

**FOR  
INFORMATION**

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April 13, 2020

To: Members of the Executive Board

From: The Secretary

Subject: **Revised Global Financial Stability Report—April 2020**

Board Action:

Executive Directors' **information**

Publication:

It would be appreciated if Directors could ensure that the attached final press version of the Executive Summary and Chapter 1 of the *Global Financial Stability Report* is treated as **Confidential** until the document is released at **11:30 a.m. (Washington D.C.) on Tuesday, April 14, 2020.**

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# EXECUTIVE SUMMARY

## *The April 2020 Global Financial Stability Report at a Glance*

- The outbreak of COVID-19 has dealt an unprecedented blow to global financial markets.
- Risk asset prices have plummeted and borrowing costs have soared, especially in risky credit markets.
- Emerging and frontier markets have experienced the sharpest portfolio flow reversal on record.
- The priority is to save lives and to support the people and companies most affected by COVID-19.
- Fiscal, monetary, and financial policies should be used to support economies stricken by the pandemic.
- International cooperation is essential to tackle this extraordinary global crisis.

The coronavirus (COVID-19) pandemic presents a historic challenge. In mid-February, when market participants started to fear that the outbreak would become a global pandemic, the prices of equities fell sharply, from previously overstretched levels. In credit markets, spreads skyrocketed, especially in risky segments such as high-yield bonds, leveraged loans, and private debt, where issuance essentially came to a halt. Oil prices plummeted in the face of weakening global demand and the failure of the OPEC+ countries to reach an agreement on output cuts, adding a further leg to the deterioration in risk appetite. These volatile market conditions led to a flight to quality, with yields on safe-haven bonds declining abruptly.

A number of factors amplified asset price moves, contributing to a sharp tightening of financial conditions at unprecedented speed. Signs of strain emerged in major short-term funding markets, including the global market for US dollars—a development reminiscent of dynamics last seen during the financial crisis a decade ago. Market liquidity deteriorated considerably, including in markets traditionally seen as very deep. Leveraged investors came under pressure, with some reportedly forced to close out some of their positions in order to meet margin calls and rebalance their portfolios.

However, markets have pared back some of the losses. Decisive monetary and fiscal policy actions, aimed at containing the fallout from the pandemic, have stabilized investor sentiment. Nevertheless, there is still a risk of a further tightening in financial conditions that could expose financial vulnerabilities, which have been highlighted repeatedly in previous *Global Financial Stability Reports*.

Emerging and frontier market economies are facing the perfect storm. They have experienced the sharpest reversal in portfolio flows on record, both in dollar terms and as a share of emerging and frontier market GDP. This loss of external debt financing is likely to put pressure on more leveraged and less creditworthy borrowers. This may lead to a rise in debt restructurings, which could test existing debt resolution frameworks.

Asset managers may face further outflows from their funds and may be forced to sell assets into falling markets, potentially exacerbating price moves. High levels of borrowing by companies and households may lead to debt distress as the economy comes to a sudden stop. Banks have more capital and liquidity than in the past, they have been subject to stress tests, and central bank liquidity support has helped mitigate funding risks, putting them in a better position than at the onset of the global financial crisis. The resilience of banks, however, may be tested in some countries in the face of large market and credit losses, and this may cause them to cut back their lending to the economy, amplifying the slowdown in activity.

This historic challenge necessitates a forceful policy response. The priority is to save lives and to implement appropriate containment measures to avoid overwhelming health systems. Country authorities need to support people and companies that have been most affected by the virus outbreak, as discussed in the April 2020 *World Economic Outlook*.

To that end, authorities across the globe have already implemented wide-ranging policies. The April 2020 *Fiscal Monitor* describes the fiscal support packages that have been announced by governments across the globe. Large, timely, temporary, and targeted fiscal measures are necessary to ensure that a temporary shutdown of activity does not lead to more permanent damage to the productive capacity of the economy and to society as a whole.

Central banks globally have taken bold and decisive actions by easing monetary policy, purchasing a range of assets, and providing liquidity to the financial system in an effort to lean against the tightening in financial conditions and maintain the flow of credit to the economy. As policy rates are now near or below zero in many major advanced economies, unconventional measures and forward guidance about the expected policy path are becoming the main tools for these central banks going forward. Central banks may also consider further measures to support the economy during these challenging times.

Policymakers need to maintain a balance between safeguarding financial stability and supporting economic activity.

- *Banks.* In the first instance, banks' existing capital and liquidity buffers should be used to absorb losses and funding pressures. In cases where the impact is sizable or longer lasting and bank capital adequacy is affected, supervisors should take targeted actions, including asking banks to submit credible capital restoration plans. Authorities may also need to step in with fiscal support—either direct subsidies or tax relief—to help borrowers to repay their loans and finance their operations, or provide credit guarantees to banks. Supervisors should also encourage banks to negotiate, in a prudent manner, temporary adjustments to loan terms for companies and households struggling to service their debts.
- *Asset managers.* To prudently manage liquidity risks associated with large outflows, regulators should encourage fund managers to make full use of the available liquidity tools where it would be in the interests of unit holders to do so.
- *Financial markets.* Market resilience should be promoted through well-calibrated, clearly defined, and appropriately communicated measures, such as circuit breakers.

Many emerging market economies are already facing volatile market conditions and should manage these pressures through exchange rate flexibility, where feasible. For countries with adequate reserves, exchange rate intervention can lean against market illiquidity and thus play a role in muting excessive volatility. However, interventions should not prevent necessary adjustments in the exchange rate. In the face of an imminent crisis, capital flow management measures could be part of a broad policy package, but they cannot substitute for warranted macroeconomic adjustment. Sovereign debt managers should prepare for longer-term funding disruptions by putting contingency plans in place to deal with limited access to external financing.

Multilateral cooperation is essential to help reduce the intensity of the COVID-19 shock and its damage to the global economy and financial system. Countries confronting the twin crises of health and external funding shocks—for example, those reliant on external financing or commodity exporters dealing with the plunge in commodity prices—may additionally need bilateral or multilateral assistance to ensure that health spending is not compromised in their difficult adjustment process. Official bilateral creditors have been called upon by the IMF Managing Director and the World Bank President to suspend debt payments from countries below the International Development Association’s operational threshold that request forbearance while they battle the pandemic. The IMF, with \$1 trillion in available resources, is actively supporting member countries.



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## Markets in the Time of COVID-19

### Chapter 1 at a Glance

- Global financial conditions have tightened abruptly with the onset of the COVID-19 pandemic.
- Risk asset prices have dropped sharply as investors have rushed for safety and liquidity.
- Emerging and frontier markets have experienced a record portfolio flow reversal.
- A further tightening of financial conditions may expose financial vulnerabilities:
  - Asset managers may become distressed sellers, exacerbating asset price declines.
  - Leveraged firms may lose market access and defaults may spike.
- Banks' resilience may be tested as economic and financial market stress rise.
- Strong policy response and international cooperation are needed to tackle these challenges.

### The COVID-19 Pandemic Triggered a Sharp Market Correction

The coronavirus (COVID-19) pandemic is a historic challenge. The necessary measures imposed by country authorities to slow the spread of the virus and to bolster the capacity of health systems have led to a sudden stop in economic activity and a sharp deterioration of the economic outlook. Global growth is now expected to decline by 3 percent in 2020, which is worse than during the global financial crisis (see the April 2020 *World Economic Outlook* [WEO]). The timing and the shape of future recovery remain highly uncertain.

Early in the year, financial markets were buoyed by a widespread sense of optimism on the back of supportive monetary policies, reduced trade tensions, and tentative signs of stabilization in the global economy. However, as COVID-19 spread globally, the prices of risk assets and commodities started to fall at unprecedented speed while the prices of safe-haven assets, such as gold and US Treasuries, gained as investors reassessed the economic impact of COVID-19 and rushed for safety and liquidity (Figure 1.1, panel 1). Equity markets experienced the fastest drop in history with the S&P 500 falling 20 percent from its peak in just 16 trading sessions. The asset price declines reached about half the magnitude seen in 2008–09 at the worst point of the sell-off, and implied volatility spiked across asset classes, in some cases to levels last seen during the global financial crisis (Figure 1.1, panels 1 and 2). However, markets pared back some of the losses more recently as decisive policy actions to contain the fallout from the pandemic managed to stabilize investor sentiment.

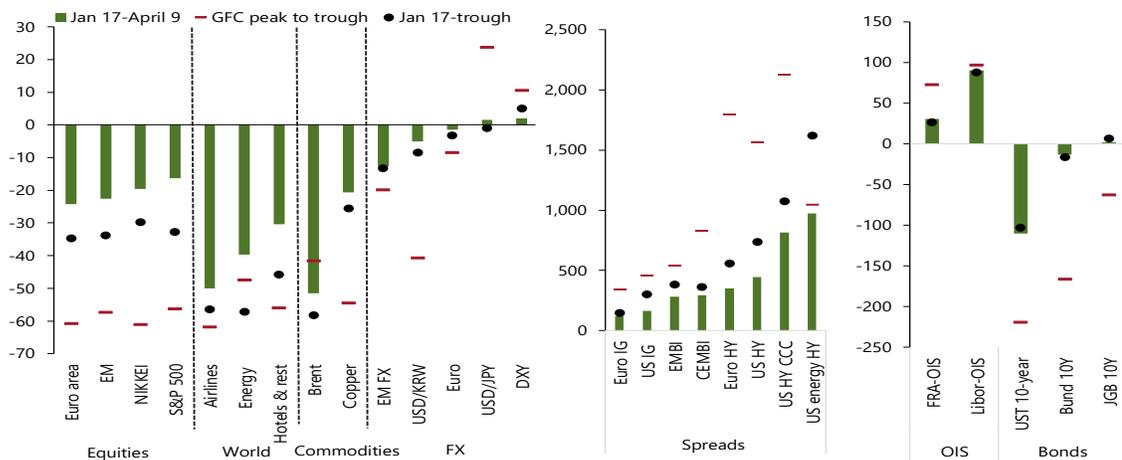
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**Figure 1.1. Financial Market Developments: Adding Oil to the Fire**

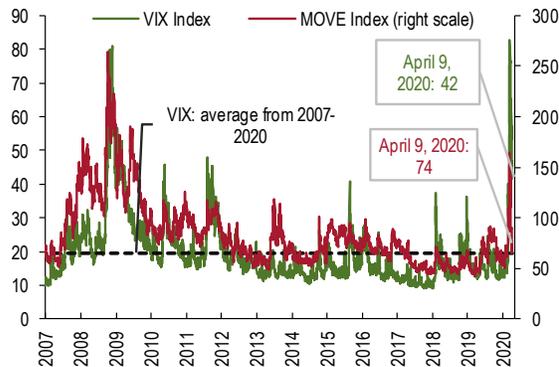
Investors fled risk assets for safe-haven assets, with some risk asset prices falling by more than 25 percent.

**1. Asset Market Performance (as of April 9, 2020)**



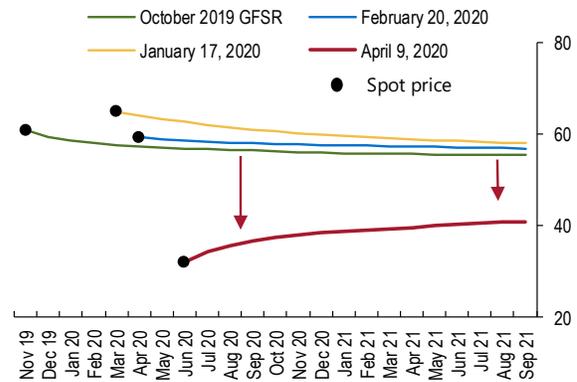
Market volatility spiked as COVID-19 spread globally.

**2. Volatility Indexes (Level in percentage points)**



Oil prices collapsed as the OPEC+ deal fell apart on March 6.

**3. Oil Spot and Futures Prices**



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

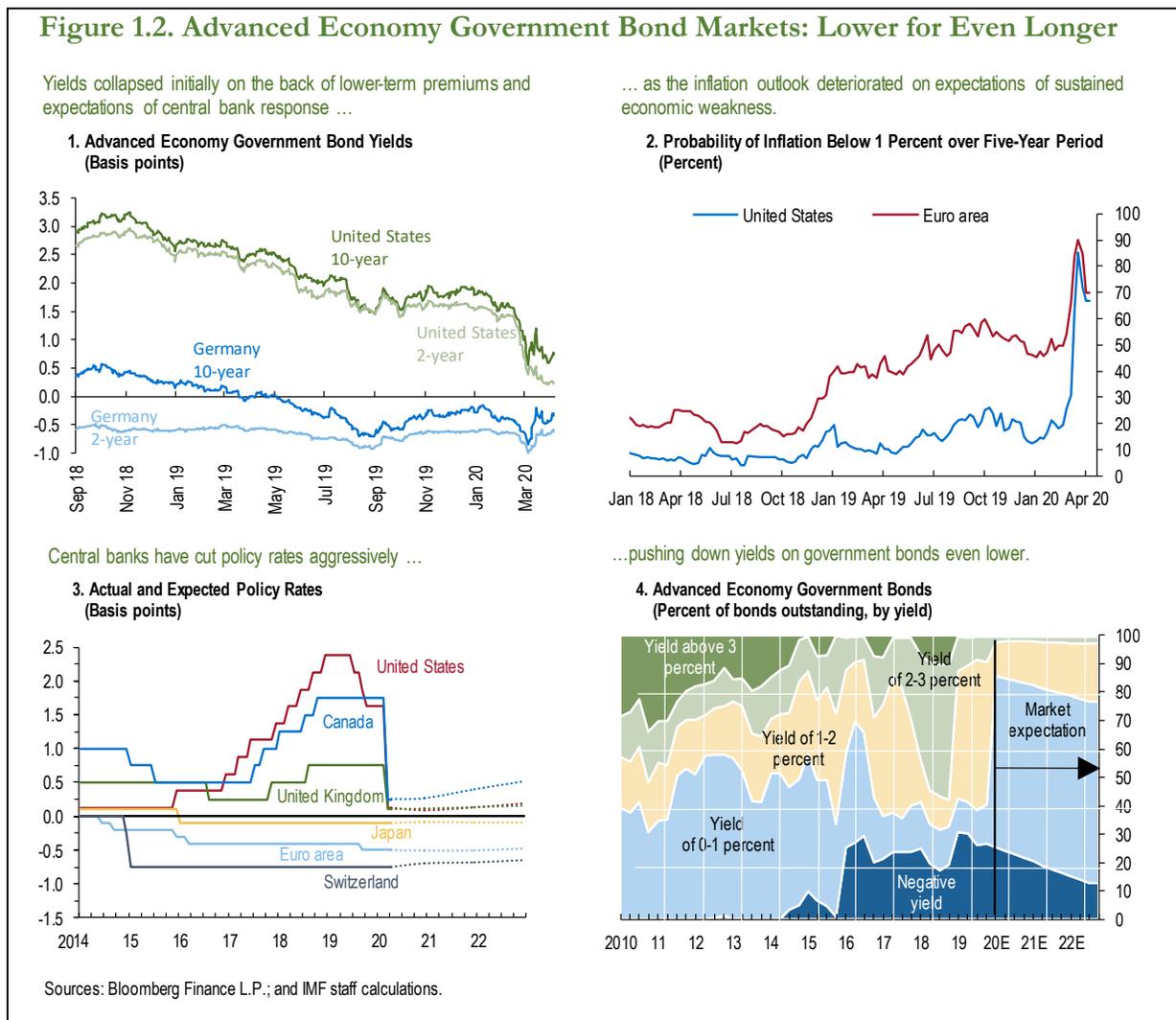
Note: MOVE = Merrill Option Volatility Estimate; VIX = Chicago Board Options Exchange Volatility Index. CEMBI= corporate emerging markets bond index; DXY = dollar index; EM = emerging markets; EMBI = emerging markets bond index; FRA = forward rate agreement; FX = foreign exchange; GFC = Global financial crises; HY = high yield; IG = investment grade; JGB = Japanese government bond; JPY = Japanese yen; USD = US dollar; KRW = Korean won; OIS = overnight indexed swap; UST = US Treasury; Y = year.

In early March, the failure of the OPEC+ countries to reach an agreement on output cuts to maintain stable oil prices in the face of weakening global demand added fuel to the fire. While spot prices fell the most, the entire oil futures curve shifted down, suggesting that investors expect oil prices to remain low for a long time (Figure 1.1, panel 3). Although the sell-off was broad-based, sectors most exposed to the impact of the virus containment measures—such as airlines, transportation, hotels, and restaurants—or to the energy market came under severe pressure (see Figure 1.1, panel 1).

# GLOBAL FINANCIAL STABILITY REPORT

The volatile market conditions throughout February and March sparked a flight to safety and liquidity among investors. Government bond yields in Germany and the United States fell sharply, on net, reflecting both declines in term premiums and a lower expected path of monetary policy (Figure 1.2, panel 1). The market-implied probability of inflation falling below 1 percent in any single year over the next five years spiked in Europe and in the United States on concerns about the economic impact of COVID-19 and the fall in oil prices (see Figure 1.2, panel 2).

As central banks responded with decisive monetary policy easing, policy rates in several advanced economies came down close to zero (Figure 1.2, panel 3), and government bond yields are now expected to stay low for even longer. The stock of government bonds with yields of less than 1 percent (shown in light and dark blue in Figure 1.2, panel 4) doubled from about 40 percent of bonds outstanding at the end of 2019 to about 80 percent in March.



### Stress in Credit Markets Was Amplified by Borrowers' Leverage and the Oil Price Collapse

Conditions in the *corporate credit markets* have deteriorated sharply since early March on the back of rising credit and liquidity risks. *Investment grade bond* spreads widened (Figure 1.3, panel 1), as investors started to focus on a large share of BBB credits that are at risk of downgrades and elevated leverage in this market segment (see the April 2019 *Global Financial Stability Report* [GFSR]). In the primary market, European issuance declined, while US issuance surged reflecting precautionary demand for cash (only partly met by bank credit lines) and strains in the commercial paper market (Figure 1.3, panel 2).

In response to pressures in the corporate bond markets, several central banks, including the US Federal Reserve, the European Central Bank, and the Bank of Japan, rolled out new facilities and expanded existing programs to support issuance and liquidity in corporate debt and commercial paper markets (see “Policy Priorities” section). These actions helped to reverse some of the initial widening of investment-grade bond spreads.

By contrast, strains in the *risky credit market segments*—high-yield bonds, leveraged loans, and private debt—continued to be evident through early April. These markets expanded rapidly after the global financial crisis, reaching \$9 trillion globally, while borrowers' credit quality, underwriting standards, and investor protections weakened (see the forthcoming Chapter 2 of this report). Since early March, *high-yield bond* spreads have widened dramatically, particularly for energy and in sectors most affected by the pandemic, such as transportation (Figure 1.3, panel 3). *Leveraged loan prices* have experienced sharp declines, about half the drop seen during the global financial crisis at the worst point of the March sell-off (Figure 1.3, panel 4). Against a backdrop of already elevated leverage and expected declines in earnings, rating agencies revised up their speculative-grade default forecasts from benign to recessionary levels (Figure 1.3, panel 5). Market-implied US high-yield defaults also rose to 8–10 percent. Global issuance of high-yield bonds came to a halt and issuance of leveraged loans fell considerably (Figure 1.3, panel 6).

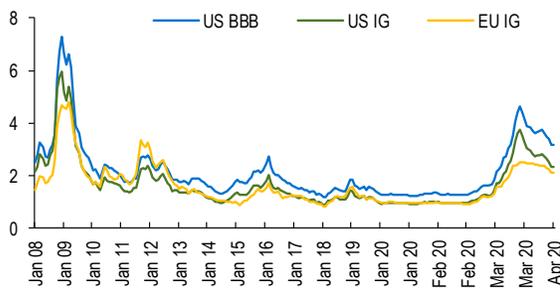
However, spreads started to narrow even in these risky credit market segments following the US Federal Reserve decision to extend its emergency facilities to corporate debt, including in early April collateralized loan obligations, which are one of the largest buyers of leveraged loans (see Chapter 2).

# GLOBAL FINANCIAL STABILITY REPORT

## Figure 1.3. Corporate Credit Markets: Pricing Higher Default Risk

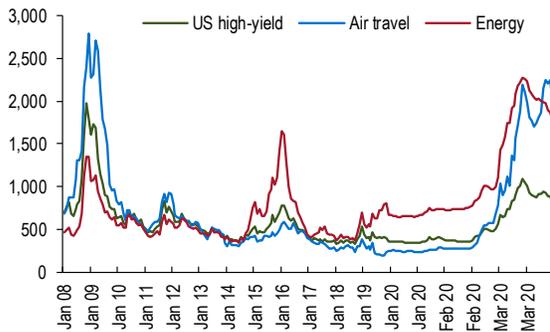
Global investment grade corporate spreads sharply widened.

### 1. Global Investment Grade (IG) Corporate Spreads (Percent)



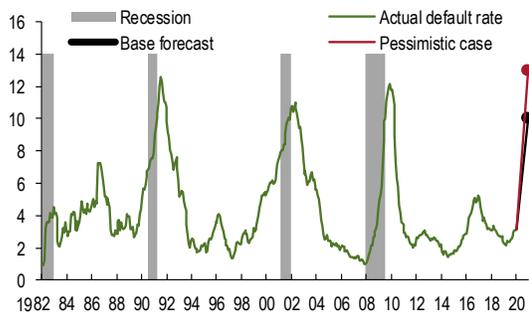
High-yield spreads rose to post-GFC highs, driven by energy and transportation sectors.

### 3. US High-Yield Corporate Spreads



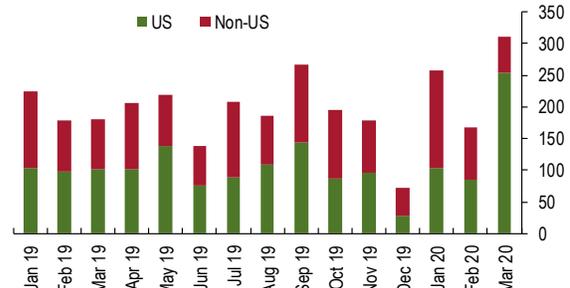
With credit risk rising, rating agencies revised up default forecasts to recessionary levels.

### 5. S&P US Speculative-Grade Default Rate



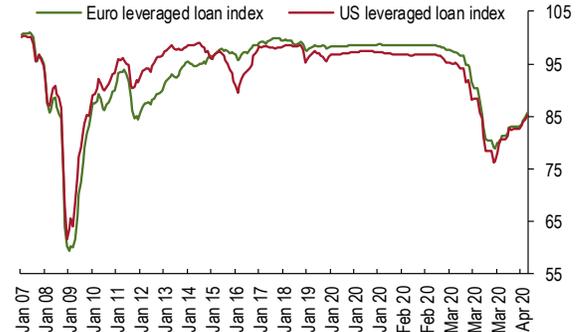
US investment grade firms continued to issue in March—in contrast to European firms—because of increased need for cash and strains in the commercial paper market.

### 2. Global Investment Grade Bond Issuance (Billions of US dollars)



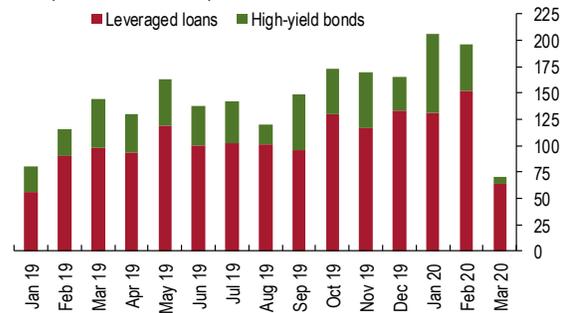
Leveraged loan prices experienced a decline of about half the drop seen in the global financial crisis.

### 4. Global Leveraged Loan Market Prices



The primary market for high-yield bonds and leveraged loans dried up in March.

### 6. Global High-Yield Bond and Leveraged Loan New Issuance (Billions of US dollars)

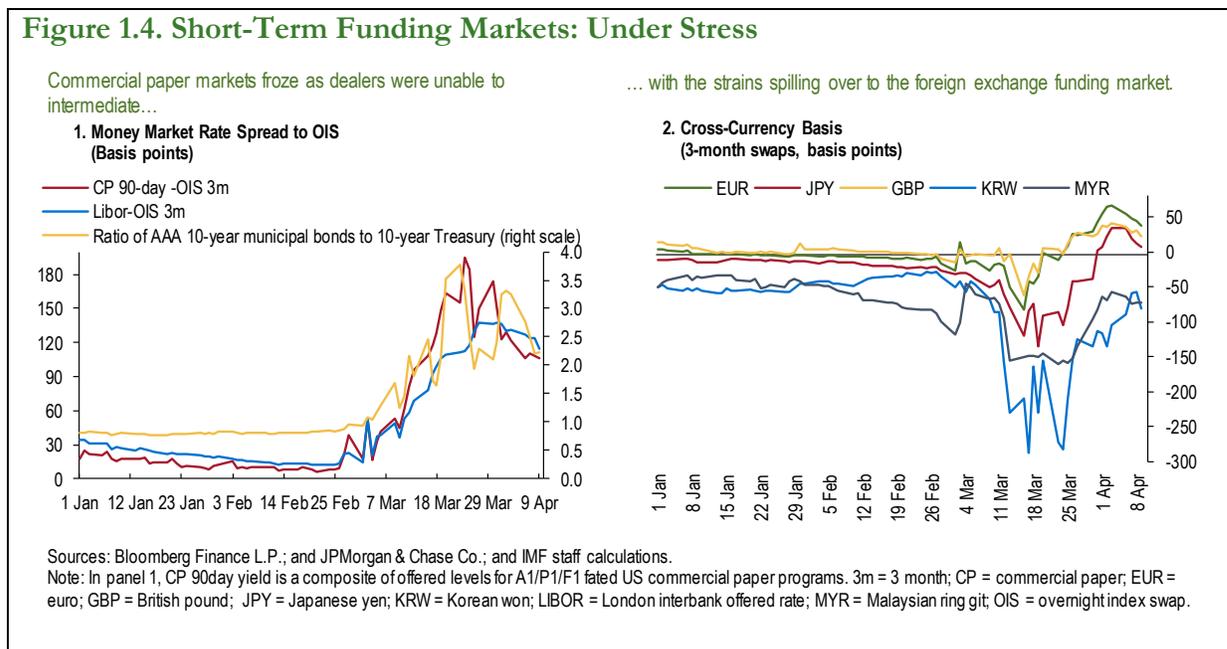


Sources: Bloomberg Finance L.P.; S&P Global Ratings; S&P Leveraged Commentary Data; and IMF staff calculations.  
Note: GFC=Global financial crises.

**Pressures in Short-term Funding Markets Were Exacerbated by Dealers' Clogged Balance Sheets**

The US *commercial paper* market, which is typically tapped by firms to meet their working capital needs, froze. Two factors contributed to this development. First, prime money market funds sought to reduce their commercial paper holdings to raise cash and build liquidity buffers in response to actual and expected investor outflows. And second, dealer banks were reportedly less able or willing to intermediate these flows as they faced balance sheet and risk limits constraints. As a result, commercial paper spreads widened dramatically (Figure 1.4, panel 1). A similar dynamic occurred in the US municipal bond market, as dealers could not warehouse the surge in supply resulting from outflows from municipal bond funds. Short-term funding markets in Australia, Canada, and the United Kingdom experienced similar pressures. In response, central banks launched several emergency facilities (see “Policy Priorities” section) that have provided some relief to short-term funding markets.

Conditions in global *US dollar funding markets* tightened as well. The spread between *Libor*—the floating rate at which banks lend to each other—and a risk-free rate widened sharply (Figure 1.4, panel 1). The cross-currency basis—a premium paid on the US dollar funding in exchange for local currency—widened for most currencies (Figure 1.4, panel 2). The extent of initial tightening in funding conditions was more severe in economies with large dollar funding demand but with no swap lines with the US Federal Reserve. In response to these pressures, several central banks agreed to augment the provision of US dollar liquidity through an enhancement to existing swap lines or through new temporary swap lines, including with several emerging market economies (see “Policy Priorities” section for details). Since the end of March, pressures in global US dollar funding markets appeared to have abated somewhat.



## Financial Deleveraging and Strained Market Liquidity Aggravated Selling Pressures

The sharp tightening in financial conditions put pressure on *leveraged investors* in March, forcing them to close out some of their positions in order to meet margin calls or to rebalance their portfolios—a dynamic that likely amplified asset price declines. For example, as volatility and correlations across asset classes shot up, *volatility-targeting investors* were apparently forced to liquidate some of their asset holdings, contributing to the sell-off.<sup>1</sup> The two-fold increase in the balances of *central counterparty clearing houses* with the US Federal Reserve in only two weeks is further evidence that leveraged investors faced significant margin calls.

As Treasury yields fell sharply and intraday volatility increased, leveraged investors who had engaged in the so-called *basis trades* in the US Treasury market were forced to unwind their positions.<sup>2</sup> This led to a substantial increase in dealers' holdings of Treasury bonds. With volatility surging, dealers' risk management practices and limits likely constrained their ability to intermediate markets, adding to stress (see Online Annex 1.1<sup>3</sup> for a discussion of dealers' balance sheet constraints and other market fragilities). As a result, liquidity conditions in the US Treasury market deteriorated sharply (Figure 1.5, panel 1).

In response to these developments, the US Federal Reserve took a number of steps aimed at preventing market disruptions, improving liquidity, and mitigating upward pressure on Treasury yields. These included increasing the scale of asset purchases, introducing additional large open-market operations to inject liquidity, allowing foreign central banks to repo their Treasury holdings in exchange for dollars, and temporarily excluding US Treasury securities and reserves from the calculation of the supplementary leverage ratio for bank holding companies (see “Policy Priorities” section for details).

With markets moving deeper into correction territory, *market liquidity* continued to deteriorate across a broad range of markets. According to the IMF staff's high-frequency jump analysis, liquidity conditions have worsened meaningfully since end-February (Figure 1.5, panel

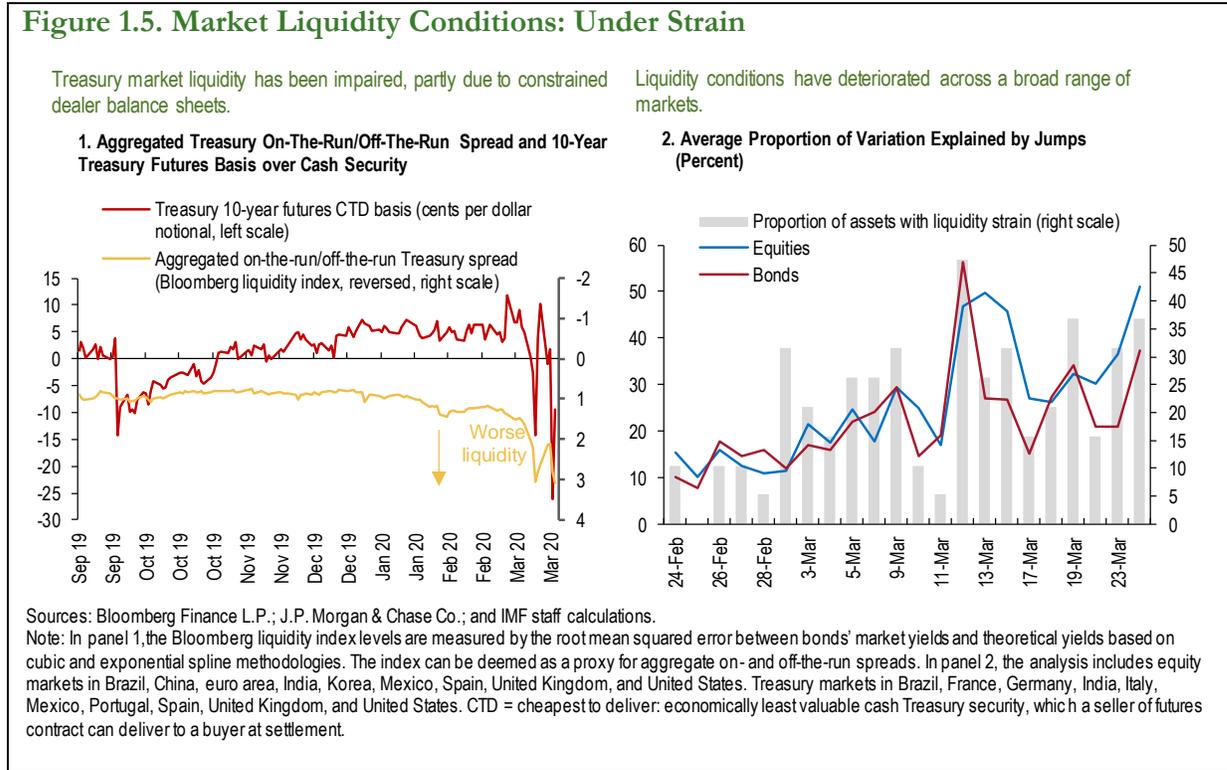
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<sup>1</sup> Volatility-targeting investors—such as variable annuities, commodity trading advisors, and risk parity funds—seek to keep expected portfolio volatility at a specific target level. When market volatility is low, greater financial leverage is typically employed to meet volatility targets. However, as volatility and correlations spike, strategies that are less flexible to deviate from targets (such as variable annuities) may be more likely to shed assets to ensure that they maintain their target volatility.

<sup>2</sup> Before the COVID-19–induced sell-off, some leveraged investors had built up sizable short positions in Treasury futures and long positions in off-the-run cash Treasuries in order to profit from the implied yield differential. Following decisive central bank easing, Treasury yields collapsed to a record low level, but less than the Treasury futures-implied yield. This price action forced many of these leveraged investors to unwind their basis trade positions to stop losses, to meet margin calls, or to keep their risk exposures below targets.

<sup>3</sup> See Online Annex 1.1 at [www.imf.org/en/Publications/GFSR](http://www.imf.org/en/Publications/GFSR).

2).<sup>4</sup> In recent weeks, however, liquidity has reportedly improved somewhat along with the market sentiment.



### Stretched Asset Valuations Magnified the Speed of Asset Price Declines

In addition to the financial fragilities and amplifiers discussed above, the unwinding of stretched asset valuations (highlighted in previous GFSRs) likely exacerbated the sell-off. Deviations from fair value had reached extreme levels across multiple countries and sectors, before adjusting sharply in late February and March.

In *equity markets*, price-earnings ratios had reached the highest levels since the global financial crisis prior to the COVID-19–induced sell-off (as indicated by the percentiles in Figure 1.6, panel 1). The IMF staff’s fundamentals-based assessment of equity price misalignments suggests that equity valuations had become increasingly stretched since the October 2019 GFSR, with the extent of overvaluation approaching historically high levels in several countries in the last quarter of 2019 (Figure 1.6, panel 3).

<sup>4</sup> The analytical framework employed here to detect liquidity stress—introduced in the October 2018 *Global Financial Stability Report* (GFSR) (Box 1.4 and Online Annex 1.1.)—relies on examining jumps (or discontinuities) in intraday price evolution. Price jumps can be categorized into two types: “large” (finite activity) jumps that are linked to significant news events or episodic series of “small” (infinite activity) jumps. Since the virus outbreak, an increasingly larger proportion of price variation in global equity and sovereign bond markets has been attributable to discontinuities, or jumps, which are indicative of liquidity stress. See also the April 2019 GFSR (“Special Feature: Liquidity Risks in Capital Markets”).

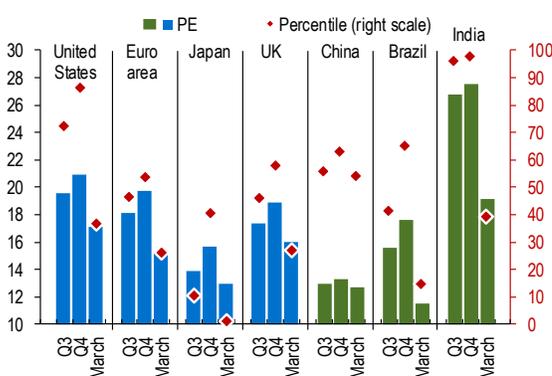
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However, after the COVID-19 outbreak, equity prices fell sharply through mid-March, wiping out a significant portion of overvaluation in many markets and sectors. One notable exception is the US equity market, where the decline in prices in March has been outpaced by a sharp deterioration in the fundamentals-based value, leading to an increase in the extent of positive misalignment. The largest contributor to the reduction in the fundamentals-based value has been the dispersion in earnings forecasts, which has spiked to historically high levels (about two times the level seen in the global financial crisis), reflecting both increased economic

**Figure 1.6. Asset Valuations: Wild Swings**

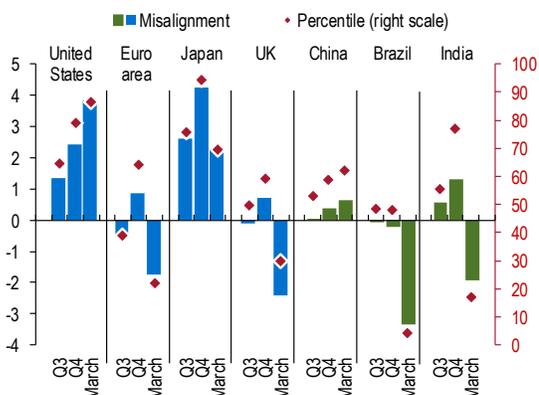
Global equity valuations adjusted as share prices collapsed ...

**1. Equity Markets: Price-to-Earnings Ratios**  
(Percent, quarterly averages, left scale; percentiles based on 2010-2020 period, right scale)



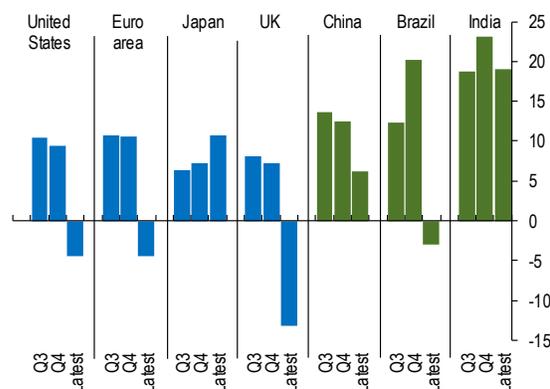
The declines in equity prices wiped out overvaluations in many equity markets ...

**3. Equity Markets Misalignments**  
(Deviation from fair value per unit of risk, quarterly averages, left scale; percentiles based on 1995-2020 period, right scale)



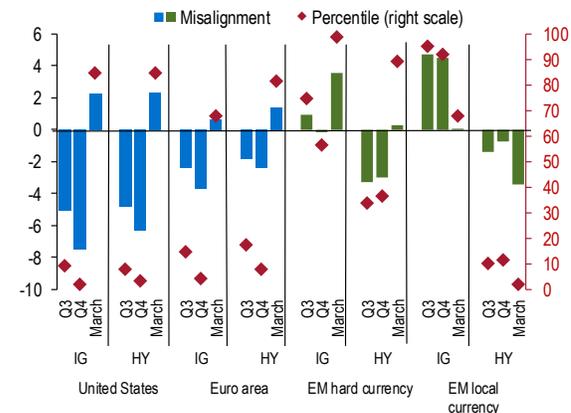
... and earnings growth prospects were downgraded.

**2. 2020 Earnings per Share Growth Forecast**  
(Percent; Latest: April 2)



...and most bond markets.

**4. Bond Spread Misalignments**  
(Deviation from fair value per unit of risk, quarterly averages, left scale; percentiles based on 1995-2020 period, right scale)



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

Note: PE refers to price-earnings ratios. In panel 3, misalignment is the difference between market and model-based values scaled by the standard deviation of monthly returns. Positive values indicate overvaluation. Intuitively, this measure indicates how many standard deviations of monthly returns (or "units of risk") it would take to get back to fair value. In panel 4, misalignment is the difference between market spread and model-based spread scaled by the standard deviation of monthly spread changes. Negative values indicate overvaluation. Intuitively, this measure indicates how many standard deviations of monthly spread changes (or "units of risk") it would take to get back to fair value. EM = emerging markets; EPS = earnings per share; HY = high yield; IG = investment grade.

uncertainty and lags in earnings revisions.<sup>5</sup> Downward revisions in earnings-per-share (EPS) growth forecasts have been material in many markets (Figure 1.6, panel 2), but, as of early April, likely do not fully reflect the extent of expected deterioration of corporate earnings outlook.<sup>6</sup>

In *credit markets*, corporate spreads had continued to tighten between the October 2019 GFSR and early 2020. In fact, the extent of spread misalignment—the difference between market- and fundamentals-based spreads—had increased in the United States and in the euro area, as well as in high-yield corporate bond markets in emerging markets in the last quarter of 2019 (Figure 1.6, panel 4), with spreads tightening well below the levels justified by fundamentals (as shown by percentiles at the lowest end of the ranges). After the COVID-19 outbreak, most spreads have widened dramatically, wiping prior overvaluations.

### Emerging and Frontier Markets Are Facing the Perfect Storm

An unprecedented combination of external shocks (COVID-19 pandemic, oil price decline, increased global risk aversion, and a prospect of global recession) led to a broad-based *sell-off in emerging and frontier markets*. Emerging market equity prices have fallen by about 20 percent, on net, since mid-January despite the most recent rebound (Figure 1.7, panel 1). Currencies of commodity-producing economies (such as Brazil, Colombia, Mexico, Russia, and South Africa) tumbled by more than 20 percent against the US dollar in the first quarter of 2020 (Figure 1.7, panel 2). Currencies of other emerging markets have been relatively less affected, likely due to stronger currency interventions, as well as lower external vulnerabilities. Spreads of dollar-denominated emerging market sovereign bonds rose to nearly 700 basis points by the end of March—the highest level since the global financial crisis—although they have narrowed some in recent weeks. But for some weaker economies, the current shock was particularly severe as the number of distressed sovereign issuers (those with spreads over 1,000 basis points) rose to record levels (Figure 1.7, panels 3 and 4). Oil-importing economies have generally fared better, but lower remittances, reduced external funding availability, and lower external demand may outweigh the positive impact of lower oil prices.

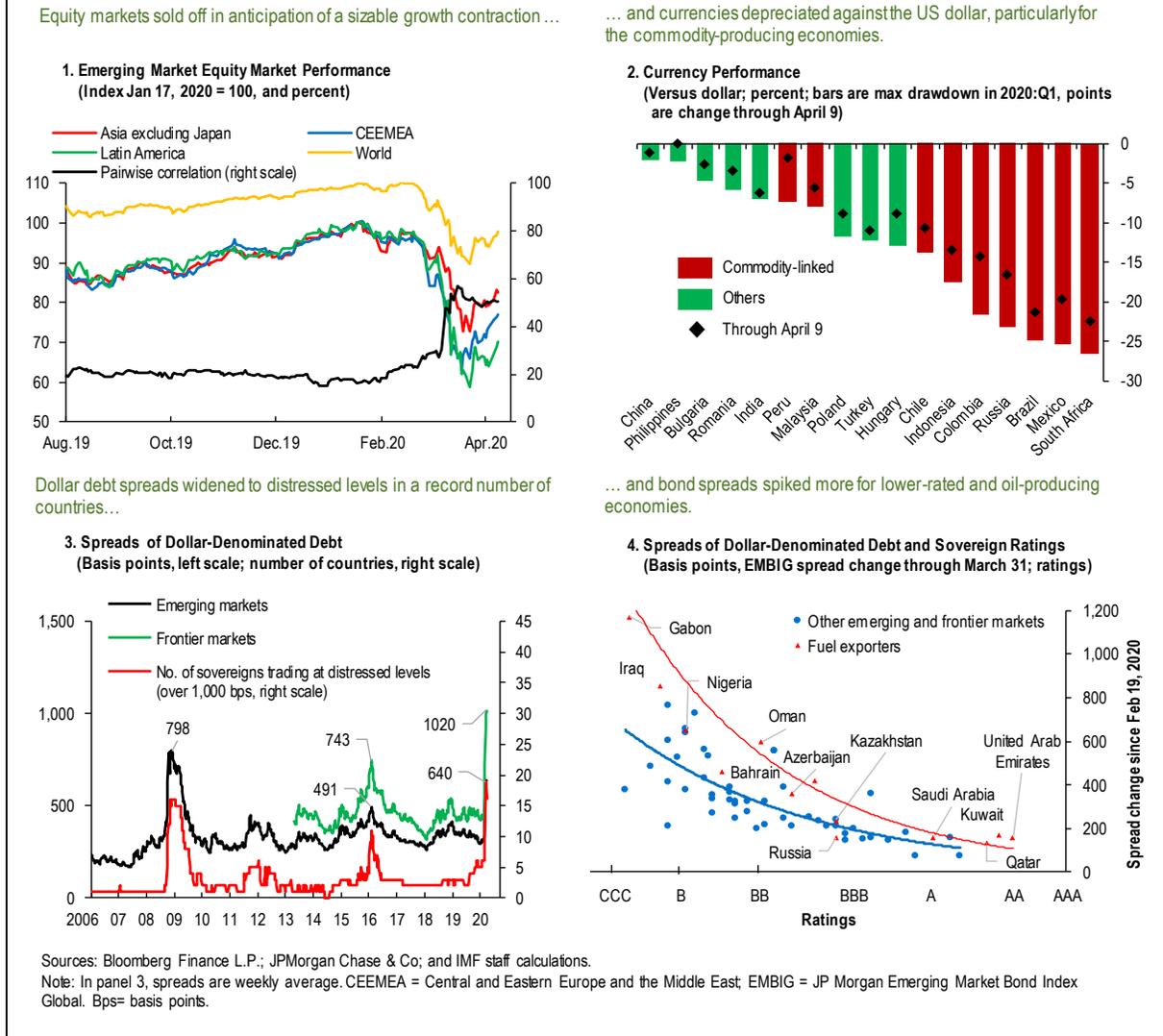
*Portfolio flows to emerging markets* have experienced a very sharp reversal. Nonresident portfolio outflows from emerging markets reached a record level in dollar terms (more than \$100 billion since January 21) and the highest ever relative to their aggregate GDP in the first quarter of 2020 (Figure 1.8, panels 1 and 2). Outflows from Asia and from equity markets were initially particularly strong, given their sensitivity to the growth outlook (Figure 1.8, panel 2) (see the forthcoming Chapter 3 of this report). But outflows from bond markets have become significant more recently (Figure 1.8, panel 2, right).

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<sup>5</sup> Earnings revisions traditionally lag but such factors have played a particularly important role during this episode given the unprecedented pace of market price declines. Once earnings forecasts have been fully revised, the dispersion in earnings forecasts may decline, likely lessening the extent of overvaluation everything else equal.

<sup>6</sup> For example, estimates of S&P 500 EPS growth in 2020 by analysts at major investment banks range from –8 percent to –33 percent.

**Figure 1.7. Emerging Equity and Bond Markets: Facing the Perfect Storm**



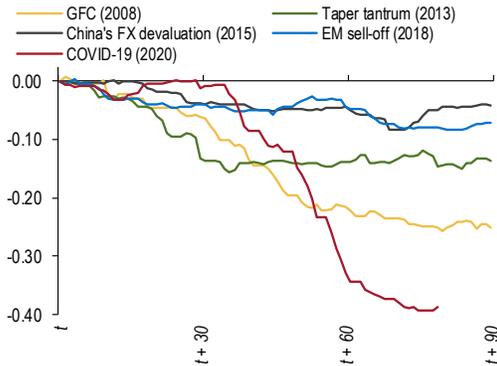
The *breadth of outflows*—in terms of the number of affected countries—was the largest since the global financial crisis. The depth of outflows was significant for many countries, with South Africa and Thailand witnessing outflows of more than 1 percent of GDP in just two months. Moody’s downgraded South Africa’s local currency rating to sub-investment grade, raising the specter of further outflows by benchmark driven investors (see April 2019 GFSR). Retail outflows surged, but institutional investors reportedly also had to reduce positions because of redemptions or risk limits given heightened volatility (Figure 1.8, panel 3). The reversal of bond portfolio fund flows was broad-based, but relatively worse for hard currency bond funds (Figure 1.8, panel 4). To mitigate the impact of outflows on domestic economies, country authorities have stepped up currency interventions, provided liquidity support to the bond market and to the banking system, and sought to establish swap lines with the US Federal Reserve and the European Central Bank (see “Policy Priorities” section for details).

**Figure 1.8. Portfolio Flows to Emerging Markets: A Big Reversal**

During the COVID-19 sell-off, emerging markets saw the strongest reversal since 2008 both in USD terms and relative to GDP.

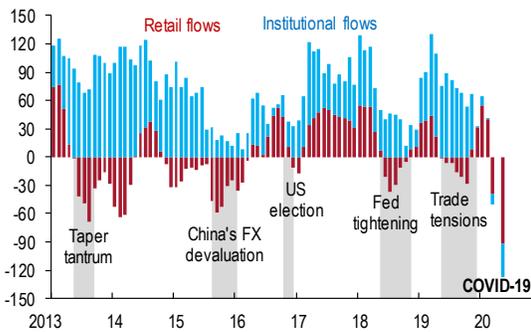
The strongest initial outflows were in emerging Asia (excluding China) and equity markets, while debt outflows accelerated more recently as the crisis widened.

**1. Cumulative Nonresident Portfolio Flows to Emerging Markets (Percent of GDP, based on daily observations)**

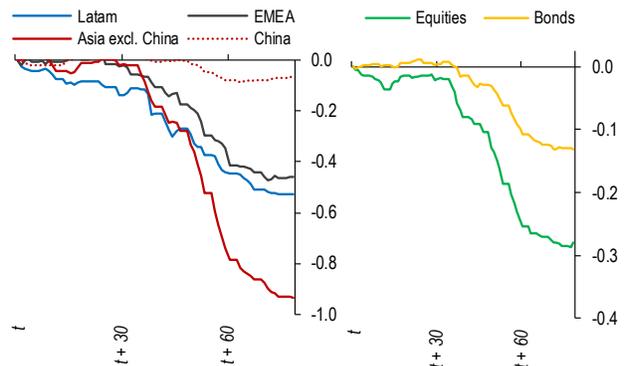


Retail fund outflows were particularly strong, while institutional investor flows also turned negative recently.

**3. Estimates of Retail versus Institutional Flows (Billions of US dollars; 3-month rolling sum)**

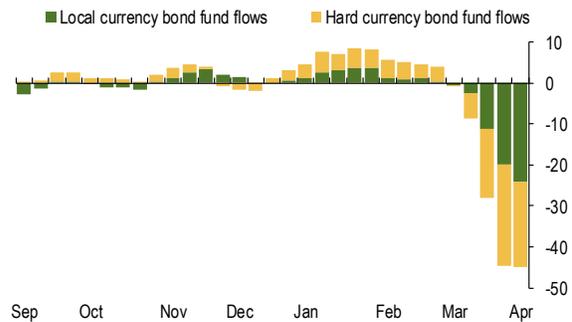


**2. Cumulative Nonresident Portfolio Flows to Emerging Markets, Aggregated by Regions and Asset Classes (Percent of GDP, based on daily observations)**



Outflows have been significant for both local and hard currency bond funds.

**4. Bond Fund Flows across Categories (Billions of US dollars; 4-week rolling sum)**



Sources: Bloomberg Finance L.P.; EPFR Global; Haver Analytics; Institute of International Finance; and IMF staff calculations.

Note: In panel 3, retail flows are estimated using EPFR Global data. The last bar is for February and March, adjusted for the full quarter. Economies included in panel 1 are China, Brazil, Hungary, India, Indonesia, Korea, Mexico, Pakistan, Philippines, Qatar, Sri Lanka, South Africa, Taiwan POC, Thailand, Ukraine, and Vietnam. EM = emerging markets; EMEA = Europe, the Middle East, and Africa; FX = foreign exchange; GFC = global financial crisis; Latam = Latin American; Taiwan POC = Taiwan Province of China.

## The Sharp Tightening of Global Financial Conditions Significantly Increased Risks to Financial Stability

Global financial conditions, which had been easing steadily over the course of 2019 and into the beginning of 2020, tightened sharply in March (Figure 1.9, panel 1).<sup>7</sup> Not only was the tightening very pronounced, but the speed was unprecedented, even compared to the global financial crisis. Falling equity prices and widening corporate spreads were only marginally offset by declines in interest rates across most advanced and emerging market economies (see Figure 1.9, panel 2). Other *emerging markets* (not including China) also experienced a significant tightening of financial conditions mainly driven by a sharp increase in their external funding costs (see Figure 1.9, panels 1 and 2).

*China* was the first to experience the COVID-19 outbreak. However, financial conditions in China have been broadly stable, in contrast with other countries (Figure 1.9, panels 1 and 2). This may have reflected, among other things, still limited external financial linkages, a strong role of government-owned financial institutions and firms, and early proactive efforts by the authorities that helped stabilize market conditions and sentiment. The central bank maintained highly accommodative interbank liquidity, directed banks to maintain corporate credit growth, and reduced policy rates. Equity markets reversed initial declines on reports about government intervention. That said, financial conditions for specific weaker segments may be worse than headline numbers suggest.

All in all, the sharp tightening of global financial conditions since the COVID-19 outbreak, together with the significant downward revision of the 2020 global growth forecast from 3.3 percent in the January 2020 *World Economic Outlook Update* to –3 percent in the April 2020 WEO, shifted the near-term distribution of global growth dramatically to the left. This shift implies a significant increase in downside risks to growth and financial stability. More specifically, the one-year-ahead forecast distribution based on economic and financial conditions as of March 2020 (Figure 1.9, panel 3) indicates that there is a 5 percent probability (an event that happens once every 20 years) that global growth could fall below –7.4 percent. For comparison, this threshold was above 2 percent in October 2019. In addition, the balance of risks is now skewed to the downside, with the odds of global growth exceeding zero this year close to only 4 percent. Compared to historical norms, the near-term growth-at-risk metric is approaching levels last seen during the global financial crisis (Figure 1.9, panel 4).<sup>8</sup>

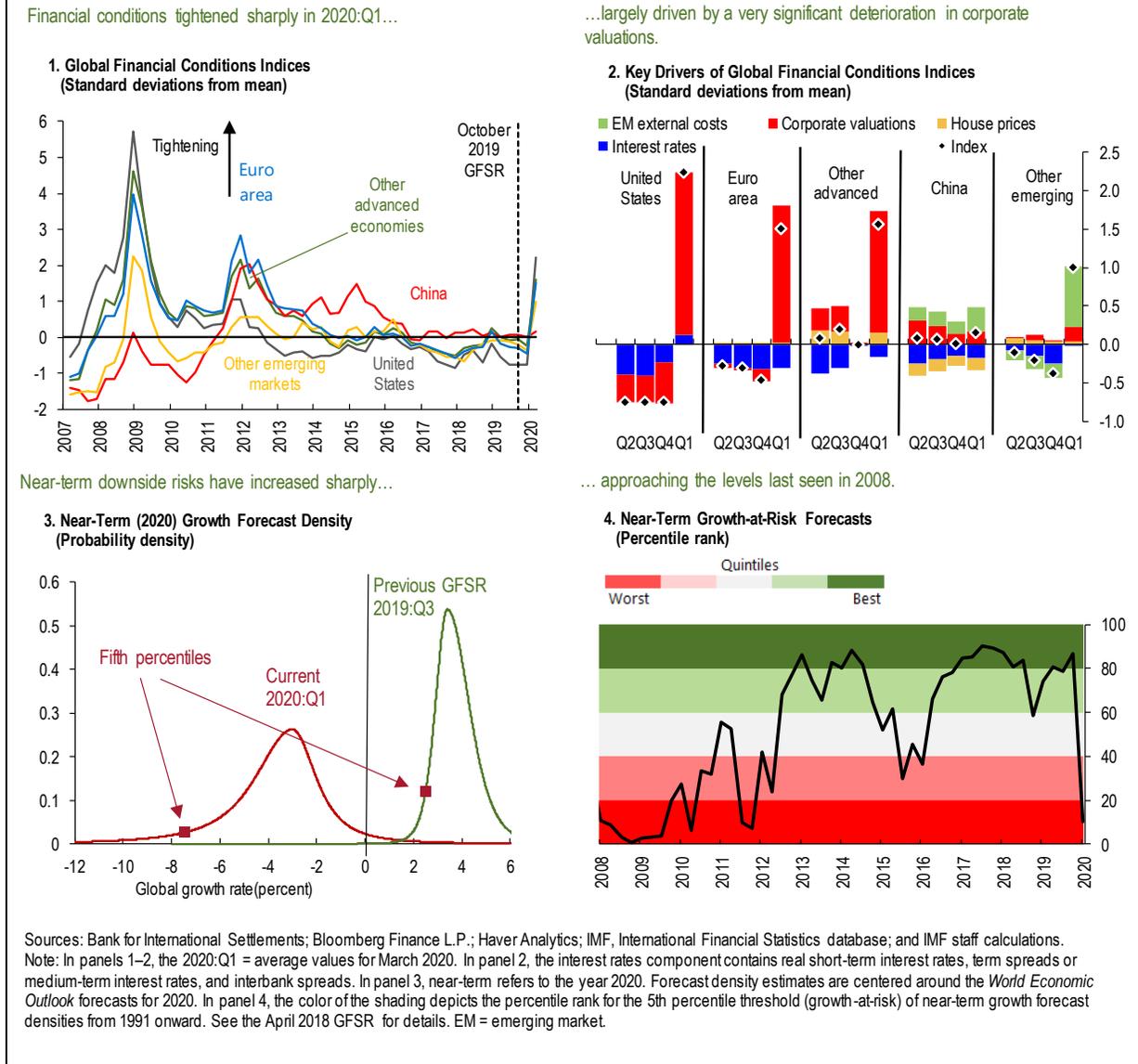
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<sup>7</sup> The values of the Financial Conditions Indices (FCIs) for 2020:Q1 are based on the March 2020 average.

<sup>8</sup> The growth-at-risk (GaR) framework assesses the downside risks to financial stability by gauging how the range of severely adverse growth outcomes (5th percentile of the growth distribution) shifts in response to changes in financial conditions and vulnerabilities (see Chapter 3 of the October 2017 GFSR for details). Assumptions pertaining to policy responses or macroeconomic shocks are captured in the GaR framework to the extent that they affect the current economic and financial conditions, or the baseline growth forecast.

# CHAPTER 1 GLOBAL FINANCIAL STABILITY OVERVIEW

**Figure 1.9. Global Financial Conditions: Getting Tighter**



The continued spread of COVID-19 globally may require imposition of tougher and longer-lasting containment measures, which might lead to a further tightening of global financial conditions. In such a scenario, policy space may become more limited and investor sentiment may become more fragile. For emerging and frontier markets, authorities may find it challenging to contain destabilizing effects of a sharp reversal of portfolio flows on domestic financial markets. A widespread distress of banks and other financial institutions could lead to a permanent scarring of balance sheets, which may further delay the recovery. The Scenario Box of the April 2020 WEO presents three alternative outcomes for the evolution of the global fight against the COVID-19 virus. In the most severe scenario, where it would take longer than expected to contain the outbreak in 2020 and there is also a second outbreak in 2021, global

output would continue to fall throughout 2020 and 2021 and would be almost 8 percent below baseline in 2021.

## A Further Tightening of Financial Conditions May Expose Financial Vulnerabilities in Banks and Other Financial Institutions

While events are still unfolding, a further tightening in financial conditions may expose more “cracks” in the global financial system. Banks have more capital and liquidity than in the past, and they have been subject to stress tests and greater supervisory scrutiny, putting them in a better position than at the onset of the global financial crisis. The resilience of banks, however, may be tested in some countries in the face of a sharp slowdown in economic activity that may turn out to be more severe and lengthy than currently anticipated—a development that may lead to larger-than-anticipated losses. In addition, a prolonged period of dislocation in financial markets may result in distress among other financial institutions, including asset managers, to an extent that could lead to a credit crunch for nonfinancial borrowers.

Financial vulnerabilities had been elevated in some systemically important economies before the outbreak of COVID-19 (Figure 1.10),<sup>9</sup> and they may become exposed should financial conditions continue to tighten:

- Vulnerabilities are elevated in *nonfinancial firms*, reflecting high levels of debt. Nonfinancial corporate sector vulnerabilities are significantly higher now than in 2008–09, implying that a prolonged period of negative growth and elevated cost of funding could lead to a large-scale corporate distress (see the corporate debt-at-risk analysis in Chapter 2 of the October 2019 GFSR).
- Vulnerabilities remain high among *asset managers* and close to the levels seen during the global financial crisis, as discussed in the October 2019 GFSR. Asset managers in several countries (notably, China and the United States) entered the COVID-19 crisis with higher leverage, maturity, and liquidity mismatches. In the euro area and other advanced economies, vulnerabilities are somewhat lower, on aggregate, than in other regions.

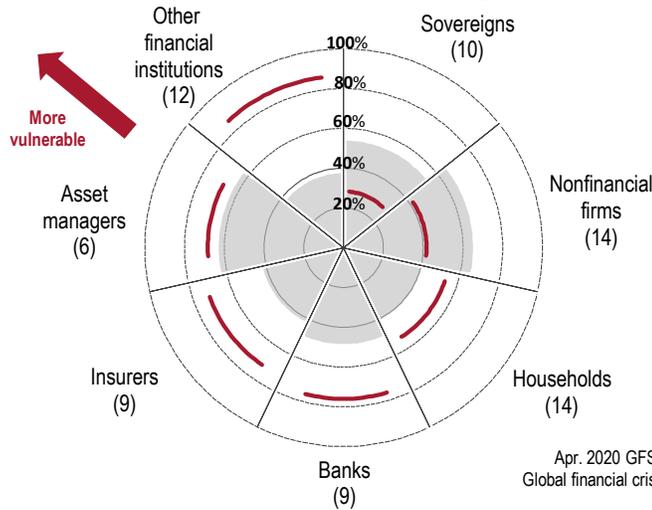
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<sup>9</sup> This assessment is based on the methodology introduced in the April 2019 GFSR, which covers 29 jurisdictions with systemically important financial sectors. In this GFSR, other nonbank financials have been split into asset managers and other financial institutions to help better track the evolution of vulnerabilities in different parts of this large and diverse sector. Asset managers include all collective investment schemes for which sectoral data are publicly available. For Brazil, fund-level data have been aggregated for this purpose. For China, the category includes investment funds, trusts and the off-balance-sheet wealth management products of banks, securities companies, and insurers. The other financial institutions category can include broker dealers, merchant banks, securitization vehicles, finance companies, holding companies, funding companies, credit guarantors, multipurpose nonbank financial corporations, custodians, and different forms of nonbank lending institutions and/or residual aggregates for nonbank financial companies excluding investment funds, pension funds, and insurers.

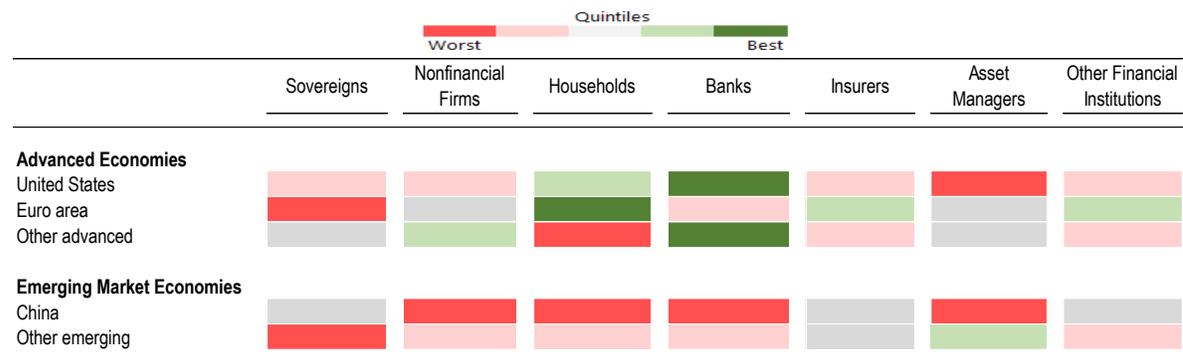
**Figure 1.10. Global Financial Vulnerabilities: Preexisting Conditions**

Vulnerabilities are elevated in the corporate and sovereign sectors as global nonfinancial sector debt has reached new highs, while asset managers have taken on more risks in the low-yield environment.

**1. Proportion of Systemically Important Countries with Elevated Vulnerabilities, by Sector**  
 (Percent of countries with high and medium-high vulnerabilities, by GDP [assets for banks, asset managers, other financial institutions and insurers]; number of vulnerable 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; Securities and Exchange Commission of Brazil; S&P Global Market Intelligence; S&P Leveraged Commentary and Data; WIND Information Co.; and IMF staff calculations.

Note: In panel 1, global financial crisis reflects the maximum vulnerability value from 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 from 2000–18 (or longest sample available), and 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. Other systemically important advanced economies comprise Australia, Canada, Denmark, Hong Kong Special Administrative Region, Japan, Korea, Norway, Singapore, Sweden, Switzerland, and the United Kingdom. Other systemically important emerging market economies are Brazil, India, Mexico, Poland, Russia, and Turkey.

A number of methodological changes have been introduced in this *Global Financial Stability Report for the other nonbank financial sector*: (1) country-specific data series for 10 individual euro area countries have been added to the data set for other financial institutions and asset managers, complementing respective euro area aggregate data; (2) country-level data are aggregated to regional totals using asset-based weights, rather than GDP; (3) the euro area data set has been expanded to include data on nonbank financial institutions beyond securitization vehicles; and (4) a new indicator measuring the gross derivative exposures has also been added. For *insurers*, the country-specific data series for 10 individual euro area countries (Austria, Belgium, France, Finland, Germany, Ireland, Italy, Luxembourg, Netherlands, Spain) were added to the data set for insurers. Previously, the assessment of the euro area insurers was based on the data at the euro area level. A new indicator of profitability was also added. In the computation of the regional and global aggregates, the GDP-based weights were replaced by total assets-based weights.

## GLOBAL FINANCIAL STABILITY REPORT

- *Bank* vulnerabilities are moderate overall, though there are pockets of weaker institutions. For example, vulnerabilities continue to be high in China and they have increased in other emerging market economies and the euro area.
- In the *global insurance sector*, vulnerabilities appear to be less pronounced in aggregate than in other sectors but are still high in some countries and regions. In the United States, insurers face elevated liquidity mismatches and credit risk, while in other advanced economies insurers also tend to have currency mismatches. In the euro area, vulnerabilities in the insurance sector are relatively moderate overall, but leverage and credit risks are elevated. Chinese insurers operate with high liquidity mismatches.

### Pressures on Asset Managers May Lead to Fire Sales

*Asset managers* may be forced to sell assets, thus amplifying asset price declines. Since the virus outbreak, investment funds have faced large portfolio losses (Figure 1.11, panel 1). This led to concerns about actual and anticipated redemptions, especially in the case of fixed-income funds (Figure 1.11, panel 2). Cash buffers, which typically serve as a first line of defense against redemptions, are estimated at about 7 percent of assets for an average open-ended fixed-income fund (see October 2019 GFSR), and even lower for some riskier credit funds (see the forthcoming Chapter 2 of this report). While on aggregate still smaller than cash buffers, outflows could, if they continue or accelerate, exhaust these buffers and force the sale of other high-quality liquid assets or even less-liquid assets. The latter would reinforce price declines across a number of markets.

These pressures, however, may be partly mitigated by liquidity management mechanisms used by investment funds (including the tapping of credit lines), as well as by central bank purchases of corporate bonds and by liquidity facilities offering relief for money market funds (see “Policy Priorities” section).

Anticipation of weaker liquidity conditions may have led some funds to de-risk portfolios early by selling less liquid and lower-rated credit assets with the aim of strengthening the liquidity of their remaining portfolios. These actions may have initially exacerbated price declines in riskier markets. A further deterioration in market conditions could in turn lead to more redemption pressures, especially for funds with low liquidity buffers or a particularly price-sensitive investor base. So far, there have been very few suspensions of investor redemptions. In the United Kingdom, several property funds were gated. Market reports suggest that some smaller European bond funds were suspended as well, but most of these suspensions were lifted within days.<sup>10</sup>

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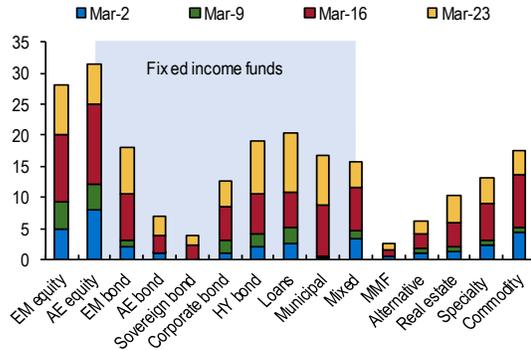
<sup>10</sup> Bloomberg Finance L.P. reported on March 20, 2020, on redemptions halts for Swedish funds and the *Financial Times* reported on March 22 on suspensions of Nordic funds.

**Figure 1.11. Investment Funds: Losses and Redemptions**

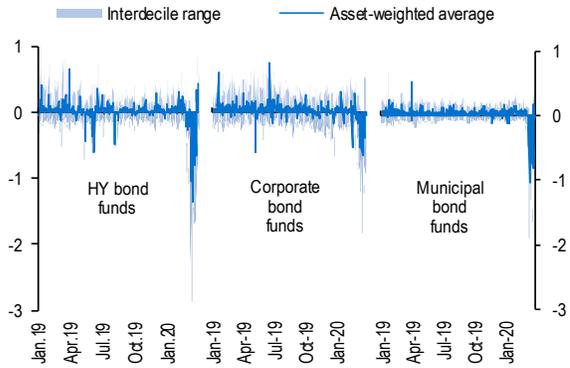
As asset prices declined, investment funds' losses began to mount.

Fixed income funds—especially those exposed to risky credit market segments—faced rapidly growing outflows.

**1. Cumulative Total Return Losses since Late February (Percent of assets, weekly losses)**



**2. Daily Fund Flows (Percent of assets)**



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

Note: Panel 2 reports estimated daily net flows for a sample of fixed income funds with assets of more than \$700 million. Flow rates have been winsorized at an absolute value of 50 percent. AE = advanced economy; EM = emerging market; HY = high yield; MMF = money market fund.

### Banks Could Act as an Amplifier Should the Crisis Deepen Further

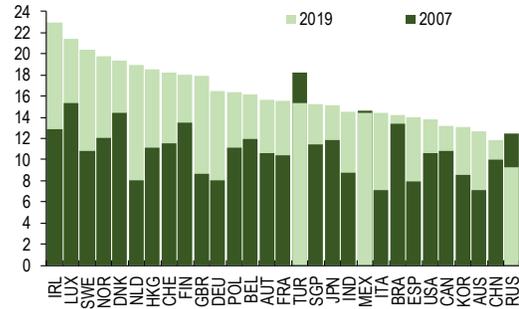
In 2007–08, a sharp cut back in bank lending, due to liquidity strains and losses at banks, exacerbated the impact of the global financial crisis on the economy. There is a danger that this could be repeated. The higher levels of capital buffers built since the global financial crisis, however, will help banks to absorb losses. Average Tier 1 capital ratios across economies with large financial systems are more than 400 basis points higher than they were at the end of 2007 (Figure 1.12, panel 1). Banks supervision has been enhanced, including through the use of stress testing to assess bank health, and regulations have been strengthened.

Banks are also holding more liquid assets than in the past. Furthermore, the substantial and coordinated action by central banks to provide liquidity to banks in many economies, including in repo (repurchase) operations and dollars via central bank swap lines, should also help alleviate liquidity strains (see “Policy Priorities” section) and mitigate the impact of higher wholesale funding costs faced by banks (Figure 1.12, panel 2). Greater access to liquidity should also help banks to cope with the drawdowns of credit lines by companies. Total undrawn lines of credit amounted to \$10 trillion at the end of 2019 for a sample of almost 400 banks headquartered in Group of Seven (G7) economies—some 50 percent of risk-weighted assets (Figure 1.12, panel 3). Nevertheless, the prospect of large draws on lines of credit may impair banks’ ability or willingness to maintain the flow of credit to the economy.

## Figure 1.12. Banks in Large Economies: Resilience Tested

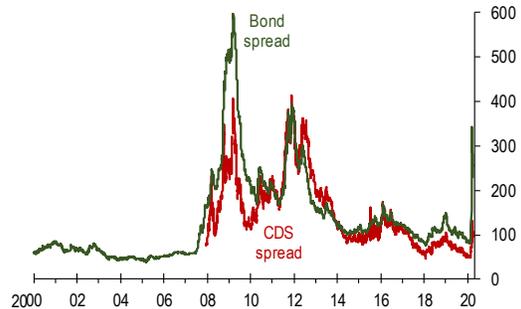
Banks now have more capital to absorb losses ...

### 1. Banking System Tier 1 Capital Ratios (Percent)



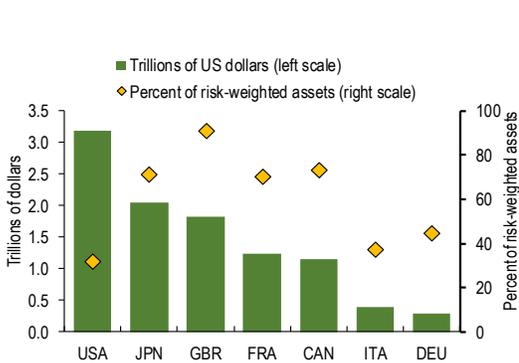
... but are facing sharply higher wholesale funding costs ...

### 2. Global Bank Funding Spreads (Basis points)



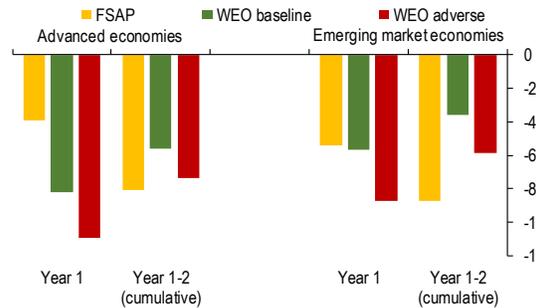
... and calls on lines of credit are adding to liquidity strains.

### 3. Loan Commitments: Sample of Banks, End-2019



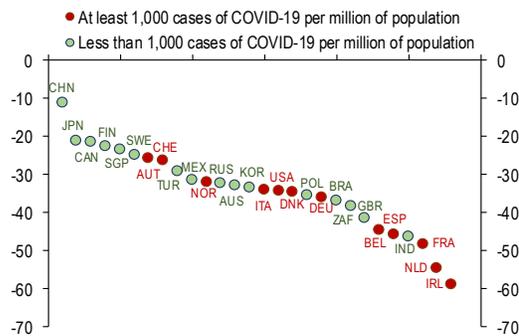
The deterioration of the economic outlook suggests that banks may face losses...

### 4. Comparison of COVID-19 macro shocks with shocks in recent FSAP Stress Tests (Percentage points)



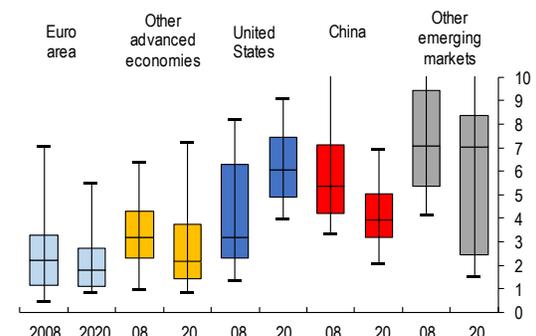
... as implied by sharp falls in bank equity prices ...

### 5. Change in Bank Equity Prices (Percent change since January 17)



... which have led to low market valuations in some economies.

### 6. Market-Adjusted Bank Capitalization (Percent)



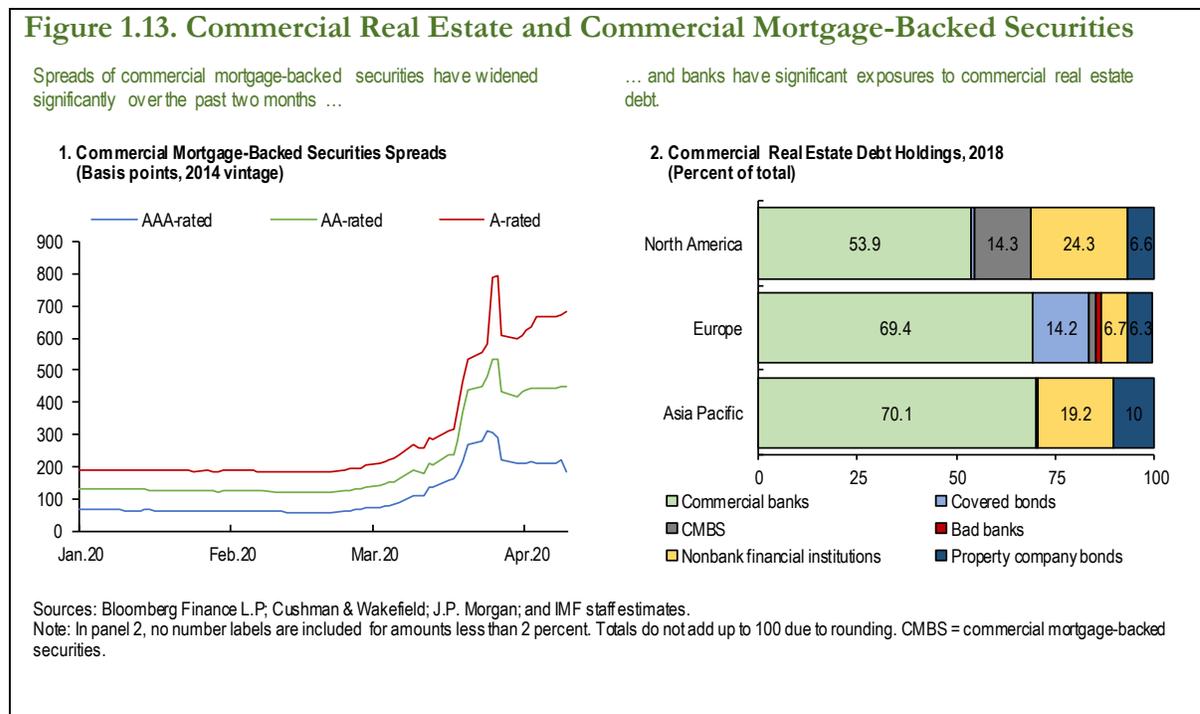
Sources: Bloomberg Finance L.P.; Thomson Reuters Datastream; Haver Analytics; S&P Global Market Intelligence; SNL Financial; IMF, Financial Soundness Indicators database; and IMF staff calculations.

Note: In panel 2, the global credit default swap (CDS) spread is the average of indices for Asia, Europe, North America, and the United Kingdom. Panel 3 is based on a sample of about 400 banks from the seven economies shown in the panel. Commitments include only irrevocable commitments where disclosed, and total reported commitments otherwise. Most banks either distinguish between revocable and irrevocable commitments, or include only revocable commitments. In panel 4, the WEO baseline is the difference between the April 2020 baseline scenario and the forecast in the January 2020 WEO Update. The WEO adverse is the difference between the alternative scenario in the WEO with a longer outbreak of COVID-19 in 2020 and the January 2020 WEO Update. Advanced economies is the average of the Group of seven economies, the Netherlands, Spain, and Switzerland. Emerging market economies is the average of Brazil, China, India, Russia, and South Africa. Panel 5 shows the average change in equity prices of banks in each country. Panel 6 shows the range of market-adjusted capitalization of individual banks in each economy. Market-adjusted capitalization is calculated as the product of tangible common equity and the minimum of the price-to-book ratio and 1, all as a percentage of tangible assets (which are adjusted for derivatives netting at US banks). The box shows the 25th to 75th percentile, the vertical lines show the 5th to 95th percentile, while the horizontal lines show the 50th percentile. The vertical axis has been set to a maximum of 10 percent to aid presentation. In panels 1, 3, and 5, data labels use International Organization for Standardization (ISO) country codes. WEO = World Economic Outlook. FSAP = Financial Sector Assessment Program.

## CHAPTER 1 GLOBAL FINANCIAL STABILITY OVERVIEW

Despite their stronger initial position, banks will likely face both mark-to-market and credit losses as a result of the COVID-19–induced sharp slowdown in economic activity:

- The declines in asset prices are expected to lead to losses on banks’ portfolios of risky securities, though this could be partly offset by gains on their holdings of safe-haven assets. For example, strains have emerged in the commercial real estate sector, with US commercial mortgage-backed security spreads widening by about 400 basis points on average from mid-February to their peak (Figure 1.13, panel 1). Furthermore, increases in bond yields for some highly indebted governments may lead to a reemergence of the sovereign-financial sector nexus in some jurisdictions.<sup>11</sup>
- The longer the sudden stop in economic activity continues, the more likely it is that banks will see credit losses on their lending to households and companies. Banks account for a significant portion of lending to commercial real estate, ranging from about 50 percent to 70 percent of debt in this sector (Figure 1.13, panel 2). The fall in the oil price has put energy companies under additional pressure, and banks could also see credit losses on loans to these firms. Finally, banks may also face losses on indirect exposures, through their lending to households that are employed in vulnerable sectors.
- The low level of bank profitability in some advanced economies (as discussed in the forthcoming Chapter 4 of this report) means that banks will have less income available to offset losses than in the past.



<sup>11</sup> See the April 2019 GFSR for a discussion of the sovereign-bank nexus in the euro area.

## GLOBAL FINANCIAL STABILITY REPORT

The potential for losses at banks is illustrated by Figure 1.12, panel 4, which shows that the shock to economic activity in the *WEO baseline*—defined here as the change in the baseline economic forecast since the January 2020 *World Economic Outlook Update* (the green bar)—is greater over a one-year horizon than the economic shocks typically assumed in Financial Sector Assessment Program (FSAP) stress tests (the yellow bar). The economic shock in FSAPs over two years tends to be larger than the baseline WEO projections for 2020–21. However, downside risks around the forecasts are significant. For example, even the first alternative scenario in the April 2020 WEO Scenario box – where the fight against the spread of the virus in 2020 takes roughly 50 percent longer than in the baseline (the red bar)—results in a much larger growth shock than typically assumed in FSAP stress tests in the first year. However, bank resilience would likely not be as severely impacted as in the past, since the historical relationship between economic growth and loan impairments, that FSAPs take as given, may be much weaker in the current environment given the large amounts of fiscal and other support measures being provided.

The large declines in bank equity prices since mid-January suggest that investors are concerned about bank profitability and possibly resilience. Equity prices fell by about 35 percent on average over this period and by up to 60 percent in some countries (Figure 1.12, panel 5). If market valuations are used to calculate capital ratios at banks, instead of book values, many banks would appear to have weak capitalization—similar to levels during the global financial crisis (Figure 1.12, panel 6). Median market-adjusted capitalization is now higher than in 2008 only in the United States. These considerations underscore the need for decisive policy action to prevent problems at banks leading to a sharp reduction in lending at a time when economic activity is already weak.

### Insurance Companies May Suffer Losses

Pressures have also been rising for *insurance companies*, limiting their ability to play their traditional countercyclical role. The shares of insurers in major jurisdictions have been hit hard, with most experiencing declines of more than 30 percent before reversing some of their losses in late March to early April (Figure 1.14, panel 1).<sup>12</sup> Their credit default swap spreads also widened alongside those of other financial corporations.

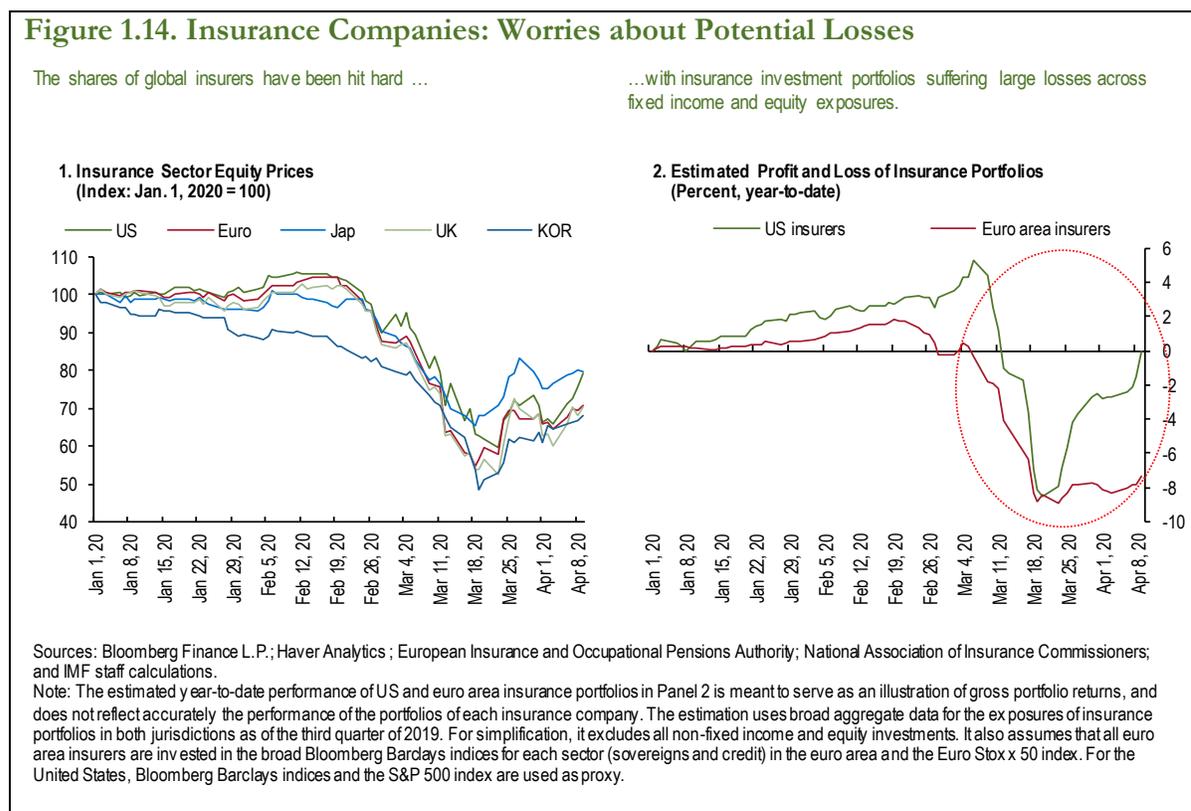
The shares of insurance companies have underperformed broader equity indices since the second week of March, when the widening of corporate credit spreads accelerated, and government bond yields started to rise (particularly in the euro area and emerging markets).

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<sup>12</sup> The euro area, Japan, Korea, the United Kingdom, and United States are five of the largest insurance jurisdictions, accounting for about two-thirds of life premium volumes globally.

## CHAPTER 1 GLOBAL FINANCIAL STABILITY OVERVIEW

Because the portfolios of insurance companies are heavily skewed toward long-term sovereign and corporate bonds, heavy losses on fixed income investments have weighed on their portfolio returns through mid-March (Figure 1.14, panel 2).<sup>13</sup> The situation has improved for US insurers once the US Federal Reserve stepped in to support the corporate bond markets in late March to early April.



In addition, insurers' bond holdings may be subject to credit downgrades. For example, US insurers are estimated to have over \$40 billion of BBB credits at risk of downgrade to sub-investment grade.<sup>14</sup> While this is less than 2 percent of their corporate bond investments, further increases in corporate bond downgrades could increase losses as well as capital requirements for insurers.<sup>15</sup> Some supervisors have already made use of available flexibility in the current framework to mitigate the impact of these shocks on insurers to preserve their operational viability (see "Policy Priorities" section).

<sup>13</sup> This refers to the estimated mark-to-market losses on the investment portfolios of insurers. The ultimate impact of these shocks on insurers will, however, be alleviated somewhat by regulatory mechanisms that can be activated in periods of market stress (see "Policy Priorities" section).

<sup>14</sup> As of March 17, 2020 (source: CreditSights).

<sup>15</sup> Derivative exposures could also come under pressure and subject insurers to further losses. For example, large life insurers can hold derivatives to hedge the guarantees provided by their variable annuity businesses.

## Prolonged External Pressures Will Be a Test for Emerging and Frontier Markets

The sudden stop in economic activity and portfolio outflows, together with the oil price shock, represent a severe stress test for many emerging and frontier market economies, especially as many of them entered the COVID-19 crisis with weaker initial conditions than in 2008:

- First, emerging market bond issuers are much more levered now than they were in 2008 (see Figure 1.15, panel 1), and they include new issuers with a larger dependence on oil and other commodities (Gulf Cooperating Council member countries), as well as lower-rated issuers (such as frontier markets—see Figure 1.15, panel 2).
- Second, many major emerging market economies have less policy space. Real policy rates in most emerging market economies are now lower than before 2008, especially for those with traditionally much higher interest rates (such as Brazil). Fiscal policy space is generally more constrained as well, with debt at significantly higher levels (as in Brazil, China, and South Africa) and wider structural budget deficits.
- Third, many of the emerging market and frontier economies are now much more reliant on foreign portfolio investors and external funding more generally than in 2008–09 (Figure 1.15, panels 3 and 4; also see the forthcoming Chapter 3 of this report for details).

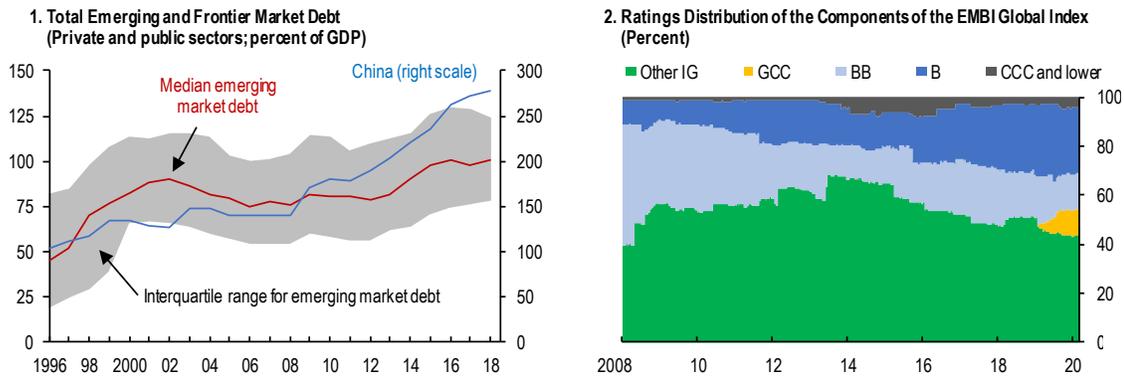
The *main vulnerabilities* of major emerging and frontier market economies, given the current constellation of shocks, are highlighted in Figure 1.16, panel 1. The sharp decline in economic output and sudden increase in borrowing costs could hurt economies with limited fiscal space, high financing needs, or external financing vulnerabilities, which include Brazil, Colombia, Egypt, Hungary, India, South Africa, and Turkey. Additionally, economic output decline is also likely to be meaningful for Mexico, Russia, and Thailand. Oil exporters are at risk, given the nearly 60 percent oil price collapse in the first quarter of 2020, with Colombia, Nigeria, Russia, and Saudi Arabia being most exposed. As a result of these pressures, Colombia, Mexico, South Africa, and several Middle Eastern economies were downgraded or put on negative outlook by rating agencies. On the positive side, some economies have large foreign currency reserves and other buffers that can be used to absorb these shocks.

Furthermore, some of the systemic state-owned enterprises have become more vulnerable due to lower oil prices (for example, Mexico's Pemex) or to weaker electricity demand (for example, South Africa's Eskom) as well as higher funding costs (also see the October 2019 GFSR).

**Figure 1.15. Emerging and Frontier Markets: 2008 versus 2020**

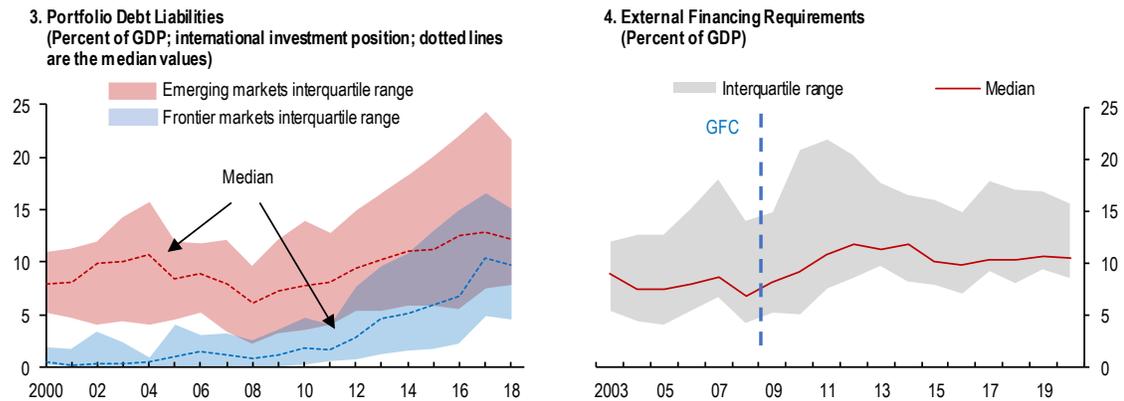
Leverage has risen considerably in emerging market economies, especially in China ...

... while more emerging and frontier market debt issuers have weaker credit ratings now than in 2008.



Foreign investors hold a considerably larger amount of debt issued by emerging and frontier market economies than in 2008 ...

... and dependence on external financing has increased as well.



Sources: Bloomberg Finance L.P.; JPMorgan Chase & Co; and IMF staff calculations.  
 Note: Panel 1 is based on 59 emerging market countries. In panel 3, frontier and emerging market samples include 30 countries each. Panel 4 is based on 20 large emerging market countries. GCC = Gulf Cooperation Council, GFC = global financial crisis, IG = investment grade, EMBI refers to the JPMorgan Emerging Markets Bond Index

Countries where banks have high nonperforming loans, significant exposures to state-owned enterprises, and large holdings of government bonds are vulnerable to an intensification of the sovereign-financial sector feedback loop. For example, in *India*, where nonbank financial institutions had already been under intense funding pressure, following two defaults before the COVID-19 shock, state-owned banks have a sizable stock of bad loans and significant links to nonbank financial institutions. Other countries, notably African economies, may be vulnerable to disruptions in trade financing if cross-border funding and correspondent banking relations become affected.

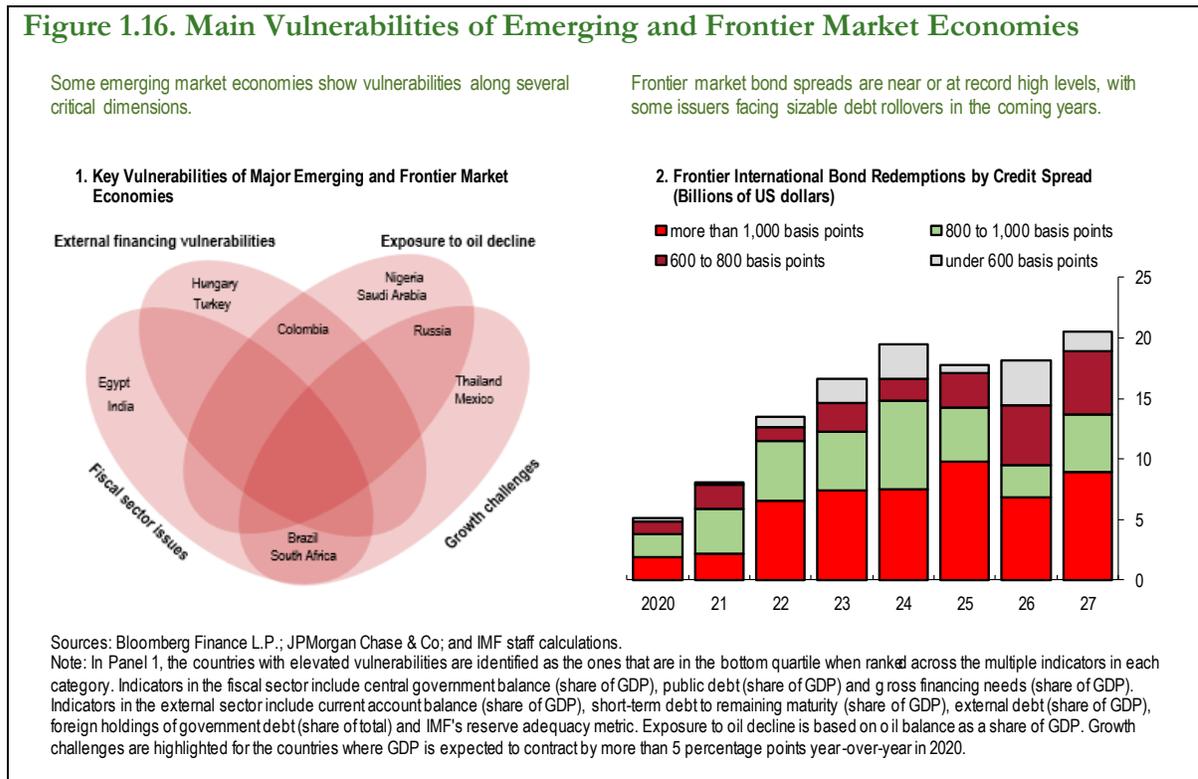
In *China*, vulnerabilities are particularly elevated in the corporate, banking, and shadow-banking sectors (as discussed in previous GFSRs, and also shown in Figure 1.10). The ongoing health crisis and a significant growth slowdown could increase financial stress through several

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channels. First, the balance sheets of small- and medium-sized banks will likely weaken further as their limited capacity to support their vulnerable small and private borrowers increases distress among these firms. Second, credit and liquidity risks are rising for the large and heavily indebted property developer sector, which is under heightened pressure due to dollar funding strains and the sharp slowdown in sales. Third, outflows from nonbank financial institutions, some of which operate with significant liquidity and maturity mismatches and often high leverage, could be set off by slumping equities prices, rising bond defaults, or further weakening of investor confidence.

In *frontier market economies*, the fears of global recession pushed borrowing spreads to their highest levels since 2008, at a time when rollover needs are set to rise in many of these countries (Figure 1.16, panel 2). Debt restructuring is underway in Argentina, Ecuador, Lebanon, and Zambia. Frontier markets often lack financial depth and have a shallower domestic investor base which can impair monetary policy transmission and compound market pressures in times of stress (see forthcoming Chapter 3 of this report).

**Figure 1.16. Main Vulnerabilities of Emerging and Frontier Market Economies**



## Policy Priorities

### *What has been done so far?*

The COVID-19 pandemic has required urgent measures to address health concerns, to safeguard economic and financial stability and to prevent the emergence of adverse macro-financial feedback loops (see also the April 2020 WEO). Country authorities have taken timely, temporary, targeted fiscal measures, including additional support for health agencies, wage subsidies, cash payments to citizens, government-funded paid sick and family leaves, expanded unemployment benefits, and deferral of tax payments (see the April 2020 *Fiscal Monitor*). Many countries have also implemented measures to support firms and individuals facing payment difficulties through loan moratoria, restructuring of loan terms, or credit guarantees. Several countries have expanded loan programs, including guarantees, for financing small- and medium-sized enterprises<sup>16</sup> (see Table 1.1 for details).

*To preserve the stability of the global financial system*, central banks have been the first line of defense in leaning against the tightening in financial conditions. Decisive monetary policy actions have been taken in three main areas (Table 1.1):

- First, central banks have significantly *eased monetary policy* by cutting policy rates by 50–150 basis points in 13 of the 29 jurisdictions with systemically important financial sectors as well as by providing forward guidance and expanding their asset purchase programs to put downward pressure on long-term interest rates and mitigate a rise in long-term borrowing costs for households and firms.
- Second, most central banks have provided *additional liquidity* to banking systems, including by lowering bank reserve requirements, easing collateral terms, upsizing liquidity repo operations, and extending the term of such operations.<sup>17</sup> Some country authorities activated or enhanced programs to provide funding support to banks.<sup>18</sup>

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<sup>16</sup> For example, the Bank of England introduced several loan schemes (such as the Coronavirus Business Interruption Loan Scheme [CBILS] and a new Term Funding Scheme with additional incentives for small- and medium-sized enterprises [the TFSME]) to support small- and medium-sized enterprises.

<sup>17</sup> For example, the US Federal Reserve continues to offer repo operations for at least \$175 billion in overnight repo each day, at least \$45 billion in two-week term repo twice per week, and \$500 billion in one-month term repo and \$500 billion in three-month term repo each week.

<sup>18</sup> For example, the European Central Bank has made the terms of its targeted longer-term refinancing operations (TLTROs) more favorable, raised the borrowing allowance to 50 percent of the stock of a bank's eligible loans, and reduced lending performance threshold to 0 percent. For further details, see [https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200312\\_1~39db50b717.en.html](https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200312_1~39db50b717.en.html). The Bank of England has also provided a term funding facility to banks (see <https://www.bankofengland.co.uk/markets/market-notices/2020/term-funding-scheme-market-notice-mar-2020>).

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- Third, several central banks have agreed to *enhance the provision of US dollar liquidity* through swap line arrangements to ameliorate tighter conditions in the global US dollar funding market.<sup>19</sup>

**Table 1.1. Monetary and Financial Policy Responses to COVID-19**  
(In 29 jurisdictions with systemically important financial sectors)

	Advanced Economies														Emerging market economies															
	Euro area				Other Europe				N. America		Asia-Pacific				CHN	BRA	IND	MEX	POL	RUS	TUR									
	AUT	BEL	FRA	FIN	DEU	IRL	ITA	LUX	NLD	ESP	DNK	NOR	SWE	CHE								GBR	CAN	USA	AUS	HKG	JPN	KOR	SGP	
<b>Monetary policies</b>																														
1. Policy rate cuts (basis points)											125			65	150	150	50	114		50			30	50	75	50	50			100
2. Central bank liquidity support					Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
3. Central bank swap lines					Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
4. Central bank asset purchase schemes					Y							Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
<b>External policies</b>																														
1. Foreign currency intervention																									Y	Y	Y		Y	Y
2. Capital flow measures																														
<b>Financial policies for banks</b>																														
1. Easing of the countercyclical capital buffer		Y	Y		Y	Y					Y	Y	Y	Y	Y				Y											
2. Easing of systemic risk or domestic capital buffer				Y					Y						Y				Y										Y	Y
3. Use of capital buffers					Y						Y	Y	Y	Y		Y	Y		Y						Y	Y		Y	Y	
4. Use of liquidity buffers					Y					Y	Y	Y	Y	Y	Y	Y			Y				Y					Y	Y	
5. Adjustments to provisioning requirements					Y					Y	Y	Y		Y		Y	Y						Y	Y		Y	Y	Y	Y	
<b>Financial policies for borrowers</b>																														
1. State loans or credit guarantees	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y					Y	
2. Restructuring of loan terms or moratorium on payments		Y	Y	Y		Y	Y	Y	Y	Y		Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y	Y	

Source: IMF staff.

Note: The table shows policy measures for 29 economies with systemically important financial sectors. The table does not include details on all of the central bank measures that have been introduced, but rather groups them under “central bank liquidity support” or “central bank asset purchase.” “Foreign currency intervention” includes central bank interventions in the foreign exchange spot and derivatives markets, as well as other measures, such as changes in foreign exchange reserve requirements. “Easing of the countercyclical capital buffer” includes an easing from announced or effective levels, or an easing of the sectoral countercyclical capital buffer. “Restructuring of loan terms or moratorium on payments” includes both official actions and measures taken by banks. Data labels in the table use International Organization for Standardization (ISO) country codes. For more details, see [www.IMF.org/COVID19policytracker](http://www.IMF.org/COVID19policytracker).

To enhance the liquidity and functioning of *short-term funding markets* as well as to maintain the *flow of credit to the broader economy*, several central banks launched facilities aimed at a number of markets, including commercial paper, municipal bonds, asset-backed securities, as well as corporate debt. By stepping in as “buyers of last resort” in these markets and effectively setting an upper limit on the cost of credit, central banks aim to ensure that households and firms continue to have access to credit at an affordable price. Table 1.2 provides examples of such facilities in G7 countries, but similar measures have been implemented in other countries as well, including in emerging market economies.<sup>20</sup>

<sup>19</sup> On March 15, the Bank of Canada, the European Central Bank, the Bank of England, the Bank of Japan, and the Swiss National Bank started offering US dollars with 84-day terms, in addition to the existing one-week operation. On March 19, the Federal Reserve announced the establishment of temporary US dollar swap lines with nine central banks including four emerging market economies.

<sup>20</sup> See [www.IMF.org/COVID19policytracker](http://www.IMF.org/COVID19policytracker).

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	Money Markets and Government Securities	Corporate Bond Market	Other Markets
<b>Bank of Canada</b>	<p><a href="#"><u>Bankers' Acceptance Purchase Facility</u></a> Purchases of eligible bankers' acceptances to maintain credit to small- and medium-sized businesses.</p> <p><a href="#"><u>Provincial Money Market Purchase Program</u></a> Purchases of provincial money market securities in the primary market.</p> <p><a href="#"><u>Commercial Paper Purchase Program</u></a> Purchases of eligible commercial paper in the primary and secondary markets to maintain the smooth flow of credit to corporations.</p>		
<b>Bank of England</b>	<p><a href="#"><u>Asset Purchase Facility</u></a> A £200 billion increase in the central bank's holdings of UK government bonds and sterling nonfinancial investment-grade corporate bonds to a total of £645 billion.</p> <p><a href="#"><u>COVID-19 Corporate Financing Facility</u></a> For 12 months the central bank and Treasury will purchase commercial paper of maturities up to one year issued by companies making a material contribution to the UK economy.</p>		
<b>Bank of Japan</b>	<p><a href="#"><u>Outright purchases of commercial paper and corporate bonds</u></a> A temporary (until the end of September 2020) increase in holdings of corporate bonds and commercial paper, moving from reinvesting proceeds of maturing assets into making net purchases.</p> <p><a href="#"><u>Policy actions to enhance the liquidity and functioning of short-term funding markets</u></a> The Bank of Japan announced funds-supplying operations against pooled collateral and purchases of Japanese government securities with repurchase agreements. In addition, it conducted unscheduled outright purchases of Japanese government bonds and expanded its Securities Lending Facility.</p>		<p><a href="#"><u>Purchase of Exchange Traded Funds and Real Estate Investment Trusts</u></a> A doubling in the pace of exchange-traded fund purchases.</p>
<b>European Central Bank</b>	<p><a href="#"><u>Pandemic Emergency Purchase Program</u></a> Purchases of private and public sector securities, until the end of 2020, up to a total amount of €750 billion. Expanded European Central Bank Asset Purchase Program. Additional EUR 120 billion in asset purchases with measures to ease collateral constraints, as included in IMF's matrix of COVID-19 measures.</p>		
<b>US Federal Reserve</b>	<p><a href="#"><u>Primary Dealer Credit Facility</u></a> Provide credit to primary dealers in exchange for a broad range of collateral for term funding with maturities up to 90 days.</p> <p><a href="#"><u>Commercial Paper Funding Facility</u></a> Purchases from eligible issuers, via a Special Purpose Vehicle (SPV), of three-month US dollar-denominated commercial paper.</p> <p><a href="#"><u>Money Market Mutual Fund Facility</u></a> Provision of liquidity to eligible money market mutual funds.</p>	<p><a href="#"><u>Primary Market Corporate Credit Facility</u></a> Purchase investment-grade bonds and some of bonds recently downgraded from investment grade from eligible issuers, via an SPV, and make loans to eligible borrowers.</p> <p><a href="#"><u>Secondary Market Corporate Credit Facility</u></a> Purchases of investment-grade corporate bonds and some of bonds recently downgraded from investment grade in the secondary market from eligible issuers. Purchases of investment grade exchange-traded funds (ETFs) along with the remaining funds allocated to high-yield ETF purchases.</p>	<p><a href="#"><u>Term Asset-Backed Securities Loan Facility</u></a> Loans to holders of certain AAA-rated asset-backed securities, including collateralized loan obligations and commercial mortgage backed securities, based on newly and recently originated consumer and small business loans.</p> <p><a href="#"><u>Municipal Liquidity Facility</u></a> Purchase short-term notes issued by US states, counties, and cities.</p>
Sources: National central banks. See URLs in the reference list for more details.			

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To counter foreign currency funding pressures and mitigate damage to their economies from *unprecedented capital flow reversals*, central banks in emerging market economies have implemented a number of measures. Some (Brazil, Indonesia, Mexico, Russia, Thailand) have restarted or continued foreign currency intervention programs to mitigate excessive volatility in their domestic currencies; several countries have reduced foreign currency reserve requirements (for example, Indonesia and Turkey) or increased availability of foreign currency swaps and repos (for example, Brazil, Indonesia, Mexico, and Russia).

*Regulators and supervisory authorities* have implemented a range of financial policy measures:

- To allow *banks* to absorb losses and support the flow of credit to the economy, some countries (see Table 1.1) have released *macroprudential buffers* (such as the countercyclical capital buffers, or domestic systemic risk buffers) and issued supervisory expectations that *capital and liquidity buffers* included in the Basel III framework should be used (for example, enabling banks to operate below normal liquidity requirements and to use the capital conservation buffers). Some countries have also temporarily adjusted *supervisory priorities* and eased certain *regulatory requirements*, including delaying stress tests, introducing flexibility for banks in their treatment of nonperforming exposures or easing other requirements.<sup>21</sup> Some supervisory authorities have also recommended restricting bank dividend payouts.
- Many *insurance* supervisors have focused on regulatory actions to support business continuity and fair treatment of policyholders, for example by supporting a grace period on premium payment for the affected policyholders and allowing more flexibility on supervisory reporting.<sup>22</sup> A few National Competent Authorities have gone beyond the measures set out in the Solvency II framework. Some supervisory authorities have also recommended insurers to restrict dividend payments in order to ensure the health of their capital position in balance with the protection of the insured.
- *Asset managers* have been supported by some targeted measures as well. For example, the US Securities and Exchange Commission halted enforcement actions against affiliated parties' purchases of assets from money market funds and temporarily permitted other open-end mutual funds to borrow from affiliated parties and related funds. Supervisors in several jurisdictions have extended deadlines for regulatory filings.
- *Short-sale bans* have been introduced in many countries to reduce the risk of downward price spirals and prevent further deterioration in liquidity conditions that could create systemic risk. *Circuit breakers* have been triggered in many markets over recent weeks to

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<sup>21</sup> For example, the US Federal Reserve has temporarily relaxed supplementary leverage ratio requirements to exclude on-balance-sheet holdings of US treasuries and deposits at the Federal Reserve from ratio's denominator to enhance the ability of large bank holding companies to provide market liquidity. For further details, see <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200401a.htm>.

<sup>22</sup> The European Insurance and Occupational Pensions Authority issued a statement noting Solvency II provides flexibility in extreme situations in the ladder of supervisory interventions, including measures to extend the recovery period of affected insurers.

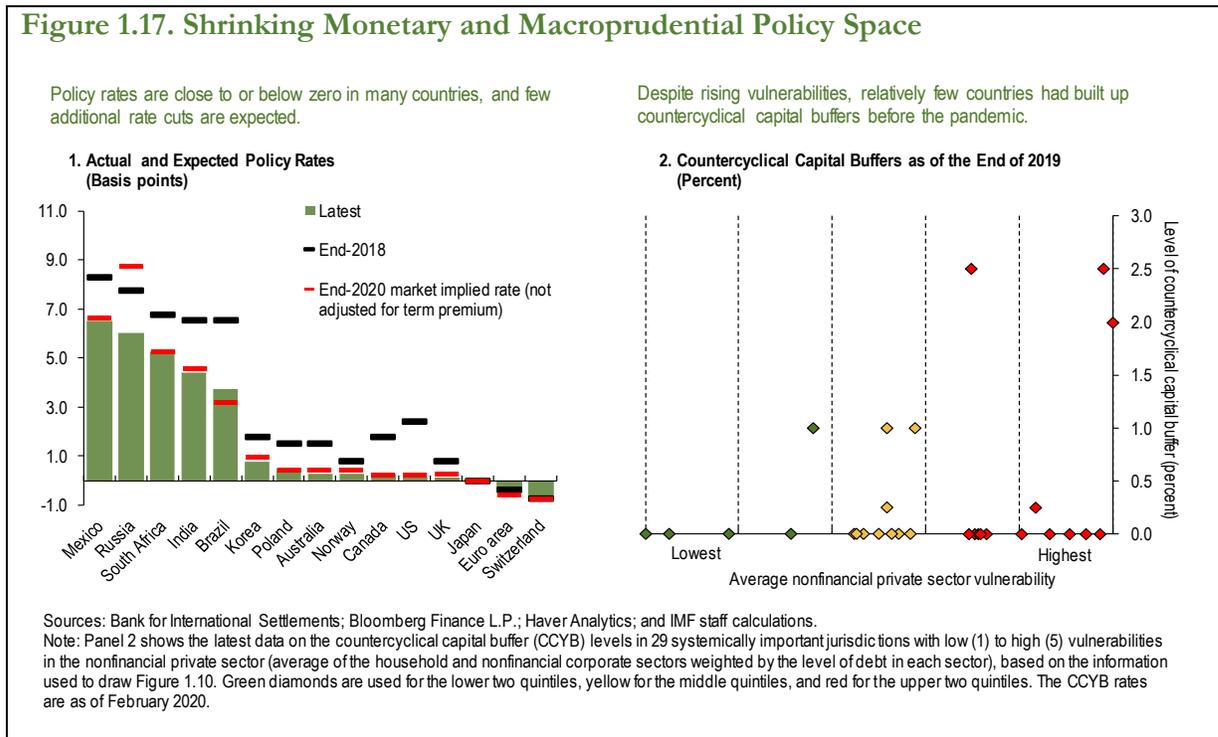
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halt trading temporarily to ensure orderly trading conditions. Some exchanges also reparametrized their circuit breakers.

### *What are the next steps?*

Given that events are still unfolding, it is not possible to fully assess the effectiveness of policies implemented so far, although market sentiment has shown signs of improvement in response to policymakers' actions and risk asset prices have retraced through early April some of their earlier declines. It is clear that a combination of monetary, fiscal, and financial sector policies will continue to be needed going forward to support the stability of the global financial system and to preserve soundness of financial institutions, especially if economic activity remains paralyzed for longer than expected. Some difficult questions, such as maintaining adequate capital at banks, as needed, and providing liquidity support to a broad range of market participants, including nonbank financial institutions, may have to be addressed if the situation evolves according to a more severe scenario.<sup>23</sup>

Furthermore, some constraints on policy options may emerge. Given that policy rates in most advanced economies are now close to or below zero (Figure 1.17, panel 1), asset purchases and forward guidance about the expected policy path will likely be the main tools in the central banks' monetary policy arsenal going forward, but room may be reduced given already very low



<sup>23</sup> For example, the European Commission has introduced the temporary state aid framework, which provides significant flexibility and waives burden-sharing requirements for government support to banks including via precautionary recapitalizations.

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long-term rates. In terms of macroprudential tools, only about a third of systemically important jurisdictions had the option of releasing the countercyclical capital buffers before the virus outbreak (Figure 1.17, panel 2), though some countries may also be able to ease other macroprudential tools. Given that some countries have limited or no fiscal space, it may be challenging for them to provide credible fiscal backstop.

While the central bank emergency facilities have been extended to many segments of financial markets, there are still some that are beyond the reach of current facilities, such as riskiest credit markets. In several countries, efforts are underway to close these gaps.<sup>24</sup> Central bank measures to support the *corporate sector* appear to have improved market functioning, eased near-term liquidity stress, and boosted market sentiment, as discussed above. However, there were still some signs of bifurcation in the risky credit markets through early April, with the gap between investment- and speculative-grade spreads widening and limited issuance in riskier credit markets. Should financial conditions deteriorate further, and credit downgrades and defaults rise meaningfully, authorities may consider further measures to support the flow of credit to the broader economy.

### *What should be the guiding principles for financial sector policies?*

The regulatory and supervisory responses to deal with the impact of the pandemic would need to maintain the balance between preserving financial stability, maintaining soundness of financial institutions, and supporting economic activity:

- *Loan restructuring:* In the face of the unprecedented but temporary shock, and of the substantial official sector response, supervisors should encourage banks to prudently renegotiate loan terms for companies and households struggling to service their debts. This should be done without lowering loan classification and provisioning standards. While a loan restructuring may not automatically lead to an increase in credit risk or loan losses, if borrowers remain likely to repay their obligations, banks need to assess their customers' creditworthiness on an ongoing basis and reflect any deterioration in asset quality in a timely manner. In cases where authorities have announced a loan moratorium or repayment holidays, banks may not be able to reliably assess the implications of the crisis on their customers within a short period of time. Banks should, however, aim to update their assessments as soon as feasible, taking into account the implications of any supporting mechanisms provided by governments and guidance by supervisors.<sup>25</sup>

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<sup>24</sup> For example, the US Federal Reserve is rolling out the Main Street New Loan Facility (MSNLF), the Main Street Expanded Loan Facility (MSELF), and the Paycheck Protection Program Lending Facility (PPPLF). The Main Street facilities are backed by \$600 billion from the CARES act with \$75 billion in equity from the US Treasury and will provide loans to businesses. The PPPLF will provide term funding to lenders backed by purchasing-power-parity loans to small businesses that are 100 percent guaranteed by the Small Business Administration.

<sup>25</sup> In its recent (April 3, 2020) statement, the Basel Committee provided clarifications on how various extraordinary support measures should be treated in the regulatory framework (such as using the sovereign risk weight in relation to loans guaranteed by governments and the treatment of moratoria). See <https://www.bis.org/press/p200403.htm>.

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- *Accounting treatment of credit losses:* Regulators globally have provided guidance on how to apply IFRS 9 Expected Credit Loss (ECL) requirements in light of COVID-19. They have clarified that the requirements should not be applied mechanically and that forward-looking ECL estimates should be reasonable and supportable, taking into account the expected nature of the shock (likely temporary), the impact of the economic support measures, and the scarcity of available and reliable information.
- *Banks:* In the first instance, banks' existing capital and liquidity buffers should be used to absorb financial costs of any customer loan restructuring and to relieve pressures on banks' funding and liquidity using full flexibility within the existing regulatory frameworks. In cases where the impact is sizable and longer lasting and bank capital adequacy is affected, supervisors should take targeted actions, including asking banks to submit credible capital restoration plans. In such cases, authorities may also need to step in with fiscal support to banks' clients—either direct subsidies or tax relief to help borrowers to repay their loans and finance their operations, or provide credit guarantees to banks. Throughout this process, transparent risk disclosure and supervisory expectations on dealing with the implications of the outbreak will be important for market discipline to work effectively. Supervisors should also discuss operational risks associated with the COVID-19–related containment measures and business continuity plans with banks.
- *Insurance companies:* Insurance solvency frameworks in many jurisdictions include a ladder of supervisory intervention that allows for some flexibility of regulatory actions in cases of extreme market stress, including measures to extend the allowed recovery period of affected insurers. While temporary regulatory accommodation may be necessary, supervisors should not signal a lowering of standards. Supervisors should ask insurers to prepare credible plans to ensure that they can maintain or restore their solvency positions while continuing to provide necessary insurance cover to policyholders. Supervisors should also consider the macroprudential implications so that the actions they take do not incentivize the fire sale of assets through enhanced liquidity risk monitoring and management.
- *Asset managers:* Regulators should ensure that risk management frameworks are being applied in a robust and effective manner. Regulators should support the availability of the widest possible set of liquidity management tools (such as gates/deferred redemptions, swing pricing) and encourage fund managers to make full use of the available tools where it would be in the interests of unitholders to do so. Depending on the asset classes within the portfolio, a fund manager may face difficulties in obtaining timely and reliable valuations. Authorities should monitor developments and seek to provide clarity to fund managers on their expectations, including on the circumstances in which use of liquidity management tools, including a (temporary) suspension of redemptions, may become appropriate.

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- *Financial markets:* For circuit breakers, volatility controls, and other market resilience measures to be effective, they need to be well calibrated, clearly defined, and appropriately communicated. When adopting temporary restrictions, such as the use of short selling, authorities should consider the potential negative impact on liquidity and price discovery and ensure that they are justified to support market confidence and financial stability. The restrictions should be temporary and only implemented within a predictable and reliable framework.
- *Liquidity provision by central banks:* Central banks may intervene to prevent impairment in money, securities, and foreign exchange markets that could emerge in the wake of financial disruptions, that is, when funding or market liquidity deteriorates substantially relative to normal conditions or if dealers are not able to trade assets at reasonable prices and without excessive price fluctuations. The lending operations may involve short- and long-term repo operations (reverse repurchase agreements), discount window (possibly at longer maturities), and foreign exchange swaps. The outright asset purchases, which can take the form of a program to buy securities or foreign exchange, may be appropriate to improve market liquidity. To effectively target the source of the market disruption, central banks may need to expand the range of eligible collateral (for both lending and outright operations) beyond what they accept during normal times while also expanding the range of counterparts with whom they deal. Central banks should also carefully assess which markets are critical to support in order to maintain financial stability, while ensuring the design of the program, as much as possible, minimizes moral hazard and the risks to the central bank.

### *How should emerging and frontier markets address external pressures?*

Emerging market and developing countries may be particularly hard hit by the virus outbreak given their dependence on external funding, increased leverage, and high reliance on commodity production for some economies (as discussed in the forthcoming Chapter 3 of this report):

- *Manage exchange rate pressures:* Many emerging markets are already facing volatile market conditions due to sharp reversals of portfolio flows. Exchange rate flexibility should be used, where feasible. Multilateral and bilateral swap lines may be needed to alleviate foreign currency funding pressures. For countries with adequate reserves, exchange rate intervention can lean against market illiquidity and thus play a role in muting excessive volatility. However, interventions should not prevent necessary adjustments in the exchange rate. Interventions should be planned on the basis that the pressures arising from the current crisis might last several months or longer. If macroprudential buffers exist, their relaxation can reduce the impact of the current shock on market conditions and on the overall economy. For example, foreign currency reserve requirements can be relaxed to mitigate foreign-exchange funding pressures.

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- *Managing capital outflows:* In the face of an imminent crisis, introducing outflow capital flow management measures (CFMs) could be part of a broad policy package, but CFMs cannot substitute for warranted macroeconomic adjustment. Considerations to introduce CFMs need to have due regard to the country's international obligations. CFMs generally need to be broad-based and effectively enforced to reduce capital outflows. Such measures should be implemented in a transparent manner, be temporary, and be lifted once crisis conditions abate.
- *Prepare for longer-term external funding disruptions:* Sovereign debt managers should put in place contingency plans for dealing with limited access to external funding markets for a prolonged period. From the perspective of the trade-off between cost and risk, reducing rollover risks should take priority over concerns about containing costs when there are large downside risks stemming from potential loss of market access. Using cash buffers may become necessary, and some countries may have to seek bilateral and multilateral assistance (see the April 2020 WEO). For those countries that are facing rapidly deteriorating debt dynamics, limited market access, high external financing requirements, or high volatility, it may become necessary to preemptively and cooperatively seek a debt resolution with their creditors, including official creditors.

### *What should be the focus of international policy coordination?*

Multilateral cooperation can help mitigate the health impact of the COVID-19 pandemic and its damage to the global economy and financial system. In the first instance, cooperation is needed to avoid price controls and ease trade restrictions on essential medical supplies. Bilateral and multilateral swap lines may need to be provided to a broader range of emerging markets. Greater international coordination may also be needed to reduce broader capital flow disruptions. Furthermore, the considerable international efforts to bolster regulation of the financial system since the global financial crisis should be maintained and any rollback of regulation, or fragmentation through domestic actions that undermine international standards, should be avoided.

The IMF, with \$1 trillion in available resources, is actively supporting member countries through various lending facilities. The recent doubling of access limits of the IMF's emergency financing facilities will allow the Fund to meet an expected demand of \$100 billion in emergency financing, provided through the Rapid Credit Facility and the Rapid Financing Instrument, of which the former is only for low-income countries. The Catastrophe Containment and Relief Trust can currently provide about \$500 million in debt service relief, including the recent \$185 million pledge by the United Kingdom and \$100 million provided by Japan, as immediately available resources. Official bilateral creditors have been called upon by the IMF Managing Director and the World Bank President to suspend debt repayment from International Development Association countries that request forbearance. This action would help with their immediate liquidity needs to address the challenges of the pandemic.

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## CHAPTER 1 GLOBAL FINANCIAL STABILITY OVERVIEW

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# ONLINE ANNEX 1.1. FRAGILITIES IN US DOLLAR SHORT-TERM FUNDING MARKETS

On September 16, 2019, rates in US short-term funding markets spiked. The price action prompted the US Federal Reserve to provide additional liquidity through overnight and term open-market repo operations and subsequently through Treasury bill purchases. These large liquidity injections helped the Fed reassert control over short-term money market rates and ensure smooth conditions through the end of 2019 and into early 2020, although demand for liquidity has remained robust.

The enduring severity of the price action unmasked several underlying structural fragilities in US dollar funding markets—such as continued reliance on overnight funding and rigidities in the market structure—that have built up over the years. When the demand curve for reserves is flat, the distribution of reserves among market participants is less relevant. However, when the demand curve for reserves becomes steeper, money market rates can suddenly spike once fragilities and inefficiencies in repo markets come into play. Recent experience suggests that repo rate volatility tends to be higher when bank excess reserves approach the lowest comfortable level.<sup>1</sup>

## ***Greater Role of Leveraged Investors***

Holdings of Treasuries by leveraged investors likely increased until the COVID-19 crisis. Over the past two years, higher US dollar hedging costs appear to have dissuaded real-money investors—such as mutual funds, the foreign official sector, insurers, and pension funds—from increasing their holdings of Treasuries in line with increasing supply. Leveraged investors, such as hedge funds, have reportedly filled the gap as marginal buyers of Treasuries.<sup>2</sup> Leveraged investors rely on repo funding to finance their Treasury holdings, with dealers intermediating such transactions. Dealers, as market makers, also need to fund their own inventories of securities, which have increased, typically through repo transactions as well.

## ***Reliance on Overnight Repo Funding***

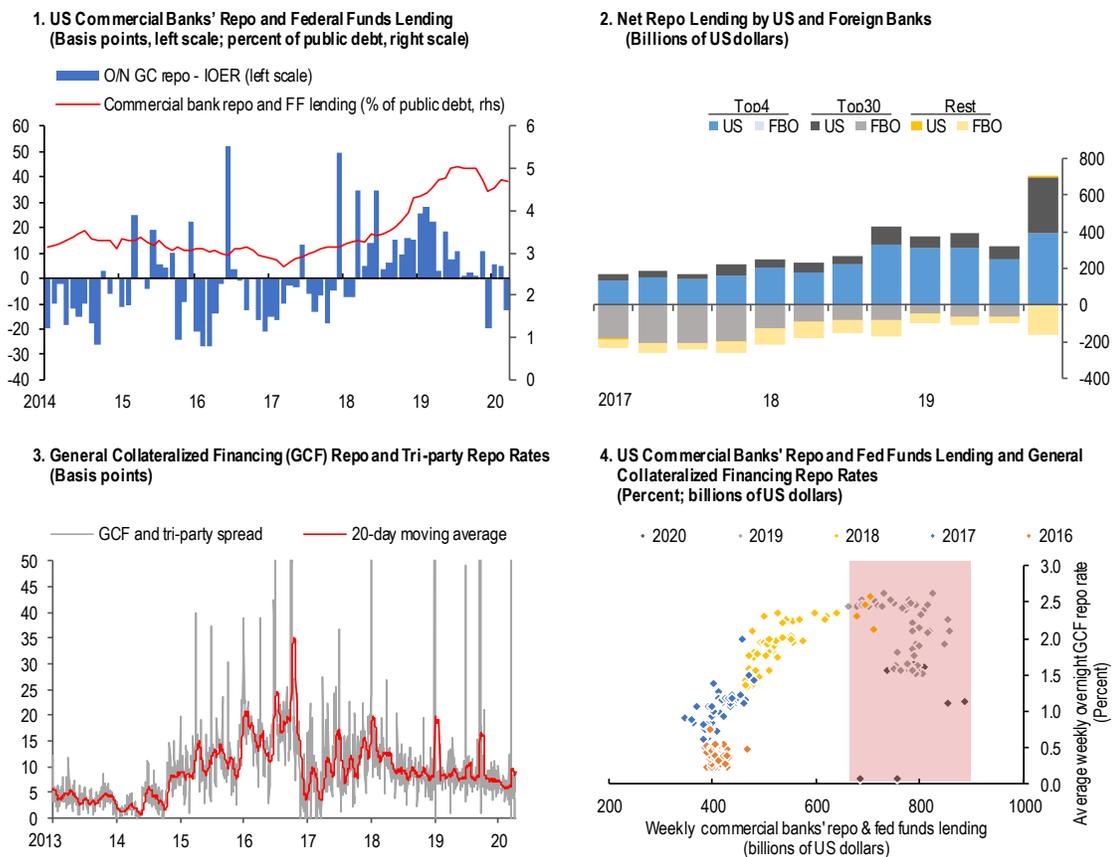
Reliance on overnight repo funding can leave market participants more vulnerable to a sudden deterioration in conditions. Yet until September 2019, ample liquidity and low volatility, resulting in part from quantitative easing and the large amounts of reserves it produced, contributed to a perception of overnight funding as safe and plentiful. The flattening of the yield curve likely further encouraged leveraged investors to employ the cheapest and shortest source of tenor funding to enhance returns. On the supply side, the 2016 money market fund reform<sup>3</sup> encouraged money funds—an important source of financing to dealers—to shorten the weighted average maturity of their exposures, resulting in a higher share of overnight lending. Finally, sponsored repo, a rapidly growing segment of the repo market, is currently available only overnight.<sup>4</sup>

## High Concentration

Repo markets have become more concentrated and sensitive to changes in the behavior of a few large dominant players, leaving markets more susceptible to idiosyncratic shocks faced by any of these players. In particular, intermediation of Treasury repos is dominated by a few large dealers, which benefit from their scale in the relatively low-margin Treasury repo business. Concentration is also evident on the supply side. Money market funds are a major source of liquidity to dealer banks, but usually lend to large financial institutions. As of the fourth quarter of 2019, money market funds had lent \$1.1 trillion through repo transactions to financial institutions, nearly half of which goes to large dealers.

Meanwhile, a few large commercial banks have become more prominent providers of funding in repo markets. Commercial banks' share of gross repo provision nearly doubled from 2017 to 2019 (Online Annex Figure 1.1.1, panel 1) and has come mostly from a handful of US top-tier banks (Online Annex Figure 1.1.1, panel 2).

### Online Annex Figure 1.1.1. Commercial Banks' Repo Lending and Inelastic Supply of Repo Funding



Sources: Bank of New York Mellon; Bloomberg Finance L.P.; DTCC; and Federal Reserve.  
Note: FBOs = foreign banking organizations; FF = federal funds; IOER = interest rate on excess reserves. GCF = general collateralized financing; O/N GC = overnight general collateral. In panel 3, the vertical scale is capped at 50 basis points.

## More Inelastic Supply of Repo Funding

Provision of secured financing has become relatively more inelastic to conditions in money markets, likely reflecting both tighter regulation and supervision and more conservative internal risk controls following the global financial crisis. Large commercial banks hold cash buffers for internal liquidity risk management purposes (including for internal liquidity stress testing and resolution and recovery requirements). Their intraday liquidity management operates within closely monitored mandates to insure against liquidity shocks and often leads to banks holding excess reserves at the Federal Reserve to meet their internal liquidity stress metrics. Further, enhanced disclosure requirements have created incentives for banks to hold enough reserves to avoid any reliance on public support.

In addition, dealers in global systemically important banks (GSIBs) have an incentive to shrink repo books to keep their supplementary leverage ratio (SLR) lower<sup>5</sup>—especially around the quarter or year end because repo transactions affect multiple components of their GSIB buffer score.<sup>6</sup> As a result, balance sheet management by GSIB dealers results in tighter funding conditions for smaller dealers, as evidenced by the persistent spread between general collateralized financing (GCF) repo rates and tri-party repo rates (Online Annex Figure 1.1.1, panel 3)<sup>7</sup> with regular quarter-end spikes. The combination of more conservative liquidity risk management practices, tighter regulations, and a more stringent supervisory posture implies that large dealer banks have been unable or unwilling to respond quickly to fluctuations in rates and associated arbitrage opportunities (Online Annex Figure 1.1.1, panel 4).

Fed actions have ameliorated strains in the repo market for the time being, but structural issues remain. With the Treasury supply forecast to continue expanding, aggregate funding needs are likely to grow as well. While ample reserves may lessen the likelihood of volatility events, US repo markets remain susceptible to strains and sudden deterioration in conditions.

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This note was prepared by David Jones, Yingyuan Chen, and Akihiko Yokoyama.

<sup>1</sup> The Federal Reserve's February 2019 Senior Financial Officer Survey asked bankers for the approximate lowest level of reserves their institutions would feel comfortable holding before taking actions to maintain or increase their reserve balance levels.

<sup>2</sup> The Federal Reserve's Z.1 Flow of Funds consolidates data for US-based hedge funds into the "household" sector balance sheet.

<sup>3</sup> The money market reforms were announced in 2010 and 2014. The 2014 money market reforms were implemented in 2016, which caused the significant growth of government-only funds, thus encouraging greater use of US Treasury repos, which tend to have short maturity.

<sup>4</sup> Technically, sponsored repos can be term transactions. They are predominantly overnight because money market funds, which are the main lender in the market, prefer overnight.

<sup>5</sup> On April 1, 2020, the Federal Reserve temporarily relaxed the SLR to exclude on-balance-sheet holdings of US Treasuries and deposits at the Federal Reserve from the denominator, in order to enhance the ability of large banks and dealers to provide market liquidity.

<sup>6</sup> Whereas US banks report balance sheets as a period average, European and Japanese banks report balance sheets on a period-end basis.

<sup>7</sup> GSIB dealers borrow through repos before they on-lend to smaller dealers, thereby increasing the size of their balance sheets. The cost of balance sheet management by GSIB dealers is passed on to smaller dealers, and the intermediation cost can be proxied by the spread between GCF repos and tri-party repos (see BIS 2017). Over the past two years, the average intermediation cost at quarter-ends was about 25 basis points.

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