

AN ASYNCHRONOUS AND DIVERGENT RECOVERY MAY PUT FINANCIAL STABILITY AT RISK

Chapter 1 at a Glance

- **Extraordinary policy support measures have eased financial conditions and supported the economy, helping to contain financial stability risks.** Asset valuations, however, appear stretched in some segments, and financial vulnerabilities are rising further in some sectors. A repricing of risk in markets and the associated tightening in financial conditions—for example, due to a rapid and persistent increase in interest rates—may interact with such vulnerabilities, with repercussions for confidence and endangering macro-financial stability.
- **Two themes are emerging.** First, there is a risk that an asynchronous and divergent global economic recovery—especially if accompanied by a move toward policy normalization in advanced economies and rapidly rising interest rates—may result in tighter financial conditions and large portfolio outflows in emerging market economies. Second, highly accommodative financial conditions may have unintended consequences. If not addressed, financial vulnerabilities exposed by the pandemic may become new structural legacy problems.
- **Emerging market economies may face daunting challenges.** Most emerging markets have large financing needs this year and are exposed to rollover risk, especially if domestic inflation rises or global long-term interest rates continue to rise. Countries with weaker positions or limited access to vaccines may also face portfolio outflows. For many frontier market economies, market access remains impaired.
- **In many countries, the corporate sector is emerging from the pandemic overindebted, though with notable differences across firm sizes and sectors.** Stress is high at small firms in most sectors across countries. Solvency stress is high at small firms, but also notable at mid-sized and even large firms in affected sectors. This report uses a decision tree to assess whether firms should rely on market financing, seek government support, be restructured, or be liquidated.
- **Banks have so far not been part of the problem, but will they be part of the solution?** Whether the economic recovery will be uneven and will have scarring effects will depend on the ability and willingness of banks to lend once government support is unwound. Concerns about the credit quality of hard-hit borrowers and the profitability outlook are likely to weigh on the risk appetite of banks.
- **Ongoing support remains necessary, but a range of policy measures are needed to address vulnerabilities and protect the economic recovery.** Policymakers should support balance sheet repair, for example by strengthening management of nonperforming assets. Rebuilding buffers in emerging markets should be a key policy priority to prepare for a possible repricing of risk and a reversal of capital flows.

Prepared by staff from the Monetary and Capital Markets Department (in consultation with other departments): The authors of this chapter are Nassira Abbas (Deputy Division Chief), Antonio Garcia Pascual (Deputy Division Chief), Evan Papageorgiou (Deputy Division Chief), Jose Abad, Sergei Antoshin, John Caparuso, Liumin Chen, Yingyuan Chen, Fabio Cortes, Reinout De Bock, Dimitris Drakopoulos, Deepali Gautam, Rohit Goel, Sanjay Hazarika, Frank

Hespeler, Henry Hoyle, Mohamed Jaber, Phakawa Jeasakul, Shuyi Liu, Sheheryar Malik, Sonia Meskin, Natalia Pavlovna Novikova, Dmitri Petrov, Thomas Piontek, Patrick Schneider, Can Sever, Juan Sole, Jeffrey Williams, Dmitry Yakovlev, Akihiko Yokoyama, and Xingmi Zheng, under the guidance of Fabio Natalucci (Deputy Director). Magally Bernal and Andre Vasquez were responsible for word processing and production of this report.

- **There is a pressing need to act to avoid a legacy of vulnerabilities.** Due to possible lags between the activation and impact of macroprudential tools, policymakers should take early action. They should tighten selected macroprudential tools to tackle pockets of elevated vulnerabilities, while avoiding a broad tightening of financial conditions. If such tools are not available—for example, in segments of the nonbank financial intermediation sector—they should urgently develop them. Given the challenges to designing and operationalizing macroprudential tools within existing frameworks, policymakers should also consider building buffers elsewhere to protect the financial system.

Rebuild Buffers to Avoid a Legacy of Vulnerabilities Once the Pandemic Recedes

More than one year since the start of the coronavirus disease (COVID-19) pandemic, global financial stability risks are still contained, reflecting bold and timely policy actions. The combination of progress in health care solutions and continued unprecedented policy accommodation has been remarkably successful in preventing an even more devastating blow to the global economy and has bolstered hope for a forthcoming recovery. The magnitude of the output loss, although unprecedented in modern times, has had only a limited impact on the financial sector. While the pandemic has weighed heavily on some sectors of the economy and unmasked some underlying vulnerabilities, the global financial system has shown remarkable resilience so far (see Box 1.1).

Two themes are emerging as the global economy begins to recover from the crisis. First, the recovery is expected to be asynchronous and uneven, both among advanced and emerging and frontier market economies, as well as within regions, economies, sectors, and firms (see the April 2021 *World Economic Outlook*).¹ Around this baseline scenario of a divergent economic rebound from the pandemic, there is a risk that financial conditions in emerging and frontier market economies may tighten markedly, especially if policymakers in *advanced economies* take steps toward policy normalization and rates rise rapidly. A less favorable financial environment may result in large portfolio

¹This divergence can be seen in access to vaccines among countries, especially low-income economies; the different performance of various sectors of the economy; the uneven pace of recovery of large firms with broad access to capital markets, as well as of small and mid-sized enterprises more exposed to the crisis and with only limited financing options; and increasing risk taking by nonbank financial institutions compared with the more conservative and reluctant lending posture of banks.

outflows and pose a significant challenge to many emerging and frontier market economies given the large financing needs they face this year.

The second theme is the possible unintended consequences of unprecedented policy support. This refers to the risk that an extended period of extremely easy financial conditions, while necessary to cushion the global economy from the impact of the pandemic, may result in overly stretched valuations and fuel financial vulnerabilities that, if left unchecked, could put growth at risk. Vulnerabilities were already elevated before the pandemic in some sectors and are now rising further amid very buoyant financial markets. This *Global Financial Stability Report* (GFSR) will focus on the large financing needs in *emerging markets*, the sharp increase in corporate debt, persistent fragilities in the nonbank financial intermediation sector, and the outlook for the banking sector.

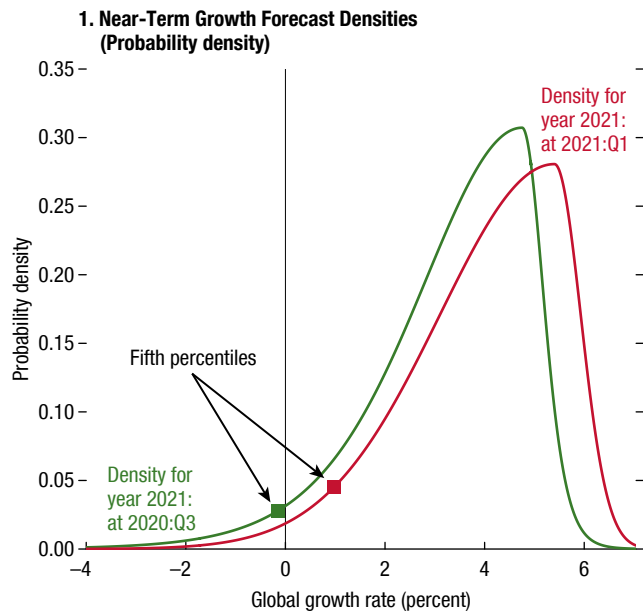
The downside risks to growth stemming from stretched valuations and rising financial vulnerabilities can be seen in the GFSR growth-at-risk framework (Figure 1.1). While the improved economic outlook for 2021 has reduced the range of severe economic outcomes (shown by the diamonds in Figure 1.1, panel 1), risks to future GDP growth are still skewed to the downside, albeit not particularly so from a historical perspective.² If not urgently addressed, these vulnerabilities could evolve into new structural legacy problems weighing on growth or, worse, testing the resilience of the global financial system down the road.

Providing policy support during the pandemic has been a balancing act between today's benefits and tomorrow's potential costs and risks. There is clearly

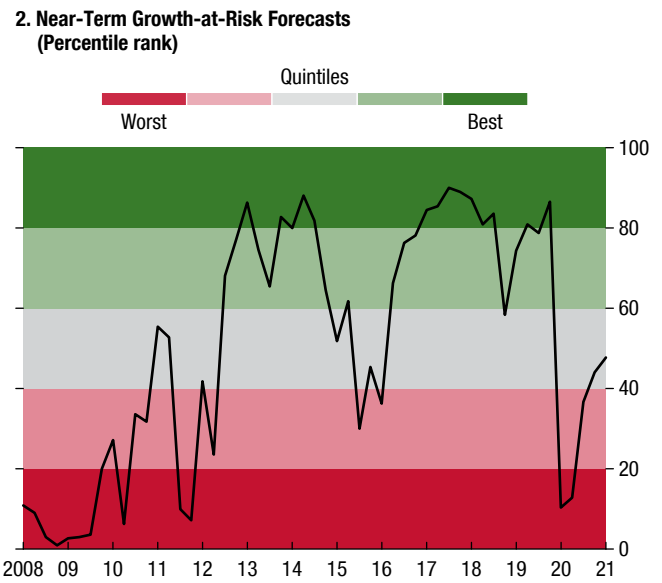
²Besides changes in the *World Economic Outlook* baseline growth forecast, around which the GDP distributions are centered, shifts in the distribution reflect changes in financial conditions and hence are heavily influenced by investor perceptions and assessment of future growth outcomes.

Figure 1.1. Global Growth-at-Risk and Financial Conditions

The upward revision in global growth forecast for 2021 is accompanied by a slight improvement in ...



... the downside risk to growth, although it still remains meaningful relative to historical norms.



Source: IMF staff calculations.

Note: Forecast density estimates are centered around *World Economic Outlook* forecasts for 2021. In panel 2, the black line traces the evolution of the 5th percentile threshold (the growth-at-risk metric) of near-term growth forecast densities. The color of the shading depicts the quintiles for the growth-at-risk metric calculated since 1991. See the April 2018 *Global Financial Stability Report* for details.

still a need for unprecedented monetary policy accommodation to bridge to the recovery. Underpinned by extremely low rates and high corporate valuations, financial conditions are easy and supportive of growth (Figure 1.2, panels 1 and 2). But buoyant financial markets have also contributed to an ongoing rally in the prices of risk assets, raising concerns about excessive risk taking and stretched valuations (see the January 2021 *GFSR Update*). Equity markets have rallied aggressively in recent months, reaching levels significantly higher than those derived by models based on fundamentals (Figure 1.2, panel 3). A few days of elevated volatility in US equity markets in early 2021, although they did not leave a lasting imprint on sentiment, brought to the fore the role of leveraged retail investors in the recent rally (see Box 1.2). In late February, equity markets have experienced some additional volatility, as investors have become concerned about the implications of rapidly rising long-term interest rates. More recently, significant losses at a highly levered fund appear to have spilled over to a number of investment banks that had provided financing to that fund, raising questions about the use of opaque financial leverage

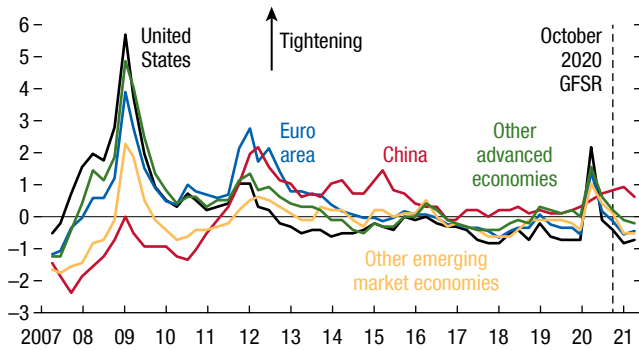
and its possible systemic implications. Other indicators also point to continued risk taking as investors actively search for yield. For example, there has been a surge in initial public offerings of special-purpose acquisition companies—public investment vehicles created specifically to acquire a private company and take it public (see also Figure 1.10, panel 3). Yet, after accounting for the very low level of real yields (notwithstanding most recent increases), valuations in risk assets may look less stretched, as the compensation for bearing risk does not appear overly compressed by historical norms (Figure 1.2, panel 4). This suggests that risk asset valuations may remain elevated for some time, as long as interest rates continue to be low.

The search for yield spurred by the low-interest-rate environment has intensified at nonbank financial institutions. For example, pension funds have increased their share of investments in alternative assets such as private equity, infrastructure, and real estate—strategies with greater leverage and liquidity risks—in an attempt to meet their return targets (Figure 1.3, panel 1). Insurers have also increased their investments in less liquid and riskier lower-rated corporate bonds, foreign

Figure 1.2. Financial Conditions and Asset Valuations

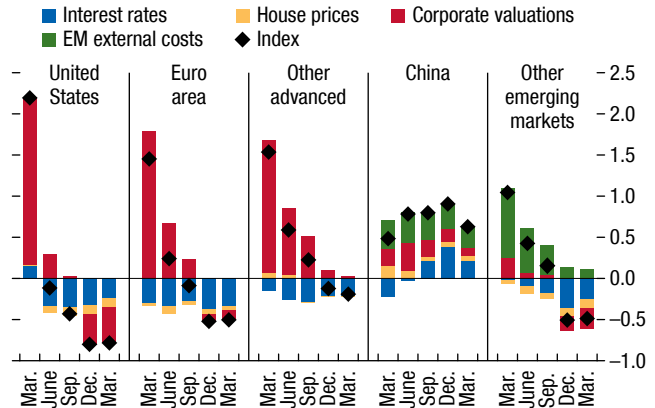
Financial conditions remain easy globally (with the exception of China) ...

1. Financial Conditions Indices (Standard deviations from mean)



... on the back of low rates and high corporate valuations.

2. Drivers of Financial Conditions (Standard deviations from mean, since March 2020)



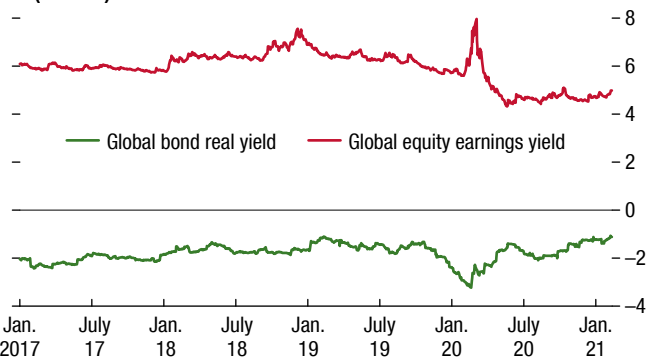
Equity markets appear stretched relative to models based on fundamentals ...

3. US Equity Market Misalignment (Deviation from fair value per unit of risk)



... but perhaps less so after accounting for very low real rates, which have incentivized a search for yield in all asset classes.

4. Global Equity Earnings Yield and Real Bond Yield (Percent)



Sources: Bloomberg Finance L.P.; BofA Securities; Reuters Datastream; and IMF staff calculations. Note: EM = emerging market; GFSR = *Global Financial Stability Report*.

bonds, and other illiquid exposures. Not surprisingly, the equity return correlation of bank and insurance companies has reached new historical highs, likely reflecting the larger exposure of life insurance companies to banks' securities (Figure 1.3, panel 2).

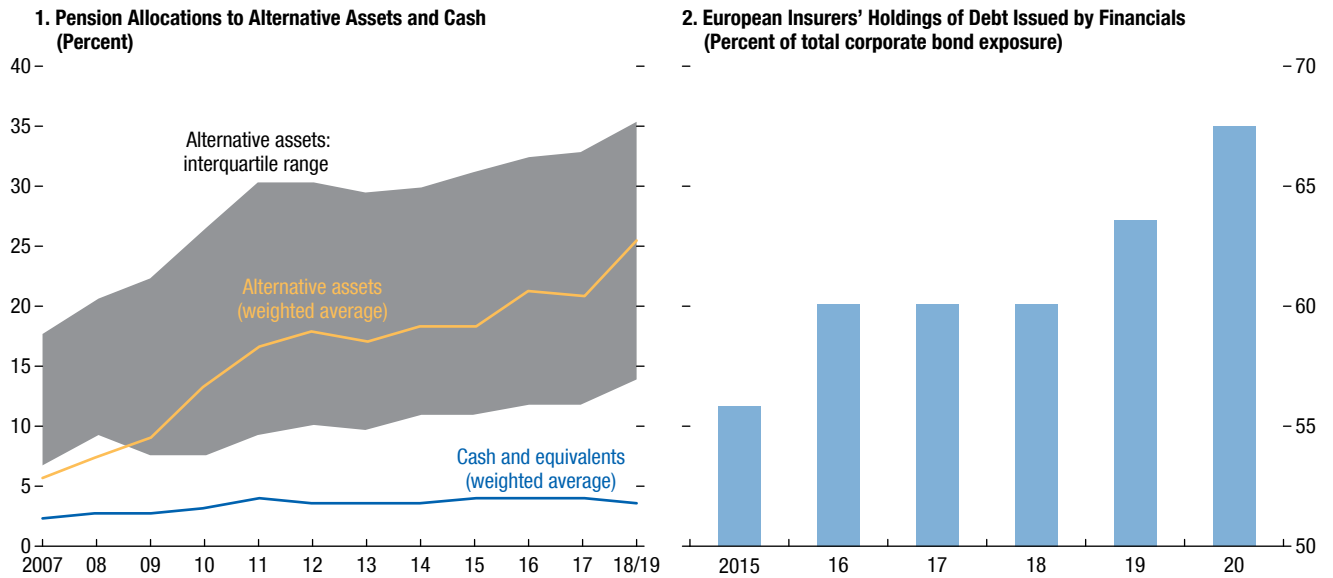
Long-term interest rates in the United States have risen considerably since the summer of 2020—about 125 basis points—likely reflecting both improved investor confidence in the economic outlook and expectations of increased supply of Treasury securities to finance the fiscal expansion. Until the beginning of the year, the rise in long-term rates was driven primarily by higher inflation breakevens, reflecting both a rebound from sharp declines experienced during the early stages of the pandemic and rising commodity

prices (Figure 1.4, panel 1). More recently, however, real rates have begun to increase (albeit from very low levels). Investors now expect long-term interest rates in the United States to return to pre-pandemic levels in coming months (Figure 1.4, panel 2). Higher long-end yields in the United States have also put some upward pressure on comparable-maturity yields in other advanced economies, including in countries where the recovery still appears to be lagging. Average advanced economy 10-year rates have increased 50 basis points so far in 2021. While a gradual rise in rates on the back of improving fundamentals may be healthy for the financial system, a rapid and persistent increase in rates (especially real rates) may result in a repricing of risk and a sudden tightening in financial conditions. Such a tightening

Figure 1.3. Search for Yield by Pension Funds and Insurers

High nominal return targets are pushing pension funds further into alternative assets, raising liquidity and leverage risks.

Insurers are increasing investments in higher-yielding bank debt.

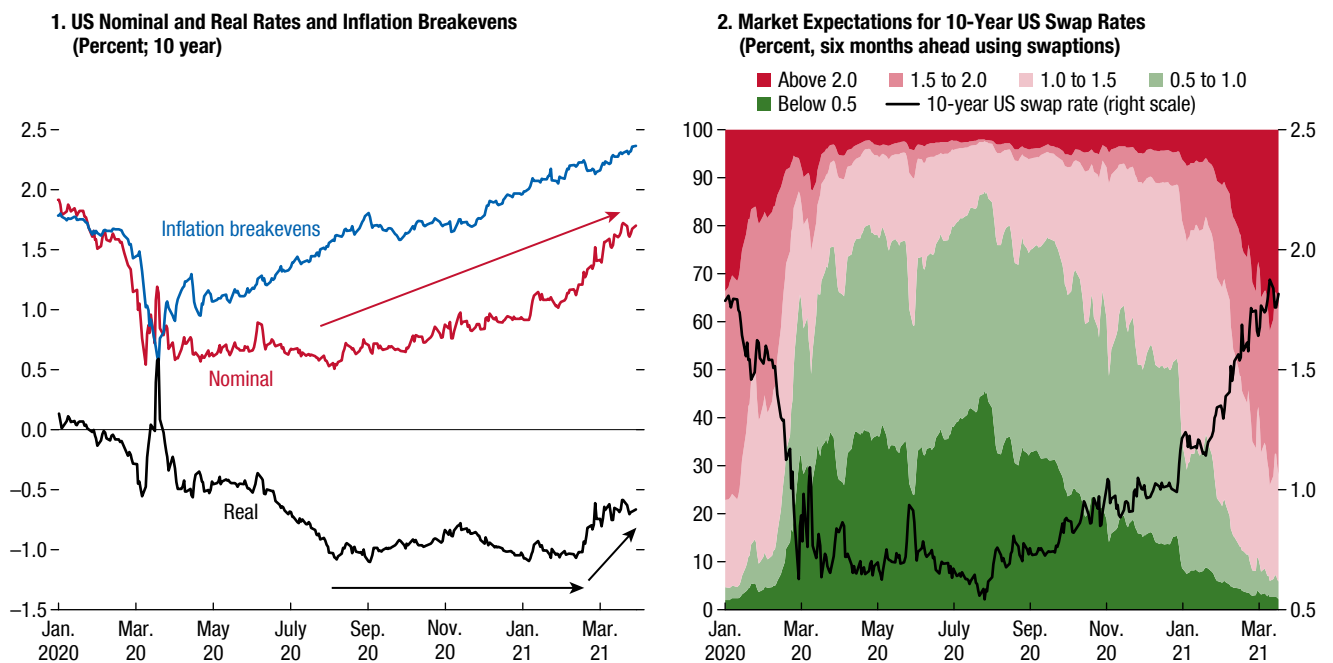


Sources: Bloomberg Finance L.P.; European Insurance and Occupational Pensions Authority; and IMF staff calculations. Note: Panel 1 is based on asset allocation data of 700 of the largest pension funds, representing \$13 trillion in assets.

Figure 1.4. Rates in the United States: Inflation Trends and Expectations

The rise in US long-term yields has been driven by higher inflation breakevens and, more recently, rising real rates.

Markets now expect long-end yields to increase further and return to pre-pandemic levels in coming months.



Sources: Bloomberg Finance L.P.; Consensus Economics; Haver Analytics; and IMF staff calculations. Note: In panel 2, the dark red area is the option implied probability that the 10-year rate will be above 2 percent in six months.

could interact with elevated financial vulnerabilities, with repercussions for confidence and endangering macro-financial stability.

The persistent increase in long-term interest rates in the United States may pose a challenge for emerging markets, especially if accompanied by a move toward policy normalization. Against the backdrop of a divergent global economic recovery and more limited policy space, there is a risk that financial conditions may tighten in emerging market economies at a time when many of these countries have experienced significant deterioration in their fiscal position and face large financing needs in 2021. The recent increase in market volatility and rise in medium- and long-term yields in advanced economies have rattled emerging market bond markets and currencies and caused some portfolio outflows, bringing back in focus the fallout from the 2013 taper tantrum (see next section).

The rest of this chapter focuses on three important financial stability issues. First, many emerging and frontier markets face a combination of high debt, high financing needs, and volatile economic and external conditions. Managing these forces will be a difficult balancing act for authorities. Second, nonfinancial firms are emerging from the pandemic overindebted, in some cases with poor earnings prospects and dependent on continuing policy support. Third, banking systems—although resilient so far during the pandemic—may become less supportive of economic growth when policy support is eventually withdrawn, especially in countries where the recovery may be slower and profitability challenges predate the crisis.

Emerging Markets Have Considerable Financing Needs

Resilient global risk appetite and favorable external conditions have contributed to improving domestic financial conditions, albeit with large differentiation across countries. Currencies of major emerging market economies have gained against the dollar since the October 2020 *Global Financial Stability Report* but have faced some notable turbulence in early 2021 on the back of rising interest rates in the United States (Figure 1.5, panel 1). External credit spreads have been relatively insulated from the recent volatility in markets. Conditions remain favorable, especially for higher-rated issuers (Figure 1.5, panel 2), whereas frontier economies continue to face challenges. Over the past few months,

markets have priced a shift toward a less supportive stance by central banks, in response to higher commodity prices, higher domestic inflation, the improved economic outlook, and higher US rates (Figure 1.5, panel 3)—and some central banks have already hiked. As a result, local currency government bond yields for many emerging market economies have increased since late January.

The recovery in emerging markets is expected to be slower than in advanced economies, with significant divergence across countries (see the April 2021 *World Economic Outlook*). Government financing needs have surged, and the resulting increase in public debt loads is a challenge for policymakers. Government debt in emerging markets (excluding China) is expected to reach 61 percent of GDP in 2021, and gross financing needs are anticipated to remain elevated at 13 percent of GDP in 2021, coming off record levels in 2020 (Figure 1.5, panel 4). These higher financing needs may continue for some time given that vaccine supplies continue to favor high-income countries (see the January 2021 *GFSR Update*).

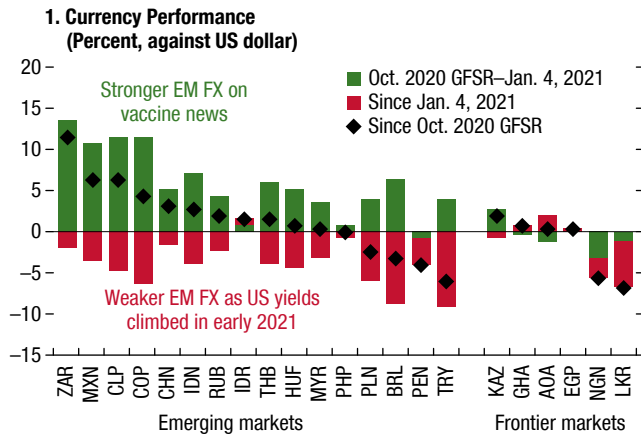
Faced with higher post-pandemic budgetary funding needs, policymakers have adjusted and broadened their strategies over the past few quarters. These adjustments have included a mix of shorter local currency debt duration;³ the introduction of asset purchase programs—which in some cases involved explicit monetary financing; and increased reliance on the domestic banking system for newly issued debt. Some frontier market economies also have relied on debt restructuring and, for eligible countries, participation in the Group of Twenty (G20) Debt Service Suspension Initiative and more recently in the G20 Common Framework for Debt Treatments.

Although these actions have been largely successful to date, they may expose sovereign issuers to new risks down the road. For example, sizable external issuance is likely to make a country more vulnerable to exchange rate shocks. Shorter duration of local currency debt raises rollover risks and the sensitivity of debt servicing to increases in interest rates. Greater exposure of domestic banks to government debt strengthens the sovereign-bank nexus and may crowd out private sector loan growth. Finally, for countries

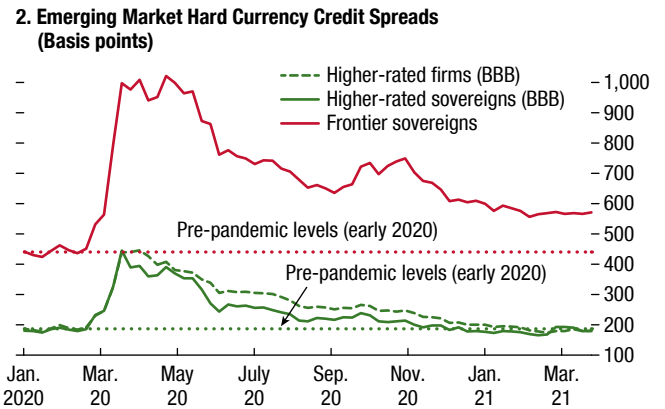
³This shortening of bond duration leads to higher risk of coupon resets. Higher reset risk can occur through increased issuance of shorter-maturity debt but also through higher issuance of instruments that change their coupons more frequently (for example, floating rate debt that resets every six months).

Figure 1.5. Financial Market Performance and Fundamentals of Emerging Markets

Following a strong vaccine-fueled rally in 2020:Q4, emerging market currencies faced some turbulence in early 2021.

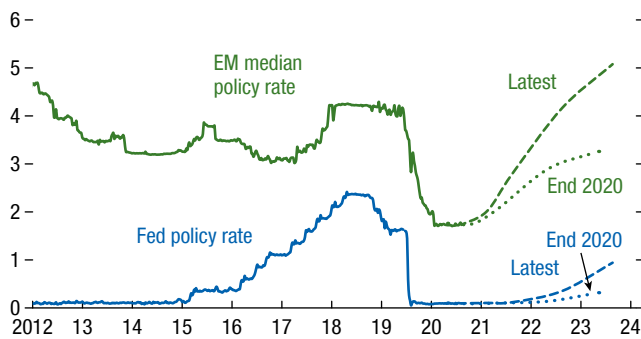


Emerging market spreads have tightened to pre-pandemic levels, especially for higher-rated issuers.



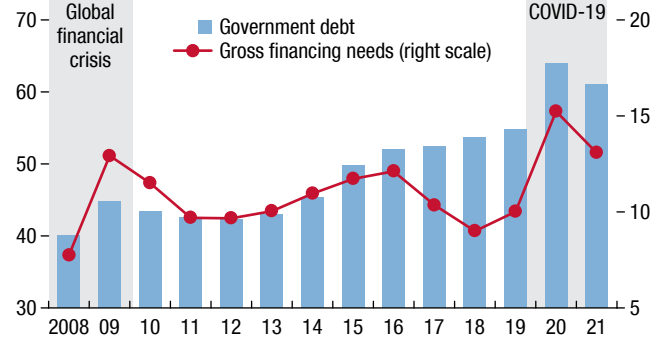
The recent increase in US rates has added to the hawkish shift by several emerging market central banks.

3. EM and US Policy Rates and Forwards (Percent)



Government debt ratios and financing needs are set to remain high in 2021.

4. Government Debt and Gross Financing Needs (Percent of GDP)



Sources: Bloomberg Finance L.P.; Consensus Economics; and IMF staff calculations.

Note: Panel 3 relies on a sample median of 13 EM countries. The interest rates are forwards—not adjusted for term premium—from local interest rate swaps and futures. Panel 4 includes 51 EMs, excluding China. Data labels use International Organization for Standardization (ISO) country codes. EM = emerging market; Fed = Federal Reserve; FX = foreign exchange; GFSR = *Global Financial Stability Report*.

that already enjoy market access, participation in the Debt Service Suspension Initiative or the Common Framework for Debt Treatments without transparent and timely market communication may increase uncertainty about the involvement of private bondholders and lead to an increase in external credit spreads.

Portfolio Flows Can Help Emerging Market Financing Needs—But Not Equally

Volatility has resurfaced in emerging market portfolio flows. The sharp rebound since the previous GFSR came to a halt in late February 2021, reflecting rising

rates in advanced economies and volatile global market conditions. The challenges are particularly evident in hard currency bond funds, in sharp contrast with developments in 2020 (see the October 2020 GFSR, Figure 1.6, panel 1). Local currency bond inflows have also moderated in Q1 2021, after recovering sharply toward the end of 2020.⁴

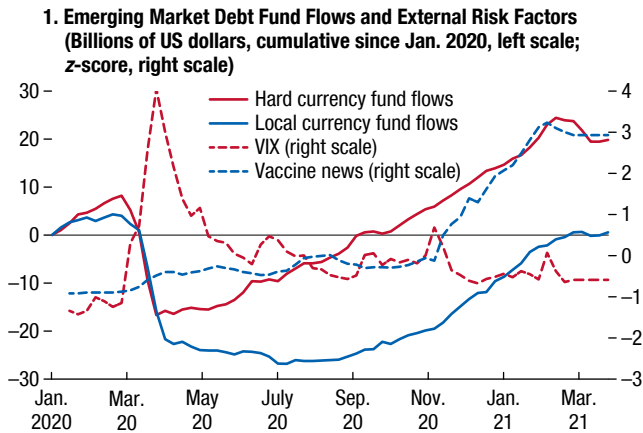
The earlier post-pandemic recovery in portfolio flows came hand in hand with the improved outlook. Quarterly portfolio inflows reached their highest level ever in the fourth quarter of 2020, amounting to more

⁴See Bango and others (2021).

Figure 1.6. Emerging Market Portfolio Flows and Sovereign Bond Holdings

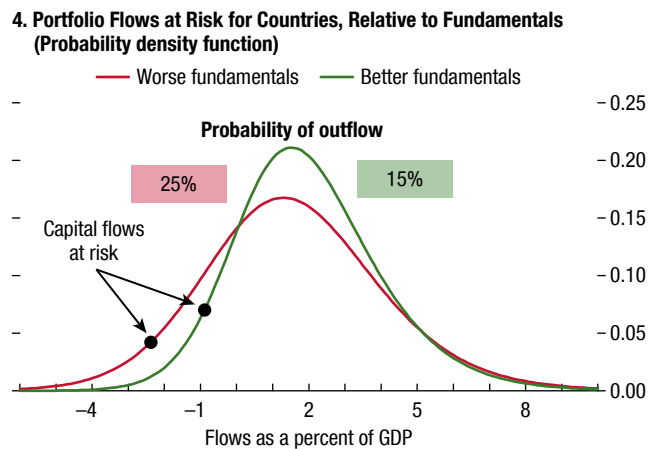
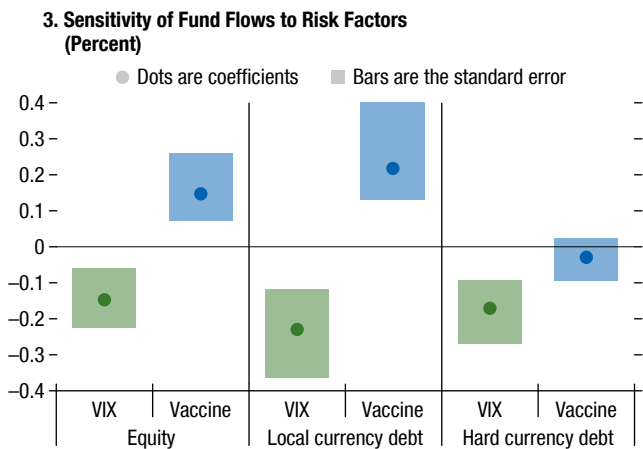
The sharp rally in hard currency bond fund flows has stalled, and local currency fund flows have reversed last year's outflows.

Overall, portfolio flows have rebounded sharply since the previous GFSR, despite the recent moderation.



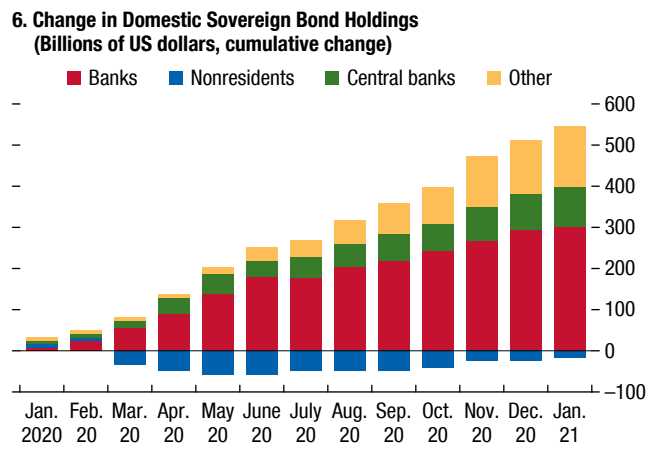
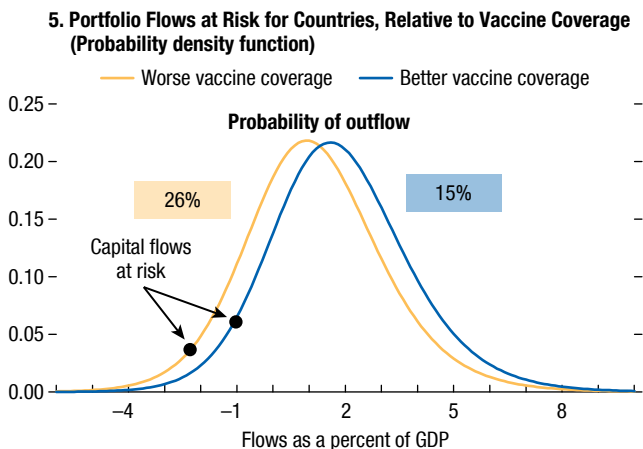
The positive risk sentiment is supportive across the board, but local currency debt and equity flows have also benefited from vaccine news.

The outlook for portfolio flows has improved on average, but tail risks remain higher for countries with weaker fundamentals ...



...as well as for countries with limited access to vaccines.

Domestic banks have been the dominant buyers of local currency bonds, while nonresident flows have been sluggish.



Sources: Bloomberg Finance L.P.; Google Trends; IMF, World Economic Outlook database; Institute of International Finance; and IMF staff.
Note: Panel 6 is based on a sample of 11 major emerging markets, and figures are converted to US dollars at end-of-month exchange rates. Domestic bonds are primarily denominated in local currency. GFSR = Global Financial Stability Report; VIX = Chicago Board Options Exchange Volatility Index.

than \$200 billion (Figure 1.6, panel 2). The rebound in flows has been broad-based, with about two-thirds of countries experiencing inflows. IMF staff analysis shows that the recovery in equity and local currency debt flows is estimated to have benefited primarily from optimism about vaccines and the anticipated improvement in the growth outlook (Figure 1.6, panel 3). Hard currency debt flows, on the other hand, appear to have been boosted primarily by the improvement in risk sentiment after the March sell-off.⁵

The rebound in portfolio flows is beneficial to emerging markets with large financing needs. However, the recent volatility is a reminder of the fragility of these flows, as the outlook can worsen quickly in response to a shift in investor sentiment and tighter global financial conditions. Countries with weaker fundamentals and limited access to vaccines face greater risks (see the January 2021 GFSR *Update*). The capital-flows-at-risk analysis suggests that, in the event of a pullback of portfolio flows from emerging markets, countries with poorer fundamentals and limited access to vaccines would fare worse than countries with better fundamentals or those with higher vaccine coverage (Figure 1.6, panels 4 and 5). The impact would be more pronounced where financing dynamics are already at risk, such as frontier market economies, where rollover needs remain relatively large (April 2020 GFSR).

The recent volatility in portfolio flows and funding costs also brings to the forefront the rising risk of a sovereign-bank nexus in some economies. Banks in emerging markets have absorbed the bulk of domestic sovereign debt issuance since the onset of the pandemic. In a sample of 11 major emerging markets, aggregate nonresident holdings of domestic sovereign debt remain lower than they were in January 2020 (in US dollar terms), even as outstanding domestic debt has increased by nearly \$500 billion (Figure 1.6, panel 6).

Several Factors May Push Emerging Market Local Currency Term Premia Higher

After declining to historically low levels in late 2020, local currency sovereign yields rose sharply in early 2021 on the back of the increase in US long-term real yields

⁵This finding is in line with Goel and Miyajima (forthcoming), which finds that equity and debt flows are more sensitive to domestic fundamentals and global risk appetite, respectively.

(Figure 1.7, panel 1). Most of the increase in long-end rates came from a rise in local bond term premia, which had previously compressed to levels last seen before the 2013 taper tantrum (Figure 1.7, panel 2).⁶ Multiple factors likely played a role in the compressed term premia, including the decline in long-term interest rates in advanced economies, subdued actual and expected inflation despite elevated macroeconomic uncertainty, and domestic asset purchase programs and other measures aimed at supporting local bond markets (see Chapter 2 of the October 2020 GFSR).

The decline in long-term yields in 2020 allowed countries to lock in cheap funding costs, an important benefit given large current and expected pandemic-related spending. However, several countries have refrained from extending the maturity of their debt and have opted instead to increase their issuance of short-term and floating-rate debt on concerns about investor risk appetite. Although this has likely helped contain market pressure during periods of heightened risk aversion and contributed to the overall decline in term premiums, it has also exposed governments to greater rollover risks and to a future rise in interest rates (Figure 1.7, panel 3).

Local currency debt markets remain vulnerable to sudden changes in risk appetite. In terms of fiscal needs, a proxy for the fiscal risk premium (measured as the difference between interest rate swaps and government bond yields) has remained wide in some countries (such as South Africa).⁷ This further underscores the risks facing countries with large financing needs in local currency markets, limited financial market depth, and less credible medium-term fiscal frameworks.

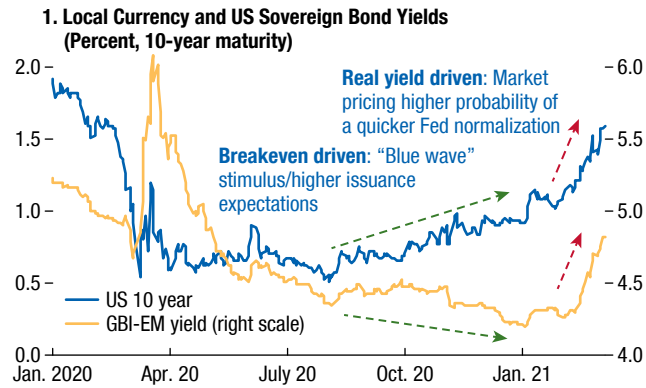
An important driver of term premia is the inflation outlook in emerging markets—both investor expectations and uncertainty about the inflation outlook (Wright 2011). Empirical analysis (Online Annex 1.1) finds that a 1 percentage point shock to inflation uncertainty and expectations tends to increase term premia by about 30 basis points and 10 basis points, respectively.

⁶The term premium is an estimate of the expected return that investors demand over the expected rate path. The term premium is estimated following the methodology of Adrian, Crump, and Moench (2013).

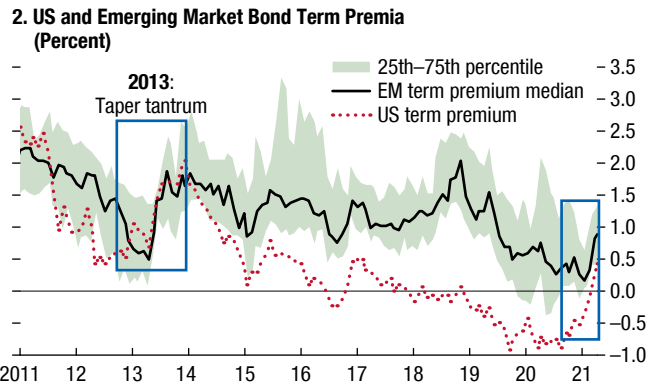
⁷Other factors could drive the spread between bond yields and swap rates, such as the relative liquidity of the instruments, investors' positioning dynamics, and in some cases changes in bank credit risk affecting the spread between the policy rate and the interest rate swap fixing rate.

Figure 1.7. Emerging Market Local Currency Bond Term Premia

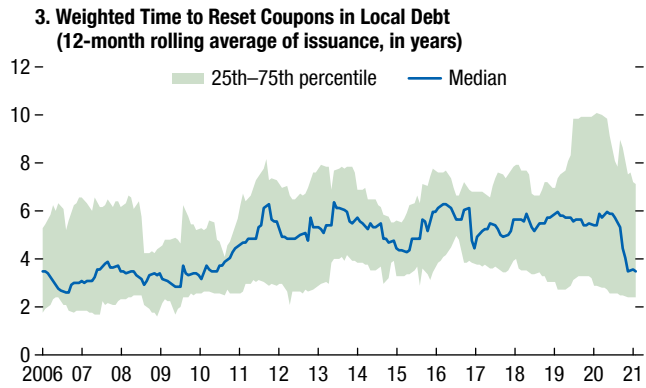
Local currency yields remained near historical lows early in 2021 before rising amid the global bond sell-off.



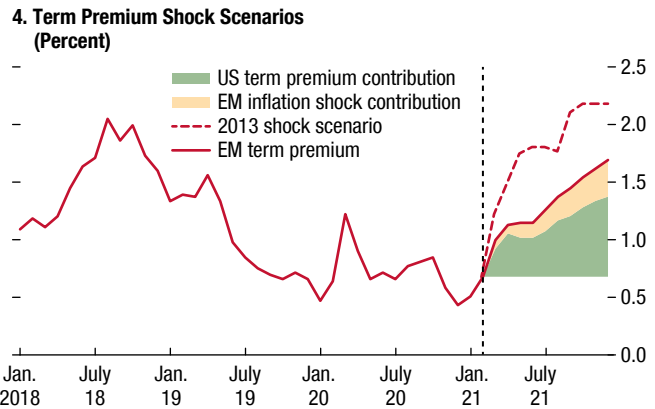
Term premia have compressed amid policy measures by advanced and emerging market central banks.



Despite favorable funding conditions, several emerging markets have continued to shorten the duration of local debt issuance.



Advanced economy monetary policy normalization and a rise in inflation create an upwards risk for premia.



Sources: Bloomberg Finance L.P.; and IMF staff calculations.

Note: Country samples include 16 emerging market economies with more developed local bond markets. In panel 4, the shock scenario overlays the 2013 taper tantrum fallout on February 2021 term premia. EM = emerging market; GBI-EM = Government Bond Index-Emerging Markets.

Market expectations of policy normalization in advanced economies could also lead to a snapback in term premia in emerging markets. The recent sharp rise in US term premia, which account for a significant share of the increase in long-term Treasury yields, is indeed beginning to show an impact on emerging market local currency term premia that could lead to a rapid rise in borrowing costs. IMF staff analysis finds that a 1 percentage point rise in US term premia leads to an increase in emerging market term premia of 60 basis points, on average.⁸ If this shock is

combined with an increase in inflation expectations to pre-pandemic levels, this would translate into an even larger shock: roughly a 1 percentage point increase in emerging market term premia, on average, by the end of 2021 (Figure 1.7, panel 4).

Domestic Fundamentals Weigh on External Funding Costs, Especially for Frontier Issuers

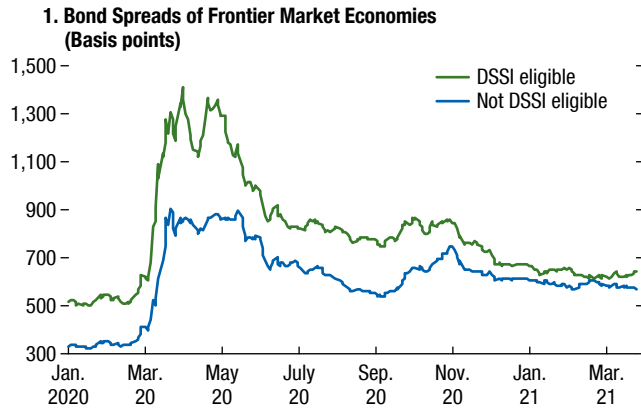
Several frontier market economies continue to face challenging market conditions. Spreads of higher-rated emerging market issuers have generally declined sharply, returning to their precrisis levels. For frontier issuers,

⁸The sensitivity of emerging market term premia to an increase in the US term premium shows significant variability over time, with country-level factors also playing a key role. The sensitivity during the 2013 taper tantrum rose well above 1.0 on average, although

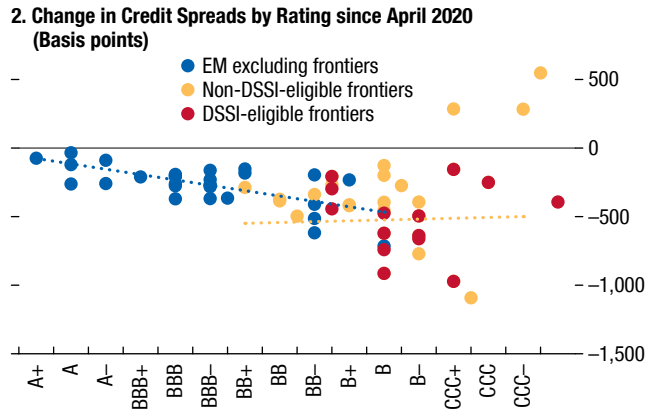
good macroeconomic fundamentals helped dampen the market reaction to the US monetary policy shock (IMF 2014).

Figure 1.8. Developments in Frontier Market Economies

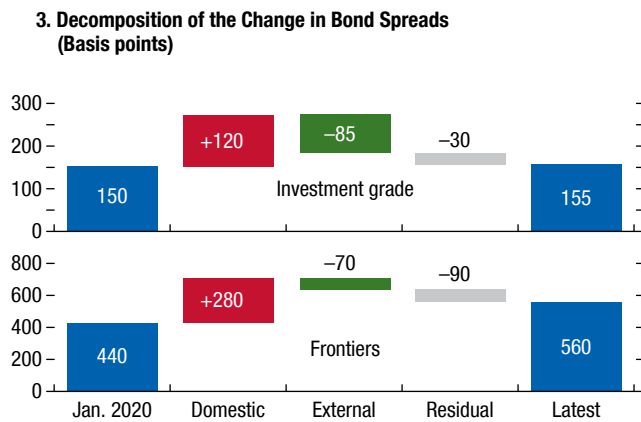
Spreads of frontier economies—both those eligible and not eligible for the Debt Service Suspension Initiative (DSSI)—have tightened significantly ...



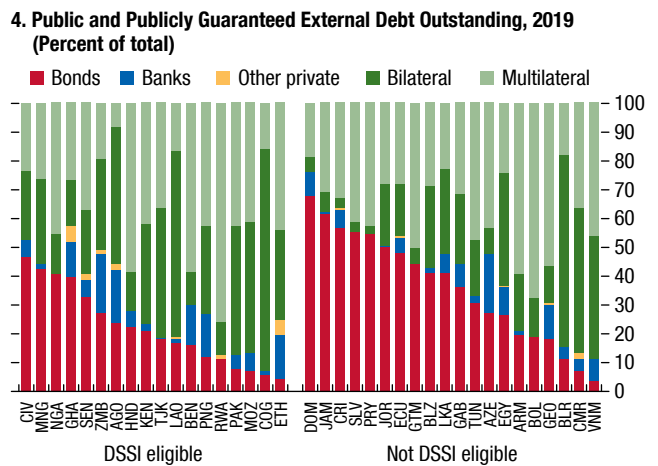
... but there is large differentiation among them.



External factors have helped investment-grade emerging markets, while idiosyncratic domestic issues have weighed on frontier issuers.



Several economies that are not eligible for the DSSI have elevated external debt vulnerabilities and similarities in debt composition.



Sources: Bloomberg Finance L.P.; credit rating agencies; JP Morgan; World Bank International Debt Statistics; and IMF staff calculations. Note: Data labels use International Organization for Standardization (ISO) country codes. DSSI = Debt Service Suspension Initiative; EM = emerging market.

however, performance has been more variable during the market recovery (Figure 1.8, panels 1 and 2). While spreads have narrowed significantly in a number of countries (led by Angola, Gabon, and Mongolia), narrowing has been relatively minor in many other countries, and spreads have continued to widen in some (Belize, Sri Lanka, Suriname).

The improvement in the global environment has helped higher-rated issuers primarily, even as the deterioration in domestic economic conditions continues to weigh on frontier economies. IMF staff analysis finds that external factors have played an important

role in the recovery of higher-rated sovereigns, offsetting almost 70 percent of the drag from the worsening of domestic fundamentals during the pandemic (Figure 1.8, panel 3). By contrast, external factors have offset only 25 percent of the drag from domestic factors in frontier economies. Weaker domestic fundamentals related to growth and inflation, and weaker reserve adequacy, have weighed on funding costs for frontier issuers. In addition, idiosyncratic factors (such as political risks, IMF program relations, and composition of debt) have likely driven a large part of country differentiation.

Looking ahead, near-term debt vulnerabilities for frontier issuers remain high, but many of these issuers do not benefit from recent initiatives by the international community. Despite the fact that a large group of countries (currently 73) is eligible for the two key initiatives (the Debt Service Suspension Initiative and the Common Framework for Debt Treatments), fewer than one-third of them have outstanding international bonds.⁹ At the same time, international bonds and bilateral loans are a material part of the debt structure of most frontier issuers, but only about half of them are eligible to participate in these initiatives (Figure 1.8, panel 4). This exclusion can prevent a significant group of countries with large debt vulnerability from benefiting from coordinated and comprehensive debt treatment.

China Faces Rising Vulnerabilities as It Emerges from the Pandemic

The Chinese economy has recovered from the pandemic more rapidly than other countries, but at the cost of a further buildup in financial vulnerabilities, which were already significant in some sectors before the crisis. Substantial policy support has boosted the recovery but has also led to a sharp increase in government and corporate debt, with the latter driven to a large extent by riskier corporate borrowers. Targeted credit policies have led to rapid growth in credit for small firms and microenterprises, traditionally a segment with elevated credit risk. Among larger firms, new credit has largely flowed to borrowers with weak debt servicing capacity before the COVID-19 pandemic, pointing to future default risks (Figure 1.9, panel 1). Equity market valuations have also become stretched in some segments, leading to volatile market conditions, and are raising the risk of a correction.

Financial conditions may become less favorable amid expectations of policy tightening and rising investor uncertainty about implicit guarantees. Country authorities have signaled a shift in the focus of monetary and fiscal policy to containment of debt risks and have introduced new measures to impose financial discipline on banks, local governments, and property developers. Funding conditions for capital instruments have tightened for weaker, smaller banks since the authorities bailed in subordinated debt eligible as Tier 2 capital for

the first time, which could tighten financial conditions for the smaller firms serviced by these banks (Figure 1.9, panel 2). Several unexpected defaults of state-owned enterprises in the fourth quarter of 2020 have also raised investor concerns about implicit guarantees for weaker borrowers, particularly those that rely on backstops from financially strained regional governments. Credit extension to firms and households in the financially weakest provinces fell sharply toward the end of 2020, pushing these provinces' share of total credit growth to the lowest levels on record (Figure 1.9, panel 3). Linkages among local government, firm, and bank vulnerabilities could amplify the deterioration in borrowing conditions if slumping credit weighs on regional growth and government revenues, further weakening the credibility of implicit guarantees (see Box 1.3 in the October 2020 GFSR).

Chinese authorities face a delicate but urgent challenge in unwinding implicit guarantees. Many Chinese nonfinancial firms enjoy favorable bond market pricing despite debt servicing capacity that is significantly below that of the weakest speculative-grade issuers globally. This reflects the continued strong incentives for regional governments to provide backstops to local borrowers. Debt issued by firms that had sustained two years of operating losses before the pandemic or net-debt-to-EBIT (earnings before interest and taxes) ratios above 15 account for nearly 40 percent of GDP, or half of the debt of all nonfinancial bond market issuers.¹⁰ Over two-thirds of these bond issuers enjoyed credit spreads that imply relatively low risk of default (below 200 basis points) (Figure 1.9, panel 4). This points to significant potential for disorderly repricing of credit risk, underscoring the need for a carefully sequenced and well-communicated transition away from implicit guarantees. More broadly, this transition is urgently needed to alleviate distortions in credit allocation and to limit further growth in risky corporate debt.

The Global Corporate Sector Is at a Crossroads

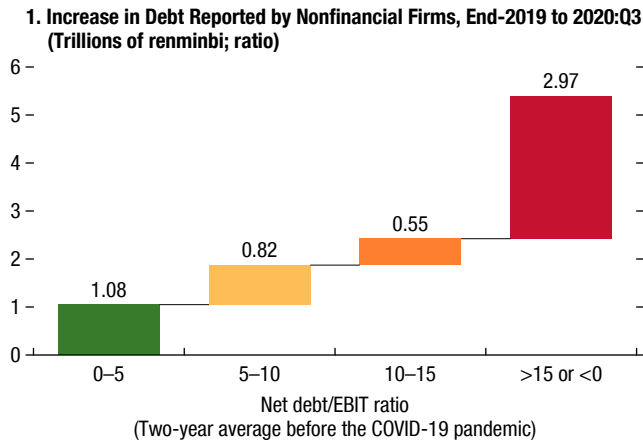
The corporate sector has been hit hard by the pandemic and is likely to emerge from the crisis with higher debt loads, with notable differences across sectors and firm sizes. While unprecedented policy support has led to a compression of credit spreads and averted a surge in insolvencies, a weak tail of firms continues to struggle. Firms with market access have

⁹As of early March 2021, nearly two-thirds of eligible countries had formally asked to join or extend their participation in the Debt Service Suspension Initiative, and three countries had expressed interest in the Common Framework for Debt Treatments.

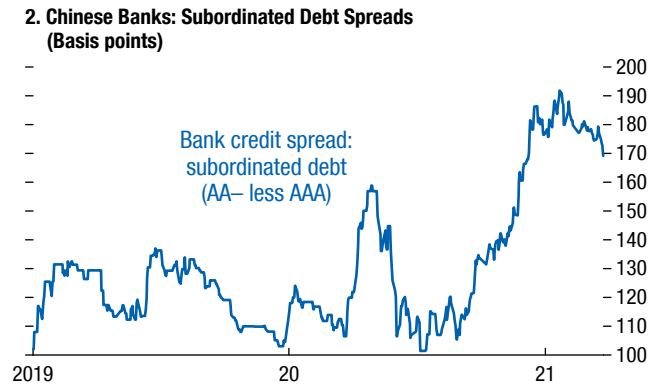
¹⁰For comparison, nonfinancial firms rated CCC by global credit rating agencies have average net-debt-to-EBIT ratios of about 6.

Figure 1.9. Chinese Debt Vulnerabilities and (Mis)Pricing of Risk

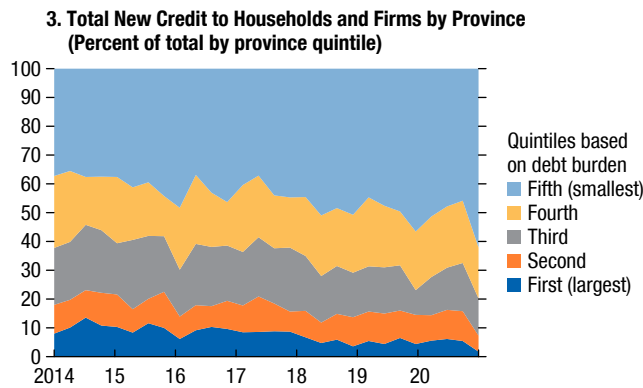
Vulnerabilities have risen as corporate debt has accumulated primarily among firms with the weakest debt-servicing capacity.



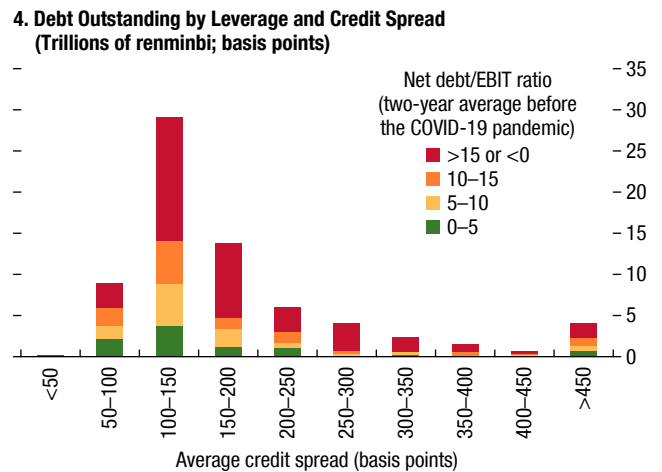
Weaker banks face more challenging capital-raising conditions after the first subordinated debt bail-in in 2020:Q4.



Following defaults of state-owned enterprises in debt-burdened provinces, new credit to those provinces has declined.



Many weak firms have favorable credit market access due to implicit guarantees, which is distorting credit allocation.



Sources: Bloomberg Finance L.P.; ChinaBond; CEIC; and IMF staff calculations.

Note: In panels 1 and 4, data are based on financial statement and market pricing data for over 4,400 bond-issuing firms. Color coding in panel 1 corresponds to panel 4. In panel 3, debt burden quintiles are based on the average ranking of provincial government debt-to-GDP and debt-to-revenue ratios. In panel 4, credit spread is based on averages for one- to five-year bonds during December 2020. EBIT = earnings before interest and taxes.

taken advantage of the easing in financial conditions to repair their balance sheets, but small and mid-sized firms (about half of the corporate sector by debt) with limited market access have fared less well, and they still rely heavily on policy support.¹¹

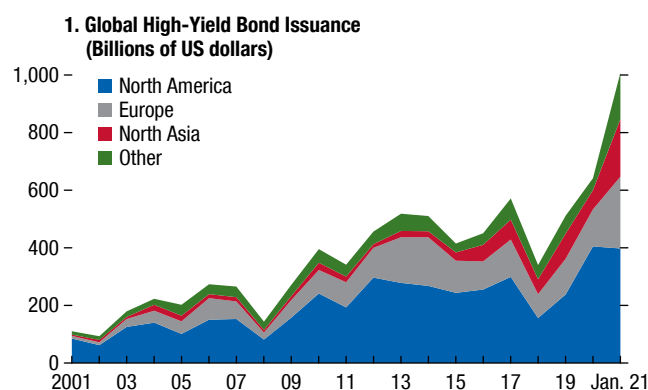
Amid favorable financial conditions, debt issuance has risen to record levels as companies have tried to cope with liquidity pressures (Figure 1.10, panel 1). Many large companies with access to capital markets have used new debt to bolster liquidity buffers

¹¹Large, mid-sized, and small firms are defined here by total assets, whereas the thresholds are based on the composition of global bond, syndicated loan, and equity indices to define their main sources of funding. Small and mid-sized firms here are not to be confused with small and medium-sized enterprises (SMEs), which generally fall into the small firm category in this classification. Large firms have assets exceeding \$500 million and can access all capital markets, as well as bank financing. Mid-sized firms have assets between \$50 million and \$500 million and cannot generally access the bond market,

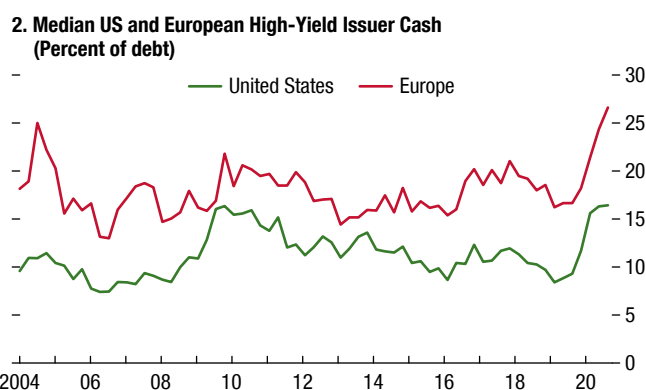
but often access the equity market, and the larger firms in this category access the syndicated loan market. Small firms have assets below \$50 million and rely predominately on bilateral bank loans, though larger firms in this category can issue equity. The estimate for debt is for major advanced economies and China, based on Chapter 2 of the October 2019 GFSR. See Chapter 2 of the October 2020 GFSR for more analysis on the liquidity strains faced by small and mid-sized firms amid the onset and in the aftermath of the COVID-19 crisis.

Figure 1.10. Corporate Funding and Liquidity

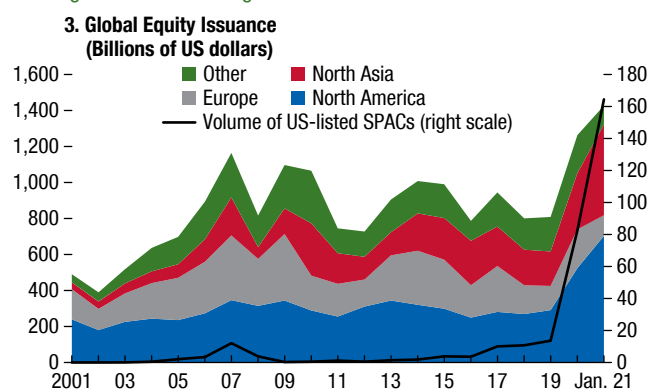
The rebuilding of liquidity positions and refinancings have driven bond issuance to record levels.



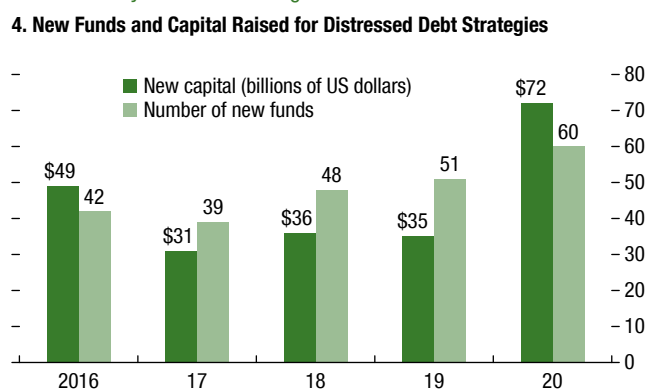
Corporate balance sheet liquidity has substantially improved.



Global equity issuance rose to a new high in 2020 as initial public offerings rebounded during the second half of 2020.



The pool of capital targeted for distressed debt has grown sharply and could be a key source of funding for troubled firms.



Sources: Dealogic; Morgan Stanley; Preqin; and IMF staff calculations.

Note: For panels 1 and 3, data for January 2021 have been annualized. For panel 4, 2020 data are through the second quarter. SPAC = special-purpose acquisition company.

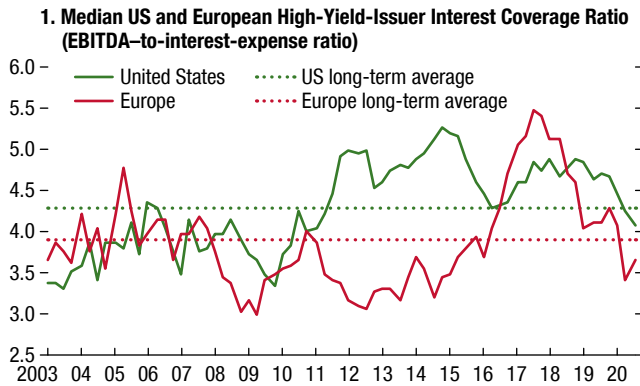
(Figure 1.10, panel 2). To address solvency risk, companies have also sought to strengthen their equity positions, with equity issuance rising to record highs amid elevated equity valuations (Figure 1.10, panel 3). As mentioned, initial public offerings by special-purpose acquisition companies to fund acquisitions of private firms have surged to historic highs. More generally, merger and acquisition activity in advanced economies has accelerated, paving the way for market-driven consolidation in the corporate sector. Countries with developed distressed asset markets are likely to benefit from readily available capital to deal with weaker firms through market mechanisms (Figure 1.10, panel 4).

With easy financial conditions (necessary to support growth in the short term), corporate debt

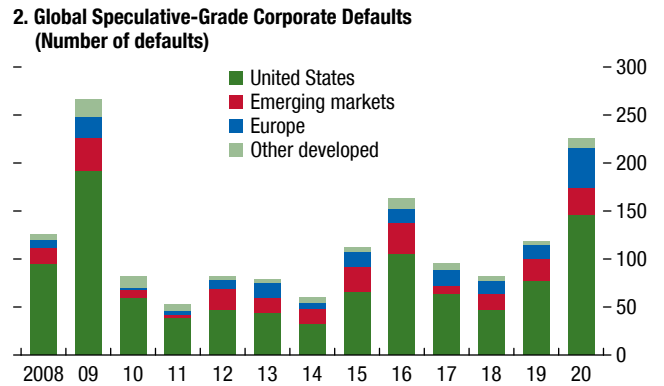
may rise further from already high levels, putting medium-term growth at risk (see Chapter 2). A growing debt burden, together with weaker earnings, has already started to impair the capacity of many firms to service debt (Figure 1.11, panel 1). Last year, the number of high-yield defaults reached the highest level since the global financial crisis (Figure 1.11, panel 2). While the pace of defaults has recently dropped, there are still some significant differences across sectors: stress has remained elevated in sectors most sensitive to the pandemic (Figure 1.11, panel 3). Moreover, firms with limited access to credit have not benefited as much from the easing in financial conditions. Mid-sized borrowers are still finding it challenging to obtain funding in the syndicated loan

Figure 1.11. Corporate Leverage and Credit Quality

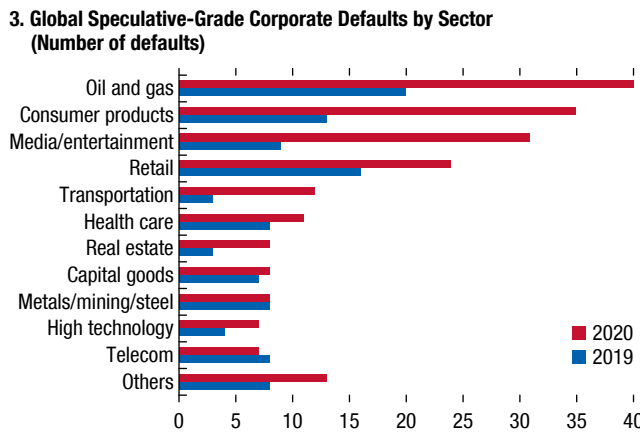
Debt service capacity continues to be constrained by weakness in earnings and rising debt.



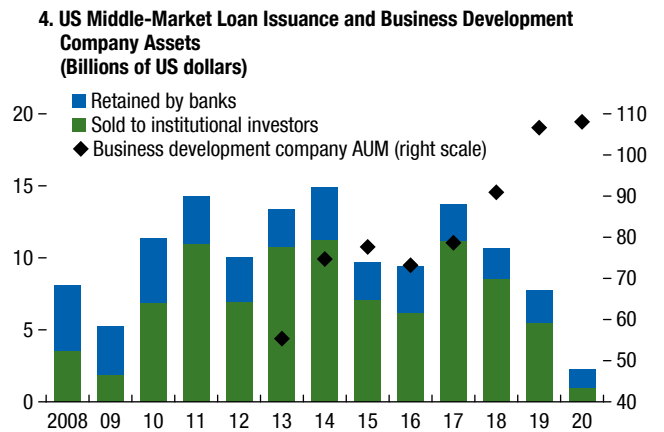
Defaults have reached their highest level since the global financial crisis—but have slowed and remain below initial expectations.



Sectors most negatively affected by the pandemic and economic lockdowns have experienced the highest defaults.



Mid-sized firms have struggled to source liquidity as broadly syndicated middle-market loan issuance has dropped.



Sources: Morgan Stanley; S&P Global Ratings; S&P Leveraged Commentary and Data; and IMF staff calculations.
 Note: In panel 1, the data are through the third quarter of 2020. In panel 4, middle market refers to firms with EBITDA below \$50 million. AUM = assets under management; EBITDA = earnings before interest, taxes, depreciation, and amortization.

market, although this difficulty is partially offset by the growing importance of private debt markets (Figure 1.11, panel 4).

A Firm-Level Assessment to Better Target Future Policy Support

Reduced fiscal space in many countries calls for a careful assessment of risks to better target future policy support. Policymakers are now faced with difficult trade-offs. *Too little support may be inadequate in the short term.* A premature, abrupt withdrawal before a sustainable recovery takes hold may lead to a sudden repricing of credit. Should insolvencies materialize, economic scarring and externalities, such as job losses,

could be considerable, and a pernicious feedback loop could affect bank and nonbank lenders as well as sovereigns via government guarantees. At the same time, *too much support may lead to unintended effects in the medium term.* Abundant liquidity in financial markets or poorly targeted policy support may stretch credit valuations even further and allow nonviable firms in the corporate sector to survive (so-called zombification). This may lead to structurally slow growth, debt overhang, misallocation of credit, and a less resilient financial system in the future.

The pandemic will likely induce structural changes in many economies, as the impact of the shock has been uneven across countries and segments (sectors and firm sizes), resulting in digitalization in some

segments and possibly inefficiencies in some others. Amid heightened uncertainties, it is important to incorporate relative valuations across sectors to assess the post-pandemic evolution of firms. Given limited policy space in a number of countries, government support should be aimed at viable firms and sectors (but attentive to other objectives and considerations that may come into play regarding strategic firms and sectors). At the same time, private sector financing could facilitate orderly restructuring in weaker sectors.

Over the past year, capital markets have been open for business, but the benefits have been reaped mostly by advanced economies and higher-rated emerging market economies. Market-based finance has extended beyond the traditional capital markets in some advanced economies as private debt markets have thrown a lifeline to small and mid-sized firms. In contrast, many firms in emerging market economies, regardless of size, still rely heavily on bank financing. Thus, access (or lack thereof) to global capital markets will shape the kind of policy support that may be needed in some emerging market economies.

A Comprehensive Framework to Identify Viable Firms

The analysis that follows proposes a simple framework for policymakers to identify viable firms (see Online Annex 1.1 for details).¹² The first step is to assess current and near-term *liquidity* and *solvency* risks through a wide range of indicators. As discussed in the October 2020 GFSR, liquidity risks have been largely contained so far but could morph into insolvencies. Once liquidity or solvency risks have been deemed high, the second step is an assessment of medium-term *viability* to determine whether a firm will be profitable within a three-year horizon, when the recovery from the COVID-19 crisis is expected to take hold (see the April 2021 *World Economic Outlook*).¹³

¹²The results of the analysis and policy implications are complementary to, and broadly consistent with, those in a forthcoming Staff Discussion Note (Diez and others, forthcoming). It covers SMEs (as conventionally defined), which have been hit hard by the crisis.

¹³The analysis assumes that central banks will maintain an accommodative monetary policy stance. Should financial conditions tighten, the fiscal costs to deal with the corporate sector could increase. The analysis also assumes that market prices embed the existing and already announced policy support. In practice, the viability assessment may be highly uncertain, depending on the continuation of existing policy support, the potential impacts

The three key elements of the analysis are thus defined as follows. *Liquidity* refers to the ability of a company to pay off short-term financial obligations without raising additional external financing (IMF, forthcoming).¹⁴ *Solvency* is defined as the ability of a company to meet its short- and long-term financial obligations and is often calculated simply as a residual—that is, the difference between the value of assets and the value of liabilities.¹⁵ *Viability* is expressed as the ability of a business to generate future positive profits—that is, whether the benefits of continuing a business exceed the costs¹⁶ or, conceptually, whether future profits exceed the liquidation value of viable firms.¹⁷

This framework is employed in an illustrative quantitative exercise. The analysis of liquidity, solvency, and viability is carried out for a large sample of firms in advanced and large emerging market economies.¹⁸

Key Findings of the Overall Assessment

The analysis suggests that liquidity and solvency concerns vary across firm size and sectors. *Liquidity stress is high at small firms in most sectors, but very low*

of the pandemic and policies on the economy, and the extent of structural changes in post-pandemic economies.

¹⁴The liquidity stress indicators include the 2021 projected cash balance, liquidity buffer ratio, interest coverage ratio, and current ratio.

¹⁵Solvency stress indicators include the 2021 projected equity position, as well as the net-debt-to-earnings, gross-debt-to-earnings, and equity-to-assets ratios.

¹⁶The viability indicators include the 2021–23 projected interest coverage ratio, projected EBIT-to-revenue ratio, debt-to-assets ratio, price-to-book ratio, and price-to-book ratio relative to a firm's sectoral average, to limit the impact of misalignments. For firms with market access, viability is assessed based on market-based measures. Given the risks surrounding the current level of valuations, the analysis is complemented by a balance sheet approach. For smaller firms with limited or no market access, viability is assessed via medium-term balance sheet projections.

¹⁷The definitions of viability and solvency are related but differ in important ways. While solvency refers to the residual value of a business (assets net of liabilities) at any point in time, viability refers to the continuation value of a business by comparing the net present value of future net profit flows (if the firm is allowed to continue operating) with the net recovery value of assets (if the firm is liquidated). See Blanchard, Philippon, and Pisani-Ferry (2020).

¹⁸The sample comprises approximately 19,500 firms, of which small and mid-sized firms make up over half of the sample; about 2,500 firms are private. The sample comprises large advanced and emerging market economies with systemically important financial sectors: Brazil, China, France, Germany, India, Italy, Japan, Mexico, Poland, Russia, Spain, Turkey, the United Kingdom, and the United States.

for large firms (Figure 1.12, panel 1).¹⁹ The finding reflects the relatively low liquidity buffers at small firms (including liquid asset holdings and bank credit lines) and the inability to benefit from easy financial conditions due to limited market access. The sectoral differentiation is also noteworthy: small firms in the more affected sectors (such as the automotive industry, telecommunication services, and energy) face notably higher liquidity risk. In emerging markets, even mid-sized firms experience considerable liquidity risk.

Solvency stress is high for small firms but also significant for mid-sized and even large firms in affected sectors (Figure 1.12, panel 2). Although large and mid-sized firms seemingly coped with liquidity pressure in 2020, they still face weak earnings and increased debt loads. This could jeopardize their solvency position, especially in the most affected sectors, such as energy, services, transportation, and real estate. Small firms face high solvency risk across sectors (Figure 1.12, panel 3).

To determine which firms should seek market funding, receive government support, or be restructured or liquidated, the chapter proposes a decision tree that separates firms according to viability (Figure 1.13, panel 1). Importantly, firms with *low liquidity or solvency risks* are likely to have market access and should be encouraged to take advantage of favorable market conditions to repair and adjust their balance sheets.

For small firms with *high liquidity risk*, the share of debt accounted for by viable firms is 30 percent in advanced economies and nearly 20 percent in emerging markets (Figure 1.13, panel 2, green bars). Most of these firms cannot obtain bond market financing and may face tighter bank lending standards. Targeted liquidity support is necessary, for example through loan guarantee programs.²⁰ At the same time, the share of nonviable firms' debt among small firms (red bars) is also notable, especially in advanced economies (20 percent). These firms are anticipated to face profitability pressures even after the recovery and may default, possibly entailing fiscal costs. They should therefore be restructured or liquidated.

¹⁹The results based on balance sheet indicators for small firms in emerging market economies appear to be generally better than those for small firms in advanced economies. This can be explained by greater market access for weak small firms in advanced economies.

²⁰See the April 2021 *Fiscal Monitor* for a detailed presentation of possible measures to support firms based on their size and financial situation.

For small firms with *high solvency risk*, the picture is similar (Figure 1.13, panel 3). In advanced economies, the share of debt accounted for by still-viable small firms is more than 30 percent (green bars), while in emerging markets the share is slightly lower. To the extent that they have market access, firms should take advantage of current conditions to raise equity. If they do not have such access, policymakers should consider equity-like support.

Firms exposed to *both solvency and liquidity risk* would require a combination of liquidity and solvency measures. For firms with market access, equity raising would likely alleviate both liquidity and solvency risk.

Appropriate Design of Policy Support

If policymakers decide that support is necessary to address liquidity and solvency risks, policy measures should be well targeted and well designed. In *advanced economies with well-developed markets*, national authorities may have enough fiscal resources to address specific corporate vulnerabilities. Larger firms can benefit from favorable market conditions and can encourage consolidation and restructuring (including of smaller firms) through mergers and acquisitions. Even some weak large firms have recently successfully raised equity in markets. Private firms can raise equity through an initial public offering. Moreover, the growth in distressed debt funds signals the availability of market-based solutions for firms in distress.

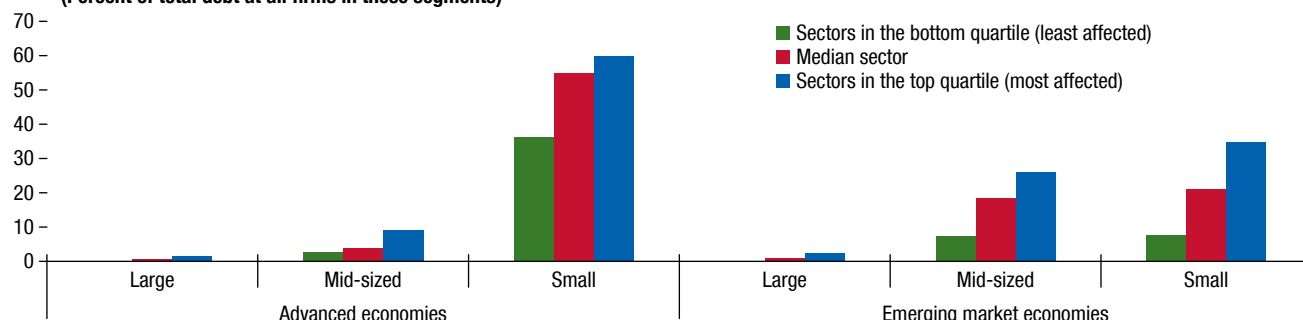
In *emerging market economies, especially those with a large share of vulnerable sectors, a sizable presence of small and mid-sized firms, and limited access to capital markets*, the authorities may have to support firms more actively. Mid-sized firms in emerging markets tend to have higher liquidity and solvency risk compared with those in advanced economies, pointing to a possibly greater need for direct firm-specific support if there is policy space for it.

If solvency support is considered, *appropriate administrative controls, transparency, and accountability* are necessary to ensure effective use of government resources. However, government expertise and administrative capacity are often limited when it comes to assessing firms' financial prospects, implementing support efficiently, and monitoring interventions. It is also crucial to have adequate safeguards in place. Forms of public equity support should receive special attention, because government equity stakes come with

Figure 1.12. Overall Assessment of Liquidity and Solvency by Sector and Firm Size

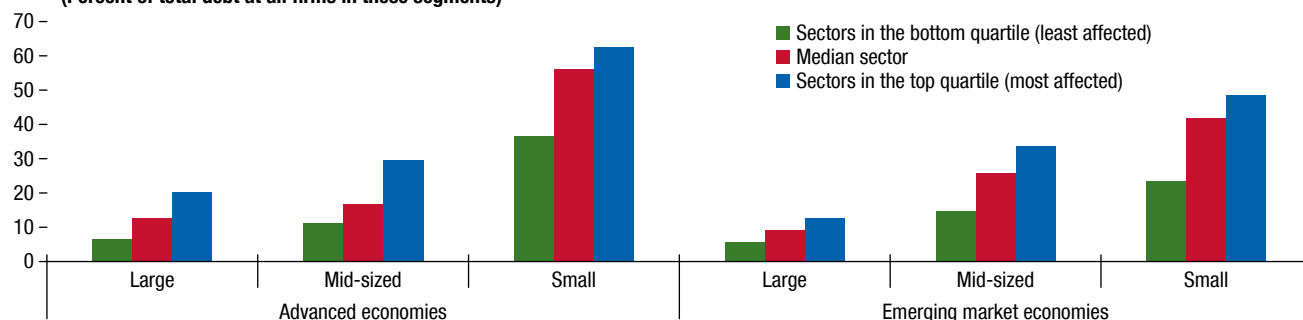
Liquidity stress is substantial at small firms and mid-sized emerging market firms, with a large differentiation across sectors.

1. Share of Debt at Firms with Elevated Liquidity Stress Indicators by Firm Size and by Sector
(Percent of total debt at all firms in these segments)



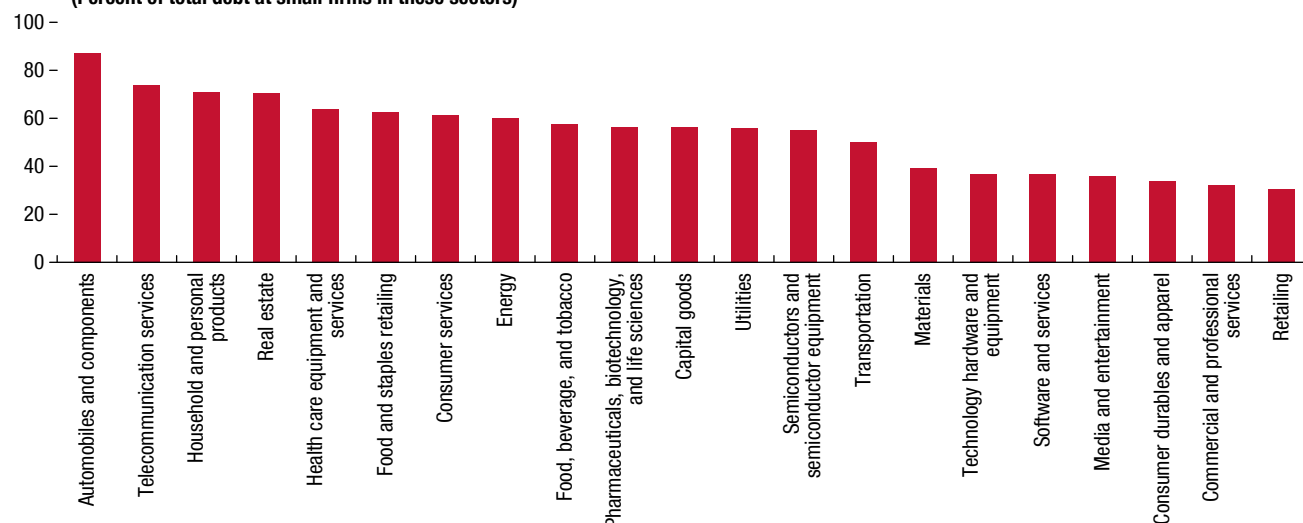
Solvency stress is substantial even at large firms in the most affected sectors.

2. Share of Debt at Firms with Elevated Solvency Stress Indicators by Firm Size and by Sector
(Percent of total debt at all firms in these segments)



Solvency stress is high at small firms and widespread across sectors.

3. Share of Debt at Small Firms with Elevated Solvency Stress Indicators in Advanced Economies
(Percent of total debt at small firms in these sectors)



Sources: S&P Capital IQ; and IMF staff calculations.

Note: Large, mid-sized, and small refer to firms' total assets. The overall liquidity, solvency, and viability stress indicators are computed as combinations of the respective components. For example, the overall liquidity stress indicator is assessed as "elevated" if at least three of four of the individual liquidity indicators exceed their respective thresholds. In panels 1 and 2, for each firm size and each type of stress—liquidity and solvency—sectors corresponding to the bottom 25th, 50th, and 75th percentile by the share of debt with high stress are shown.

Figure 1.13. Overall Assessment of Viability by Sector and Firm Size

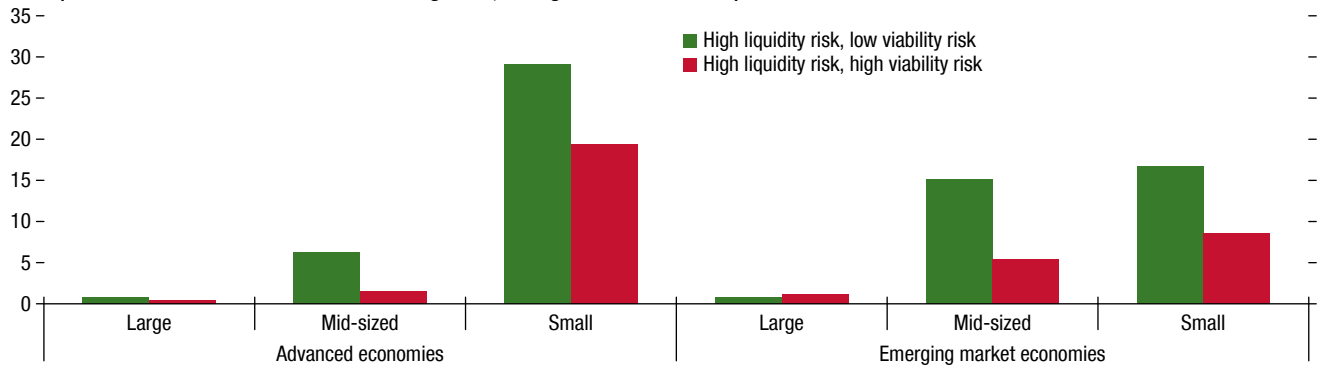
If a firm has a high liquidity or solvency risk, its viability should be assessed to take appropriate policy action.

1. Proposed Decision Tree for Policymakers

Steps:	1	2	3	4	5
			Policy action		
			Immediate, firm-specific		Medium-term, sector-wide
	Assess liquidity and solvency risk	Assess viability risk	Direct government support?	Other policy action?	
	High liquidity risk	Low viability risk	Provide liquidity support, e.g., loan guarantees, to small firms	Encourage required debt raisings by large firms with market access	Deepen capital markets to facilitate market-based options for small firms; encourage consolidation among small firms; develop distressed debt market; strengthen resolution regime
		High viability risk	None	Restructure or liquidate	
	High solvency risk	Low viability risk	Equity-like injections to small firms with no market access	Encourage equity raisings by large firms with market access	
		High viability risk	None	Restructure or liquidate	

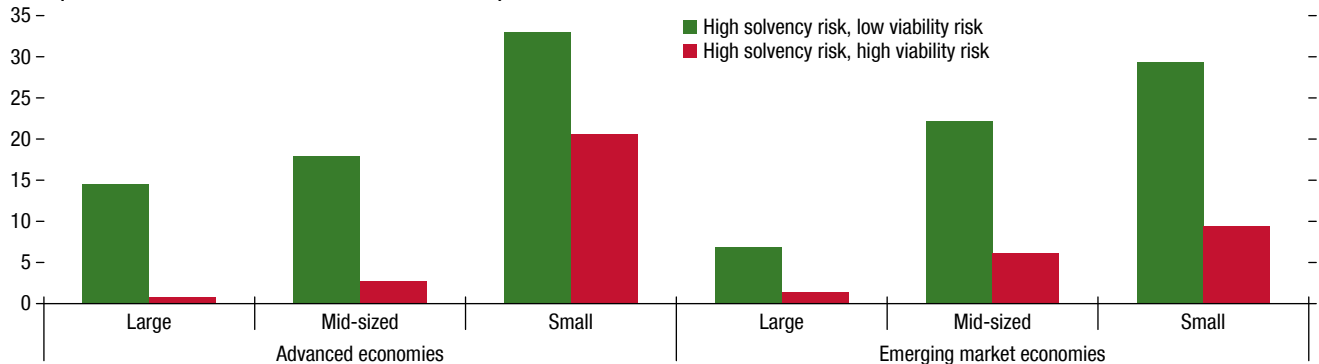
Most mid-sized firms with high liquidity stress have good viability, but a notable share of small firms has weak prospects.

2. Share of Debt at Firms with Elevated Liquidity Risk, by Viability Risk and Firm Size (Percent of total debt at all firms in these segments, averages across all sectors)



Solvency stress is high at small firms and widespread across sectors.

3. Share of Debt at Small Firms with Elevated Solvency Stress Indicators in Advanced Economies (Percent of total debt at small firms in these sectors)



Sources: S&P Capital IQ; and IMF staff calculations.

Note: Large, mid-sized, and small refer to firms' total assets. Overall liquidity, solvency, and viability stress indicators are computed as combinations of the respective components. For example, the overall liquidity stress indicator is assessed as "elevated" if at least three of four of the individual liquidity indicators exceed their respective thresholds. In panels 2 and 3, averages across sectors are calculated separately for advanced economies and emerging market economies.

potential costs related to governance (including political interference) and possible competitive distortions (see the April 2020 *Fiscal Monitor*).

Depending on the nature of the instrument, *conditionality could be attached*, such as restrictions on dividend payments and share buybacks. *Debt-to-equity swaps*—as a powerful instrument to boost the solvency of a firm—could be negotiated with both private shareholders and creditors. To lessen distortions, prudential authorities could provide quasi-equity injections *conditional on the participation of private lenders*. Governments should also consider partnering with the private sector to assess the viability of firms and *improve resource allocation*, particularly for smaller firms.

Targeted solvency support may take many forms, depending on a firm’s size. For larger firms without market access, the authorities can provide capital injections in the form of *preference shares*—cognizant of trade-offs related to governance and efficiency and with a *clear exit strategy*. For smaller firms, *hybrid instruments*, such as profit participation loans, combine the provision of solvency support with adequate safeguards of the public interest.

Banks Have Remained Stable and Supportive through the COVID-19 Downturn

Banks came into the pandemic with high capital and liquidity buffers on the back of regulatory reforms implemented after the 2007–08 global financial crisis. Stress test results presented in the October 2020 GFSR suggest that, even under a severely adverse macroeconomic scenario laid out in the *World Economic Outlook*, more than 90 percent of banks by assets across 29 systemically important jurisdictions would remain above statutory minimum capital levels through 2022. These results reflect not only extraordinary monetary and fiscal policy support but also important bank-specific mitigation policies (changes in accounting recognition of loan losses and calculation of risk-weighted assets and suspension of capital distributions, among others). Without such policies, the estimated proportion of capital-deficient bank assets would have roughly doubled.

Despite an unprecedented economic downturn in 2020, banks have generally reported loan-loss provisions low enough to support capital positions. For example, the capital ratios of US and European global systemically important banks rose over the first three

quarters of 2020. Provision charges to build precautionary reserves against potential future deterioration (rather than in response to reported borrower defaults) rose more than risk-weighted assets in advanced economies, pushing total buffers (capital plus loan-loss reserves) higher (Figure 1.14, panel 1). The outlook for credit costs has improved in most countries, notably in the United States (Figure 1.14, panel 2). As a result, some (mainly US) banks cut back loan-loss reserves in the fourth quarter of 2020 and have announced the resumption of dividend distributions.

Demand May Strengthen, but Weak Lending Appetite Could Constrain Growth

While most banks will likely remain adequately capitalized, the extent to which they may provide credit throughout the recovery is an open question. In some countries, bank lending rose in the early stages of the pandemic, but loan growth has since slowed, particularly loans to businesses (Figure 1.14, panel 3). Bank loan officer surveys suggest that, as of the fourth quarter of 2020, many countries exhibited both weak demand for credit by small and mid-sized firms and tight “supply” conditions (as proxied by bank lending standards) (Figure 1.14, panel 4).²¹ As the economic outlook improves, loan demand may strengthen, particularly from small and mid-sized firms with limited alternatives and where such demand has been weakest. But loan officers in many countries see little prospect for a proportional loosening in lending standards to small and mid-sized firms, likely resulting in tighter conditions (Figure 1.14, panel 5).

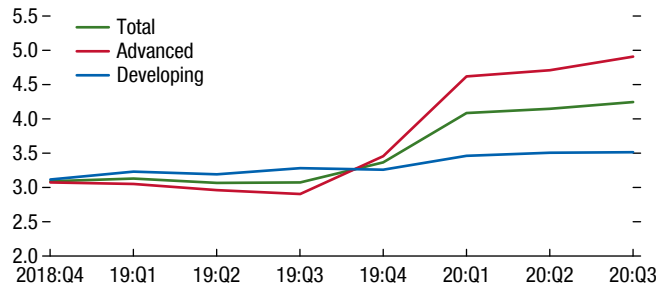
How best to address this potential headwind to the economic recovery depends in part on the drivers of banks’ reluctance to lend. In most economies, both advanced and emerging, survey respondents mention “external” factors (economic outlook and borrower risk) as important reasons for tightening standards. Concerns about the credit outlook may seem inconsistent with expectations of economic recovery and improved credit conditions, but this may reflect in part the anticipated phasing out of lending support policies. Few survey

²¹This observation and the following discussion draw mainly on survey data covering corporate loans. Similar market dynamics—weak current demand and tight supply with expectations that demand will strengthen and that supply will emerge as a source of growth constraint—are also evident in data regarding household mortgages and the unsecured household lending market.

Figure 1.14. Bank Buffers, Loan Growth, and Lending Market Conditions

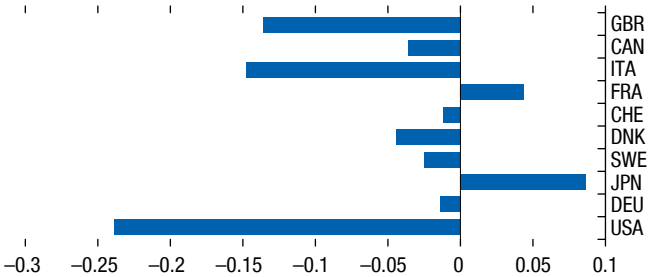
Sharp increases in loan-loss reserves have bolstered total buffers in advanced economies, but less so for emerging market banks.

1. Loan-Loss Reserves/Risk-Weighted Assets (Percent)



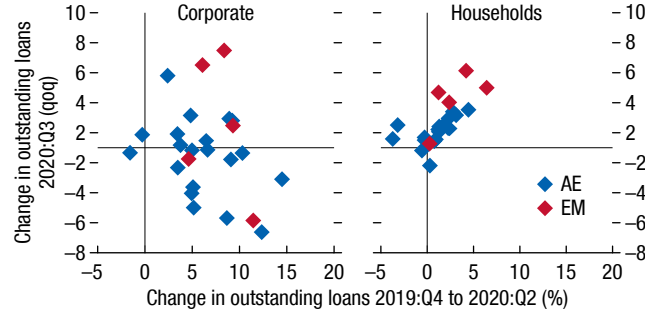
The 2021 outlook for credit costs has improved materially in the United States, but less in most other advanced economies.

2. 2021 Loan Provisions: Change of Median Forecast, July 2020 to January 2021 (Percentage points)



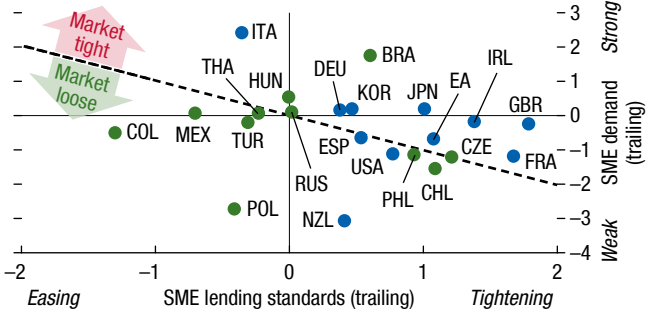
Loan growth is decelerating, and in many countries corporate loan growth is negative.

3. Loan Growth (Percent)



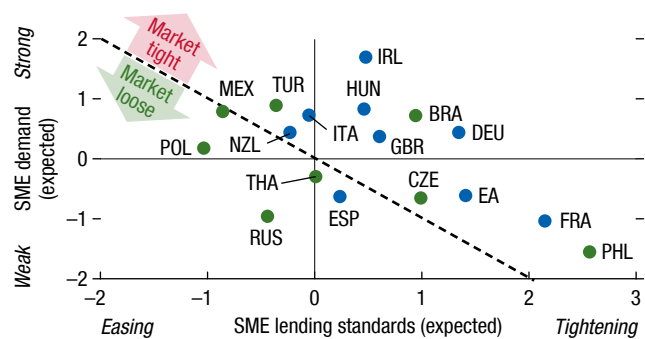
Business lending conditions were roughly balanced in the fourth quarter of 2020 ...

4. SME Firm Lending Standards and Loan Demand, 2020:Q4 Trailing (Standard deviations)



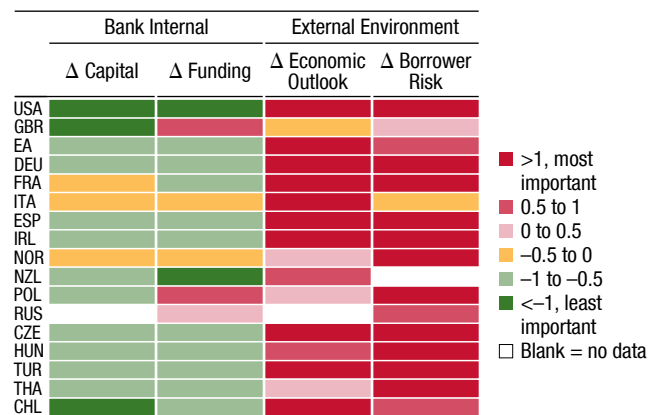
... but are expected to tighten as demand strengthens and lending standards remain roughly stable.

5. SME Firm Lending Standards and Loan Demand, 2021:Q1 Expected (Standard deviations)



External conditions are driving lending standards everywhere, and bank capital and funding in emerging markets.

6. Drivers of Lending Standards to Firms, 2020:Q4 (Standard deviations)



Sources: Bank lending surveys; Bloomberg; CEIC; Haver Analytics; SNL Financial; and IMF staff analysis.

Note: Small and medium-sized is defined according to the criteria used by each reporting country. To normalize across differences in jurisdictions' metrics, panels 4 and 5 show lending standards and demand measured as each country's current position relative to its own history, in standard deviations; and panel 6 compares the relative importance of drivers within each country in the disclosures for the fourth quarter of 2020, expressed as each driver's deviation from the average across all drivers. "Market tight" and "market loose" indicate balances between changes in lending standards and borrower demand. "2020:Q4 trailing" indicates change over the three months before the end of 2020; "2021:Q1 expected" indicates expected changes over the three months following the end of 2020. In panels 4 and 5, blue and green dots indicate AEs and EMs, respectively. Data labels use International Organization for Standardization (ISO) country. AE = advanced economy; EM = emerging market; EA = euro area; qoq = quarter over quarter; SME = small and medium enterprises.

respondents regard “internal” factors (capital and liquidity) as drivers of tightening standards (Figure 1.14, panel 6). The stress test in the October 2020 GFSR concluded that emerging market banks are more vulnerable than developed market peers to capital shortfalls, suggesting that these banks may meet an unanticipated shock.

Banks in emerging markets face two additional challenges. First, as discussed, banks’ ownership of (in some instances vulnerable) domestic sovereign debt has increased sharply. Moreover, tight bank lending conditions in emerging markets tend to have a more pronounced effect than in advanced economies because borrowers have fewer alternative sources of credit. In fact, in most emerging markets, banks account for 70 percent or more of credit to nonfinancial borrowers, compared with only 36 percent in advanced economies.²²

Lending Support Policies Will Be Phased Out

Loan repayment moratoriums and government loan guarantees have supported much-needed credit flows. Moratoriums have sharply reduced payment defaults, which would have hit capital directly and curtailed lending appetite. Loan guarantees relieved banks’ need to bear potential loan losses and risk-weighted assets on new loans. However, loans under moratorium are slated to expire in most countries during 2021, and guaranteed loans, while still growing in some jurisdictions, should decline gradually as these loans mature. Expiration and runoff of these support policies may drive higher defaults on existing loans and require banks to increase provisions and apply higher risk weights on new nonguaranteed loans.

As a result, loan-loss reserves may have to be raised to absorb the phaseout of repayment moratoriums. Among European banks monitored by the European Banking Authority, loans under moratorium amounted to €600 billion, or more than 3 percent of total loans, as of the third quarter of 2020. However, in some countries, such loans account for more than 10 percent of total loans (dark green bars in Figure 1.15, panel 1). These loans are generally of lower quality than banks’ overall portfolios, with a higher share of risky loans, and

²²Migration of credit creation from banks to nonbank financial institutions can mitigate the immediate stress created by banks’ reluctance to lend in the wake of severe shocks. However, while such migration relieves pressure on borrowers, it also moves lending activity outside the bank regulatory perimeter, where it is most actively monitored and supervised.

lower loan-loss reserve coverage (Figure 1.15, panel 2).²³ Termination of loan moratoriums will therefore require an increase in loan-loss provisioning when banks need to raise the reserve coverage ratio to the same standard used for the overall loan book, resulting in an average reduction of about 20 basis points in capital ratios (the average of the red bars in Figure 1.15, panel 3). These losses are manageable, on average, but the impact varies considerably across countries. In the worst-affected countries, the end of loan moratoriums could reduce system-average capital ratios by nearly 100 basis points.

Guaranteed loans accounted for almost 2 percent of total loans on average as of the third quarter of 2020, though in some countries that figure was as high as 4 percent (light green bars in Figure 1.15, panel 1). When these guaranteed loans run off, their replacement with loans without guarantees will require higher provisions and risk-weight requirements. This “cliff effect” is estimated to result in an average decline of about 25 basis points in capital ratios, and up to 100 basis points in countries that have large guarantee programs (Figure 1.15, panel 3, sum of dark and light green bars).²⁴ In those countries where the pandemic is having a larger macroeconomic impact, a carefully managed exit strategy will be relatively more important. On the positive side, for guaranteed loans there is more of a “ramp” than a “cliff” effect because their maturity averaged about 2.5 years at origination, so their runoff will proceed gradually. However, some banking systems that could face the largest downside risks from the phaseout of policy relief (moratoriums and guarantees) also have comparatively low buffers (Figure 1.15, panel 4). These are countries where the pandemic is having a larger macroeconomic impact, so a carefully managed exit strategy will be critical.

Banks’ Capital Buffers: Ample but Unlikely to Be Used

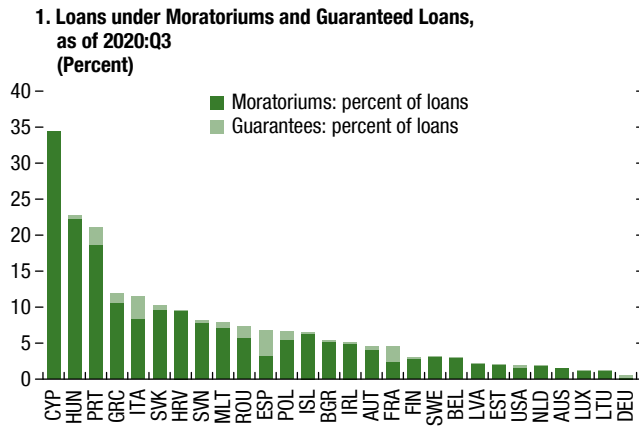
Shortly after the COVID-19 pandemic hit in early 2020, many supervisors released countercyclical capital

²³“Risky” loans refer to the sum of nonperforming loans and loans categorized as “Stage 2” loans under International Financial Reporting Standard 9, an accounting standard indicating that credit risk has increased significantly since origination but the loan remains current on interest and principal payments.

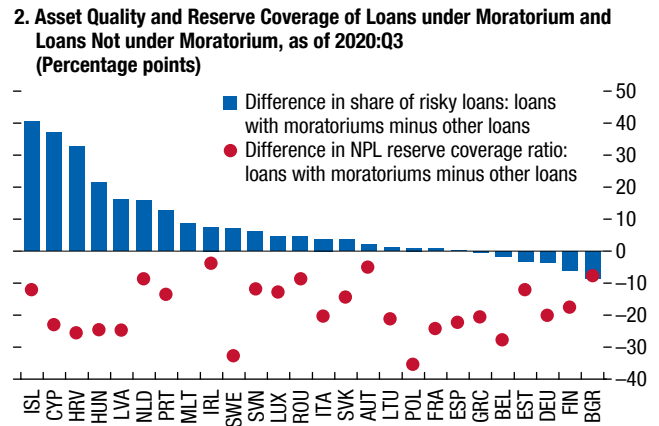
²⁴In computing the impact on capital ratios as guarantees expire, the effect of an increase in the denominator due to higher risk weights (typically increased from 0 to 100 percent on loans other than mortgages) is generally larger than the reduction in the numerator due to higher loan-loss provisions.

Figure 1.15. Lending Support Measures: Volumes, Quality, and Impact of Withdrawal

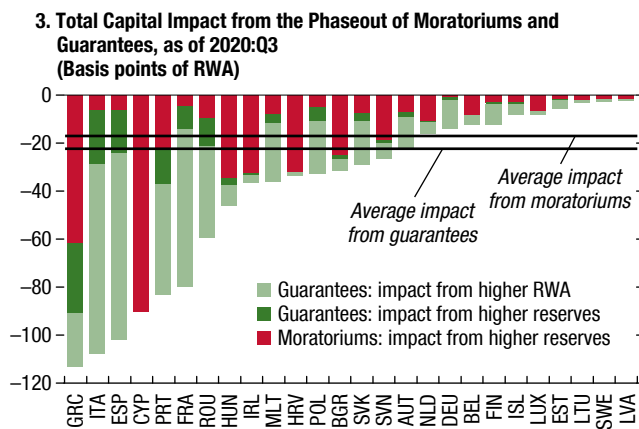
Some countries have a large share of loans under lending support programs.



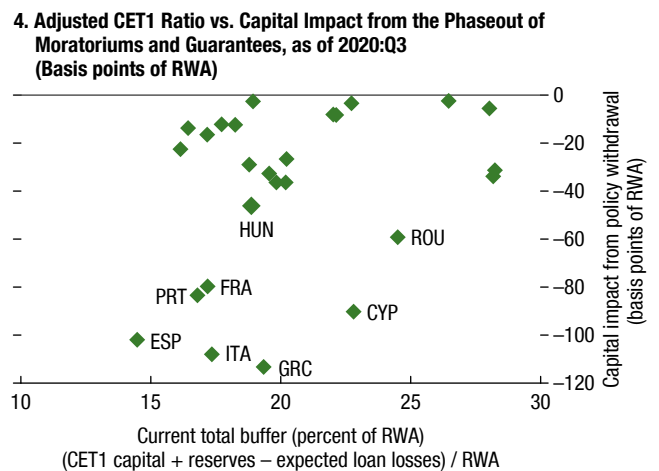
The asset quality and level of provisions of loans under moratoriums are weaker than the overall loan book.



Phaseout of moratoriums and guarantees could lower CET1 ratios by about 40 basis points on average.



Systems that combine the lowest total buffers and the greatest downside risks from the phaseout of policy relief are of most concern.



Sources: European Banking Authority; European Central Bank; Federal Reserve; Reserve Bank of Australia; and S&P Global Intelligence. Note: In panel 2, risky loans are defined as Stage 2 plus NPLs. Expected loan losses = NPLs × loss given default. Data labels use International Organization for Standardization (ISO) country codes. CET1 = common equity Tier 1; NPL = nonperforming loan; RWA = risk-weighted assets.

buffers, recalibrated, or revised the implementation timeline of other macroprudential buffers, and encouraged banks to use regulatory capital buffers, allowing banks to operate temporarily below the capital requirements defined by the combined buffer requirements.²⁵ These actions were intended to stimulate lending, supporting economic growth and (indirectly) bank credit quality, without materially compromising the resilience of the banking system. It is vital that buffers are used to

ensure continued supply of credit to the real economy. Banks, however, do not appear to have drawn down their capital buffers, and most have reiterated their medium-term capital ratio targets.²⁶ Why are banks so reluctant to use their capital buffers, even as regulators have been supportive (Botin 2021; Rohde 2020)?

Bank management’s reluctance to draw down capital buffers may reflect concerns about credit quality going forward amid a highly uncertain economic outlook, as

²⁵The Basel Committee supports a “measured” drawdown of capital buffers as “anticipated and appropriate in the current period of stress” (BCBS 2020). For a description of the mechanics of buffer usability, see BCBS (2019).

²⁶ECB (2020b) shows that the announcement of the release of buffers in March 2020 did not have any material impact on banks’ publicly announced medium-term common equity Tier 1 (CET1) targets.

the October 2020 GFSR stress tests show. In addition, banks may be worried about capital levels, as there is ample evidence that a bank's capital position matters a great deal for valuations, credit rating(s), and funding costs.²⁷ Therefore, banks may be disinclined to lower capital ratios unless they have ample management buffers (defined here as buffers above and beyond the maximum distributed amount threshold) and, critically, a profitable lending plan that justifies the capital deployment.²⁸ Even when ample management buffers are available, banks with a return on equity well below their estimated cost of equity may not have the economic incentives to (voluntarily) draw down the buffers in order to increase lending.

How Do Banks Assess the Usability of Capital Buffers?

To assess the main factors behind the decision to draw down buffers, this section considers three conditions it is assumed banks must satisfy before using their buffers. First, a bank must have a sufficient amount of “management buffers,” so that using them is both possible and safe (*capacity hurdle*).²⁹ Second, it must have the capacity to rebuild the buffers within a time frame that does not trigger supervisory pressure that could stigmatize the bank (*supervisory hurdle*).³⁰

²⁷The empirical evidence suggests (1) a negative relationship between capital levels and funding costs; and (2) a positive relationship between management buffers and credit ratings, whereby downgrades limit access to select funding markets. For a review of both relationships, see ECB (2020a).

²⁸Within a bank's CET1 requirements, the maximum distributable amount (MDA) threshold is defined as the CET1 capital level that includes Pillar 1, Pillar 2, and the combined buffer requirements but excludes selected—and normally undisclosed—prudential buffers (for example, Europe's Pillar 2 guidance). The portion of CET1 above the maximum distributable amount is typically known as the “management buffer,” because it is a voluntary buffer the bank's management team feels is adequate to run the bank. Importantly, should a bank's CET1 ratio fall below its MDA threshold, such a breach would automatically trigger a set of distribution restrictions involving dividend and additional Tier 1 capital (AT1) coupon payments, as well as management remuneration.

²⁹The analysis here assumes that a bank has enough available “management buffers” if the difference between CET1 and the MDA is larger than the regulatory buffers the bank could be expected to draw down.

³⁰Two complementary factors are considered. The first is whether the bank is able to rebuild its buffers in five years or less, consistent with policymakers' guidance that banks using the buffers should expect to be given ample time to rebuild them later. The second is the extent to which the bank has a large legacy of nonperforming loans from the previous cycle. Institutions with 2019 pre-pandemic nonperforming loan ratios greater than three times their respective regional averages are considered to have ratios that are too high and would not clear this hurdle.

Third, using the buffers must provide higher returns than not using them (*management hurdle*).³¹

For a sample of 72 banks representing about 60 percent of the global banking system's aggregate market capitalization, only banks accounting for 5 percent of market capitalization manage to clear all three hurdles (Table 1.1).³² *Less profitable banks* (banks in the bottom three quartiles of the profitability distribution; Table 1.1, first column) generally clear the capacity hurdle because they tend to operate with larger (nonmandatory) management buffers, but they struggle to clear the other two hurdles. For these relatively low-return banks, it would be too costly to use the buffers because of the long rebuilding period and the large negative impact on their equity value. In contrast, the *most profitable banks* (in the top quartile of the profitability distribution; Table 1.1, first column) often struggle to clear the capacity hurdle because they tend to be relatively capital-efficient and operate with thinner discretionary buffers. For these high-return banks, drawing down capital buffers would be too risky: their capital ratio would end up being too close to—if not at or even below—their regulatory threshold (the so-called maximum distributable amount). This is shown by a value below 1 for banks in the top quartile, on average.

The key message from this analysis is that most banks have insufficient economic incentives to draw down their buffers if they are (or expect to be) asked to rebuild them later. Only for about 5 percent of banks—mainly those with returns well above their cost of equity—does the additional value generated by the new loans offset the negative impact from the capital shortfall resulting from using the buffers in the first place. Importantly, the management hurdle is binding for most banks. The rationale is that reducing a bank's capital ratio only to rebuild it later opens up a capital shortfall for the bank that the market will always reflect in the bank valuation, making shareholders

³¹The third hurdle evaluates whether a bank's equity fair value exceeds the fair value under the counterfactual (of no buffer usability) by 20 percent and whether it does so within a reasonable time frame, which is set as the third year following the buffer drawdown.

³²The analysis presented here is based on 2022 consensus expectations compiled by Bloomberg for the following key variables: assets, risk-weighted-asset density, net earnings, and cash payouts. For CET1 ratios, instead of using 2022 expectations, the analysis considers each bank's medium-term targets. The analysis is also based on bank-by-bank specific CET1 requirements as of the end of 2020. Finally, the model assumes that a bank's AT1 yield equals half its cost of equity capital. The sensitivity analysis is shown in Online Annex 1.1.

Table 1.1. Drivers of Buffer Usability

Only banks representing 5 percent of the sample used here (covering 60 percent of the global banking system's aggregate market capitalization) clear the three key hurdles to draw down their capital buffers.

Banks Ranked by Price-to-Book Ratio	①	②		③	Capital Buffer Usability
	Capacity Hurdle	Supervisory Hurdle		Management Hurdle	
	Capital buffer availability (hurdle at 1 times buffers drawn)	Years to rebuild buffers (hurdle at ≤5 years)	Asset quality (hurdle at 3 times the region's pre-COVID NPL ratio)	Bank's equity fair value (hurdle at a 20 percent Rol by Year 3)	Percent of banks clearing all three hurdles
1st Quartile [bottom]	1.5×	17.9	×	×	0
2nd Quartile	1.1×	5.9	✓	×	0
3rd Quartile	1.3×	5.2	✓	×	0
4th Quartile [top]	0.7×	2.9	✓	✓	10
World	1.0×	4.8		×	5

Sources: Banks' financial statements; Bloomberg Finance L.P.; and IMF staff calculations.

Note: Banks are ranked by their price-to-book ratios, defined as their market capitalization over their common equity Tier 1 capital levels. All market-related data used in the analysis are as of January 23, 2021. Light green (pink) depicts banks that clear (do not clear) a particular hurdle. NPL = nonperforming loan; Rol = return on investment.

generally worse off compared with the counterfactual of no use of the buffer. And while generating a high return on investment within a reasonable time frame is possible, it is rare for most banks.

Profitability is the single most important factor that enables a bank to clear the supervisory and management hurdles. Credit quality of new loans, bank leverage, and dividend payments also play important roles:

- The more profitable a bank is, the less time it takes to rebuild buffers. In addition, structural improvements in future profitability increase the likelihood of banks making a sufficient return on investment from use of the buffer.
- Worse-than-expected credit quality on new loans (for example, due to looser lending standards) lengthens the time it takes banks to rebuild buffers. On the other hand, a higher return on new loans (for example, due to guarantees that reduce the effective cost of risk) improves the return on investment from the buffer drawdown and makes the use of such drawdowns more likely.
- Among all the potential actions a bank management team can take to accelerate the capital rebuilding process, deleveraging seems to be the most attractive, regardless of a bank's return profile (this, however, would run contrary to policymakers' intended outcome of supporting the economy). Under an asynchronous recovery with divergent recovery paths, asset quality and capital buffers at banks in

emerging markets may be hit harder than those in advanced economies (October 2020 GFSR); emerging market banks may therefore face a comparatively higher risk of forced deleveraging.

- For high-return banks, dividend cuts are also helpful, as the value the market would assign to the incremental earnings (that is, a multiple greater than 1) may be higher than the forgone dividend-related income.³³

Policies for the Recovery and Beyond

Extraordinary policy measures have eased financial conditions and sustained the economy, helping to contain financial stability risks. Ongoing policy support remains necessary until a sustainable and inclusive economic recovery takes hold in order to maintain the flow of credit to households and firms and to prevent

³³It is important to discuss some of the key assumptions driving these results. First, the model assumes that the new loans a bank generates by drawing down buffers are equal—in terms of returns and quality (their risk-weight density)—to the bank's back book of loans. Second, it also assumes that banks would manage to fill the AT1 debt shortfall via issuance in the capital markets. These two assumptions would, if anything, err on the side of optimism and tend to skew results in favor of the use of buffers. Third, even if reducing the size of the initial capital drawdown (from 2.5 percent to 1 percent of risk-weighted assets) increases the likelihood that a bank will clear the first and second hurdles, sensitivity analysis shows that it barely changes a bank's likelihood of clearing the third hurdle.

the crisis from posing a threat to the global financial system. Monetary policy should continue to be accommodative until mandated policy objectives are achieved (see the April 2019 and October 2020 GFSR).

But easy financial conditions may have unintended consequences, such as stretched valuations and rising financial vulnerabilities. A range of policy measures are needed to address these vulnerabilities and protect the economic recovery.

Policymakers should maintain borrower-support measures such as debt repayment relief, credit guarantees, and direct support for borrowers until economic indicators point to a sustainable recovery. Once the recovery gains momentum, general borrower support programs should be limited to borrowers deemed by banks and other creditors to be temporarily distressed but fundamentally viable. More generally, policies to support borrowers and banks should adjust to reflect the effectiveness of existing programs, the scope for more targeted and time-bound programs, and the estimated current and future impact on banks' capital, earnings, and liquidity.³⁴ Country authorities should recalibrate policy support carefully to avoid disrupting the nascent recovery and should communicate openly and transparently to provide appropriate signals and incentives.

Unprecedented monetary, fiscal, and financial policies may also have unintended consequences, especially if maintained for a long time. Valuations appear stretched across a number of asset classes. Financial vulnerabilities, which were already elevated in some sectors before the COVID-19 crisis, are rising, fueled by extremely accommodative financial conditions globally. In the event of a sudden repricing of risks in markets—caused, for example, by a rapid and persistent rise in interest rates—financial conditions may tighten abruptly, with repercussions for confidence and endangering macro-financial stability.

Policymakers should act to prevent financial vulnerabilities from becoming entrenched and turning into legacy problems, thus putting growth at risk. Taking into consideration possible lags between the activation and impact of macroprudential policy tools, policymakers should take early action and tighten selected macroprudential tools. This may help tackle pockets of elevated vulnerability while avoiding broad tightening of financial conditions. If such tools are not

available—for example, in some segments of the non-bank financial intermediation sector—policymakers should swiftly develop them. Given the challenges to design and operationalize such tools, policymakers should also consider building buffers elsewhere to protect the financial system.

Relatedly, a key policy priority is strengthening the resilience of the nonbank financial intermediation sector. The IMF is contributing to enhancing the international framework by working with international standard setters and the Financial Stability Board to (1) assess the role of different risk factors, including the behavior of nonbank financial institutions, during the March 2020 market turmoil; (2) understand more comprehensively systemic risks in the nonbank financial intermediation sector through interconnections with the global financial system and cross-border spillovers; and (3) strengthen the resilience of nonbank financial institutions (see also page 42 of FSB 2020).

More Granular Policy Recommendations to Address Specific Areas of Concern

In emerging and frontier markets, many countries face a challenging combination of low vaccine availability and historically high financing needs. While financial conditions are generally loose and continue to be supportive of growth for a large group of countries, global risk appetite can change swiftly, as seen recently. The international community needs to ensure and accelerate access to vaccines for all countries, including by providing funding for the COVAX facility to guarantee global equitable access to COVID-19 vaccines.

As conditions allow, rebuilding buffers should be a key priority to prepare for possible sudden price adjustments and a reversal of capital flows. It may be desirable for countries with low reserve adequacy to put in place a transparent strategy to accumulate reserves, to the extent that it does not undermine the inflation objective. Macroprudential policies and prudent macro-financial risk management should be employed where vulnerabilities are building.

Countries with market access should take advantage of favorable financing conditions to improve the composition of their debt structure (for example, by extending maturities and locking in the currently historically low interest rates) and reverse any departures

³⁴For details on banking systems' strategies on how to phase out support and mitigation policies, see IMF (forthcoming).

from sound public debt management that may have occurred during the pandemic (for example, by reducing reliance on the domestic banking system). The trade-offs between additional near-term support for the economy and medium-term financial stability risks can be ameliorated by credible fiscal and monetary policy frameworks and by sound debt management strategies (see the April 2021 *Fiscal Monitor*). Countries with stronger fundamentals, where economic activity is still weak versus its potential, may need to provide additional policy support tailored to the evolution of the pandemic. Countries with high debt and financing needs may need to consider consolidation plans and credibly communicate such plans to markets to reduce the risk of fiscal dominance concerns (October 2020 GFSR).

Countries with limited market access or that are not benefiting from favorable financing conditions face more daunting challenges. An increase in the allocation of special drawing rights for all countries can provide temporary liquidity relief and mitigate a lack of policy space. Many of these countries will likely need additional assistance, including through the Debt Service Suspension Initiative as well as through concessional and emergency financing from official creditors. Some countries with sustainable debt could also benefit from rescheduling or reprofiling of their debt service to ease immediate liquidity pressures and moderate risks. Other countries facing more significant difficulties with debt burdens could benefit from deeper restructuring of their commercial and bilateral debt. The Common Framework for Debt Treatments can serve as a flexible tool to meet the specific needs of countries on a case-by-case basis. The international community should consider broadening the coverage of eligible countries for the Common Framework beyond the current list of countries eligible for the Debt Service Suspension Initiative.

In the nonfinancial corporate sector, firm-specific support may be needed for viable firms facing liquidity or solvency risks, based on firm size and sectoral differences, as discussed earlier in the chapter. Other measures are also crucial to address a possible deterioration in credit quality and to facilitate orderly post-pandemic structural changes in the global economy. These measures include the following:

- Development of distressed debt and nonperforming loan markets to reduce the cost of corporate restructuring.

- Consolidation, particularly among smaller firms, to lower the fiscal cost of supporting weaker firms while minimizing the economic cost associated with bankruptcies. Countries with traditionally strong mergers and acquisitions are likely to benefit more from consolidation.
- Improvement of the debt resolution regime to address large numbers of distressed firms. A wave of corporate distress may overwhelm the court system, creating difficulties for the reorganization of firms and slowing all procedures. Countries should augment the capacity of the court system with out-of-court restructuring and hybrid restructuring alternatives.³⁵ More complex cases may need operational restructuring through a judicial reorganization.
- Resolution for firms that are not expected to be viable. Resolution frameworks should be supplemented by a fast-track process that will facilitate a timely and orderly exit of nonviable firms and better allocation of economic and fiscal resources.

To avoid excessive procyclicality in the financial sector, regulatory guidance on provisioning to cover expected losses remains pertinent, but it must be subject to adequate supervisory scrutiny to prevent underprovisioning. Observed variability in provisions across banks may reflect not only the uncertain outlook but also greater discretion provided to banks. The diversity of provisioning practices therefore warrants further investigation from supervisors to ensure that problem loans are adequately classified and provisions gradually recorded.

As long as uncertainty remains high, policy restricting capital distributions should continue to apply on grounds of prudence. In countries more advanced in the fight against the pandemic, and where losses can be quantified with a greater degree of comfort, system-wide policies limiting capital distributions can be relaxed progressively, using supervisory stress tests to ensure that banks remain sufficiently well capitalized to support the economy.

Policymakers should support balance sheet repair by strengthening management of nonperforming loans, including through market-based solutions to dispose of

³⁵Hybrid restructuring combines the flexibility of informal negotiations between creditors and debtors with limited judicial intervention to protect assets and bind dissenting creditors to a restructuring agreement.

problem assets. As policy measures such as insolvency moratoriums expire, a wave of bankruptcies and loan defaults may follow. Insolvency regimes should be strengthened, focusing particularly on fast-track procedures to restructure debt.

With an increasing retail presence in equity markets and growing availability of no-fee trading apps, regulators should ensure that investors have adequate and timely information to make trading decisions that

suit their investment profiles. Regulatory authorities should consider whether investor education programs can help mitigate some consumer protection risks, especially when derivatives are involved. Looking ahead, supervisors should closely monitor changes in trading behavior with a view to assessing their market impact and determining whether different regulatory approaches or modified supervisory practices are needed.

Box 1.1. Update on the Indicator-Based Framework on Global Financial Vulnerabilities

Amid the ongoing COVID-19 pandemic, global financial vulnerabilities remain elevated across several sectors, according to the Indicator-Based Framework, a quantitative methodology to systematically monitor key financial vulnerabilities of the global financial system arising from leverage, liquidity, maturity, and currency mismatches (Figure 1.1.1).¹

In the *sovereign* sector, vulnerabilities are elevated in systemically important countries that account for about 80 percent of the GDP of sample countries, as debt levels have hit historic highs in response to the large fiscal lifelines put in place in response to the pandemic. While loose financial conditions have eased debt service burdens, many economies could be left with large post-pandemic fiscal deficits and high debt overhangs in the absence of a robust recovery. Emerging market economies, in particular, could face significant challenges in servicing debt, especially if sovereign risk premia rise.

Nonfinancial firms have taken advantage of easy financing conditions and the reopening of capital markets after the March 2020 turmoil to strengthen balance sheets by issuing debt and equity, particularly in the United States and other advanced economies. Data available through the second quarter of 2020

indicate that, even though leverage has increased across most regions, the liquidity position of firms has improved as they have built cash buffers, extended maturities, and often reduced interest on new and existing debt.

In the *household* sector, vulnerabilities continue to be elevated in China and a number of advanced economies. Unemployment benefits and other support measures have been critical in bridging the gap from lockdowns to the reopening of economies. However, household debt servicing capacity has deteriorated in a number of major economies as some households have taken on more debt to cover lost income.

In the *financial sector*, close to half of banks in systemically important economies are now in the medium-high and high vulnerability category. Banking sectors in some emerging market economies, and to a lesser extent in the euro area, remain the most vulnerable, as lower interest rates and uncertainties about the economic outlook have weighed on profitability. Banks in other regions have seen profitability and liquidity positions recover much faster from the COVID-19 shock.

Among *nonbank financial institutions*, vulnerabilities continue to be generally moderate to elevated. In the insurance sector, vulnerabilities have increased in some advanced economies as profitability measures were hit amid the pandemic and foreign exchange mismatches rose. For asset managers, vulnerabilities have not changed materially since the October 2020 GFSR. In some regions, liquidity mismatches improved as funds increased holdings of short-term liquid assets. However, interconnectedness remains a concern, as the mutual funds sector sustains large precautionary credit lines with banks.

This box was prepared by Sergei Antoshin, Yingyuan Chen, Fabio Cortes, Rohit Goel, Frank Hespeler, and Tom Piontek.

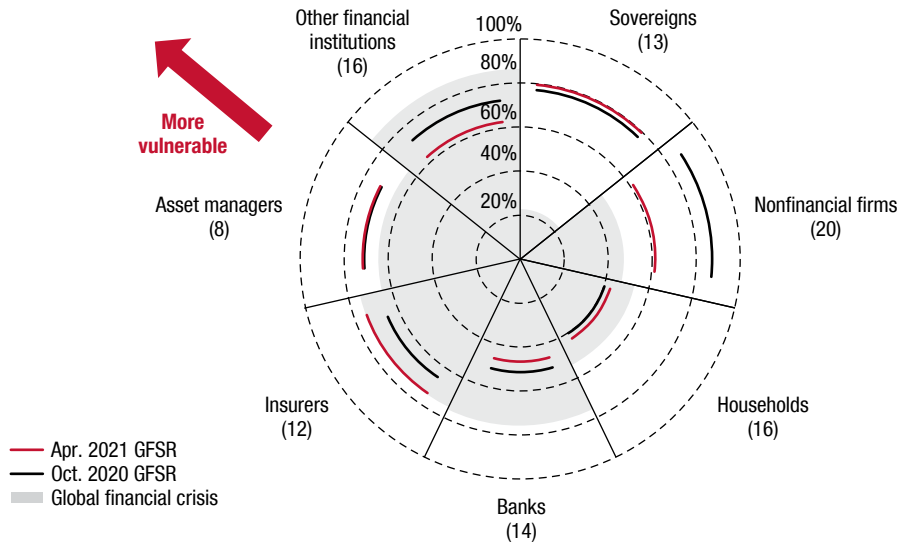
¹The focus of the framework is restricted to on-balance-sheet vulnerabilities, given the absence of available data for off-balance-sheet vulnerabilities for a cross-section of countries. Due to the nature of the data and their reporting frequency, most of the current data points are through the second quarter of 2020. For further details on the methodology employed in the framework, see the technical annex to Chapter 1 of the April 2019 *Global Financial Stability Report* (GFSR).

Box 1.1 (continued)

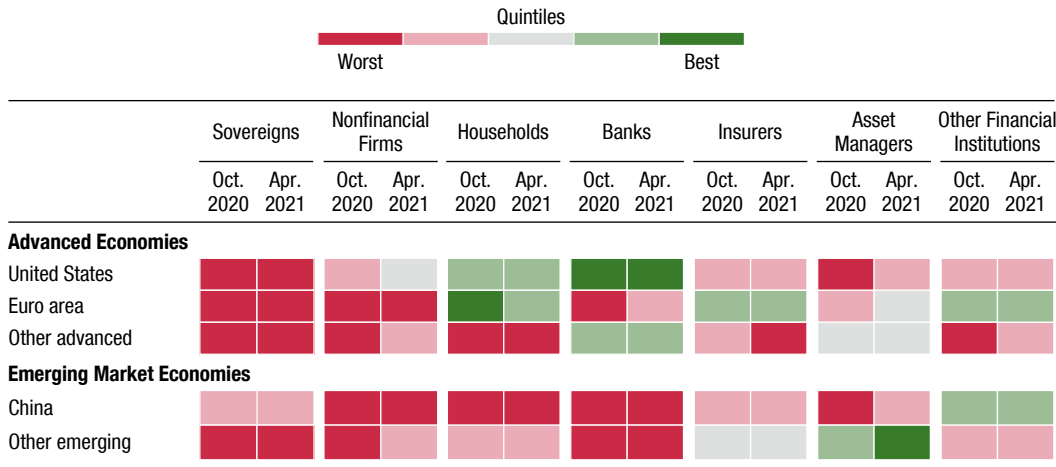
Figure 1.1.1. Global Financial Vulnerabilities

Vulnerabilities remain elevated across the large firms of the nonbank financial sector and amid rising debt levels in the sovereign sector, while improved liquidity conditions in the corporate sector have tempered near-term risks for large firms.

1. Proportion of Systemically Important Economies with Elevated Vulnerabilities, by Sector
(Percent of countries with high and medium-high vulnerabilities, by GDP or assets; numbers of countries in parentheses)



2. Financial Vulnerabilities by Sector and Region



Sources: Banco de Mexico; Bank for International Settlements; Bank of Japan; Bloomberg Finance L.P.; China Insurance Regulatory Commission; European Central Bank; Haver Analytics; IMF, Financial Soundness Indicators database; Reserve Bank of India; S&P Global Market Intelligence; S&P Leveraged Commentary and Data; Securities and Exchange Board of India; Securities and Exchange Commission of Brazil; WIND Information Co.; and IMF staff calculations.

Note: Panel 1 is based on 29 jurisdictions with systemically important financial sectors. Vulnerabilities are by GDP for sovereigns, households, and nonfinancial firms; and by assets for banks, asset managers, other financial institutions, and insurers. “Global financial crisis” reflects the maximum vulnerability value during 2007–08. In panel 2, dark red shading indicates a value in the top 20 percent of pooled samples (advanced and emerging market economies pooled separately) for each sector during 2000–20 (or the longest sample available). Dark green shading indicates values in the bottom 20 percent. In panels 1 and 2, for households, the debt service ratio for emerging market economies is based on all private nonfinancial firms and households. In panel 2, a change in data sources for India and a related reorganization of the data for India led—due the relative ranking used in the methodology—to some changes in the values for other emerging markets compared to the values reported in the October 2020 GFSR. “Other advanced” economies are Australia, Canada, Denmark, Hong Kong Special Administrative Region, Japan, Korea, Norway, Singapore, Sweden, Switzerland, and the United Kingdom. “Other emerging” market economies are Brazil, India, Mexico, Poland, Russia, and Turkey. GFSR = *Global Financial Stability Report*.

Box 1.2. The GameStop Short Squeeze: Market Structure and Regulatory Implications

A short squeeze in early 2021 led to significant volatility in US equity markets for a brief period. Inspired by a forum on the website Reddit and discussions in other social media, retail investors purchased stocks of companies with small market capitalization through online commission-free platforms such as Robinhood. Most prominent among the companies was GameStop, a video game retailer. As prices of these stocks started to increase, institutional investors—most prominently, hedge funds—with short positions in the stocks rushed to decrease their positions by purchasing back the stocks, pushing stock prices even higher and generating so-called short squeeze dynamics. The resulting increase in volatility was confined mostly to stocks representing a small share of the US stock market (less than ½ percent).

The short squeeze was magnified by leverage through margin debt in brokerage accounts and expiring options on the stocks involved. In particular, the hedging behavior of options market makers—which led them to purchase stocks as they were rising in value—also contributed to the sharp price moves. On January 27 and 28, 2021, several retail trading platforms suspended trading activities in these stocks. Over the course of the next few days, the share prices of these stocks declined rapidly.

Despite the brief impact on market sentiment, this episode did not pose a systemic threat to the financial system. Policy lessons from this episode are likely to encompass several aspects of market regulation. Selected relevant issues include the following:

- *The rise in retail social media investing:* Retail trading activity has increased substantially in recent years, as proxied by the rise in off-exchange trading (Figure 1.2.1, panel 1 and note). Another notable increase has been the jump in options volumes (Figure 1.2.1, panel 2). Retail has played a key role in this increase. The number of customers with small options positions rose to record highs in early 2021. This rise in retail activity reflects both the collapse in trading commissions and the boom in enabling technologies such as online trading platforms. This increase has also been driven by greater use of social media, which allows like-minded investors to share tips and strategies. A recent survey by the Financial Industry Regulatory Authority (FINRA 2021) finds that the new retail investors are on

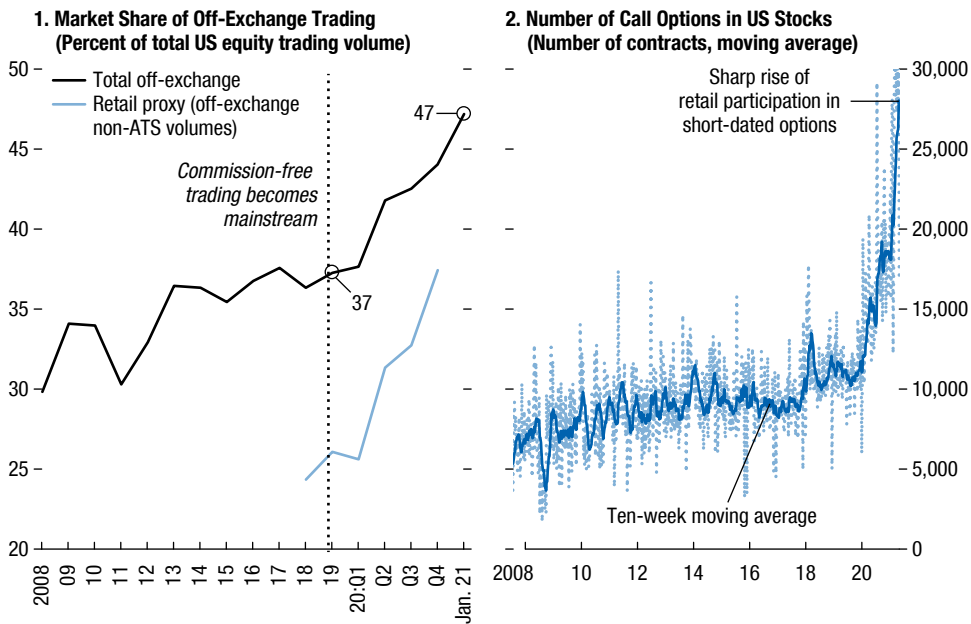
average younger people with less investment experience. They also tend to rely more on advice from friends and family and less on personal research or professional advice.

- *Shorting practices:* When investors “short” a stock, they first must borrow it—typically from a broker—and then sell it. An elevated number of short positions normally acts as a precondition for short squeeze dynamics. For example, the number of short positions against GameStop as a percentage of tradable shares has been above 100 percent since 2019. Even though several other stocks have surpassed the 100 percent mark, in this episode this positioning lasted an unusually long time. How can short positions surpass the amount of securities available for trading? While so-called naked short selling (the practice of selling stocks not owned or borrowed from others) is generally prohibited in the United States, additional shares for short selling can be obtained through rehypothecation (a process whereby broker-dealers reuse assets posted as collateral by their clients), essentially lengthening the trading chain. Short selling contributes to price discovery and market efficiency. The US Securities and Exchange Commission has erected safeguards to preserve these benefits while protecting against a range of abusive practices. This incident highlights the adverse impact of inadequate disclosure of short selling practices on public trust in capital markets.
- *Payment for order flow:* Amid significant growth in retail volumes, commission-free brokers are outsourcing their trade executions to high-frequency trading firms and receiving significant revenues in exchange—allowing them not to charge commissions to their clients. While brokers are subject to “best execution” requirements, and regulators have recently been focusing on compliance with conduct rules under this arrangement, questions remain about potential conflicts of interest and lack of appropriate disclosures (such as on trade execution quality).
- *Liquidity pressure on online brokers:* Margin requirements by clearinghouses triggered significant liquidity pressure on some brokers during the short squeeze. The required deposit increased more than 30 percent on January 28, 2021, owing to higher volatility. The significant liquidity pressure resulted in a temporary trading suspension by brokers of a group of stocks with high volatility until they recovered their liquidity through credit lines from banks and equity capital.

This box was prepared by Parma Bains, Yingyuan Chen, Cristina Cuervo, Dimitris Drakopoulos, and Nobuyasu Sugimoto.

Box 1.2 (continued)

Figure 1.2.1. Proxy of Retail Market Share and Call Option Activity



Sources: Bloomberg Finance L.P.; Chicago Board Options Exchange; Financial Industry Regulatory Authority; and IMF staff. Note: Retail flows are typically routed off exchange to over-the-counter market venues. Off-exchange volumes include several other categories of trading that are not related to retail, such as alternative trading systems (ATS). The growth in the off-exchange market share in 2020 was driven largely by nonalternative trading systems.

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