.

To what extent has the domestic government bond market priced in yield premia in recent years for concerns about…?

In per cent

Graph A2

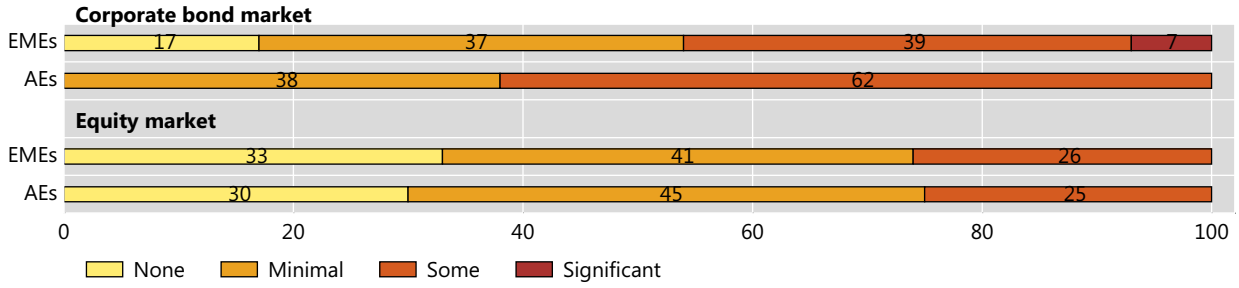


Source: CGFS Working Group survey.

Are there any concerns about pricing risk premia appropriate for individual firm risk profiles in the…?

In per cent

Graph A3

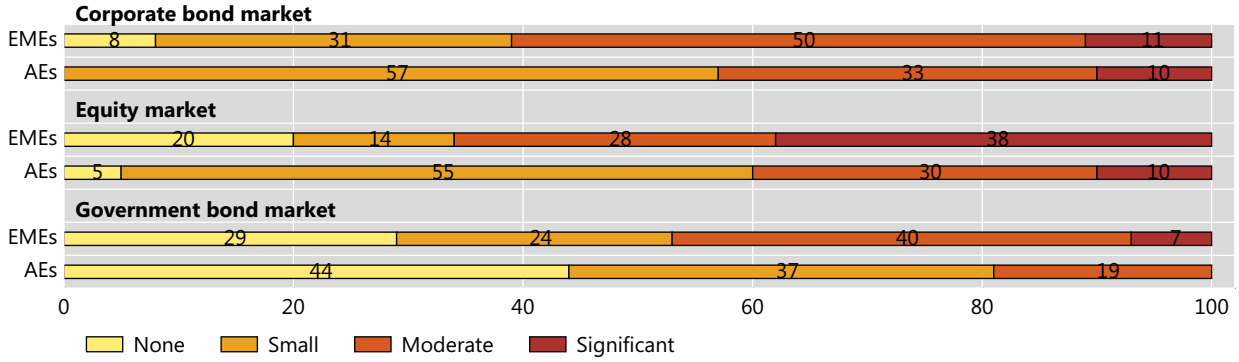


Source: CGFS Working Group survey.

To what extent has the market priced in risk premia for low liquidity in the…?

In per cent

Graph A4

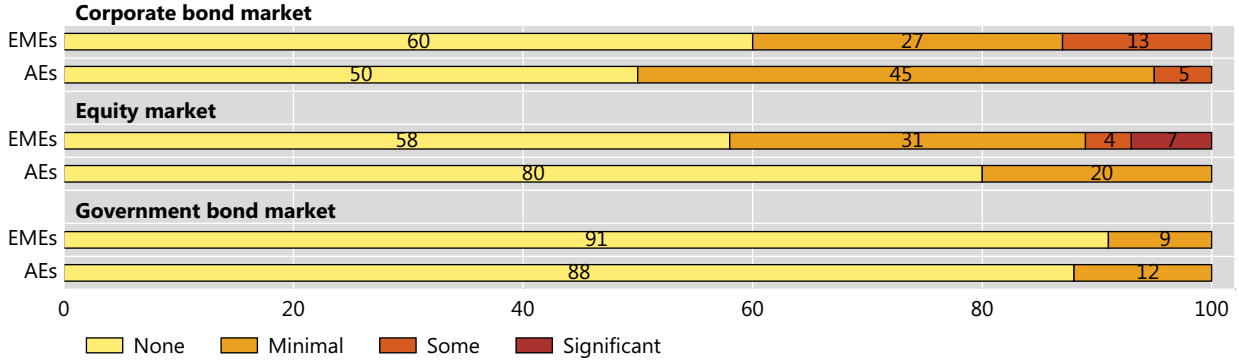


Source: CGFS Working Group survey.

Are there any concerns about efficiency and resilience of clearing and settlement infrastructure in the…?

In per cent

Graph A5



Source: CGFS Working Group survey.

Annex 2: Data sample

List of jurisdictions used in this study:

Advanced economies (AEs): Australia (AU), Belgium (BE), Canada (CA), Denmark (DK), France (FR), Germany (DE), Italy (IT), Japan (JP), the Netherlands (NL), New Zealand (NZ), Norway (NO), Spain (ES), Sweden (SE), Switzerland (CH), the United Kingdom (GB) and the United States (US).

Emerging market economies (EMEs): Argentina (AR), Brazil (BR), Chile (CL), China (CN), Colombia (CO), the Czech Republic (CZ), Hong Kong SAR (HK), Hungary (HU), India (IN), Indonesia (ID), Israel (IL), Korea (KR), Malaysia (MY), Mexico (MX), Peru (PE), the Philippines (PH), Poland (PL), Romania (RO), Russia (RU), Saudi Arabia (SA), Singapore (SG), South Africa (ZA), Thailand (TH) and Turkey (TR).

AE and EME aggregates used in graphs may not cover all the jurisdictions listed, depending on data availability.

Annex 3: Institutional investor base and asset market size

A deep and diversified institutional investor base is an important driver of capital market development due to its potential for channelling savings towards capital markets as well as contributing to stability and liquidity. A quantitative analysis confirms these results and provides a differentiated perspective of the institutional investors' role in promoting the development of bond and stock markets in comparison with other drivers.

The results in Table A1 indicate that the investor base, defined as the sum of the assets held by pension funds, insurance companies and mutual funds as a percentage share of GDP, is strongly and positively correlated with capital market size. Furthermore, the correlation is robust to controlling for institutional and macro factors (Table A1, column 1). Within specific securities markets (eg equities), however, the correlation and the fit, measured by R^2, are lower, but the coefficients remain economically and statistically significant. The lower explained variation for specific market segments reflects outliners in specific markets. For example, for equities, South Africa and Switzerland have relatively large domestic equity markets compared with those for corporate bonds, while Denmark has a very large financial bond market relative to other economies but a relatively small equity market. Non-financial corporate bond market size has the weakest fit with institutional investor base size. Korea and Malaysia have very large markets, while they are relatively small in Denmark, Sweden and Switzerland.

Institutional investors and asset market size[1]

Table A1

	Capital market size[2] / GDP (1)	Equity market capitalisation / GDP (2)	Financial bonds outstanding / GDP (3)	Non-financial corporate bonds outstanding / GDP (4)
Institutional investor assets / GDP	0.854***	0.502***	0.226***	0.080**
	(0.089)	(0.077)	(0.087)	(0.035)
Control variables	Yes	Yes	Yes	Yes
Observations	28	30	29	30
R^2	0.821	0.642	0.527	0.352

[1] Estimates from regressions of the form: $Market\ size_i = \alpha + \beta Insitutional\ investor\ assets_i + \gamma Control\ variables_i + \varepsilon_i$, where $Market\ size_i$ is the post-2010 average of capital market size to GDP in country i and $Insitutional\ investor\ assets_i$ is the post-2010 average of the sum of the assets held by pension funds, insurance companies and mutual funds as a percentage share of GDP. Control variables included are post-2010 averages of: GDP per capita, recovery rate index, strength of insolvency framework index, investor protection index, and shareholder rights index. Sample: Australia, Belgium, Brazil, Canada, Chile, China, Colombia, the Czech Republic, Denmark, France, Germany, Hungary, Israel, Italy, Japan, Korea, Mexico, Malaysia, Norway, Peru, the Philippines, Poland, Romania, Russia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, the United Kingdom and the United States. Significance at the 1/5/10% level denoted by ***/**/*; White robust standard errors. [2] Capital market size: sum of equity market capitalisation, financial bonds outstanding and non-financial bonds outstanding.

Sources: IMF, *World Economic Outlook*; World Bank; Datastream; BIS debt securities statistics.

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