

# The role of financial markets and institutions in supporting the global economy during the COVID-19 pandemic

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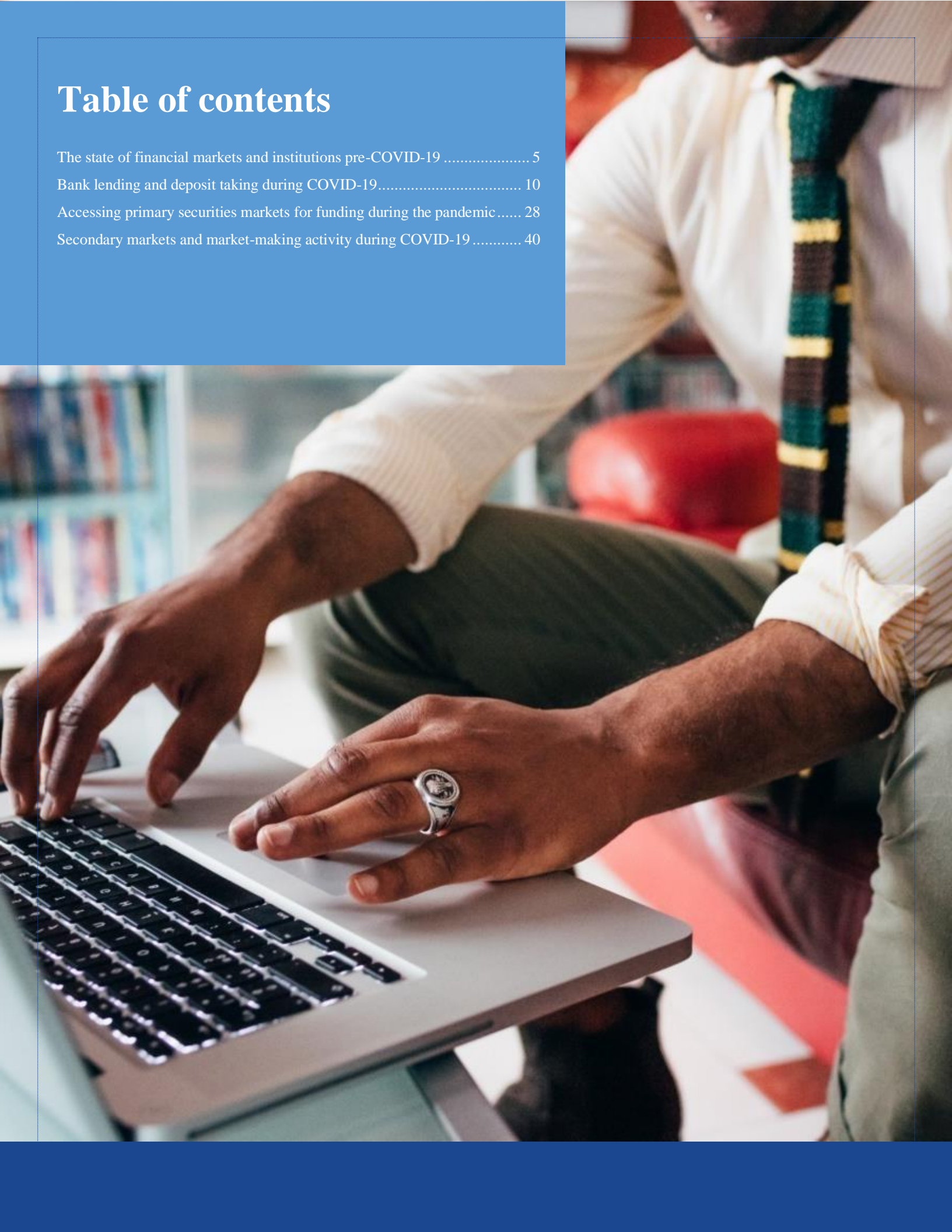
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## Foreword

The COVID-19 pandemic arrived suddenly in a world that was unprepared for such an event and impacted the global economy severely and at pace. While global markets have become accustomed to economic shocks over the past century, the COVID-19 pandemic crisis was different in one material respect – it stemmed from a global health crisis that quickly morphed into an economic crisis.

The combined force of these crises was unprecedented in many ways as it has severely impacted markets and individuals globally. Millions have been unemployed or furloughed at home. Companies and businesses, especially smaller ones, have been crippled by low or no revenue. Governments at the national and local levels have struggled to meet health care and other needs while facing significant shortfalls in tax revenues. Health care systems in many countries have been severely stretched in meeting patient needs.

In this context, we set out to analyze how financial markets and financial institutions have responded during the crisis in support of the global economy. We looked in particular at three core financial market activities – extending credit, facilitating access to capital and market-making in the secondary markets. In so doing, we focused primarily on the large, international banks that are most active across these areas.

Based on this analysis, it is clear that the decade-long implementation of regulatory reform initiatives has significantly enhanced the strength and resiliency of the

financial system and banks. This, in turn, has enabled them to play a constructive role in providing financing, facilitating access to capital and supporting the functioning of key markets during the pandemic. It also has enabled financial markets in key jurisdictions to remain open and functioning during this extraordinary time of the COVID-19 health crisis, which has helped to maintain economic stability and market confidence.

The implementation of the regulatory reform initiatives has also enabled banks to support the official sector in its emergency relief programs. The impact of these official-sector initiatives on the economy has, as we know, been substantial. So, too, has been the work of investment management firms around the world, which are ultimately the purchasers of primary debt and investors in equity issuance that has helped enable companies and governments to maintain their operations during the COVID-19 crisis.

As with every global crisis, there are opportunities to learn. Policymakers and market participants have voiced the need to assess whether measures should be taken to ensure markets and firms are better prepared to deal with the next crisis. Consequently, this report highlights issues that should be part of a broader, holistic analysis of recent events. The aim is not to provide detailed policy prescriptions, but rather to inform discussions on lessons learned so that our global economies and markets are even better placed the next time we face a major global shock.

## Executive summary

The COVID-19 pandemic represents one of the most significant and dramatic shocks to the global economy in modern history. While the origins of the pandemic lie strictly outside the financial system, its impact quickly reverberated throughout the entire economy as lockdowns, work-from-home, social distancing and related measures severely depressed both supply and demand around the globe.

This paper examines several important issues related to the functioning of the financial markets – in particular, the large, global banks and dealers that extend credit, facilitate access to capital and make markets – during the COVID-19 pandemic:

1. How well was the financial system prepared to deal with the economic turbulence and market volatility brought on by the pandemic? (Section 1)
2. What impact has the pandemic had on the ability of firms – corporates and others – to access credit needed to fund their operations? (Section 2)
3. To what extent has the pandemic impacted the ability of issuers to access markets to raise capital? (Section 3)
4. How well have the major financial markets – including corporate and government securities and derivatives – functioned during the pandemic? (Section 4)

The paper includes a high-level discussion of some issues that policymakers and market participants should take into account in undertaking their announced evaluations of the challenges that arose in financial markets during the pandemic. This discussion is contained in each of the individual sections.

The report mainly focuses on the three largest economic regions: the United States (US), Europe (including the United Kingdom (UK)) and Asia-Pacific, particularly Japan. In reading the report, it is important to understand that the way in which markets and banks support the real economy varies significantly by region. All companies, across jurisdictions, rely on bank lending to some extent, especially smaller companies. However, generally speaking, companies in the US and UK rely more significantly on capital markets by issuing bonds and equity to satisfy their financing needs, while companies

in Europe and Asia-Pacific typically rely much more heavily on bank lending.

Our key findings can be summarized as follows:

**Financial system strength and resilience:** The past decade of regulatory reform measures ensured that the financial system was extremely well-prepared to address the COVID-19-related turbulence and volatility. Capital and liquidity positions have been substantially strengthened, and counterparty credit risk has been reduced and mitigated through greater adoption of central clearing and collateralization of exposures. This enhanced resilience has supported banks' ability to provide credit and financial intermediation to the real economy. Accordingly, banks were largely able to absorb and manage, rather than amplify, the economic shock precipitated by the global COVID-19 pandemic. Financial markets in key jurisdictions remained open and functioning, which helped provide stability and confidence.

It is also very important to recognize that the swift and decisive actions of central banks, financial authorities and regulatory agencies were critical in stabilizing markets. These funding programs, liquidity support measures and regulatory adjustment measures have played a crucial role in mitigating the economic fallout from the pandemic, and banks have collaborated efficiently with these authorities in optimizing the effectiveness of these measures and programs.

**Access to credit:** The sharp and sudden reduction in economic activity brought about by the pandemic created an immediate need for financial services, in particular lending, as companies and governments saw sharp declines in revenue. To offset these revenue shortfalls, companies and governments sought significant amounts of funding to keep their doors open and employees on the payroll while continuing to offer important services and products. This demand was most critical in the volatile early months of the pandemic.

According to the Bank for International Settlements (BIS), total bank credit to nonfinancial corporations increased on a global basis by over \$2 trillion from year-end 2019 to mid-year 2020.<sup>1</sup> In the US, large banks saw their loans and leases in bank credit expand by over \$400 billion in a single quarter. Bank lending was also rapid and robust in other major jurisdictions around the globe. In the EU, the UK and Japan, banks satisfied

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<sup>1</sup> Bank for International Settlement statistics, [Credit to the non-financial sector data set](#).

credit demand at three to five times the normal rate for loans during the early months of the crisis.

Along with the rapid increase in bank lending, banks saw a significant inflow of deposits. In the US, the deposit base of large banks grew to \$9.5 trillion from \$7.9 trillion over the first half of 2020.<sup>2</sup> Banks in the EU, the UK and Japan also experienced a similar trend of increased deposits. Banks around the globe quickly deployed these resources to extend credit into the economy, in addition to providing a safe haven for these deposits.

**Ability to raise capital:** While bank lending is an important source of credit and finance in the economy, public securities markets also provide the economy with an important source of funding. The pace of primary market issuance in 2020 was very significant, with global corporate bond issuance increasing by 66% relative to 2019 levels and sovereign bond issues increasing by 36%. This surge in bond issuance was vital to deal with significant revenue shortfalls precipitated by the pandemic; the need to quickly make additional investments to respond to the needs of the pandemic, such as installing partitions and ventilators to ensure safe working conditions; and to fund stimulus, health and social welfare measures. Primary equity issuance, while initially substantially lower in the early months of the pandemic, rebounded strongly, and in fact the third quarter of 2020 turned out to be the most active third quarter for IPOs over the past twenty years.

**Secondary markets and market-making:** The need for liquid secondary markets in corporate and government securities is essential to help ensure that investors can manage their financial risks at low cost while reducing the cost of borrowing money by governments and companies. During the pandemic-related market turbulence, there was evidence that some markets experienced relative illiquidity. At the same time, data evidences that during this period large banks increased their inventory holdings to support customer trades and built up their securities holdings across an array of sectors and instruments. They have continued to actively make markets in derivatives, as evidenced by increases in both the notional and gross market values of derivatives positions from year-end 2019 to mid-year 2020 (+8.6% and +33.6%, respectively).

**Support for government-related programs:** The onset of the pandemic necessitated strong and decisive action by governments around the globe. In many cases,

support measures taken by the government have been supported by market participants, including large banks, which played a role in facilitating these programs. Moreover, in some cases, the initial support provided by official-sector efforts to provide an immediate stimulus to markets was followed by substantial increases in private-sector market activity. Finally, and importantly, banks took considerable steps to provide support to households and businesses by temporarily deferring loan repayments and providing additional support measures during the pandemic.

**In this crisis, the financial sector and the large financial institutions that provide credit, facilitate access to capital and support secondary markets have been a key part of the solution. In combination, the actions discussed above helped stabilize volatile markets, cushioned the initial impact of the economic shutdown, provided much-needed liquidity to customers and helped to rapidly restore confidence, thereby significantly limiting the extent of the economic impact of the pandemic.**

**Areas for future consideration:** Once the pandemic and its effects are fully addressed, the experience gained should be used to assess the performance of the financial regulatory framework, particularly during periods of stress, as well as its impact on the economy. It is important in this regard to acknowledge the swift and agile response of regulators to encourage banks to utilize buffers and the flexibility within the regulatory framework to help banks support their economies.

However, in light of the external and significant shock presented by the pandemic, we should all endeavor to take full advantage of this test of the financial system to identify areas for further evaluation and potential improvement and refinement.

As we discuss in the report, issues relating to the efficacy of risk-insensitive leverage requirements, the “usability” of capital and liquidity buffers, and the potential procyclicality of elements of the regulatory framework have been with us for some time. The pandemic, however, provides a new and fresh data point for considering these and other issues (including post-trade risk reduction measures that reduce exposures) as a way to address any unintended consequences of existing policies to the benefit of the broader economy.

While the development and distribution of vaccines around the globe are significant and encouraging signs,

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<sup>2</sup> Board of Governors of the Federal Reserve System (US), [Assets and Liabilities of Large Domestically Chartered Commercial Banks in the United States - H.8](#).

we are clearly still working through the pandemic. Financial firms have, to date, been adequately managing the risks, both financial and operational. Provisioning practices, capital conservation measures and liquidity buffers have been strengthened and continue to provide the necessary resilience to financial firms' balance sheets. As policymakers and regulators around the world have continued to underscore, we must remain vigilant to the vulnerabilities and risks still emanating from the current crisis.

Measures of capital adequacy and liquidity for financial firms show that they remain safe and sound and are well

poised to continue supporting the economy. As the world continues to manage the impact of this pandemic, and the financial services sector looks to finance and support the economic recovery from the crisis, it will be important to continue measuring progress and identifying areas for improvement. Over time, the lessons learned from this experience should serve to improve the ability of large banks and the financial system to meet the unforeseen challenges that will surely confront our global economy in the years to come.



# 1

## The state of financial markets and institutions pre-COVID-19

Many commentators<sup>3</sup> in the public and private sectors and academia have compared the COVID-19 pandemic to the global financial crisis (GFC). The two are considered the most severe shocks in modern history in terms of severity (i.e., production loss measured in gross domestic product, or GDP) and breadth (i.e., global in nature affecting both developed and developing economies). Despite some similarities, two major differences exist:

- The COVID-19 pandemic is an unprecedented public health crisis with severe economic implications. The widespread impact on the economy triggered turbulence in financial markets.
- The COVID-19 pandemic has shocked the real economy from both the demand and supply sides.<sup>4,5</sup> Lockdown measures taken by governments to prevent the spread of the virus have adversely affected almost all economic activities, including the production of goods and services (supply) and consumers' ability and appetite to purchase them (demand). The GFC was generally considered to be a negative demand shock created by instability in the financial system and manifested through reduced confidence and declining household wealth and consumer spending.

#### **After a decade of regulatory reform, a better starting point**

Without question, global financial markets and the banking sector came into this crisis in a far better position than they went into the GFC, as summed up by Chair of the Financial Stability Board (FSB) and Vice Chair for Supervision of the Federal Reserve Board (FRB) Randal K. Quarles in July 2020:<sup>6</sup>

“Banks entered the current crisis in a much stronger position than they did the global financial crisis. They are much better capitalized and more liquid than back in 2008. This is a direct outcome of the G20 regulatory reforms adopted in the aftermath of

that crisis and measures taken by the banking industry, which have improved the resilience of the core of the banking system. This has allowed the banking system to absorb rather than amplify the current macroeconomic shock. It has also enabled banks to play a central role in measures to support the flow of credit to the economy.”

In reviewing the experience through COVID-19, as compared to the GFC, Nathalie Berger, Head of Unit, Banking Regulation and Supervision at the European Commission, commented:<sup>7</sup>

“This time, unlike in 2008, banks were not at the root of the crisis – they were part of the solution and we are really counting on them to continue being part of the solution and to play their role in the recovery.”

The global regulatory reforms cited by FSB Chair Quarles were, in many ways, unprecedented. Global policymakers – including the FSB, Basel Committee on Banking Supervision (BCBS), Committee on Payments and Market Infrastructures (CPMI) and International Organization of Securities Commissions (IOSCO) – as well as central banks and regional banking and market regulators in the EU, UK, US, Japan and other jurisdictions – set in motion a broad and ambitious global regulatory reform agenda.

In implementing global regulatory reforms, financial markets and banks enhanced their overall resilience, as demonstrated by:

- **Strengthened capital buffer:** Banks had – and still have – far stronger capital relative to their risk exposure coming into the COVID-19 pandemic compared to before the GFC, as shown in Figure 1.1. They have built and have been managing their capital buffer diligently, with many prudently going substantially above the regulatory requirement.

<sup>3</sup> For example, St Louis Fed, “[How does the COVID-19 Crisis Differ from Other Shocks to the Economy?](#)” May 2020.

<sup>4</sup> St. Louis Fed, “[Is the COVID-19 Pandemic a Supply or a Demand Shock?](#)” May 2020.

<sup>5</sup> N. Gregory Mankiw, “[The COVID-19 Recession of 2020.](#)” August 2020.

<sup>6</sup> “[Global in Life and Orderly in Death: Post-Crisis Reforms and the Too-Big-to-Fail Question.](#)” Randal K. Quarles, At the Exchequer Club, Washington, DC (via webcast), July 7, 2020.

<sup>7</sup> ISDA, “[IO in Brief: Trading Book Capital.](#)” November 2020.



**Figure 1.1:** The capital ratio and the liquidity coverage ratio (LCR) are significantly higher in pre-COVID-19 than pre-/after GFC<sup>a, b, c</sup>

	Common Equity Tier 1 Ratios (%)		LCR (%)	
	Before the GFC (2007)	Before the COVID-19 pandemic (2019)	After Basel III Requirement (2015)	Before the COVID-19 pandemic (2019)
US	8	12	106	120
UK	4	15	133 (2017)	146
EU	9 (2008)	14	137	146
Japan	8	12	122	229

<sup>a</sup> Sources of data include:

- US: Common Equity Tier 1 (CET1) ratios are sourced from [FRB May 2020 Supervision and Regulation Report Banking System Conditions, representing filings from bank holding companies with assets over \\$3 billion](#). LCRs before the COVID-19 pandemic represent simple averages of eight US global systemically important banks (G-SIBs) (JPMorgan Chase, Citigroup, Bank of America, Goldman Sachs, Morgan Stanley, Wells Fargo, Bank of New York Mellon and State Street) in Q4 2019. LCR after Basel III Requirement (2015) represents the simple average of three G-SIBs (Citigroup, BNY Mellon and State Street Corporation) where data is available.
- UK: All values are sourced from the [Financial Stability Report, August 2020](#). Values represent aggregate amounts for major UK banks, including Barclays, HSBC, Lloyds Banking Group, Nationwide, Natwest Group, Santander UK and Standard Chartered. Data prior to 2011 are Bank of England estimates.
- EU: All values are sourced from [Financial Stability Review](#), May 2020.
- Japan: Tier 1 capital ratios and CET1 ratios are sourced from [Financial System Report \(October 2020\)](#). LCRs are simple average ratios of three Japan-based G-SIBs (Mitsubishi UFJ FG, Mizuho FG and Sumitomo Mitsui FG) as of June 2015 and December 2019.

<sup>b</sup> Numbers have been rounded to the nearest integer.

<sup>c</sup> The Tier 1 ratios (for both EU and Japan, before the GFC) and the CET1 ratios (for all other under the “Common Equity Tier 1 Ratios”) measure high-quality bank capital against risky positions (i.e., risk-weighted assets) and grew globally post-GFC. The higher the ratios, the more capital banks have against potential losses. The LCR ratio measures the banks’ liquid assets (e.g., cash or cash equivalent) against their expected cash outflows. The higher the ratios, the more cash banks have on hand to cover their regular cash need. As shown, both capital ratios and LCR increased significantly in major regions.

- **Higher liquidity holdings:** Banks have reduced their dependence on short-term, wholesale funding, which is more prone to liquidity concerns. In addition, they now hold more and higher quality liquid assets and have refined controls over liquidity risk. Annual stress testing incentivized banks to have more liquidity than required by regulations.
- **More robust risk management:** Banks made significant enhancements to their risk oversight, monitoring and governance. Banks are, in general, better at identifying, measuring, monitoring and reporting their risks across financial and nonfinancial risk categories. Risk reporting is overseen from the board level and shared with regulators on an ongoing basis.
- **Lowered overall risk and, in particular, improved counterparty credit risk management:** Banks reduced their overall risk exposure to illiquid or riskier assets that are harder to value, attract a higher capital charge and lack efficient risk mitigation measures. At the same time, banks implemented stronger controls over risks from remaining illiquid or riskier holdings. Increased clearing of derivatives transactions (see Figure 1.2) and the collateralization of non-cleared trades – further discussed below – significantly reduced bilateral counterparty risk. Large firms, for example, had received over \$170 billion in initial margin collateral from their counterparties to back their derivatives transactions at year-end 2019.
- **More resilient market infrastructure:** Many financial instruments have been standardized, making trading in these instruments more liquid and transparent. Banks have invested in strengthening the resilience of their operations (e.g., more automatic settlement and clearing to have fewer failed trades) and are better able to maintain services during severe disruptions. Exchange-traded and centrally cleared trades now account for a bigger share of trading, reducing failures of well-connected financial markets.

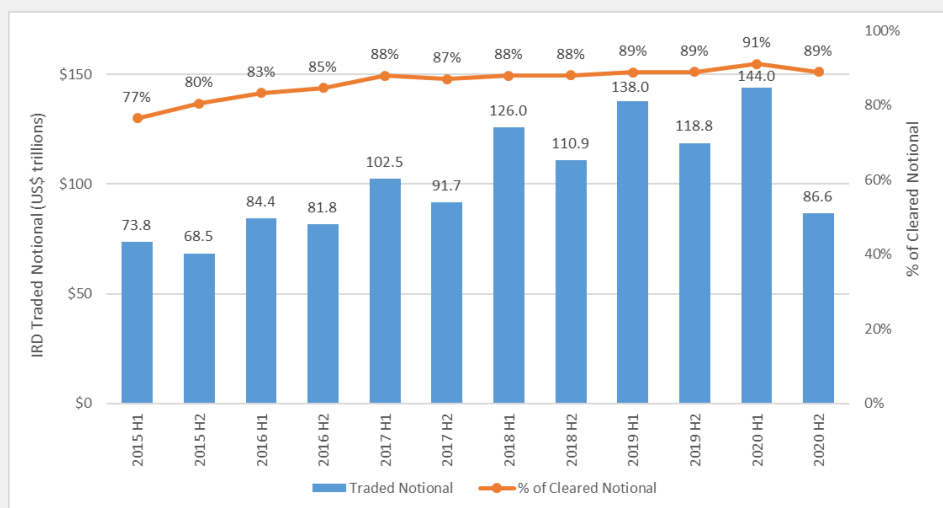
- **Stronger, more resilient and more transparent derivatives markets:** In addition to the improvements stemming from clearing and collateralization noted above, derivatives markets are more transparent as a result of regulations requiring all trades to be reported.

Regulatory reform efforts drove improvements in counterparty credit risk management, which significantly strengthened the ability of large banks and the financial system to function effectively during the COVID-19 crisis. These improvements include the

adoption of central clearing, which continues at a high level in the interest rate derivatives and credit default swap index markets.

Central clearing of derivatives helps enhance financial stability and reduce risk in the financial system by enabling greater netting of exposures and ensuring there are appropriate levels of collateral underlying firms' exposures. As Figures 1.2 and 1.3 demonstrate, the vast majority of derivatives in key market segments are now being cleared.

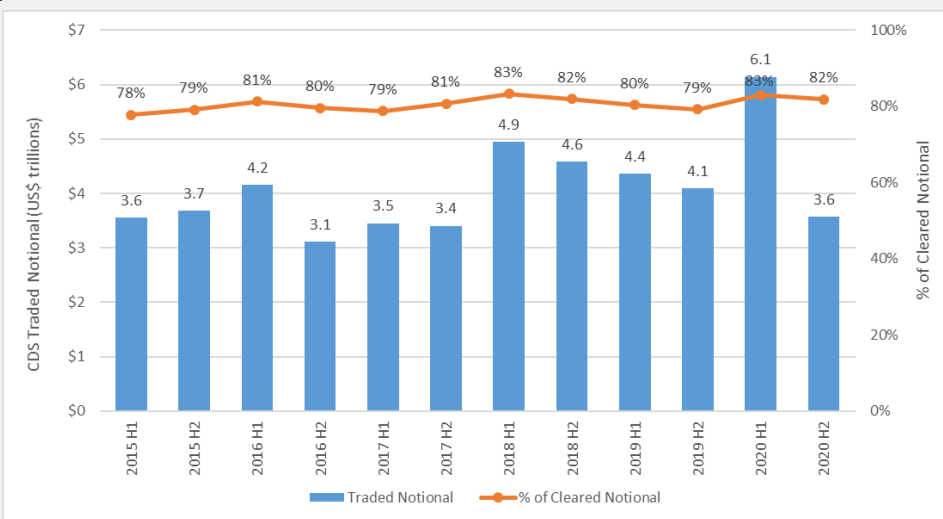
**Figure 1.2: A high percentage of interest rate derivatives are cleared**



**Percentage of traded notional amounts of OTC IRD cleared by central counterparties (CCPs): H1 2015–H2 2020**

Source: ISDA analysis based on DTCC and Bloomberg SDR data.

**Figure 1.3: A high percentage of credit default swap indices are cleared**



**Percentage of traded notional amounts for OTC CDS cleared by CCP: H1 2015-H2 2020**

Source: ISDA analysis based on DTCC and Bloomberg SDR data.

Derivatives transactions that are not cleared through CCPs are subject to margin requirements under a global policy framework and schedule established by the BCBS and IOSCO. These margin requirements help ensure a counterparty's exposures are backed by a sufficient amount of resources in the event of a default.

From 2017 to the commencement of the COVID-19 pandemic, the first four phases of the implementation of non-cleared margin rules have been completed.<sup>8</sup> As

shown in Figure 1.4, the initial margin (IM) for Phase One firms steadily increased over the years, and the amounts received and posted are approximately the same. Similarly, the IM received and posted for Phase Two and Phase Three firms increased from 2018 to 2019.

In sum, at year-end 2019, large banks had received over \$1 trillion of collateral from their counterparties to back their derivatives trades.

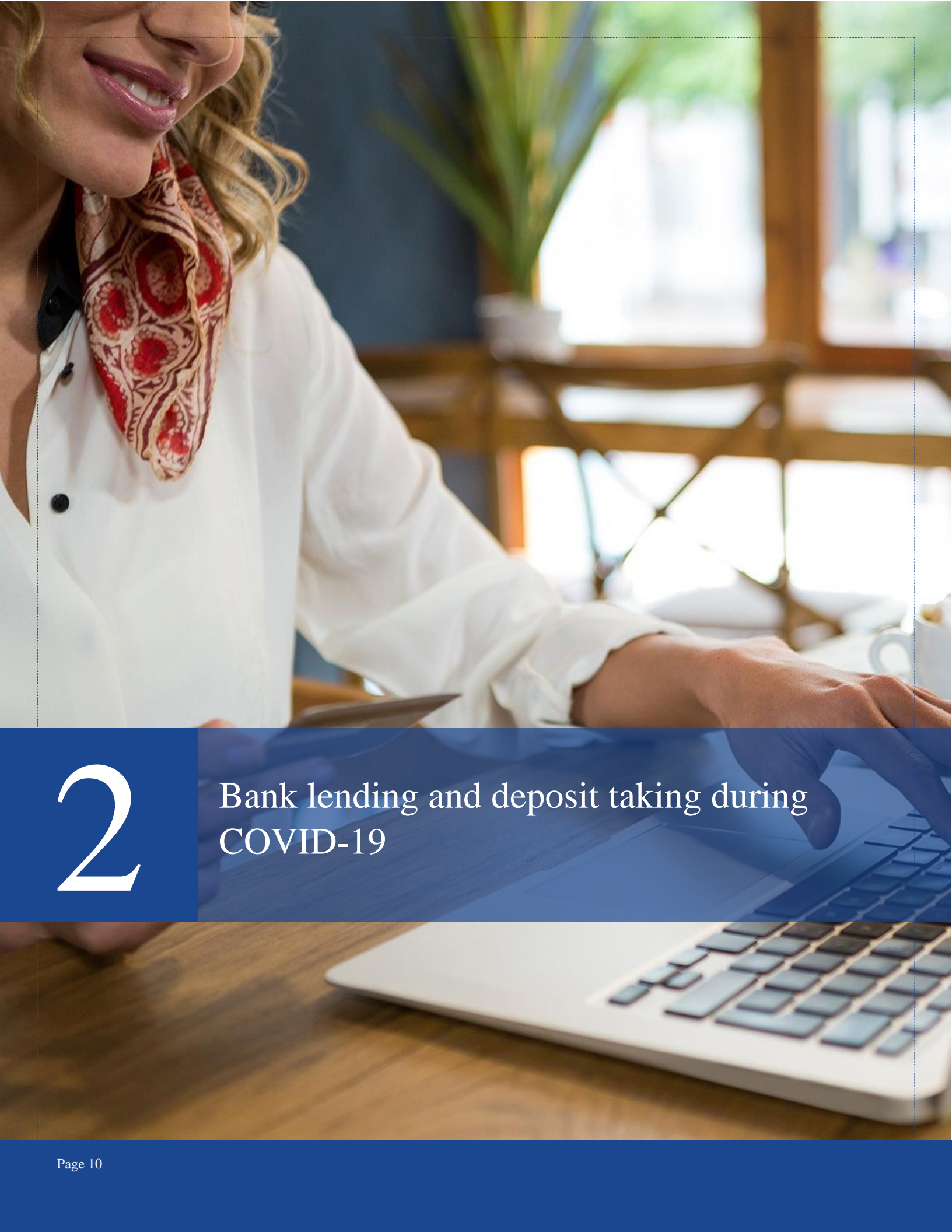
**Figure 1.4:** The IM and variation margin (VM) for non-cleared margins for Phase One, Phase Two and Phase Three firms<sup>9</sup> (billions of dollars)

		2019	2018	2017	2019 vs. 2018	2018 vs. 2017
<b>Phase One firms</b>	Total IM received	173.2	157.9	130.6	10%	21%
	Total IM posted	115.0	93.3	81.7	23%	14%
	Total VM received	897.3	858.6	893.7	5%	-4%
	Total VM posted	690.2	583.9	631.7	18%	-8%
<b>Phase Two and Phase Three firms</b>	Total IM received	10.5	4.8	N/A	117%	N/A
	Total IM posted	8.2	4.2	N/A	93%	N/A
	Total VM received	47.4	N/A	N/A	N/A	N/A
	Total VM posted	64.5	N/A	N/A	N/A	N/A

**Source:** ISDA Margin Survey Year-End 2019, April 2020.

<sup>8</sup> Phases One to Four of the reforms have been completed, but the implementation of Phase Five was extended to September 2021 and Phase Six to September 2022.

<sup>9</sup> Note: Because the margin rules require a two-way IM exchange between the in-scope counterparties, we show in the table the amount of IM received and delivered. For IM and VM, there are components that are regulatory-required by the margin rules or discretionary. The discretionary IM or VM is for legacy transactions executed prior to the implementation of the margin rules, transactions not subject to the margin requirements and/or for amounts posted in addition to regulatory IM or VM. IM is not available for Phase Two and Phase Three before 2018; neither is VM before 2019.



# 2

## Bank lending and deposit taking during COVID-19

Banks play a fundamental role in the economy by matching savers with borrowers. In normal times, businesses depend on regular access to bank loans to make long-term investments and to ensure they maintain enough working capital to meet their day-to-day financial needs, such as making payroll. Households and businesses depend on bank deposits as a safe and stable store of value to meet their savings and payment needs.

The pandemic experience has shown how banks serve both households and businesses by effectively and efficiently channeling credit into the economy. Indeed, banks have become even more important in supporting the economy as business revenues have fallen and both households and businesses have sought out rapidly available sources of funding and a safe and stable environment for deposits amid heightened uncertainty. In this section, we document how large banks have met the challenges presented by the pandemic while also supporting their customers and prudently managing their own financial risks.

### **Key takeaways**

During the COVID-19 pandemic, large banks have played an essential role in supporting businesses, households and the broader economy. Specifically, during the COVID-19 pandemic, large banks have:

1. Served as the most important and fastest-acting suppliers of credit in major regions. This immediate response in those critical initial months of March to June 2020 helped to rapidly stabilize markets and restore confidence. This section of the report focuses particularly on those crucial early months of the pandemic.
2. Quickly extended a significant amount of credit to businesses to help mitigate the pandemic's economic shock. The resulting lending allowed companies to remain open for business where possible, keep their employees paid and provide important goods and services to the public during the pandemic.
3. Managed a large inflow of deposits from households and businesses that sought a safe, stable and remotely accessible store of value amid heightened uncertainty during the pandemic. In turn, banks have used this increased deposit base to quickly extend credit into the economy to support jobs and economic activity.
4. Served as effective conduits of government support programs to quickly distribute government-backed loans to companies by leveraging their extensive distribution networks. The rapid pace with which stimulus funds were distributed has helped to lessen the brunt of the pandemic's economic shock and has supported the economy.
5. Proactively initiated their own programs to support businesses and households experiencing financial hardship due to the pandemic through voluntary implementation of various types of relief for their customers on existing financial obligations.

### **Quickly supplying ample credit to businesses to meet an acute need**

Globally, companies faced fast-moving and significant financial pressures at the onset of the pandemic and sought significant amounts of credit from banks. Indeed, a defining characteristic of the pandemic-induced economic shock has been its speed. Within weeks of the pandemic's onset, businesses required credit to compensate for sharply falling revenues so they could continue to operate, pay their employees and suppliers, and meet additional financial needs, such as purchasing personal protective equipment to protect their employees.

Meeting these needs was crucial to preventing significant economic disruption and cushioning the economic pain on households. Large banks around the

world quickly met this unprecedented demand for credit across multiple products and borrower segments by increasing the volume of credit extended over a remarkably short period of time, and most significantly during the crucial initial months of the crisis.

The FSB examined the impact of the pandemic in these crucial initial months in their report "Holistic Review of the March Market Turmoil."<sup>10</sup> It highlighted the significant demand of companies for immediate funding and commented on the importance of direct lending by banks in meeting this challenge:

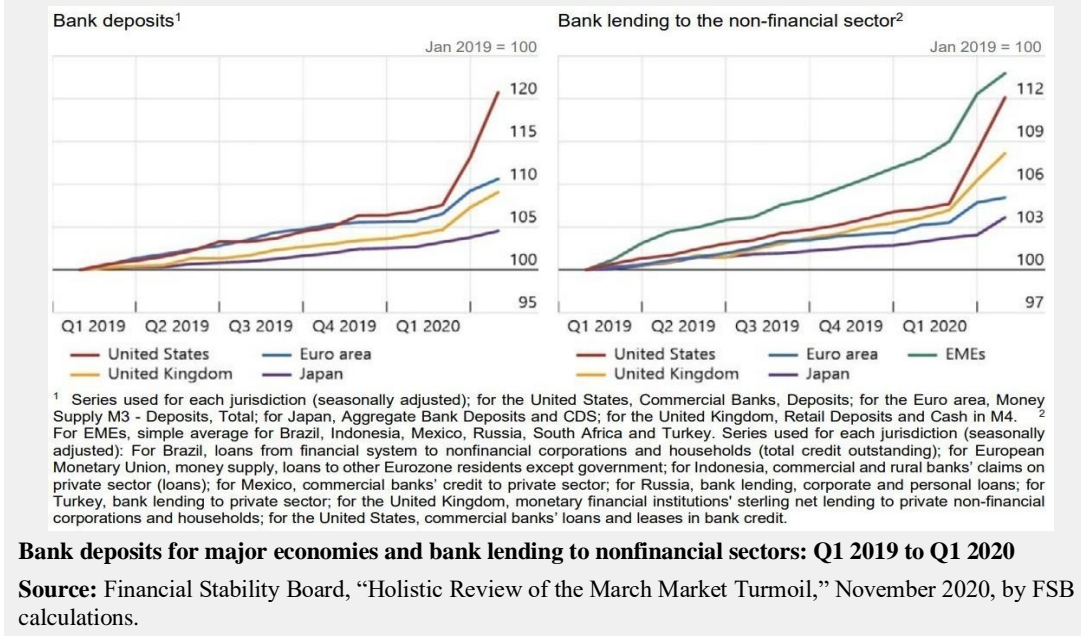
"[T]he corporate bond market became illiquid and the cost of issuing bonds increased. Issuance became strained, especially for high-yield corporates ... Investment-grade corporate bond issuance also declined considerably. In response, many corporates

<sup>10</sup> Financial Stability Board, "[Holistic Review of the March Market Turmoil](#)," November 2020.

turned to borrowing from banks, including via their existing credit lines and revolving credit facilities. For example, draws on US commercial bank credit lines to firms increased at record weekly rates in March.”

The very sharp increase in bank loans in all major economies, and a rapid parallel increase in bank deposits (discussed later in this section), is illustrated in Figure 2.1 from the FSB report.

**Figure 2.1: Bank lending and bank deposits increased in the initial months of the pandemic in all major jurisdictions**



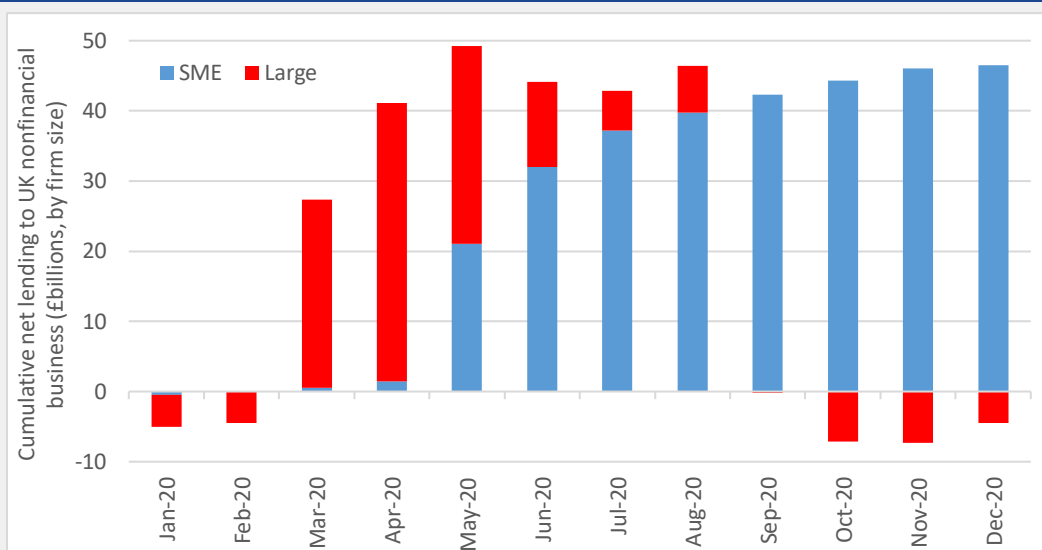
In gathering evidence of the lending activities of the large bank sector during this crucial initial period of the pandemic, we have focused our analysis on the economic regions of the UK and continental Europe, the US and Asia-Pacific, with a focus on Japan.

***The experience in the UK***

In the UK, banks actively responded to a quick and pronounced increase in demand for credit from

companies at the onset of the pandemic. This demand can be seen by an increase in net lending in the UK (i.e., gross lending minus repayments). Figure 2.2 shows that the most significant lending increases for large businesses materialized early in the pandemic, particularly in March and April 2020, while the greatest increases for small and mid-size enterprises (SMEs) occurred in May and June.

**Figure 2.2: UK banks extended significant credit to both large and small businesses**



**Cumulative net lending to UK nonfinancial businesses (£b, by firm size):<sup>11</sup> January–December 2020**

**Source:** Bank of England’s database.

The pace and scale of the lending, particularly in the early months of the crisis, was very significant compared to normal periods, as confirmed by the Bank of England (BoE), which stated in its August Financial Stability Report that:

“In March, UK banks’ net lending to corporates was £32 billion, over 30 times the average monthly lending over the previous three years” and that, after taking account of all sources of available funding, “net finance raised by many of these larger UK companies exceeded £50 billion in the four months to June.”<sup>12</sup>

Support by banks for the UK SME sector was very similar to that for large businesses, in terms of scale and pace, with the provision of net new lending to SME customers totaling £18.5 billion in May and a further net increase in lending of £10.7 billion in June. These figures dwarf prior record figures for lending to SMEs – the prior record monthly total was a net total of just £0.6 billion set during 2016.<sup>13</sup>

After the initial volatility, the return of stability to capital markets in the second half of 2020 allowed large corporations to refinance bank debt through those channels, as well as taking advantage of newly established public funding programs. However, capital markets funding is not an option for SME borrowers, so banks continued to provide significantly elevated funding support for the crucial SME sector throughout the ongoing challenges of 2020, as shown in Figure 2.2.

### *The experience in the EU*

In the EU, banks have been similarly instrumental in responding to the significant and urgent demand for funding. With respect to this unprecedented level of demand for credit in the crucial early months of the crisis, the European Central Bank (ECB) stated:

“The July 2020 euro area bank lending survey shows a further strong upward impact of the coronavirus (COVID-19) pandemic on firms’ loan demand, largely reflecting emergency liquidity needs. In the second quarter of 2020, firms’ demand for loans or their drawing of credit lines reached the highest net balance since the start of the survey in 2003.”<sup>14</sup>

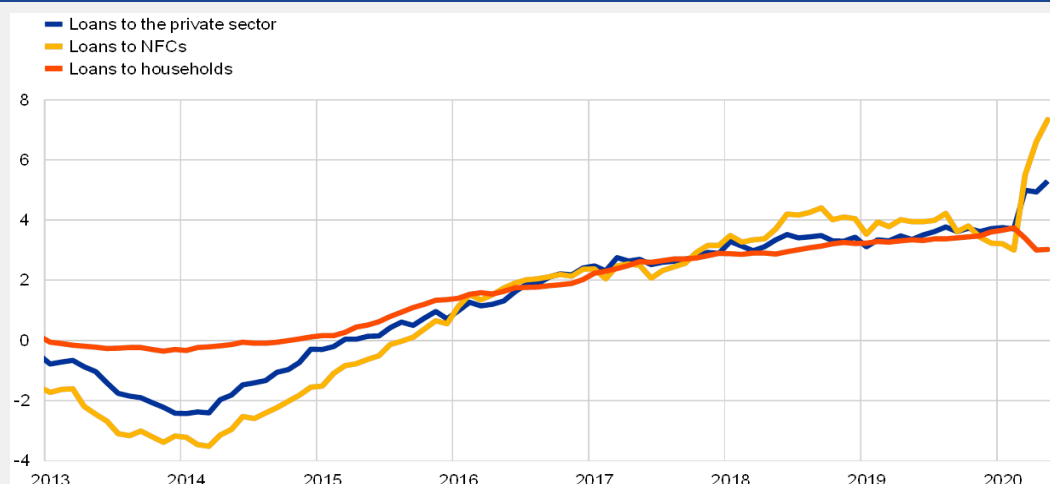
<sup>11</sup> Net lending is calculated as gross lending minus repayments, using monthly changes of monetary financial institutions’ sterling and all foreign currency gross lending and gross repayment (in sterling billions), not seasonally adjusted.

<sup>12</sup> Bank of England, “[Financial Stability Report](#),” August 2020.

<sup>13</sup> Ibid.

<sup>14</sup> ECB, [Update on Economic and Monetary Developments, Economic Bulletin](#), July 30, 2020.

**Figure 2.3: Loans to the private sector – record rate of loan growth**



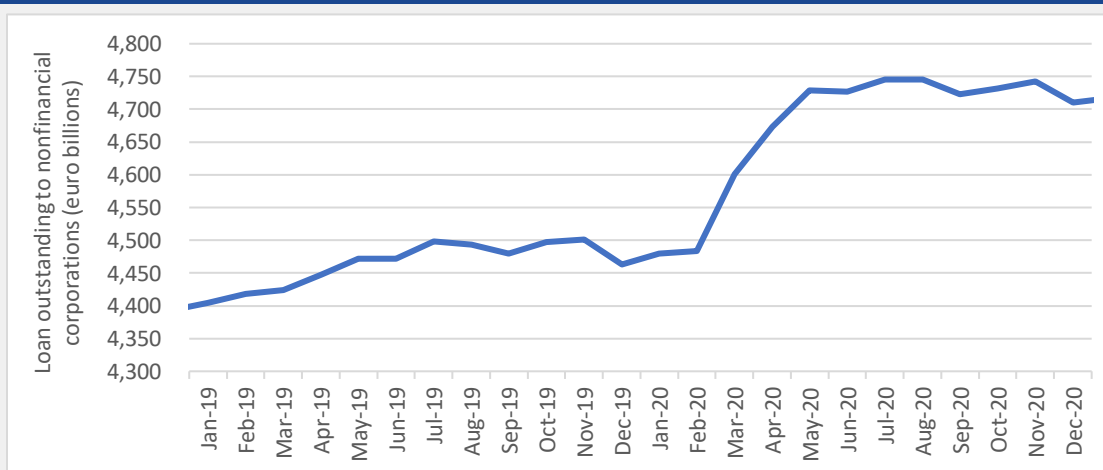
**Loans to the private sector in annual growth rate in percentages<sup>15</sup>: 2013–July 2020**

Source: ECB, as of July 30, 2020.

Figure 2.3, taken from the ECB’s July Economic Bulletin, shows the speed and extent to which EU banks acted in satisfying this dramatic need for funding during the early months of the crisis. The rate of growth in lending to the nonfinancial sector in those months was approximately three times the average annual rate of loan growth across the prior four years.

The scope and pace of demand for funding at the onset of the pandemic are clearly visible in Figure 2.4, which shows the actual level of bank loans to nonfinancial corporations. The amount of net new loans provided by banks in the EU to this crucial borrower segment totaled over €245 billion in the months of March, April and May 2020.

**Figure 2.4: From March to May 2020, large EU banks satisfied the sudden and significant increase in credit demand and maintained increased loan levels throughout the crisis**



**Loans outstanding to nonfinancial corporations: January 2019–December 2020**

Source: Euro Area Statistics,<sup>16</sup> in billions of euros.

<sup>15</sup> Loans are adjusted for loan sales, securitization and notional cash pooling. The latest observation is for May 2020.

<sup>16</sup> Euro Area Statistics, [Bank Balance Sheet - Loans](#).

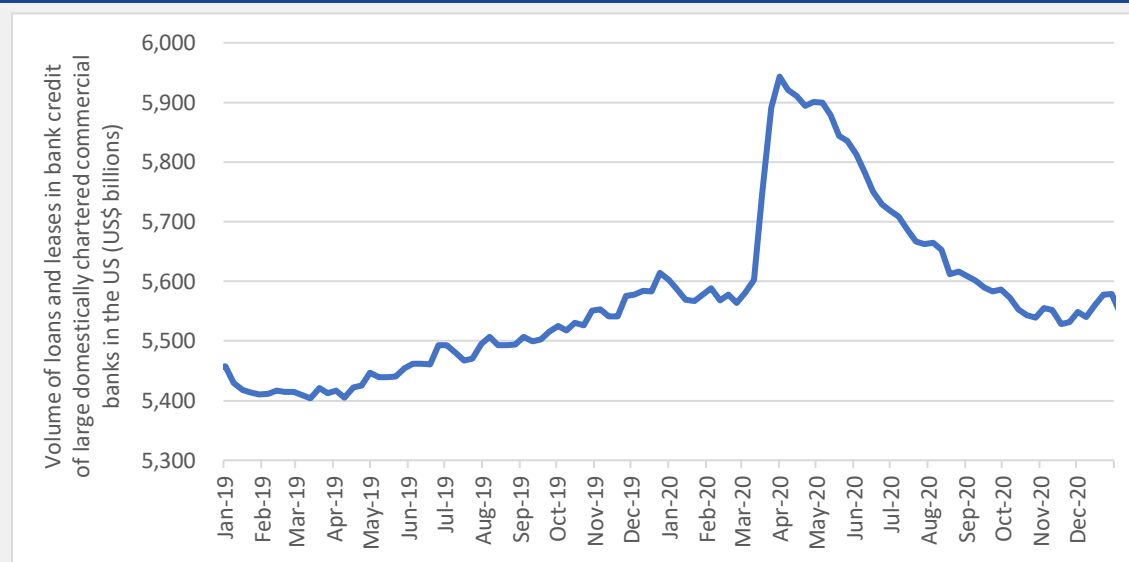


To put the extreme level of credit demand into perspective, net new loans over those initial months of the pandemic represented some four and a half times the level of new loans provided during the same three months in 2019 and more than six times the new loans provided in the corresponding months of 2018. Figure 2.4 shows EU banks continued to support nonfinancial corporations throughout the remaining months of 2020.

### *The experience in the US*

In the US, at the onset of the pandemic, large banks quickly responded by advancing almost \$400 billion in net new lending from early March to the first week of April, as shown in Figure 2.5. This represented an unprecedented increase in credit, both in terms of scale and pace, from the pre-COVID-19 period. The scale of credit supplied by banks during this period represents the largest quarterly increase on record.

**Figure 2.5:** From early March 2020, large US banks significantly and rapidly increased credit supplied to the economy



**The volume of loans and leases in bank credit of large domestically chartered commercial banks in the US: January 2019–December 2020**

**Source:** Board of Governors of the Federal Reserve System (US), in billions of dollars.

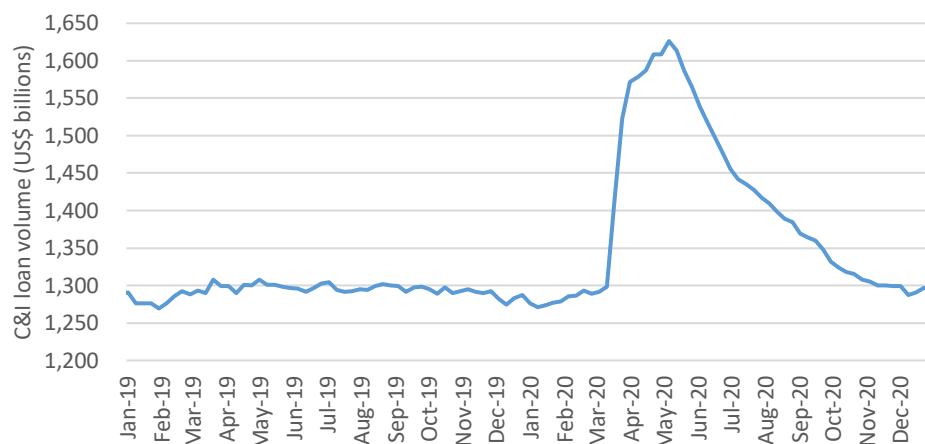
Banks rapidly met this unprecedented initial demand and maintained relatively high levels of outstanding loans over subsequent months, not returning to the pre-pandemic levels until September 2020. The banking sector provided crucial early funding to support companies in those initial stages of the pandemic, which further helped mitigate any loss of confidence and stabilized financial markets. Then, as discussed in more detail in Sections 3 and 4 of this report, bank funding was progressively replaced by government-supported funding facilities and capital markets issuance, which were, by then, possible due to the rapid stabilization of these markets following the initial volatility.

The large and rapid increase in total credit provided by large US commercial banks to nonfinancial borrowers was largely composed of commercial and industrial

(C&I) loans, which are loans used by businesses, such as manufacturers and retailers, to fund their operations (e.g., purchasing machinery and essential supplies). As shown in Figure 2.6, during the period of initial volatility and economic shock caused by the pandemic, total volume of C&I loans increased by more than 20% during March and April 2020, representing unprecedented levels of lending growth over such a short period of time.

The dramatic scale of credit demand met by the large banks in the US is clearly demonstrated in Figure 2.7, wherein rates of increased loan growth in each of the early weeks of the pandemic were many multiples of growth rates experienced prior to the onset of the pandemic.

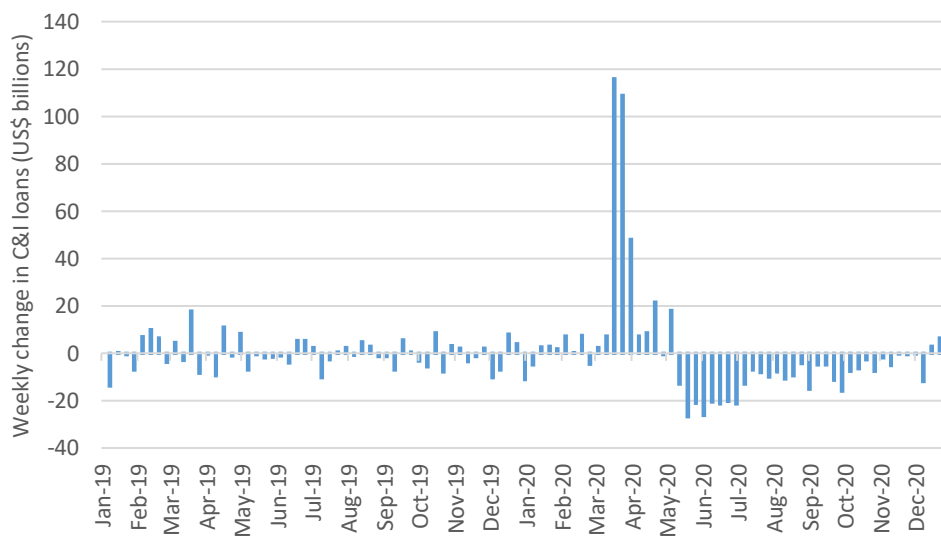
**Figure 2.6:** Large US banks supported a quick and prominent surge in C&I lending to businesses



**Total volume of commercial and industrial loans of large domestically chartered commercial banks in the US (in billions of dollars), not seasonally adjusted: January 2019–December 2020**

Source: Board of Governors of the Federal Reserve System (US).

**Figure 2.7:** Large US banks supported a rapid increase in C&I lending to businesses



**Weekly change in commercial and industrial loans of large domestically chartered commercial banks in the US (in billions of dollars), not seasonally adjusted: January 2019–December 2020**

Source: Board of Governors of the Federal Reserve System (US), H.8 Assets and Liabilities, Loans and Leases in Bank Credit, Large Domestically Chartered Commercial banks in the United States (in billions of dollars).

In the US, given their stronger balance sheets, larger client base and expansive geographic footprint, large banks drove most of the new credit extended to companies during the initial phase of the COVID-19 pandemic.<sup>17</sup>

The role played by the banking sector in this critical initial phase of the crisis was subsequently acknowledged by Chair of the FSB and Vice Chair for Supervision of the FRB Randal K. Quarles:

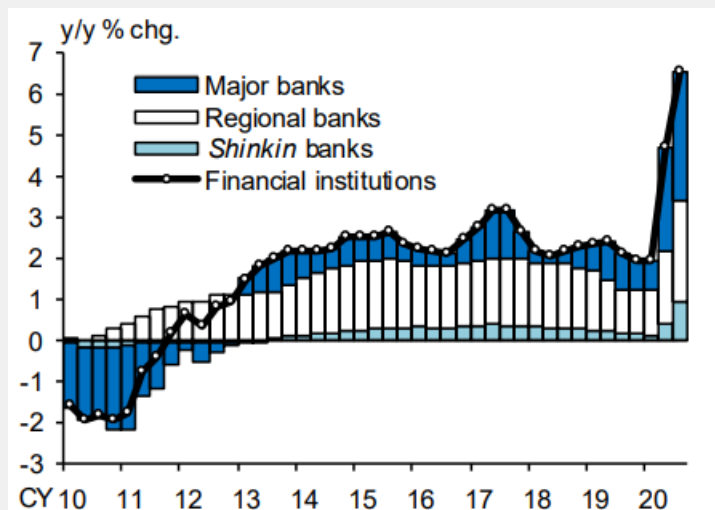
<sup>17</sup> Lei Li, Philip E. Strahan and Song Zhang, “[Banks as Lenders of First Resort: Evidence from the COVID-19 Crisis](#),” 2020, *NBER Working Papers* 27256, National Bureau of Economic Research, Inc.

“First, in March, many businesses – unable to satisfy their large cash demand through CP [commercial paper] or corporate bond issuance ... drew down on their existing credit lines with banks in order to raise cash. As a result, commercial and industrial loans in the banking system increased by nearly \$480 billion in March – by far the largest monthly increase ever. Banks were able to fund these loans without notable problems through inflows of core deposits, other borrowing, and, to a lesser extent, by using their buffers of liquid assets. The inflow of deposits resulted from increased demand for safe haven assets, reflecting confidence in U.S. banks. While banks were a source of strain during the GFC, they were a source of strength during this crisis.”<sup>18</sup>

*The experience in Asia-Pacific – with the focus on Japan*

In the Asia-Pacific region, a similar situation unfolded as banks rapidly supplied credit to businesses, local governments and households. Historically, and during COVID-19, direct bank lending far exceeds financing from capital markets in Asia-Pacific. Taking Japan as an example, as shown in Figure 2.8, Japanese banks supported an approximately 7% annual rate of loan growth in the last year up to September, the largest increase since the GFC. Similar to the observations in other regions, large banks acted as the fastest-growing supplier of credit to the real economy from the start of the COVID-19 pandemic, as shown in Figure 2.8.

**Figure 2.8: Large banks contributed the largest proportion of domestic lending in Japan**



**The proportion of domestic loans outstanding in Japan by types of financial institutions, 2010–September 2020**

**Source:** Bank of Japan (BoJ) Financial System Report (October 2020), raw data from BoJ “Principle figures of financial institutions.”

Of the approximately 7% year-over-year increase in domestic loans extended by banks in Japan, the largest portion was made by major banks, followed by regional and Shinkin banks.<sup>19</sup>

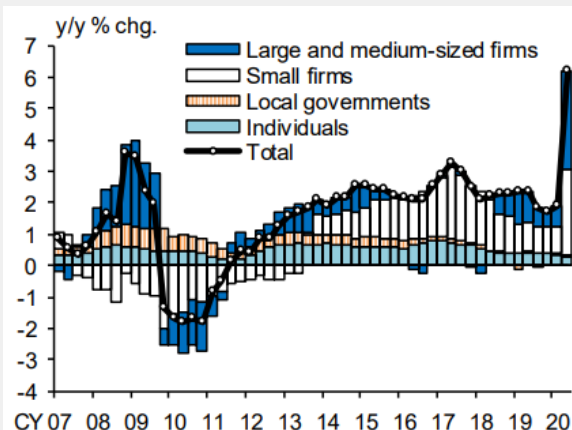
The extent to which Japanese banks acted to support their clients and the economy during the pandemic is

clearly demonstrated in Figure 2.9, wherein the annual rate of bank loan growth in the year to September 2020 was approximately three times the average annual rate of increase in bank lending over the previous five-year period. The largest year-over-year increase was in lending to large and medium-sized firms, followed by small firms and individuals.

<sup>18</sup> Randal K. Quarles, “[What Happened? What Have We Learned From It? Lessons from COVID-19 Stress on the Financial System.](#)” October 15, 2020.

<sup>19</sup> A Shinkin bank is a type of Japanese deposit institution that is a cooperative regional financial institution serving small and medium enterprises and local residents.

**Figure 2.9:** Japanese banks provided loans to various sizes of firms, local governments and individuals



**The proportion of domestic loans outstanding in Japan by types of borrowers: 2007–June 2020**

**Source:** Bank of Japan Financial System Report (October 2020). Loans to banks and insurance companies are excluded.

Most significantly, similar to bank lending activity in other regions, the initial months of the pandemic saw significant levels of credit demand. Indeed, the scale of demand in Japan in the early months of the pandemic was of a magnitude that was many multiples of the level

of credit demand in prior years. Figure 2.10 shows net loan amounts advanced by banks in the period January to June 2020 and for the same six-month periods in each of the prior two years.

**Figure 2.10:** Loan demand in the first half of 2020 profoundly higher than in prior years

	2020	2019	2018
All Banks and Shinkin	26.3	1.8	2.8
Major Banks	16.5	0.7	-0.3

**Loans to nonfinancial corporations: from January to June for each year**

**Source:** BoJ Time-Series Data Search, Principal Figures of Financial Institutions, Loans and Discounts, in trillions of yen.

The large majority of this increased demand for bank loans was met by the large Japanese banks. For the first half of 2020, this new lending by the large Japanese banks was more than 20 times net lending demand in the corresponding period of 2019.

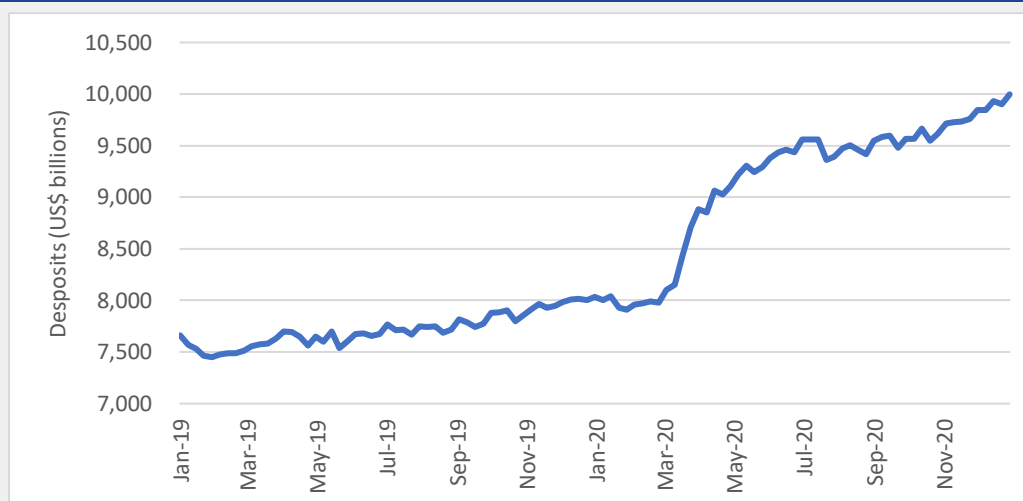
### Increased deposits during the pandemic: banks connect savers and borrowers

One notable feature of the COVID-19 pandemic has been the increased reliance of households and businesses on bank deposits, as highlighted by the FSB in its report analyzing the early months of the crisis. As the pandemic unfolded, financial markets saw an unprecedented rise in volatility and uncertainty as stock market volatility, as measured by the CBOE Volatility Index, increased to 65% from roughly 15%. This marked increase in financial market volatility was spurred by

significant uncertainty over the speed and breadth of the pandemic and related policy responses.

Against this backdrop, households and businesses sought a safe, stable and remotely accessible store of value for their financial resources and largely turned to bank deposits. In the US, for example, large bank deposits grew by an unprecedented \$1.4 trillion over the first half of 2020 (see Figure 2.11). These deposits have come from a variety of sources. Households and businesses have increasingly sought out deposits at commercial banks as a safe store of value in the face of heightened uncertainty during the pandemic. In addition, custody banks have taken on a significant increase in deposits that have come from pension funds, mutual funds and other buy-side investors that have experienced significant cash inflows during the pandemic.

**Figure 2.11: Deposits at large US banks increased significantly from March 2020**



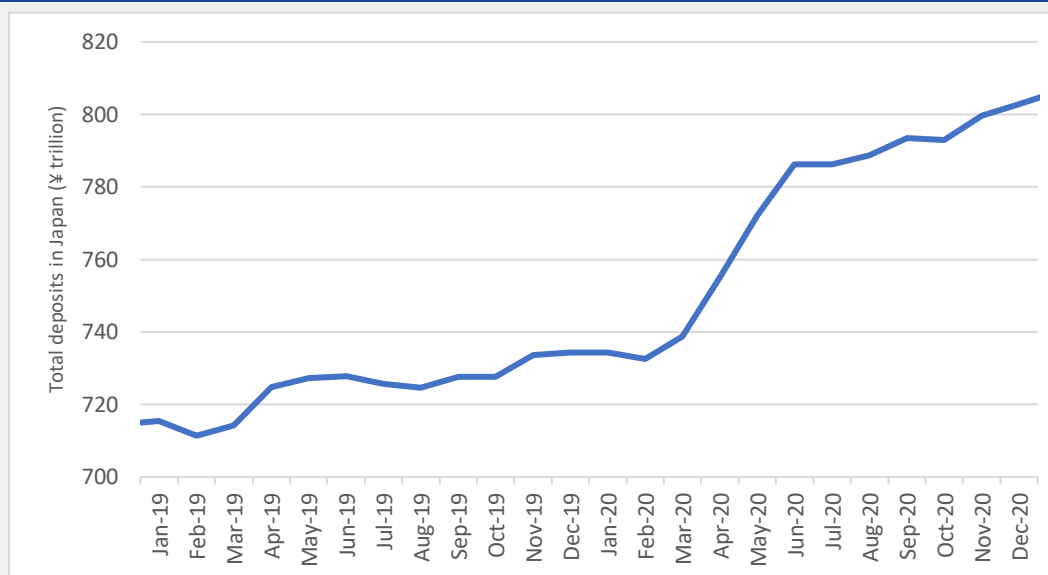
**Deposits at large domestically chartered commercial banks: January 2019–December 2020**

**Source:** Board of Governors of the Federal Reserve System (US), H.8 Assets and Liabilities, Loans and Leases in Bank Credit, Large Domestically Chartered Commercial banks in the United States, not seasonally adjusted, in billions of dollars.

In part, the massive increase in large bank deposits during the pandemic reflects the strength of large banks as they entered the pandemic with high levels of capital and liquidity, which underscores their safety and soundness (see related discussion in Section 1 of this Report).

Banks in other jurisdictions saw similar rates of increase in deposits. In Japan, while deposits exhibited a steadily rising trend in the period leading up to early 2020, the initial months of the pandemic saw a dramatic spike in bank deposits, as shown in Figure 2.12.

**Figure 2.12: Deposits at banks in Japan rose sharply from March 2020**



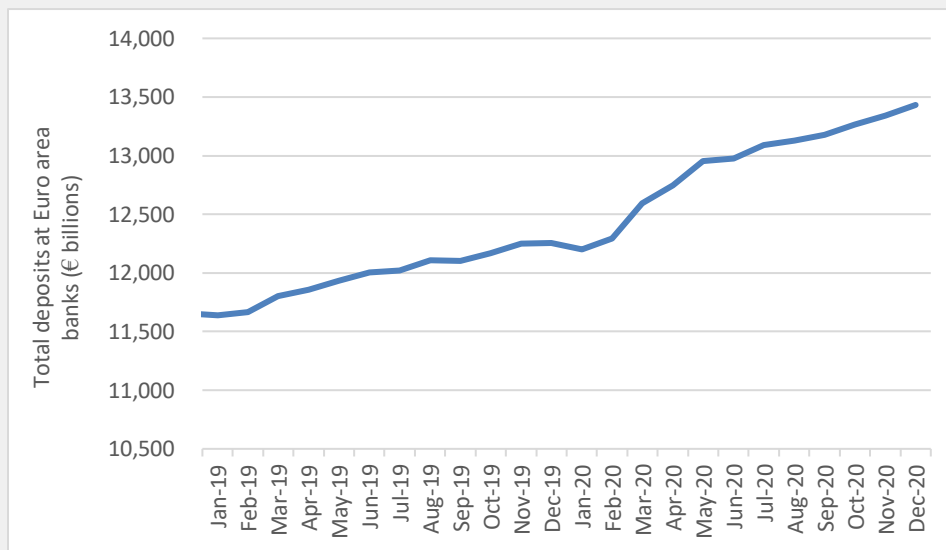
**Trends of deposits (including real deposits and certificates of deposit) in Japan (in ¥ trillion): January 2019–December 2020**

**Source:** BoJ Time-Series Data Search, Principal Figures of Financial Institutions, deposits, in trillions of yen.

Banks in the EU and UK experienced very similar rates of increased deposits after the onset of the pandemic. The pattern of deposits mirrors the profile experienced in the US and Japan. In the EU, despite the very large increase in deposits from March to June, depositors continued to look to banks as a safe haven for their

increased cash reserves, even after the initial phase of the pandemic (see Figure 2.13). However, in the UK, while the surge from March to June was of a similar scale, the level of new deposits flattened out, albeit stabilized at the high level (see Figure 2.14).

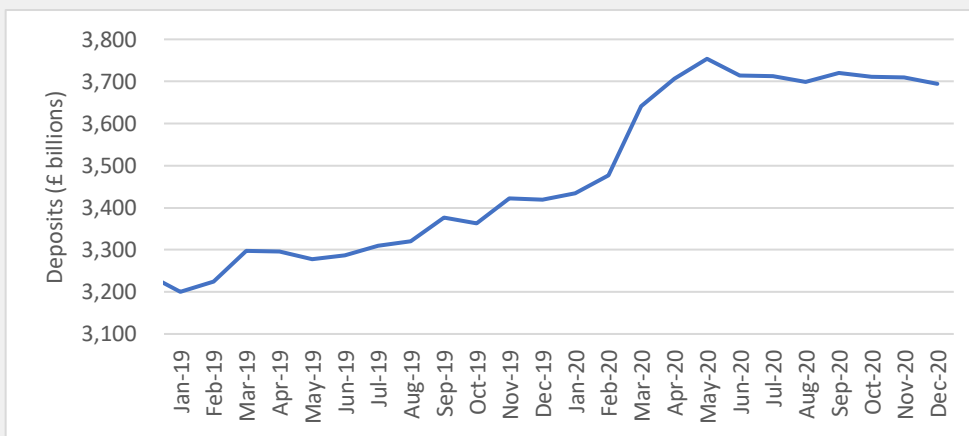
**Figure 2.13: Bank deposits in the Euro area rose very strongly from March 2020 and have continued to rise**



**Total deposits at Euro area banks, denominated in euro, not seasonally adjusted, outstanding amounts at the end of period: January 2019–December 2020**

**Source:** Euro Area Statistics, banks' balance sheet – deposits, in billions of euros.

**Figure 2.14: Bank deposits in the UK rose strongly from March 2020 and have stabilized at these high levels**



**Total deposits at UK banks, monthly amounts outstanding of monetary financial institutions' sterling retail deposits (excluding notes and coin) from the private sector, not seasonally adjusted: January 2019–December 2020**

**Source:** BoE, Bankstats table, monetary financial institutions (excluding central banks) balance sheets, in billions of sterling.

It is important to note that banks quickly channeled this increase in savings and deposits into credit to support the economy, especially during the earliest stages of the pandemic, as discussed earlier in this report. This sharp rise in bank lending served to keep businesses operating and employees paid and has enabled households to access important goods and services during the pandemic. Accordingly, banks have demonstrated strong liquidity management in serving their core function of financial intermediation – linking savers and borrowers across the economy during the pandemic.

### **Effective conduits of government fiscal support programs to mitigate income shocks to companies**

Banks have been supporting various government programs to support businesses and households, in addition to providing credit to companies as a matter of course in their everyday operations. Speed has been a critical factor in rolling out these large-scale programs. Central banks and financing authorities around the world moved swiftly to establish funding support programs, and large banks have contributed to the rapid rollout by leveraging their extensive distribution networks to deliver crucial government support broadly and in a timely fashion.

### ***Broad-based bank support for government support for companies around the globe***

In the UK, the central government has implemented multiple business loan schemes, including the Bounce Back Loan Scheme, the Coronavirus Large Business Interruption Loan Scheme, the Coronavirus Business Interruption Loan Scheme and the Future Fund. These programs are operated by the state development bank (i.e., British Business Bank<sup>20</sup>) through partnering with accredited lenders, mainly banks, while the government guarantees all funds. By December 2020, more than 1.5 million loans worth £68.1 billion were distributed through these programs, among which £975.5 million was provided by private lenders (mainly banks).<sup>21</sup>

In continental Europe, banks have supported the implementation of public loan guarantee programs that most euro-area governments have established.

According to Bruegel, from the program's implementation in April 2020 to December 2020, firms have drawn down €146 billion in Italy, €130 billion in France, €117 billion in Spain and €51 billion in Germany.<sup>22</sup> Switzerland's Federal Council approved CHF 20 billion worth of loans for banks to lend to SMEs under existing banking relationships on March 25 and increased the funding for guarantees to CHF 40 billion on April 3, 2020.<sup>23</sup> In Germany, private-sector banks participated in syndicate financing together with the state development bank (i.e., Kreditanstalt für Wiederaufbau) to satisfy more sophisticated financing needs from medium- and large-sized companies. These efforts represent some of the most extensive financial support packages in these countries' histories, underscoring the critical partnership between governments and banks.

Banks in the Asia-Pacific region have similarly facilitated the widespread availability and distribution of these funding support programs. Japanese banks have extended ¥53 trillion worth of loans to SMEs under the government's Loan Support Program as of September 2020.<sup>24</sup> Such efforts have thus far managed to keep the number of business bankruptcies in check when compared to prior periods of economic stress: in the initial peak of COVID-19 in Q1 2020, the bankruptcy rate in Japan was about 700 cases per month compared to over 1,500 cases per month at the peak of the GFC.<sup>25</sup> In Singapore, the Monetary Authority of Singapore (MAS) and the Enterprise Singapore have worked with banks to support lending to SMEs and lower their borrowing costs in the face of significant economic uncertainties. From its introduction in April to October 2020, the program disbursed S\$5.7 billion to eligible financial institutions, mainly banks, to provide loans to SMEs.<sup>26</sup>

### ***Extensive bank support for the US Paycheck Protection Program (PPP)***

In the US, the federal government enacted the PPP to provide loans to small businesses to keep employees on payrolls and pay necessary business expenses (e.g., rent and utilities). The Small Business Administration

<sup>20</sup> British Business Bank is a state-owned economic development bank established by the UK Government. Its aim is to increase the supply of credit to SMEs as well as provide business advice services.

<sup>21</sup> British Business Bank News, "[British Business Bank support schemes deliver £68bn of loans to smaller businesses](#)," December 2020.

<sup>22</sup> Bruegel, "[Loan guarantees and other national credit-support programmes in the wake of COVID-19](#)," April 2021.

<sup>23</sup> Switzerland's Federal Council, "[Federal Council increases volume of liquidity assistance guarantees to CHF 40 billion](#)," March 2020.

<sup>24</sup> Bank of Japan, "[Loan Disbursement under the Fund-Provisioning Measure to Stimulate Bank Lending](#)," September 2020.

<sup>25</sup> Trading Economics, "[Japan Bankruptcies](#)," with raw data from Tokyo Shoko Research.

<sup>26</sup> MAS, MAS extends facility to support lending by banks and finance companies to SME, October 2020.

(SBA), tasked with administering the PPP, partnered with banks to administer this large and complex program. As shown in Figure 2.15, by June 2020, large banks (banks with more than \$50 billion in assets) had

made over 1.6 million loans and in doing so had supported over 17 million jobs through their participation in the PPP.

**Figure 2.15: Banks supported loan distribution for the PPP and associated job retention**

Lender Size (by Assets)	Lender Count	Loan Count	Net Dollars Lent (\$BN)	Jobs Reported
>\$50b	34	1,639,892	190	17,235,244
All banks	4,273	4,409,646	497	48,318,437

**PPP approved lending and job summary as of June 30, 2020<sup>27</sup>**

**Source:** SBA Paycheck Protection Report Program Report: Approvals Through June 2020.

Not only have banks fulfilled their responsibilities of distributing loans effectively, but they have channeled aid to reach companies across economically diverse areas. According to the SBA, banks have distributed 27% of PPP funds to companies in the low- and moderate-income areas (defined by the US Census), proportionate to the percentage of the population in those areas (28%). Moreover, close to one-quarter of the total dollar value of loans under the PPP has been provided to companies in historically underutilized business zones, known as “HUB Zones” (23%, or \$117.3 billion net). By inference, this support has provided a critical financial lifeline to those communities hit hardest by the pandemic.

**Large banks have independently initiated programs and measures to support households and businesses adversely affected by the pandemic**

In addition to partnering with governments to execute government support programs, large banks have proactively initiated measures and programs to support households and businesses experiencing financial hardship during the pandemic. Specifically, these banks have voluntarily implemented various types of relief for households and businesses on existing financial obligations.

In all major regions, large banks have offered loan-payment forbearance, fee reductions or waivers, and suspension of home foreclosures and evictions or automotive repossession. Operationally, banks have expedited application processing and approval, offered extended service hours, and provided more features and services online or through mobile applications with 24/7 accessibility to meet customers’ needs. Figure 2.16 summarizes commonly observed bank-initiated programs.

<sup>27</sup> Approximate figure as reported by the SBA.



**Figure 2.16:** Large banks have initiated various measures and relief programs to support individuals and companies during the COVID-19 pandemic around the globe

Type of relief	Details
<b>Loan-related</b>	<ul style="list-style-type: none"> <li>• Offer business/consumer support packages</li> <li>• Defer principal and interest payments</li> <li>• Increase write-off thresholds of underlying assets</li> <li>• Offer restructuring, modification and extension to existing credit</li> <li>• Temporarily suspend reporting on some payment deferrals</li> <li>• Suspend foreclosures, evictions and repossessions of collateral</li> </ul>
<b>Fee-related</b>	<ul style="list-style-type: none"> <li>• Waive or reduce ATM fees, monthly service fees, commissions, etc.</li> <li>• Waive, reduce or defer late-payment fees, overdraft fees, early redemption fees, etc.</li> </ul>
<b>Operational efficiency-related</b>	<ul style="list-style-type: none"> <li>• Expedite application processing and approval</li> <li>• Extend service hours</li> <li>• Increase features and services available online or through mobile applications</li> <li>• Provide uninterrupted and streamlined digital access</li> </ul>

Deferring loan payments is the most commonly observed relief that banks have provided to their commercial, SME and retail customers during the pandemic. Loan deferrals apply to various loan types, including those most used by customers, notably commercial loans, mortgage loans, auto loans and credit cards.

The impact of this relief has been significant for those suffering from financial hardship. As an example, in the US, according to a survey conducted by Northwestern Mutual in September 2020,<sup>28</sup> over a quarter (26%) of US adults took advantage of payment deferral plans, with the top products for deferrals being mortgages (8%), credit cards (8%), student loans (6%) and auto loans

(5%).<sup>29</sup> As of May 26, 2020, the number of homeowners under forbearance programs peaked, reaching nearly 4.76 million, representing 9% of the entire active mortgage universe and over \$1 trillion in unpaid principal.<sup>30</sup> By the end of 2020, 2.8 million homeowners were still benefitting from forbearance.<sup>31</sup>

As well as allowing loan payment deferrals, banks suspended foreclosures, evictions and repossessions of homes and vehicles. In the first half of 2020, these actions were down 44% from the same period in 2019 and down 54% from the same period in 2018.<sup>32</sup> Such relief programs have significantly alleviated financial pressures for homeowners during the pandemic.

<sup>28</sup> Northwestern Mutual, "[Northwestern Mutual Planning and Progress Study 2020](#)," September 2020.

<sup>29</sup> Some portion of mortgage and student loan forbearance is attributed to the Coronavirus Aid, Relief, and Economic Security (CARES) Act.

<sup>30</sup> Black Knight, "[Mortgage Forbearance Volumes Flatten, Total Roughly Steady at 4.76m](#)," May 2020.

<sup>31</sup> Black Knight, "[The U.S. Sees Its Third Consecutive Week of Forbearance Plan Increases](#)," January 2021.

<sup>32</sup> ATTOM Data Solutions, "[165,530 U.S. Properties with Foreclosure Filings in First Six Months of 2020, Hit All-Time Low](#)," July 2020.

## Areas for future consideration: bank regulatory regime and the pandemic experience

It is important to acknowledge the rapid response of regulators to the crisis in encouraging banks to utilize buffers and adopting the flexibility within the regulatory framework to encourage and accommodate banks in their efforts to support the economies. The rapid and proactive response of regulators and central funding authorities to the crisis was a vital element in helping to stabilize markets and limit the economic fallout from the pandemic.

However, while the bank regulatory framework has significantly enhanced the financial sector's ability to deal with the stresses of the pandemic, this experience offers a unique opportunity to assess whether the entire system has worked as fully intended by regulators. In particular, the pandemic represents a significant economic shock that arose entirely outside the financial system. As a result, the response of the banking system to the crisis can shed important light on those elements of the regulatory regime that may benefit from further analysis and consideration. As stated by Augustin Carstens, General Manager, BIS, in a speech in September 2020:

“[W]hile post-Great Financial Crisis reforms have come a long way in making the global financial system more resilient, the current crisis provides an opportunity to assess their effectiveness and to identify potential areas for improvement in the macro-financial stability framework.”<sup>33</sup>

In the context of bank lending activities in particular, the pandemic has highlighted several aspects of the large bank regulatory regime worthy of additional consideration: leverage capital requirements, capital and liquidity buffers, and the procyclicality of the regulatory framework. Additionally, there are related questions about how banks fit into the rest of the financial system and specific aspects of the financial system that should be evaluated in light of the pandemic experience.

### ***Leverage-based capital requirements***

Leverage-based capital requirements are an important part of the large bank regulatory regime, since all large banks are subject to the Leverage Ratio (LR). Leverage requirements, such as the LR, are a risk-insensitive capital requirement that compare the

balance-sheet value of equity to the balance-sheet value of total assets (adjusted for off-balance-sheet items) without regard to the risk of those assets (i.e., the assets are not risk-weighted). Also leverage requirements vary across jurisdictions (e.g. in the U.S., large banks are also subject to the “Tier 1” leverage ratio that compares the value of Tier 1 capital to total assets without reference to off-balance-sheet exposures).

Regulators have long taken the position that leverage requirements are intended to serve as a “backstop” to risk-based requirements and should not generally be a binding constraint on banks. During the earliest stages of the pandemic, however, concerns quickly arose about how the potentially binding nature of leverage capital requirements could limit balance-sheet expansion and the desired flow of credit to the economy. More specifically, during the crisis, borrowers drew extensively on available credit facilities, and the official sector launched various programs to provide liquidity to the economy. However, much of these liquidity injections were deposited at large banks.<sup>34</sup> As deposits and total assets increased, risk-insensitive leverage capital measures fell toward regulatory minima. At some point, with a large enough inflow of liquidity into the large banking sector, leverage capital requirements would have placed a hard limit on the size of bank balance sheets and the resulting flow of credit.

In response to these concerns, regulators made several targeted and temporary changes to the LR to reduce the extent to which risk-insensitive leverage requirements limited balance-sheet expansion and the flow of credit to the economy. These actions varied among jurisdictions, but included the exclusion of central bank deposits and holdings of some government securities. Looking ahead, these measures raise several important questions about the appropriate use of leverage capital requirements in the large bank regulatory regime.

First, this experience raises questions about whether leverage requirements can reasonably be considered a “backstop.” The pandemic experience suggests that leverage requirements may quickly move to the fore

<sup>33</sup> BIS, “[Supervisory priorities in the age of Covid and beyond](#),” September 2020.

<sup>34</sup> As an example, the Federal Reserve's asset purchases effectively remove securities from the financial system and replace those securities with deposits at large banks.

and constrain large banks in periods of stress, when the economy most acutely needs credit and liquidity.

Second, the targeted and temporary changes to leverage capital requirements raise important questions about regulatory uncertainty. Banks are best positioned to manage challenging conditions when the regulatory regime is stable and predictable. Sharp changes to regulatory requirements of unpredictable magnitude and duration create uncertainty and could hamper efforts to deploy credit.

The limitations of the design of the LR and the value of further analysis was addressed early in 2021 by Ryozo Himino, the Commissioner of the Japanese Financial Services Agency, who stated:

“I think we should look at what didn’t necessarily work as intended when the regulatory reform was designed ... We may also want to look at the supplementary leverage ratio for banks, which was designed to curb exuberance in good times, but may have worked as a constraint during the March 2020 liquidity panic.”<sup>35</sup>

Accordingly, it is important to consider the appropriateness of the design of leverage capital requirements, particularly in circumstances of market stress and where increased bank support and activity are required. Furthermore, it is important to evaluate the susceptibility of leverage requirements to unpredictable changes that may limit their overall effectiveness as a regulatory tool.

### ***Capital and liquidity buffers***

Regulators have included liquidity and capital buffers in the large bank regulatory framework with the intention of providing flexibility during periods of stress so that banks can “use” these buffers to help absorb losses and provide capacity to inject credit and liquidity into the economy. More specifically, capital buffers are prescribed amounts of capital over and above regulatory minima. Banks may reduce their capital levels below levels prescribed by buffers, but doing so results in automatic and graduated restrictions on shareholder distributions. The experience of the pandemic suggests that, in practice, the ability of large banks to draw down these buffers

to support the flow of credit has been somewhat limited. In particular, during the pandemic, regulators placed additional restrictions on shareholder payouts that largely rendered the distribution restrictions imposed by breaching capital buffers inconsequential, yet the evidence suggests that buffers have not been as extensively utilized as the regulators and financial authorities may have desired.

In March 2020, the Basel Committee issued a statement encouraging banks to utilize capital and liquidity buffers during periods of stress, and parallel statements were issued by regional regulators and authorities.<sup>36</sup> However, even after regulators explicitly encouraged banks to use capital and liquidity buffers, initial evidence suggests that these buffers were not used as extensively as intended. For example, Randal K. Quarles, Chair of the FSB and Vice Chair for Supervision of the FRB, commented:

“Those cushions ... are designed to be cushions, to be used during a period like this, and for the most part, banks haven’t done that ... I would have liked to have seen that happen ... we are in the process of looking internally within the regulatory system to say what disincentives have we created in the regulatory system to the use of those buffers that perhaps we can adjust, so that the buffers become more usable in the time of stress.”<sup>37</sup>

In light of the pandemic experience, regulators should consider analyzing what factors may have limited the capacity of banks to more extensively utilize their buffers and evaluate the structure and design of regulatory capital requirements. In particular, they should consider the appropriate role to be played by buffers in the large bank regulatory regime.

A more prominent role for a globally consistent redesign of the countercyclical buffer is one such area for consideration. A number of important questions have been raised by the pandemic experience.

First, some have suggested that regulators should provide more specific guidance and clarity to banks on the use of liquidity and capital buffers.<sup>38</sup> They have posited a view that banks may have hesitated to

<sup>35</sup> Remarks by Himino Ryozyo, Commissioner, Financial Services Agency of Japan at the Asian Financial Forum on January 18, 2021, “[What we saw in 2020 and what we need to do in 2021 and beyond.](#)”

<sup>36</sup> BIS, “[Basel Committee coordinates policy and supervisory response to Covid-19.](#)” March 2020.

<sup>37</sup> *Financial Times*, “[Global regulators to examine banks’ lending caution during pandemic.](#)” December 2, 2020.

<sup>38</sup> *Brookings*, [The FRB should clarify how banks can deploy capital and liquidity](#), March 2020 and BlackRock, [Financial Stability and Non-Bank Financial Institutions](#), September 2020.

follow guidance from regulators to use voluntary buffers because they lacked sufficient clarity on how supervisors would view the draw on liquidity and capital buffers and whether this would raise supervisory concerns about remaining “safe and sound.”

Second, there is concern that there is a lack of clear understanding of regulatory capital requirements among market participants and analysts, many of whom may simply view buffers as another requirement that is indistinguishable from regulatory minima. Moreover, this issue may be exacerbated by public disclosure requirements that provide the public with a readily observable reference point that may make it more challenging for firms to make use of capital and liquidity buffers.

Also, recovery and resolution requirements (including for capital, such as TLAC and MREL, and liquidity including regional elements such as RLAP) may have served to constrain the capacity of banks to respond.

The response of rating agencies to a significant reduction in capital ratios is also a concern that has been raised. Since the GFC, there has been an increasing focus on increased capital ratios and larger buffers. If market participants and external analysts have come to view buffers as a hard constraint, banks may be unable to adequately draw down buffers for fear that markets might immediately interpret such a move as a sign of weakness, irrespective of contrary statements from regulators.

The Chairperson of the European Banking Authority, Jose Manuel Campa, alluded to this issue in a speech in September 2020:

“On the one hand, there could be a general concern related to the market stigma associated with the use of buffers or even with the simple decline of capital ratios. This would indicate the reluctance of market participants to accept fluctuations of buffers as a normal – cyclical – event they should not be worried about.” And later in the speech, talking more broadly about the performance of the regulatory framework during the pandemic, he said: “Once the health crisis is – hopefully – under control and the emergency over, it will be natural to make a stock-take of the

elements that have worked well and those deserving some adjustments.”<sup>39</sup> The design of buffers and their utilization is an area worthy of such constructive analysis.

Finally, regulatory buffers cannot be effectively evaluated independently of the regulatory capital requirements to which they are associated. Accordingly, recent changes in regulatory capital requirements<sup>40</sup> should also be considered as these new requirements must be actively managed by banks and serve to define any buffer that may or may not be used during a period of stress.

### *Capital procyclicality*

There has been discussion over the past several years about whether the framework may, in some elements, prove to be excessively procyclical, particularly during periods of stress. This concern has increased significantly as a result of the pandemic experience, particularly in relation to requirements for loss-provisioning by banks.

In recent years, banks have been implementing new accounting standards related to reserving appropriately against future credit losses on loans. These relatively new expected credit loss (ECL) frameworks – IFRS 9 and the current expected credit loss (CECL) methodology – can have material consequences for banks because they directly impact regulatory capital through earnings.

In general, these new standards adopt a forward-looking, modeled loss approach for loan loss reserves, in contrast with the incurred loss approach under prior standards, which limited recognized loss reserves to those where management deemed the loss event to have already occurred.

There are some specific features of IFRS 9 or CECL that should be considered in light of this crisis experience (e.g., the local interpretation of the criteria for a significant increase in the credit risk of a loan). More generally, there are concerns among banks that this early experience of ECL accounting highlighted its procyclical nature, which was anticipated but is now being experienced.<sup>41</sup> While ECL models in credit provisioning were designed to ameliorate the problem of procyclicality, the practical effect of ECL models

<sup>39</sup> Jose Manuel Campa, ABI – Italian Banking Association, “[The regulatory response to the Covid-19 crisis: a test for post GFC reforms.](#)” September 2020.

<sup>40</sup> For example, the adoption of the Stress Capital Buffer in the US.

<sup>41</sup> For example, see *Financial Times*, “[Bank accounting an early casualty of Covid-19.](#)” April 2020.

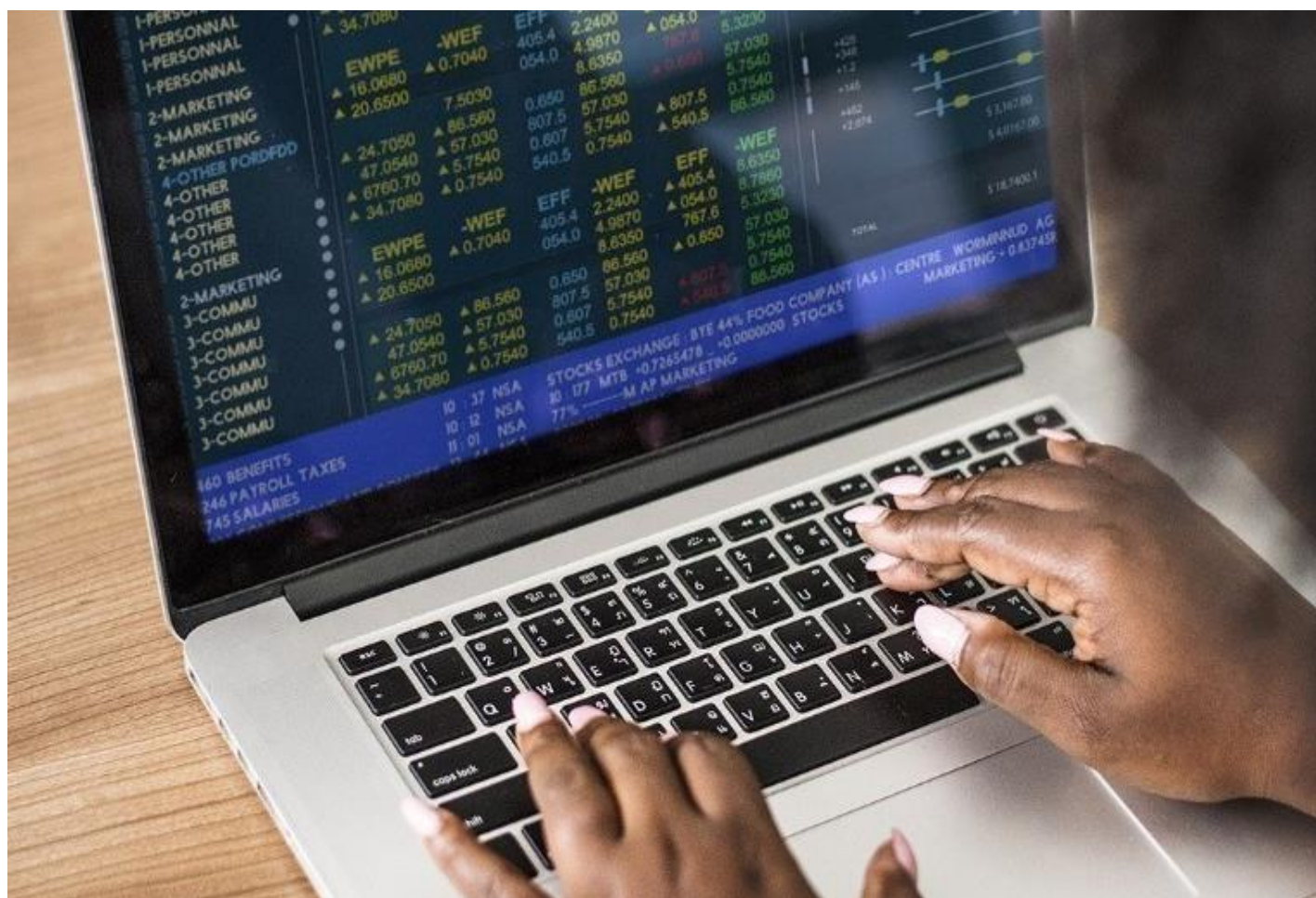
may achieve the opposite – particularly during a sudden and severe economic downturn.

Other specific elements of the regulatory framework are demonstrating procyclicality, in particular the trading book risk capital framework. An analysis of 20 banks compiled by the ISDA, the IIF and the Global Financial Markets Association (GFMA) showed a sharp increase in trading book risk-weighted assets (RWAs) during the first quarter of 2020, at the height of the COVID-19 crisis. For the credit valuation adjustment, RWAs increased by more than 45%, while counterparty credit risk and market risk RWAs rose by 20% and 22%, respectively.<sup>42</sup>

The impact of the apparent procyclicality of the ECL frameworks and their interaction with regulatory capital and procyclical elements of the regulatory capital framework, such as trading book capital, are issues that are worthy of further analysis and consideration by the authorities.

### *Liquidity procyclicality*

In addition to capital, certain aspects of liquidity requirements may be procyclical as well. Specifically, regulatory liquidity requirements and resolution based-liquidity requirements have some features that may increase liquidity requirements as liquidity becomes scarce. As a result, the behavior of liquidity requirements during periods of stress may frustrate the ability of banks to provide liquidity when it is needed most.



<sup>42</sup> ISDA, “[IQ in Brief: Trading Book Capital](#),” November 2020.



Open

# 3

Accessing primary securities markets for funding during the pandemic

Primary capital markets provide a means through which companies and governments can obtain access to funds by issuing debt and equity securities to investors to satisfy various financing needs. During the pandemic, issuance of debt and equity securities by businesses and governments around the globe increased significantly as underwriters and investors enabled them to raise capital to fund their operations, maintain services and meet payroll and other obligations as well as to pay down credit lines and loans that they accessed in the first half of 2020 at the onset of the COVID-19 crisis. Large banks play a critical role in these markets by acting as significant underwriters and arrangers of public securities globally, and the role of the investment community was equally as constructive.

### **Key takeaways**

Specifically, during the COVID-19 pandemic:

1. The official sector supported primary markets in conjunction with activities of large banks, buy-side investors and other market participants, which resulted in a robust rebound in primary market issuance and a decline in borrowing costs for all issuers – companies, local governments and national governments.
2. Businesses have accessed primary capital markets and issued significant amounts of equity securities to investors. Global equity market issuance experienced a sharp rebound after the first quarter of 2020, which helped many companies continue operating, keep their employees paid and provide important goods and services to the public during the pandemic.
3. Businesses have accessed primary capital markets and issued significant amounts of debt securities to investors. As a result of the significant increase in corporate financing needs brought on by the pandemic, large banks supported a 66% increase in corporate bond issuance in 2020 relative to 2019. This increased issuance was instrumental in helping many companies maintain operations during the pandemic as economic activity and revenues slowed considerably.
4. National governments around the globe have accessed funding through a significant increase in sovereign debt issuance of 36% in 2020 relative to 2019. Countries around the world have used this infusion of funds to provide an immediate stimulus to confront the economic disruptions caused by the pandemic.
5. Local governments have accessed funding through a significant increase in municipal and local government debt. Local governments have been hit hard by the pandemic as key revenue sources declined and costs increased as they have had to make a variety of investments to safely continue providing important public services, such as community support services, transportation and education during the pandemic. Additional funding raised in public markets has been instrumental in managing the local economic costs of the pandemic.

### **Underwriters partner with government programs to support primary market issuance**

The official sector has played an important role in supporting primary securities markets during the pandemic. That support, together with primary market support provided by underwriters and investors, served to stimulate primary market issuance.

Central banks around the globe, including the ECB, BoE, the Federal Reserve and the BoJ, enacted various bond-buying programs during the pandemic which were intended to support primary market issuance. The Federal Reserve, in particular, launched two programs that were intended to support primary market issuance for corporate and municipal issuers. The EU, UK and Japan programs were focused either on both primary and secondary markets or at least initially only on secondary markets (though stabilization in the

secondary markets supports the primary market activity).

On March 23, 2020, the Federal Reserve announced its Primary Market Corporate Credit Facility (PMCCF). The PMCCF allowed the Federal Reserve to buy bonds of investment-grade companies in the primary market. The facility was launched to help ensure that creditworthy companies, which found it difficult or expensive to issue in the primary corporate bond markets, could obtain much-needed financing.

To support the municipal bond market, on April 9, 2020, the Federal Reserve launched the Municipal Liquidity Facility (MLF). Like the PMCCF, the MLF was designed to provide support for local governments and municipalities that were finding it difficult and expensive to issue in the primary municipal market.

Across both the PMCCF and MLF programs, the surety provided by the Federal Reserve's willingness to

purchase primary market securities served as a “backstop” that quickly resulted in a dramatic improvement in primary market functioning. As described in the Federal Reserve’s Financial Stability Report issued in November 2020, “the announcement of the PMCCF, SMCCF, and MLF in late March and early April led to rapid improvements in corporate and municipal bond markets well ahead of the facilities’ actual opening.”<sup>43</sup> In practice, the overall amount of primary market purchases made by these facilities has been rather small relative to the amount of primary issuance that occurred after the programs were launched, but the positive signaling effects were calming to those markets.

The ECB launched its Pandemic Emergency Purchase Program, which was designed to purchase up to €750 billion worth of debt instruments in primary and secondary markets from both public-sector entities and corporates. The program was subsequently extended on two separate occasions to increase its size up to €1,850 billion.

In Japan, the central bank was very active in supporting primary and second markets. On March 16, 2020, the BoJ announced that it would actively purchase both commercial paper (CP) and corporate bonds – the upper

limit was initially increased by ¥2 trillion in total to about ¥3.2 trillion and ¥4.2 trillion, respectively. The BoJ significantly increased the upper limit and the scope of eligible CP and corporate bonds on April 27, 2020 to ¥20 trillion. With continued demand, the duration of the operation has been extended until the end of September 2021.

The UK launched an asset purchase facility (APF) to purchase government and corporate debt securities. While primarily intended to provide support in the secondary markets, the program was capable of purchasing primary market issuance should the need arise.

The role played by the banks as arrangers and underwriters in these government purchase programs is two-fold. First, as underwriters, they helped businesses and others issue the bonds that were purchased by the support programs. Second, once market expectations had been buoyed by the backstop provided by the purchase programs, underwriters continued to support primary issuance to the entire market and supported a relatively quick and robust resumption of issuance in the primary market. In this way, underwriters effectively partnered with the official sector to support a robust, functioning primary securities market.

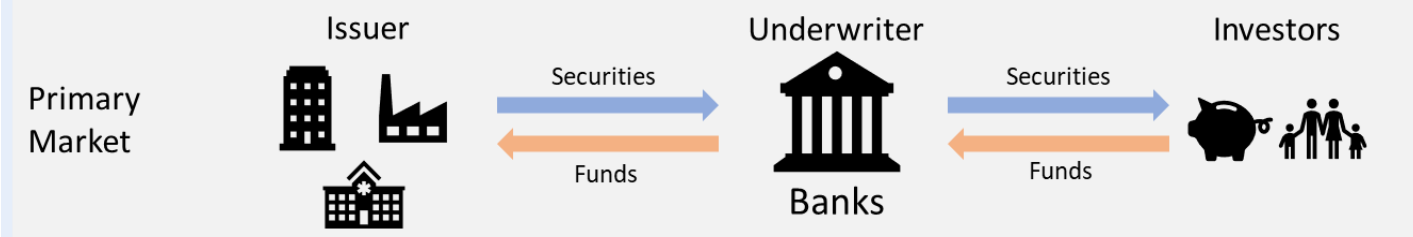
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<sup>43</sup> Board of Governors of the Federal Reserve System, “[Financial Stability Report](#),” November 2020.



## Underwriting

**Figure 3.1:** Illustration of how primary markets function



Underwriters, typically large banks, play an essential intermediary role in primary markets, connecting those seeking funds with investors that supply the funding. Underwriters assist with the overall process of bringing securities to market – a process known as the arranging and underwriting process – and distribute securities to a wide base of investors around the globe.

While the nature of underwriting securities differs slightly in markets around the world, in essence an underwriter guarantees the minimum proceeds that an issuer will receive for their securities. Depending on the nature of the underwriting, the underwriter will either purchase all of the securities for a certain price or guarantee to buy any securities that cannot be placed with investors from the issuer at a specified price. Consequently, the security issuer has certainty of funding. The underwriter then seeks to sell the securities to investors. Specifically, underwriters purchase securities from an issuer, such as a local government, and then hold these securities in inventory while they sell the securities to institutional investors, such as pension funds. In addition, when acting in this role, they assist issuers in determining the appropriate amount of funding to raise and the price at which to offer securities to the public and they provide technical assistance with a variety of required regulatory and financial issues.

Underwriting presents a risk to the underwriters because the underwriters may not be able to sell or place all of the securities at the price at which they have bought them or at a price guaranteed to the issuer, and they will have to retain the unsold securities. Further, the value of these purchased securities may decline once they are traded on public markets, resulting in losses to the underwriter. As a consequence, firms allocate significant amounts of capital and liquidity to support their underwriting activities. This underwriting role is particularly valuable to issuers during periods of stress and provides certainty of funding in the most uncertain of times.

Investors – who may include corporate and government pension funds, mutual funds, investment firms and the investing public – are critical to the functioning of financial markets and are the ultimate purchasers of primary equity and debt market issuances. Investors typically commit substantial resources to analyzing new issues to determine whether they are appropriate given their investing approaches and mandates, and they ultimately bear the market risk for securities that they purchase.

Large banks play an integral role in bringing securities to market in the economy. Indeed, the top 10 largest underwriters of corporate and government debt – most of which are large, internationally active banks – account for between 45% and 60% of all corporate and government bond underwriting.<sup>44</sup> Accordingly, the efforts of these banks in the underwriting process are critical to ensuring that companies and governments can raise needed financing.

<sup>44</sup> According to league tables from Global Capital, the top 10 underwriters of corporate debt account for roughly 45% of corporate bond issuance and the top 10 underwriters of sovereign, supranational and agency (SSA) debt account for roughly 59% of all SSA debt issuance.

## Corporate financings through initial and secondary equity market offerings rebounded quickly

Equity markets are established for companies to raise funds from investors through selling shares of equity in their companies. There are two types of equity issuance:

- Initial Public Offering (IPO), when private companies “go public” the first time to raise capital
- Secondary Equity Offering (SEO), when public companies issue additional shares to investors<sup>45</sup>

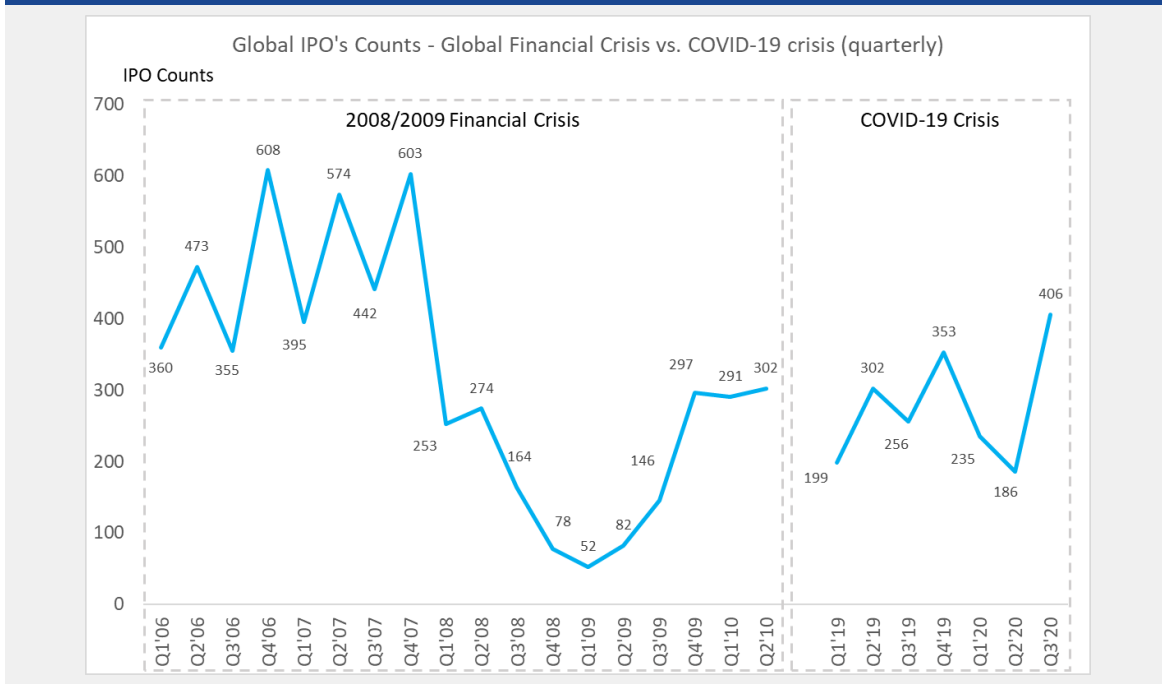
Underwriters facilitate both types of equity issuance. During a period of market stress, investors are often reluctant to inject additional funds into the market, while corporations are eager to build up additional capital to fund operations. Underwriters are tasked with the crucial role of pricing securities at a level that helps both attract investors and raise capital for corporations. In addition, they must manage the risk – through prudent capital and

liquidity management – that they assume by guaranteeing total proceeds of security issuance or taking securities into inventory.

During the pandemic, underwriters supported a quick and robust global rebound in equity issuance after a short period of decreased activity (see Figure 3.2 for global data and Figure 3.3 for US data). Indeed, the third quarter of 2020 turned out to be the most active third quarter for IPOs over the past 20 years.<sup>46</sup>

The robust rebound in equity issuance, even as the COVID-19 pandemic continued, is in sharp contrast to the 2008/2009 financial crisis, when it took four quarters to exit the trough in issuance and did not bounce back to the 2006 levels until early 2010, two years after the GFC began.

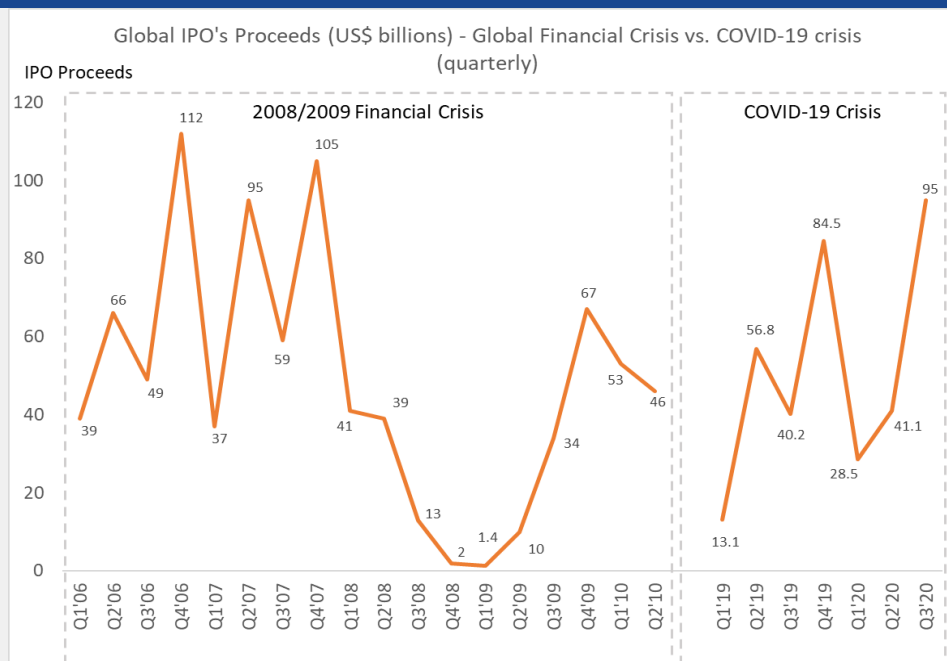
**Figure 3.2: Global IPO activities rebound quickly following the onset of the pandemic**



<sup>45</sup> SEO has historically been the larger component of the equity issuance in the global market.

<sup>46</sup> The third quarter of 2020 is the most active third quarter for IPOs over the past 20 years as measured by IPO proceeds, or the second-highest Q3 over the past 20 years measured by completed IPO deal counts. The source is the EY Global IPO trends: Q3 2020, while the raw data is from EY and Dealogic.

**Figure 3.2: Global IPO activities rebound quickly following the onset of the pandemic**



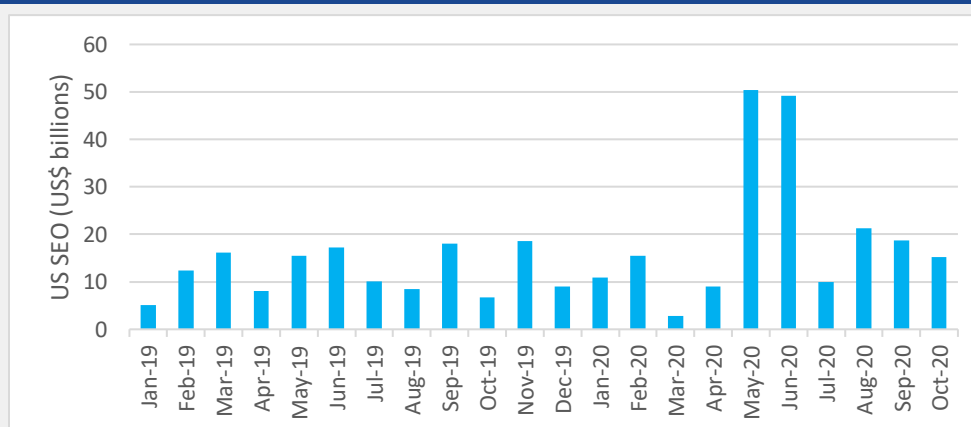
**Global IPO activities measured by count and proceeds: Q1 2006–Q2 2010 and Q1–Q3 2020**

**Source:** EY Global IPO trends – Q3 2020 report for all counts and proceeds in 2020 (year-to-date), and proceeds of previous years from individual quarterly reports, proceeds unit in billions of dollars.

According to the EY Global IPO trend report,<sup>47</sup> IPO counts (top panel of Figure 3.2) and proceeds (bottom panel) recovered quickly in Q3 2020 globally, a much quicker rebound than seen during the GFC.

As shown in Figure 3.3, US SEO issuance reached a historical low volume of \$2.8 billion in March 2020 as the pandemic took hold in the US and then bounced back to reach a historically high level of \$50.4 billion in May and \$49.2 billion in June, both of which were more than double historical average levels.

**Figure 3.3: US equity markets experienced a quick recovery for SEO in the COVID-19 pandemic**



**US SEO issuance: January 2019–October 2020**

**Source:** SIFMA Research, US Equities: Capital Formation, Volumes, Index Prices & Volatility, unit in billions of dollars.

<sup>47</sup> EY, [EY Global IPO trends quarterly reports](#). The data is based on completed IPOs.

## Corporate debt financing in 2020 helped firms to meet the funding needs created by the pandemic

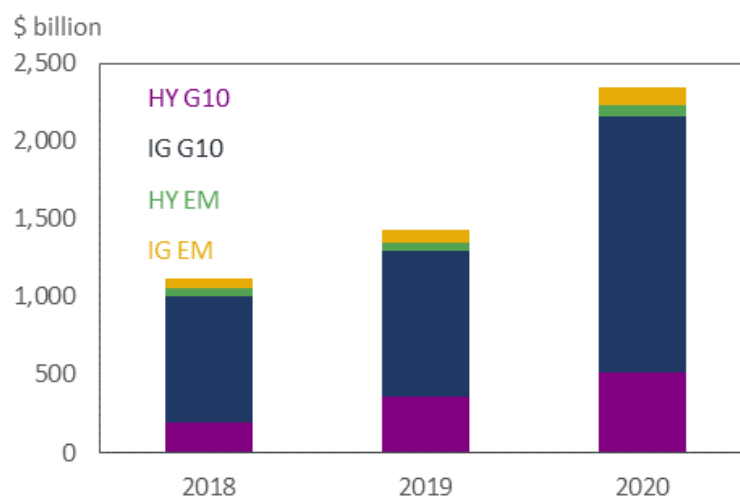
Corporate bond markets help companies raise funds from investors by issuing bonds to maintain ongoing operations or finance business growth. During the pandemic, many companies needed additional funding to offset revenue declines from the pandemic-induced economic slowdown. The cost to companies is the “yield” of the bond: the higher the yield, the greater the interest expense companies need to pay to raise the same amount of funds. During crises, investors often demand a higher yield to compensate for higher perceived default risk.

Corporate bonds are usually categorized into:

- **Investment grade (IG):** for companies with higher credit ratings and relatively lower default risk
- **High yield (HY) or speculative grade:** for companies with lower credit ratings and higher default risk

In the very early stages of the COVID-19 pandemic, global corporate bond primary issuance fell abruptly, but then bounced back very quickly. The rebound of IG bonds issuance happened first, and HY bonds followed thereafter.

**Figure 3.4:** Global corporate bond issuance rose significantly in 2020



**Global corporate bond issuance, broken by G10 and Emerging Market (EM) and IG and HY: 2018–2020**

**Source:** IIF Weekly Insights, unit in billions of dollars. For EM, only issuance in hard currency is included.

As shown in Figure 3.4, total corporate bond issuance globally during 2020 increased 66% relative to issuance levels in 2019, predominantly driven by issuance in G10 countries. While IG issuance dominated the early months of the pandemic and overall, with a 77% increase in 2020 compared to 2019 levels, HY issuance steadily increased to record a significant increase relative to 2019 issuance levels.

This record increase in corporate debt issuance reflects the significant funding needs of companies around the globe during the pandemic. Companies needed

significant amounts of new funding to deal with revenue shortfalls, as well as increased costs due to the pandemic, such as those associated with maintaining a safe and healthy work environment (e.g., installing partitions and improving ventilation in offices).

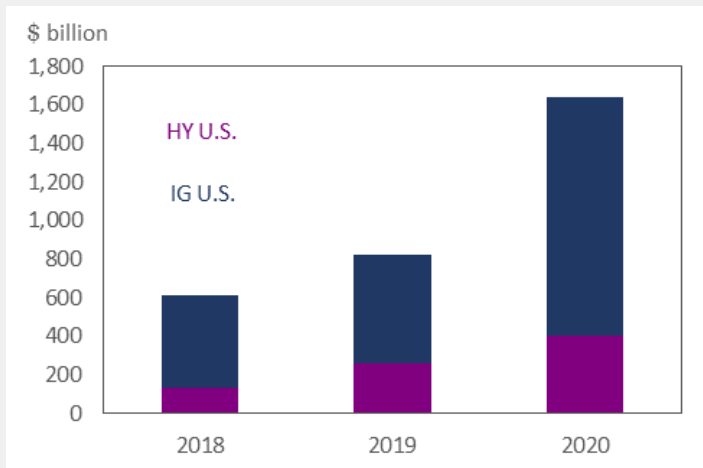
The US dominates the global corporate debt market by accounting for almost half of the outstanding balances of corporate debt rated by S&P.<sup>48</sup> As a result, the functioning of the US corporate bond market has a disproportionate effect on global bond markets.

<sup>48</sup> S&P Global Ratings, “[Credit Trends: Global Corporate Debt Market: State of Play In 2020](#),” June 2020

As stated previously, major companies in the US raise debt funding primarily through capital markets rather than from direct loans from banks. The significant funding demand of companies during 2020 is shown in Figure 3.5. Total issuance for the year 2020, supported and facilitated by large bank underwriters, was approximately double that of 2019, which itself had

been a year of significant bond issuance. IG issuance dominated, as expected, with an increase of 122% over 2020 and extremely high levels in the early months of the crisis. However, HY issuance also progressively increased and saw a total increase of 53% over 2019 levels.

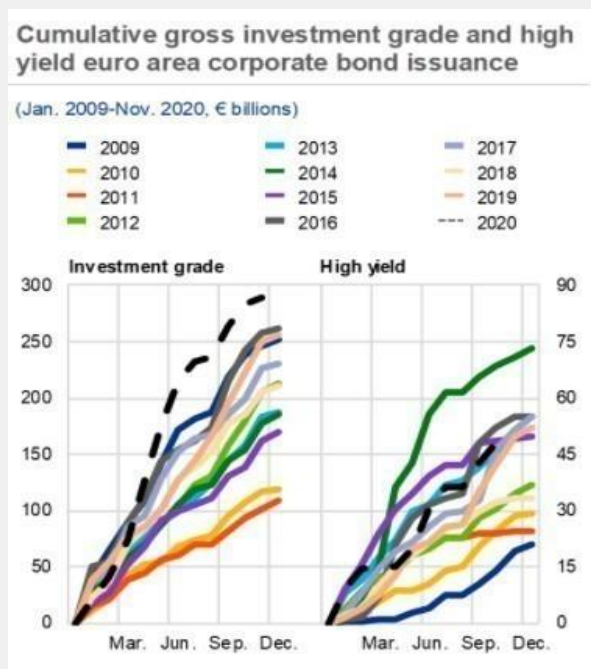
**Figure 3.5: US corporate bond issuance doubled in 2020**



**US corporate bond issuance broken by HY and IG: 2018–2020**

Source: IIF Weekly Insights, unit in billions of dollars.

**Figure 3.6: Euro area investment-grade debt issuance rebounded quickly**



**Comparison of euro issuance of corporate bonds: 2009–2019 and 2020 (billion euro)**

Source: ECB Financial Stability Report (November 2020), unit in billions of euros.

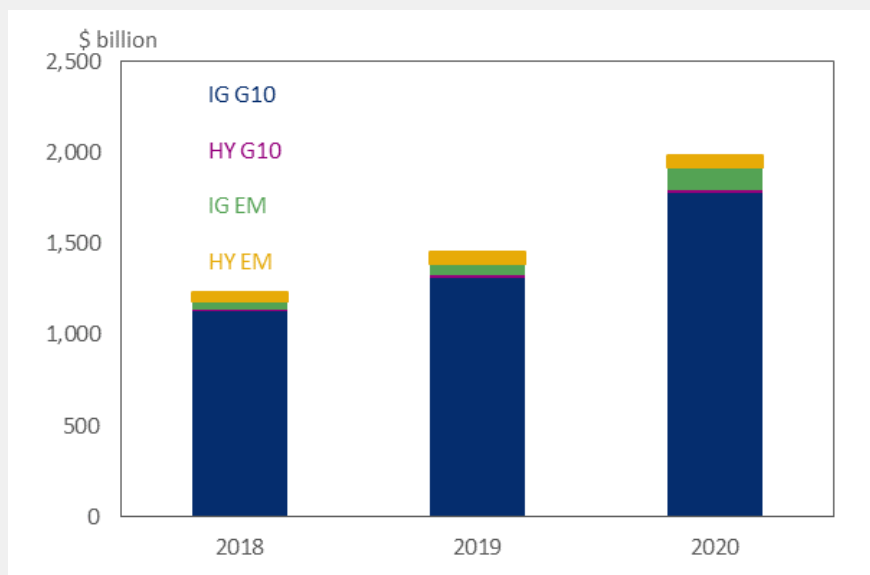
Demand from euro area companies for funding in the early months of the pandemic mirrored the experience in the US. As shown in Figure 3.6, above, after a brief initial pause, euro area issuance of investment-grade bonds in 2020 (dotted black line in the left panel) quickly resumed at a very high pace and, for the period from late March to mid-May, significantly exceeded the average rate of issuance observed in those months during the period of 2015 to 2019. High-yield issuance was somewhat less robust than investment-grade issuance, especially in the early months of the pandemic, perhaps due to the elevated uncertainties of the pandemic and investor hesitancy to take on higher risk. Overall, however, high-yield issuance in 2020 (dotted black line in the right panel) was still strong and finished the year as one of the highest issuance years in the past decade.

### Sovereign debt issuance increased significantly in 2020 as governments around the world provided immediate economic stimulus to confront the pandemic

Governments around the world have faced significantly increased funding requirements during the pandemic to finance direct economic stimulus measures and to fund dramatic increases in health care and other essential services. Much of these stimulus measures have been funded through government borrowing in the bond market.

As in the case of the corporate bond market, arrangers and underwriters facilitate a large amount of government debt issuance. In the US, for example, according to the Congressional Research Service, primary dealers (mainly comprising large, internationally active banks) are the largest purchasers of Treasury securities sold to the public. The primary dealers take the Treasury security holdings and distribute them to pension funds, insurance companies and other investors who demand to hold US Treasury securities.<sup>49</sup> In this way, dealers are an important part of the financial market infrastructure that allows governments around the globe to access primary funding markets.

**Figure 3.7: Global issuance of sovereign bonds significantly increased during the pandemic**



**Global issuance of sovereign bonds, broken by G10 and EM and IG and HY: 2018–2020**

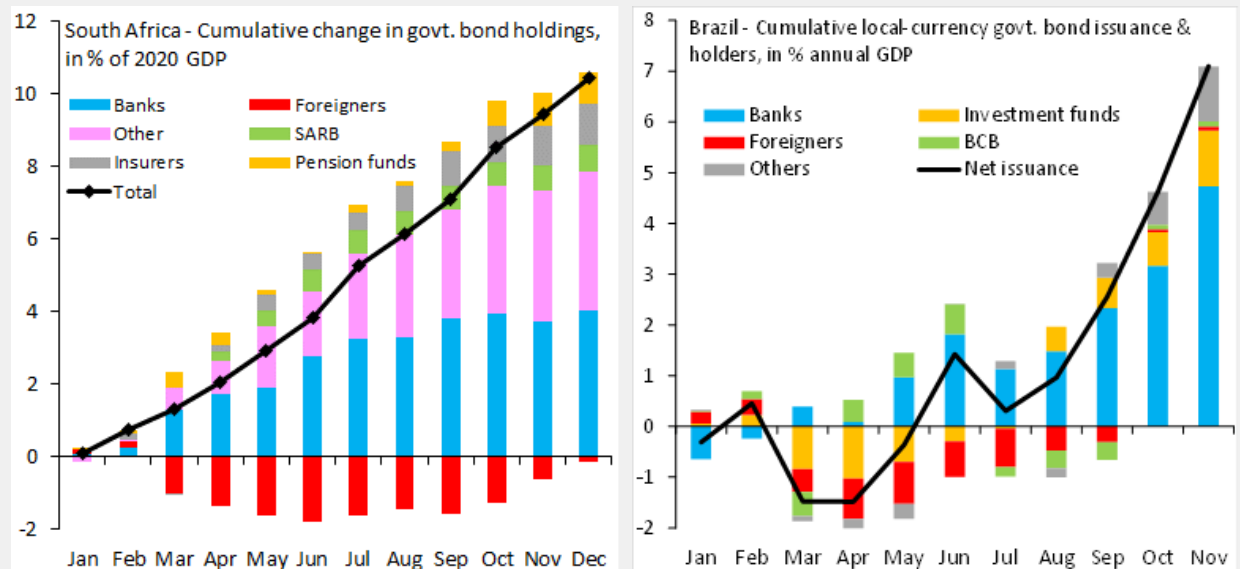
Source: IIF Weekly Insights.

<sup>49</sup> Congressional Research Service, “[How Treasury Issues Debt](#),” August 18, 2016.

The extent of the support provided to these government fundraising efforts is shown in Figure 3.7 above. In 2020, total sovereign bond issuance increased by some 36% over 2019. The issuance was most significant in the early months after the onset of the pandemic and was, as always, dominated by G10 issuers and particularly in investment-grade issues. However, the rate of issuance remained strong throughout the year.

While emerging market issuance was very subdued in the early, most uncertain months of the pandemic, issuance of government bonds in these markets rebounded quite strongly in the latter months of 2020 as the extreme uncertainty abated. Figure 3.8 shows the experience in two emerging market economies that were extremely hard hit by the pandemic – South Africa and Brazil.

**Figure 3.8: Sovereign bond issuance in emerging market regions also rose to finance the needs of hard-hit economies**



**Sovereign bond issuance in emerging market regions: January 2020–December 2020**

Source: IIF Weekly Insights.

The charts show not only the increase of issuance once markets had settled down from the initial shock, but also the extent to which banks supported these crucial financing efforts by governments in these badly affected regions.

All told, strong government responses have been critical to addressing challenges created by the pandemic. Their

responses have been possible by increasingly relying on public debt markets to raise the necessary funding. Dealers have played an important role in ensuring that governments can access public funding markets to support these critical stimulus measures.

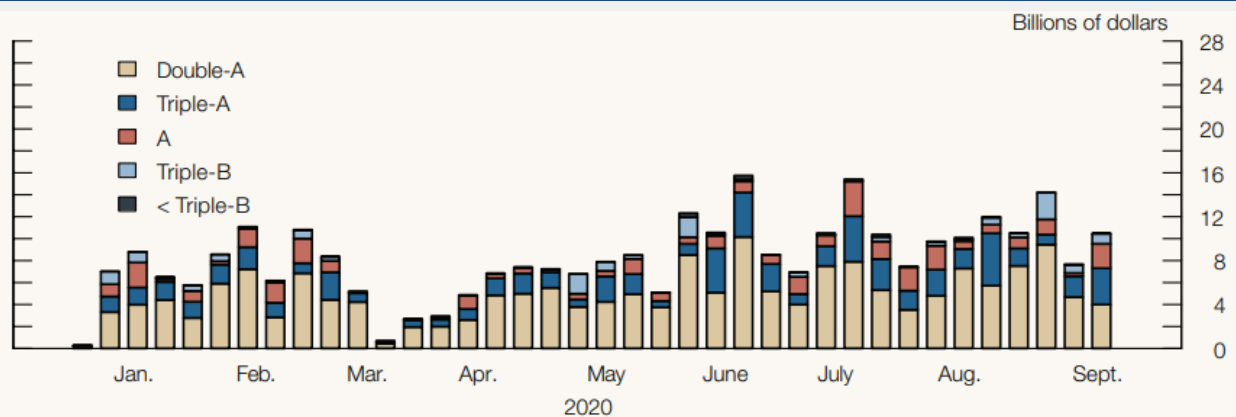
## US states and municipalities accessed debt financing while dealing with the consequences of the COVID-19 pandemic

State and municipal governments in the US regularly issue debt securities (municipal or “muni” bonds) to finance government projects, such as building affordable public housing, and provide public services, such as community health services, public transportation and education, on an ongoing basis. Large banks are important arrangers and underwriters of municipal bonds.

While the federal government provided funds for states through stimulus packages, states required immediate and expanded access to the municipal bond market to support key public health initiatives and other spending. However, similar to other markets, the muni market was stressed at the beginning of the pandemic. Municipal debt issuance dropped significantly, almost to zero, in late March (see Figure 3.9). After the Federal Reserve established the MLF on March 18, 2020 and purchased \$16 billion of muni bonds, issuance picked up and returned to historical levels. The increased pace of issuance provided necessary financing support to local governments for critical community support programs.

As a specific example, consider the \$533 million in bonds issued by the New York City Housing Development Corporation (NYCHDC) in August 2020 for the purpose of increasing the city’s supply of multifamily housing, stimulating economic growth and revitalizing neighborhoods through the creation and preservation of affordable housing for low-, moderate- and middle-income city residents.<sup>50</sup> This bond issue was underwritten by Bank of America, Barclays, Citigroup, JPMorgan Chase, Morgan Stanley, RBC, UBS and Wells Fargo, among others.

**Figure 3.9: Municipal bond issuance rebounded strongly after a sharp slowdown in the early stages of the pandemic**



**Weekly issuance of the municipal bond by rating: January–September 2020**

**Source:** FRB Financial Stability Report (November 2020), unit in billions of dollars, raw data from Bloomberg.

Municipal bond markets have been an important source of funding and liquidity for local governments that have been dealing with falling tax revenues and increasing costs during the pandemic. After muni markets experienced a short-lived but sharp decline, municipal issuance rebounded through a combination of official-sector support and the efforts of large banks, as underwriters, which provided critical economic support to local governments during the pandemic.

<sup>50</sup> NYCHDC, [Statement for August 2020](#).



## Areas for future considerations: regulatory impact on securities market functioning

As discussed previously, while the financial regulatory framework has undoubtedly been beneficial, the pandemic experience offers a unique opportunity to assess whether certain elements of the regime deserve further analysis and consideration. Large banks have played an active role in supporting primary markets through their arranging and underwriting activities. At the same time, securities markets did come under significant strain in the early stages of the pandemic. In addition, in the early stages of the pandemic, the official sector provided direct support for primary securities markets through a number of bond-buying programs internationally. Private market intermediation of securities markets increased significantly following the implementation of these programs, though the initial impact of the programs in “restarting” these markets was clearly important.

Accordingly, the importance and apparent necessity of official-sector support in securities markets raise important questions about the financial regulatory framework and how it may be influencing the ability of primary market underwriters to quickly deploy capital and liquidity to support securities markets. These fundamental questions about the interaction between the official and private sector in security market intermediation are not new. In 2014, the Committee on the Global Financial System (CGFS) issued the report [“Market-making and proprietary trading: industry trends, drivers and policy implications,”](#) which presciently considered a number of important questions about the potential impact of bank regulation on security market functioning well before the pandemic unfolded.

One aspect of that report that we underscore here is the interaction between certain regulatory developments and the ability to robustly intermediate securities markets, especially during times of stress. The report specifically identified heightened capital requirements for security exposures, as well as risk-insensitive leverage requirements, as potential impediments to robust security market intermediation. Moreover, in the case of leverage requirements, academics have studied the deleterious consequences of risk-insensitive capital requirements on securities market-making activities.<sup>51</sup> In light of these previous considerations, as well as the early strains that were observed across a

variety of securities markets, it would seem prudent to use the experience of the pandemic to analyze how these capital and leverage requirements may be influencing the ability to support secondary markets during periods of stress.

The CGFS report also considers the impact of newer liquidity regulations and margining requirements on the collective ability of the financial system to support liquid and stable securities markets. Again, at a high level, the financial system and the economy have benefited from greater amounts of capital and liquidity, but these new requirements and recent events do raise important questions about the ability to transfer liquidity into securities markets, especially on short notice when volatility is high and rising. A number of issues, including potential market signals created by diminished liquidity at a large bank, as well as supervisory expectations about the appropriate amount of liquidity over and above regulatory minimum that a large bank must maintain, are relevant for understanding large banks’ ability to support securities market issuance.

Another important issue raised by the CGFS report is the potential trade-off between large bank regulation and official-sector intervention in securities markets. To the extent that various forms of bank regulation reduce the ability of large banks to quickly and robustly deploy capital and liquidity to support the smooth and continuous functioning of securities markets, the official sector may find that either direct intervention or other forms of market support may be required on a more frequent basis. Without being definitive about the underlying causes of recent official intervention during the pandemic, recent experience does highlight the importance of this issue as a matter of public policy.

Overall, the early strains experienced in primary issuance markets and the impact of official-sector programs designed to “restart” these markets provide important data points for regulators to study. Specifically, regulators should consider how certain elements of the financial regulatory regime influence the ability of underwriters to maintain smooth and continuous primary markets during periods of stress.

<sup>51</sup> Darrell Duffie, [“Why the Leverage Ratio Distorts Market-Making,”](#) Risk.net, January 3, 2017 and [“Why Are Big Banks Supplying Less Liquidity to Bond Markets?”](#) *Forbes*, March 11, 2016.



# 4

## Secondary markets and market-making activity during COVID-19

Secondary markets provide a trading venue for market participants to buy and sell financial instruments already issued through the primary market. A robust secondary market is vital for the primary market. Without active or liquid secondary markets, investors hesitate to participate in the primary market due to concerns of not being able to sell securities at a reasonable price when the need arises. In addition, liquid secondary markets provide reference prices for the primary market so that issuers and market participants alike have appropriate price transparency. Large banks play a critical role in these markets by acting as significant market-makers of public securities globally.

### Key takeaways

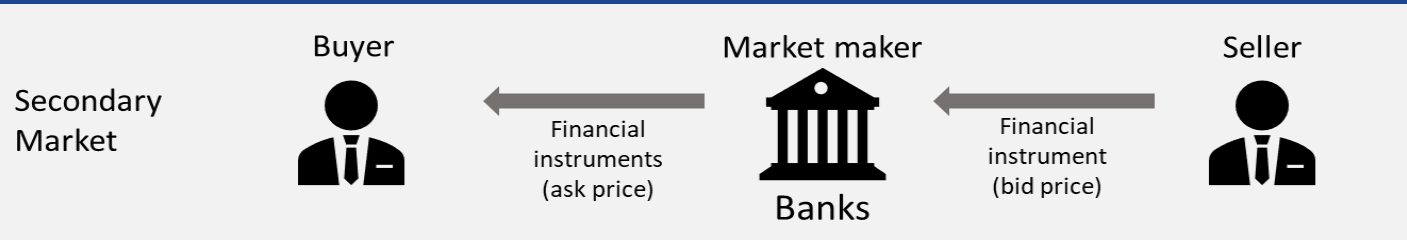
During the COVID-19 pandemic, trading volumes in major asset classes increased as a broad range of market participants – including pension funds, institutional investment managers, mutual funds and others – sought to rebalance their portfolios, hedge risk and adapt to the volatile and quickly changing risk environment. Market makers attempted to meet this demand by providing liquidity to market participants across the range of asset classes. Key aspects of secondary market trading during the pandemic in 2020 have included the following:

1. Trading volumes in a wide variety of asset classes – government bonds, corporate bonds and derivatives – increased significantly during the March–April 2020 period.
2. Intervention by the official sector has been important in supporting secondary markets and enabled trading costs to quickly normalize to historical levels.
3. Market makers largely maintained or increased their inventories and holdings of securities despite the large volatilities during the March–April 2020 period and continued to deploy capital to their trading businesses.
4. The surge in trading volume led to a supply/demand imbalance, a perceived decline in liquidity in some markets (such as corporate bonds) and a brief spike in costs. At the same time, liquidity in the derivatives market (even amid higher costs) provided a means to hedge or change exposure in a relatively more efficient way.

### Market-making

The process of connecting buyers and sellers and maintaining an active, liquid market is known as “market-making.” Market makers, typically large banks, provide prices at which they will buy or sell a security or engage in a financial transaction, and they commit their own funds to buy financial instruments from sellers and sell them to buyers. In addition, they maintain significant inventories of financial instruments to satisfy the demands of their customers. In holding inventory, market makers must maintain significant amounts of capital and liquidity to guard against the credit, market and liquidity risks associated with the financial instruments held in inventory. Accordingly, market makers must constantly manage their capital and liquidity needs to ensure that secondary markets remain liquid and viable in all types of market conditions.

**Figure 4.1:** Illustration of market-making activity



The role of market makers becomes even more important in stressed environments. As risk increases in a period of stress, there are often increased demands for trading securities, particularly for selling them, as investors rebalance their portfolios. Market makers absorb the increase in trading demands by committing more capital and liquidity as the risks associated with market-making and holding inventory increase under stress. Importantly, in stressed market conditions, market makers need to allocate more capital and liquidity to their market-making operations to maintain reliable market functioning and help ensure that buyers and sellers can transact at will and at a reasonable cost.

## Trading volumes in a wide variety of asset classes increased significantly during the March–April 2020 period

In response to the significant increase in uncertainty associated with the onset of the pandemic, demands by market participants to trade financial instruments increased markedly across a range of important asset classes around the globe. The increase in demand in response to the pandemic was understandable because increased uncertainty led market participants to re-evaluate and rebalance their asset portfolios. Market

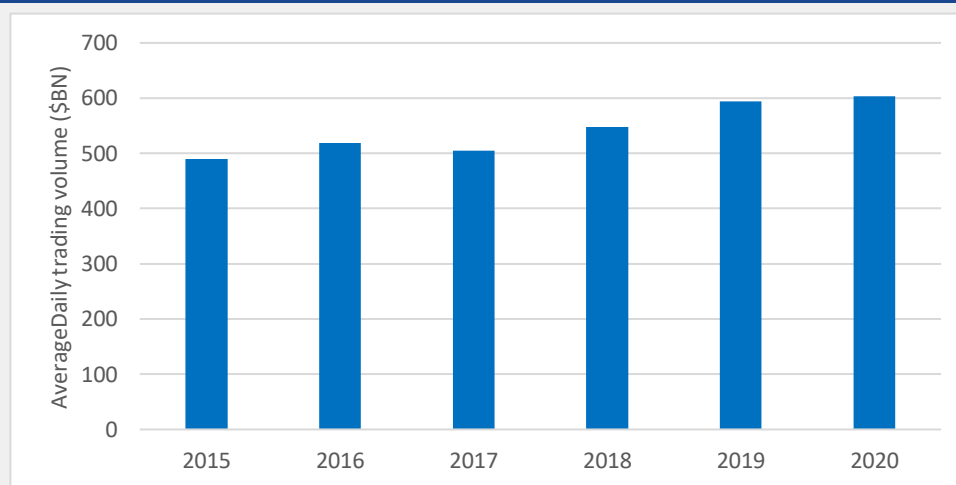
makers worked to fulfill these demands by facilitating more trades and matching more buyers and sellers in the secondary market.

### Trading volumes of US Treasuries

One key market that has seen a notable increase in trading volume during the pandemic is the US Treasury market, with a particularly dramatic increase in activity in the initial stages of the crisis.

The daily average trading volume in this market between 2015 and 2020 is depicted in Figure 4.2.

**Figure 4.2: Increased trading volume for US Treasury securities**



**US Treasury average daily trading volume: 2015–2020**

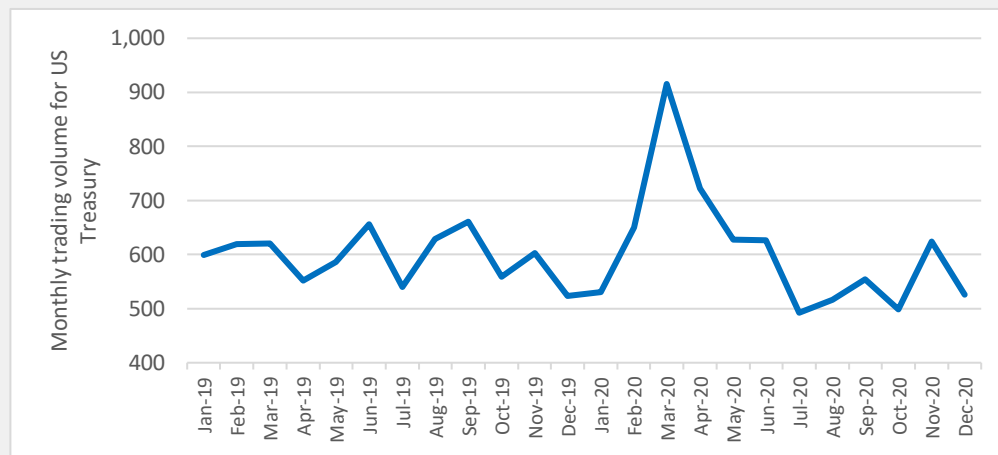
**Source:** SIFMA.

The market for US Treasury securities is of primary importance in the US and abroad because the interest rate on US Treasury securities serves as the base rate – or general rate of interest – paid on other securities, such as corporate bonds, asset-backed securities (e.g., securitized auto loans) as well as other forms of credit, such as mortgage loans. Accordingly, maintaining a well-functioning market for US Treasuries is important to the stability of the entire financial system.

During 2020, average daily trading of US Treasury securities increased to \$607 billion per day, which was more than a 14% increase over the average daily trading volume between 2015 and 2019 (\$532 billion).

Moreover, while the increase in trading volume was concentrated in the early months of the pandemic (as per Figure 4.3), daily trading volume in 2020 exceeded the 2015–2019 average in 7 out of 12 months. In many cases, the end users that drive trading demands are financial sector entities such as mutual funds, pension plans and other investment funds. These entities rely on large banks that provide custody services to intermediate these trades. Accordingly, the ability of the financial system to absorb this increase in trading demand demonstrates the ability of custody service providers to robustly scale up their activities on behalf of their clients.

**Figure 4.3: Monthly trading volume for US Treasury securities normalized after a spike**



**Monthly trading volume for US Treasury: 2019–2020**

Source: SIFMA, unit in billions of dollars.

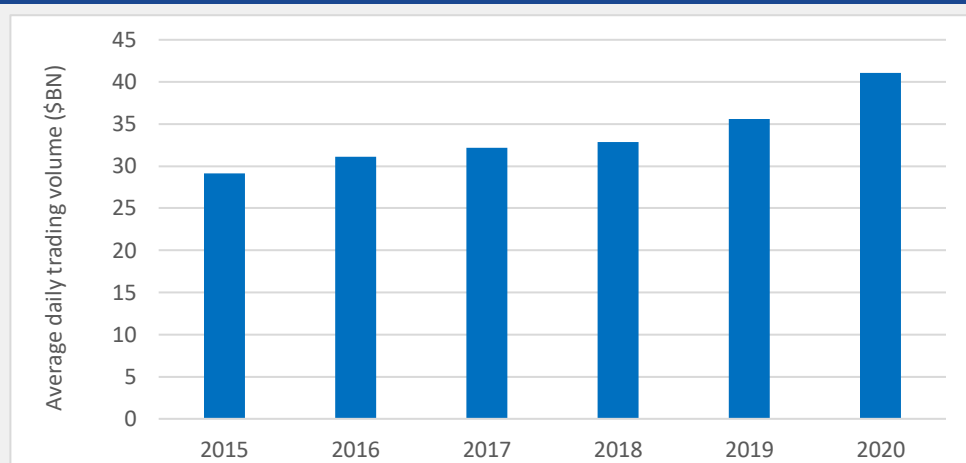
Despite the substantial efforts of market makers to fulfill elevated trading demands during the pandemic, there were still significant strains on the US Treasury market. These strains were addressed, in part, by official-sector action to provide additional financing for securities inventory through the Federal Reserve’s Primary Dealer Credit Facility and the purchase of US Treasury securities. In addition, the Federal Reserve enacted targeted modifications to certain bank regulatory requirements – notably the Supplementary Leverage Ratio – for the purpose of improving US Treasury market functioning. Together, these official-sector actions in concert with the efforts of market makers eased pressures and improved market functioning in the critical early stages of the pandemic.

### Trading volumes in corporate bonds

In addition to increased trading volume in US Treasury markets, the secondary market for corporate bonds experienced a significant increase in trading volumes during the pandemic following official-sector actions taken around the globe to ease liquidity conditions as market participants sought to rebalance their portfolios in light of the rapidly changing risk environment. Daily average trading volumes in corporate bonds between 2015 and 2020 are depicted in Figure 4.4.

As shown in Figure 4.5, corporate bond trading volume spiked in early 2020 and experienced an even more pronounced rise than the US Treasury market during the pandemic. Indeed, over the course of 2020, daily average trading volume increased to roughly \$85 billion per day, which represents more than a 37% increase relative to 2015–2019 levels (\$62 billion).

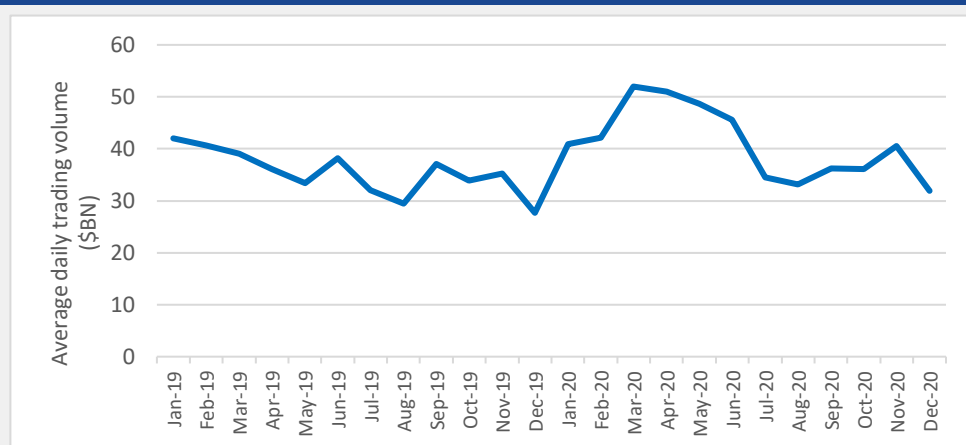
**Figure 4.4: Increased trading volume for corporate bonds**



**Corporate bond trading volume: 2015–2020**

**Source: SIFMA**

**Figure 4.5: Monthly trading volume for corporate bonds normalized after a spike**



**US monthly corporate bond trading volume: 2019–2020**

**Source: SIFMA**

At this point, it is important again to underscore the significance of the secondary market to the primary market. As noted previously, a well-functioning secondary market is crucial to supporting the primary market because the demand by financial market participants, such as pension funds, for corporate bonds depends on their ability to hedge and manage their risk in the secondary market. In the previous section, we noted the sharp increase in corporate bond issuance around the globe as companies sought much-needed emergency funding to deal with pandemic-induced revenue shortfalls. The absorption of that increase in primary market issuance was due, at least in part, to the perception among market participants that they were

able to trade in the secondary market as needed and at a reasonable cost.

#### **Official-sector intervention has been important in supporting secondary markets**

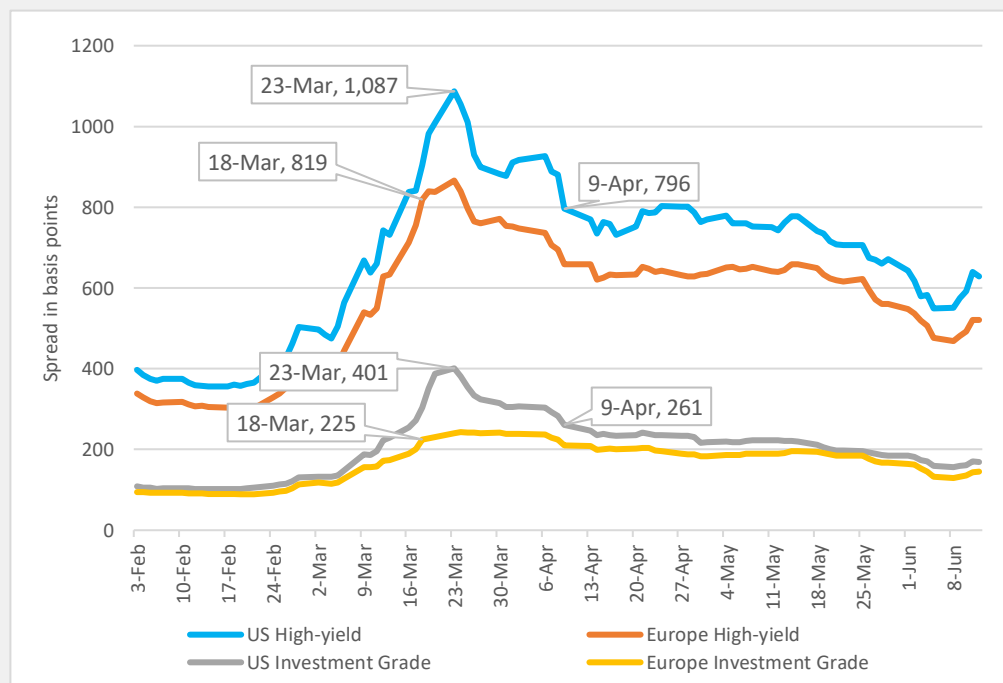
As in the case of the US Treasury market, corporate bond markets experienced strain in the early stages of the pandemic. As discussed in the previous section, a number of central banks – the ECB, BoJ, BoE and U.S. Federal Reserve – instituted various bond-buying programs to support liquidity and provide stability in secondary markets for government and corporate bonds (and in so doing supported primary market issuance).

The BoE, for example, launched APF to purchase government and corporate debt securities. This program was increased on two separate occasions to reach a total size of £895 billion.

In the US, the Federal Reserve launched a program that was directly targeted at the secondary market, the Secondary Market Corporate Credit Facility (SMCCF). This facility was designed to purchase corporate debt in the secondary market for the express purpose of supporting functioning and liquidity in the secondary market. The program had a measurable and important impact on the secondary market; as shown in Figure 4.6, the interest rate (or interest rate spread) required by investors to hold corporate bonds declined significantly following the announcement of the SMCCF.

Interestingly, the program appears to have worked through its impact on market participants' expectations, because the observed improvements in spreads occurred almost immediately after the program was announced and before the program became operational. Moreover, the total amount of purchases in the program were small relative to the overall size of the market. As noted by the Federal Reserve in its November financial stability report: "the announcements of the PMCCF, SMCCF, and MLF in late March and early April led to rapid improvements in corporate bond and municipal bond markets well ahead of the facilities' actual opening ... SMCCF purchases to date amount to about \$13 million – just more than 0.2% of the \$5.5 trillion of outstanding non-financial corporate bonds."

**Figure 4.6: Central banks' intervention stabilized secondary bond markets**



**Option-adjusted spread of various corporate bonds: February–June 2020**

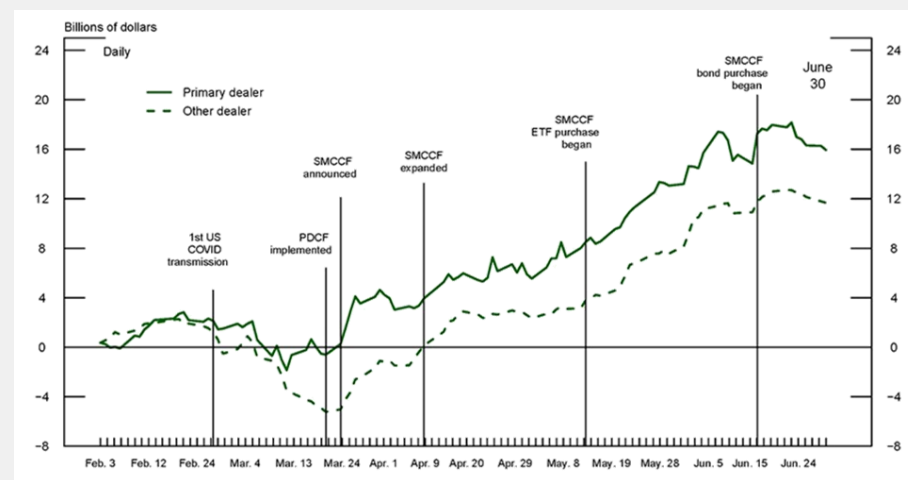
Source: ICE BofA Option-Adjusted Spreads indices, unit in basis points.

**Market makers largely maintained or increased their inventories and holdings of securities during this time and continued to deploy capital to their trading businesses to support secondary markets.**

Trading volumes increased significantly across a variety of asset markets during the pandemic, and there was a large-scale spike in demand for cash and liquidity from market participants, especially in the pandemic’s initial phases. This well-documented “dash for cash” led to a large amount of sell orders from market participants wishing to sell US Treasuries, corporate bonds and other assets to raise cash quickly.

Figure 4.7 shows how market makers reacted to the trading surge and shows one estimate of cumulative bond dealer (market maker) inventory change over the first half of 2020. The solid line shows cumulative inventory change for primary dealers – those dealers that conduct open-market operations with the Federal Reserve and consist largely of large bank dealers. The dotted line shows the cumulative inventory change for all other bond dealers. Both lines show a decrease through early March and thereafter a strong increase in bond inventories. Moreover, the data shows that primary dealers exhibited a relatively slight decrease in inventories early in the pandemic and a stronger rebound thereafter.

**Figure 4.7: Primary dealers increased inventories significantly during the pandemic**



**Cumulative inventory changes for primary and other dealers: February–June 2020**

**Source:** FEDS Note, “The Corporate Bond Market Crises and the Government Response” (October 7, 2020), unit in billions of dollars.

As market makers took on this additional inventory from customers, it is important to recognize they were required to commit increased amounts of capital and liquidity to their market-making operations because of the associated increase in market and liquidity risks. At the same time, official-sector actions played an important role in supporting the capacity of dealers to take on inventory. Specifically, the Federal Reserve launched its Primary Dealer Credit Facility (PDCF) with the express purpose of providing primary dealers with needed financing to absorb inventories from customers. Accordingly, market-making during the pandemic should be viewed in the full context of the official-sector actions that were taking place to support overall market functioning.

### Holdings of government debt during the pandemic

The preceding discussion dealt with estimates of inventories held by market makers, which are directly tied to their market-making operations. In addition, market makers have played a role in supporting secondary markets through increases in their holdings of marketable securities.

As shown in the top panel of Figure 4.8, below, holdings of US Treasury securities by larger market makers increased to \$900 billion from roughly \$600 billion during the pandemic. A similar pattern was observed in the EU and Japan, as shown in Figures 4.9 and 4.10, respectively, where EU bank holdings of government bonds increased about €300 billion and Japanese bank

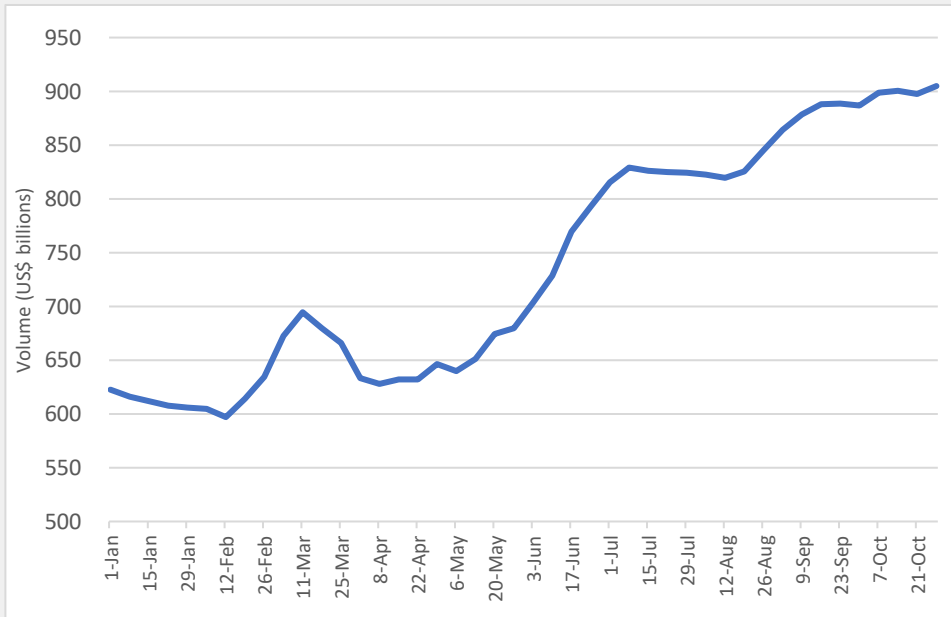


holdings of Japanese government bonds increased nearly ¥20 trillion during the same period.

The experience in the UK, shown in Figure 4.11, has been different. Bank holdings of UK government debt

did decline in early March 2020 but rebounded thereafter, rebuilding roughly half the decline that occurred in March.

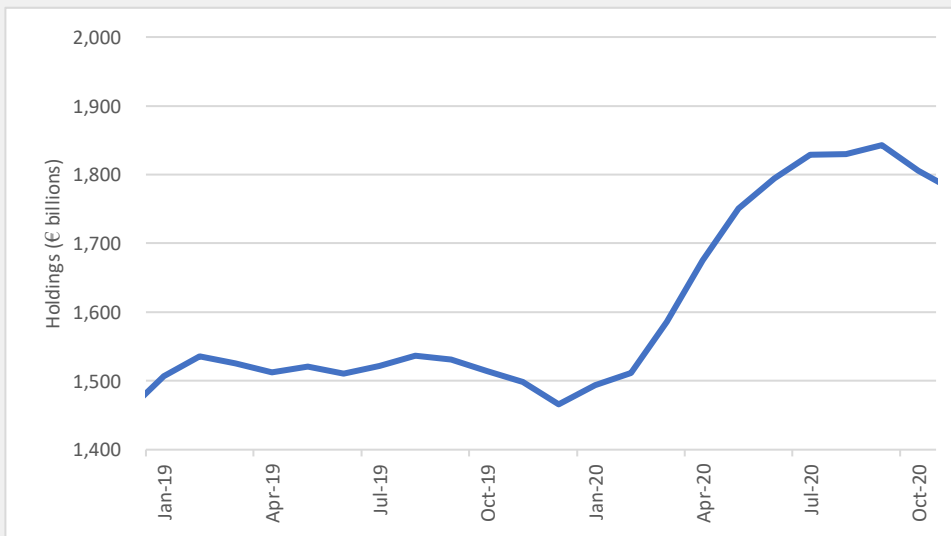
**Figure 4.8: Large banks increased inventories significantly during the pandemic**



**Treasury securities held by large domestically chartered commercial banks, not seasonally adjusted: January–October 2020**

**Source:** Board of Governors of the Federal Reserve System (US), H.8 Assets and Liabilities of Commercial Banks in the United States, unit in billions of dollars.

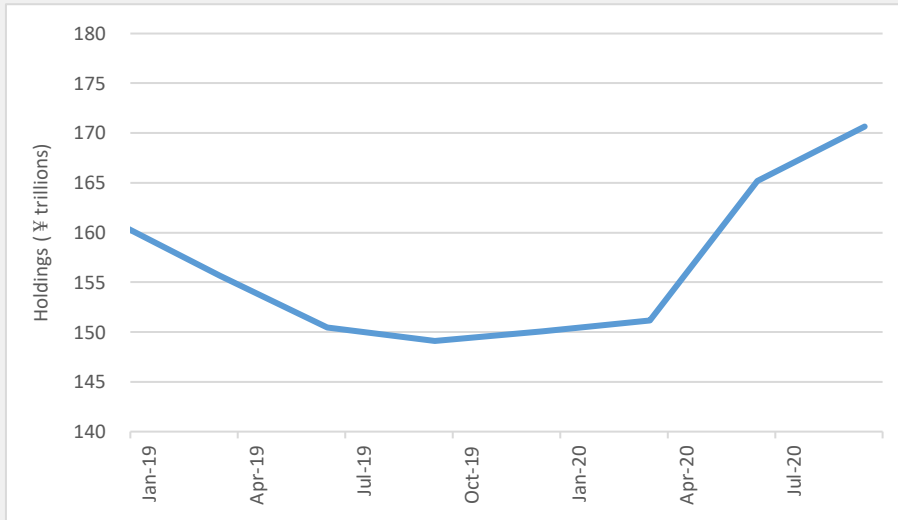
**Figure 4.9: Holdings of euro area government debt during the pandemic**



**Holdings of debt securities issued by euro area General Government reported by MFI excluding ESCB in the euro area, in billions of euros: January 2019–October 2020**

**Source:** ECB – Statistical Data Warehouse.

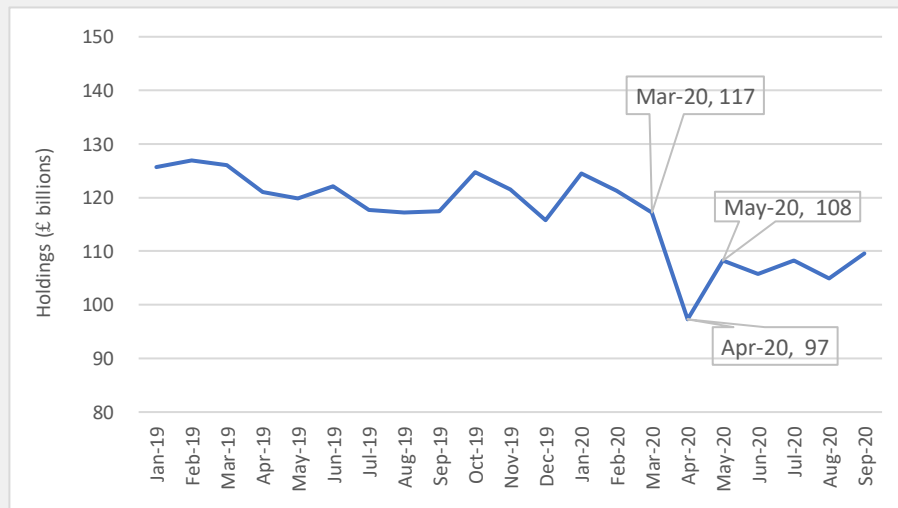
**Figure 4.10: Holdings of Japanese government debt during the pandemic**



**Treasury bonds, Fiscal Investment and Loan Program and T-Bill held by Japanese banks (excluding central bank), in trillions of yen, quarterly data: January 2019-September 2020**

**Source:** BoJ, Flow of Funds.

**Figure 4.11: Holdings of UK government debt during the pandemic**



**Monthly amounts outstanding of UK resident monetary financial institutions' (excluding the central bank) sterling holdings of gilt investments in Central Government (in sterling millions) not seasonally adjusted: January 2019-September 2020**

**Source:** Bank of England Statistics, unit in billions of sterling.

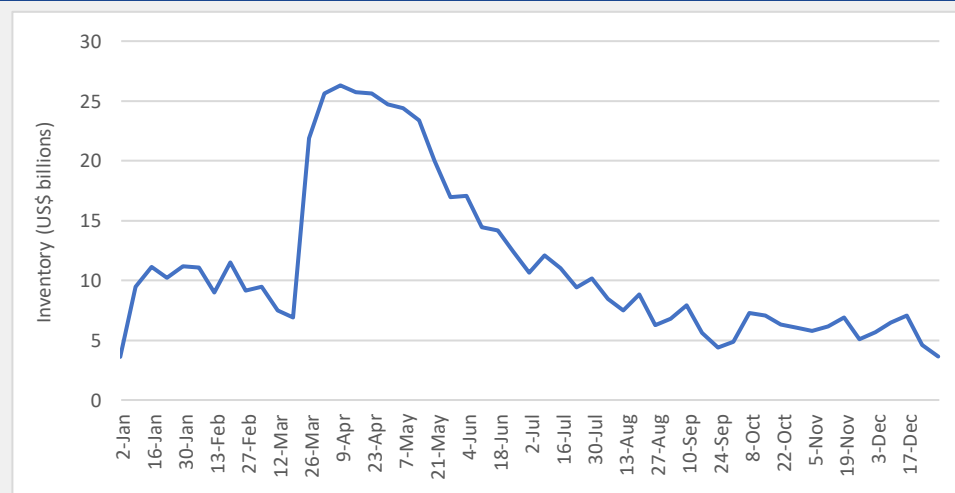
## Holding of commercial paper during the pandemic

In addition to government securities, larger market makers increased their holdings of corporate securities during the pandemic. Figure 4.12 shows primary dealer holdings of commercial paper from February through April of 2020. Commercial paper is essentially a very short-term corporate bond which matures in days or weeks rather than years. The commercial paper market was one of the first markets to show signs of stress at the onset of the pandemic, given investor concerns about the potential macroeconomic fallout of the pandemic. While primary dealer holdings of commercial paper would later decline to more historically normal levels, it is

important that large banks increased their holdings at a time when the commercial paper market most needed support.

Again, the increased holdings of marketable securities discussed here cannot be considered in isolation. During the pandemic, a variety of official-sector efforts were underway to ease funding strains and support securities markets. As previously discussed, the Federal Reserve launched its PDCF to ease bank funding strains. In addition, the Federal Reserve launched additional programs, such as the commercial paper funding facility and Money Market Mutual Fund Facility, which were designed to support the commercial paper market.

**Figure 4.12: Primary dealers expanded their holdings of commercial paper during the pandemic**



**Primary dealers' commercial paper inventories: January–December 2020**

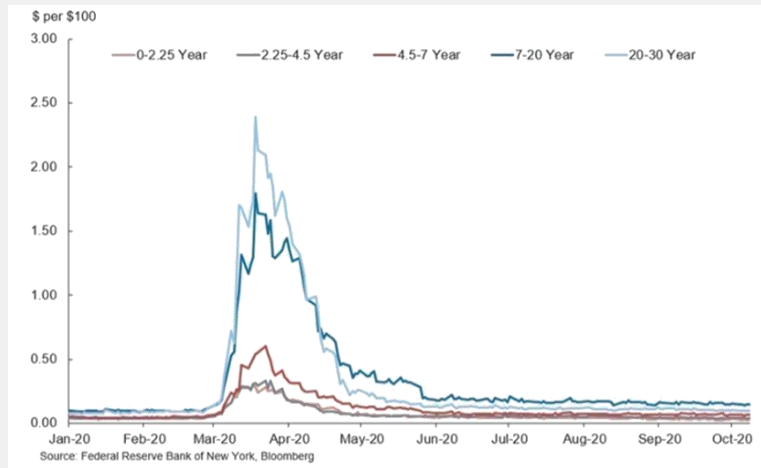
**Source:** Federal Reserve Bank of New York Primary Dealer Statistics, unit in billions of dollars.

## The surge in trading volume led to a supply/demand imbalance, a perceived decline in liquidity in some markets and a brief spike in costs

During a period of elevated risk and trading volume, as was the experience during the pandemic, the cost of trading often increases. The increase in trading costs represents the elevated risk of the underlying assets, as well as the potential that future trading may become strained. In that context, market makers can find it difficult to manage the risk of their accumulated positions.

The cost of trading has a direct impact on market participants seeking to hedge and manage their risk. Any increase in trading cost, which is borne by market participants, reduces the economic value to them of hedging and rebalancing their portfolios. Accordingly, a key aspect of all market-making is providing trading execution to customers at a reasonable cost relative to prevailing economic and market conditions.

**Figure 4.13: US Treasury trading costs increased sharply but normalized quickly**



**Bid-ask spreads for off-the-run US Treasuries by maturity: January–October 2020<sup>52</sup>**

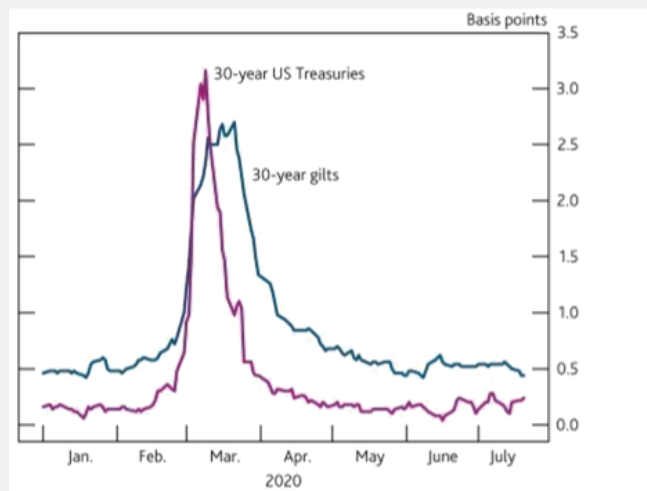
**Source:** Treasury Market Liquidity and Early Lessons from the Pandemic Shock,” Lorie K. Logan (October 2020), unit in \$ per \$100.

As noted earlier, trading volume in US Treasuries increased significantly in early 2020. This resulted in higher prices, and Figure 4.13 shows the bid-ask spreads on US Treasury securities of various maturities over the course of 2020. As can be seen, in early March the cost of transacting in the US Treasury market increased dramatically and by May trading costs had largely

normalized as market makers continued to service elevated trading demands.

A similar picture was seen for the costs of trading UK gilts. Specifically, the pattern in trading costs shown in Figure 4.14 showed a sharp increase in trading costs for 10- and 30-year UK gilts in March, which was largely reversed by May.

**Figure 4.14: UK gilt trading costs largely mirrored the US Treasury experience**



**Bid-ask spreads on UK gilts and US Treasuries: January–July 2020**

**Source:** Bank of England Financial Stability Report (August 2020), unit in basis points.

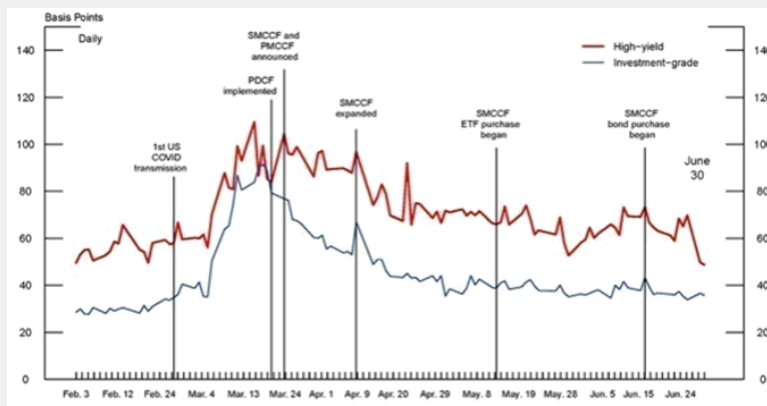
<sup>52</sup> The bid-ask spread is the difference between the price at which a market maker buys and sells a security and is analogous to the gross margin that is earned by a producer on the goods it sells. A higher bid-ask spread implies a higher cost to market participants of trading securities.

Finally, Figure 4.15 shows bid-ask spreads for investment-grade and high-yield corporate bonds from February through June of 2020. The bid-ask spread for US corporate bonds nearly tripled for investment-grade and almost doubled for high-yield in the month following the first confirmed COVID-19 cases in the US. The increase came amid a sharp increase in trading volume.

The general pattern observed in government and corporate bond markets is one in which an initial period of stress impacted financial markets and trading costs as

market makers and market participants struggled to absorb the increase in risk and uncertainty associated with the pandemic. During this period, a number of important official-sector efforts by governments around the globe were at work to support and stabilize financial markets. As a result, within a relatively short period of time following the initial shock of the pandemic, trading costs normalized as market makers continued to support increased trading volumes and took on additional inventory to support secondary markets.

**Figure 4.15:** Trading costs for corporate bonds increased quickly from February to March 2020, but reverted to normal levels by May



**Trading costs for corporate bonds: February–June 2020**

**Source:** Board of Governors of the Federal Reserve System, FEDS Notes, “The Corporate Bond Market Crises and the Government Response,” by Steven Sharpe and Alex Zhou, with raw data sourced from FINRA TRACE and estimation of transaction costs by O’Hare and Zhou (2020).

### Supporting end-user risk management activity via OTC derivatives markets

An important secondary market is the derivatives market. A derivative is a financial contract whose value is derived from an underlying financial asset. Derivatives offer effective risk management tools for companies. For example, companies use derivatives to manage the exchange-rate risk that impacts earnings from foreign operations, the interest-rate risk from issuing floating-rate bonds and the commodity risk associated with their supply chain operations (e.g., fuel cost). Derivatives, such as futures, can be traded on an exchange, which integrates trading and clearing, or, as in the case of swaps, can be traded between counterparties,

either on or off a trading platform, and then can be cleared.

As previously discussed, well-functioning OTC derivatives markets are critical to support the real economy by providing market participants with necessary tools to manage their risks.

Among all types of OTC derivatives, interest rate derivatives (IRDs) dominate. IRDs are popular financial instruments used by market participants to manage interest rate risk. An interest rate swap allows a market participant (e.g., a company) to pay or receive a stream of fixed cash flows<sup>53</sup> in exchange for a stream of floating-rate cash flows,<sup>54</sup> as determined by the changing interest rate in the market. An interest rate swap allows a company to manage its interest rate risk incurred from

<sup>53</sup> This could be because investors prefer confirmed cash flows.

<sup>54</sup> This could be because its cash flow depends on the macroeconomic levels or it would like to take advantage of falling interest rates.

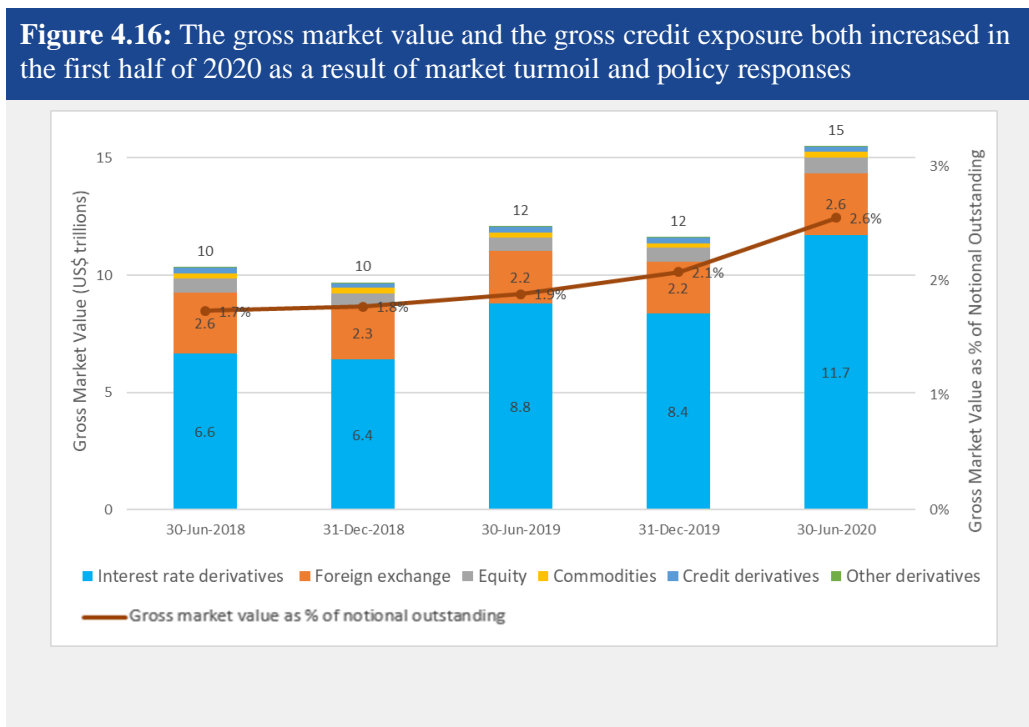
issuing bonds in the primary market. In the secondary market, some market participants may prefer bonds with floating rates, due to a variety of concerns, including expectations of market movements or inflation changes.<sup>55</sup> These market participants actively manage their interest rate risk through derivatives, such as interest rate swaps, by allowing them to swap fixed for floating cash flows.

Like other markets, trading in the derivatives market reflected the overall volatility experienced in March 2020 at the onset of the pandemic. In a survey conducted by ISDA, market participants highlighted an imbalanced market dynamic in March 2020 (i.e., one-way flow in selling) and heightened volatility as their top two concerns.<sup>56</sup> Larger transactions or block trades (notably in the interest rate swap market) became more difficult to execute during that time.

Despite challenging market conditions, the volume of IRD trading increased in the first half of 2020. Globally, the increase in trading volume was reflected in the changes in gross market value and gross credit exposure (Figure 4.16) of the derivatives markets in the first half of 2020.

Globally, the gross market value – by summing positive and negative values – jumped to \$15.5 trillion at the end of June 2020 from \$11.6 trillion at the end of 2019, a 33% increase (as shown in the top panel of Figure 4.16). The gross credit exposure – by adjusting the gross market values for legally enforceable bilateral netting agreements (but not for collateral) – increased to \$3.2 trillion at the end of 2020 from \$2.4 trillion at the end of 2019, the largest rise since 2009 (as shown in the bottom panel of Figure 4.16).

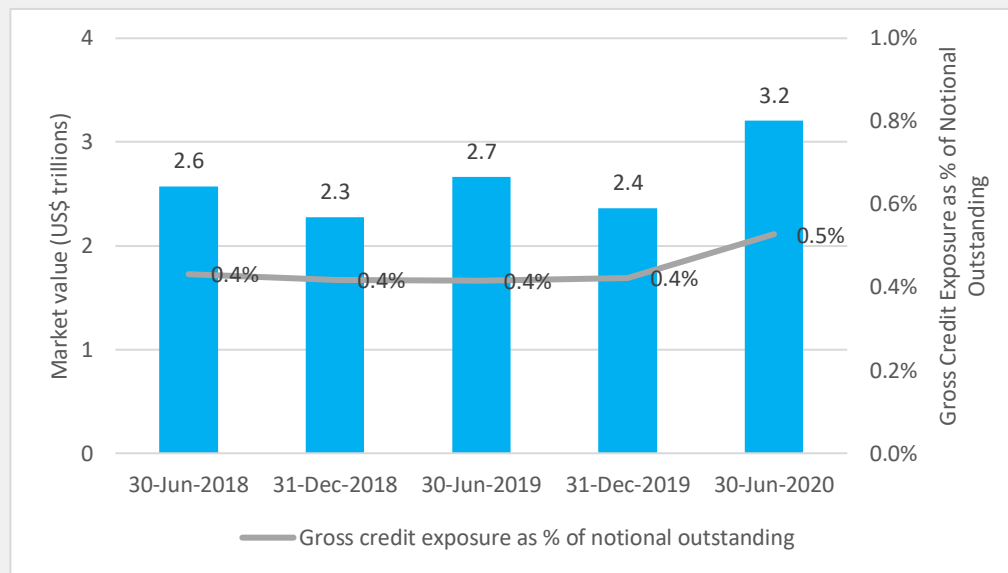
**Figure 4.16:** The gross market value and the gross credit exposure both increased in the first half of 2020 as a result of market turmoil and policy responses



<sup>55</sup> A floating coupon bond protects investors from inflation risk. The interest rate index for floating rate bonds increases as inflation increases.

<sup>56</sup> ISDA, “[The Impact of COVID-19 and Government Intervention on Swaps Market Liquidity](#),” June 2020.

**Figure 4.16:** The gross market value and the gross credit exposure both increased in the first half of 2020 as a result of market turmoil and policy responses



**Gross market value by asset class and gross credit exposure: June 2018–June 2020**

**Source:** ISDA analysis based on BIS OTC derivatives statistics (Tables D5.1 and D5.2), unit in trillions of dollars.

The increase in IRD trading can also be seen in swap trading volumes in the US. ISDA SwapsInfo data<sup>57</sup> shows that the traded notional in IRD products in the US increased by 4% during the first half of 2020 (\$143.9 trillion) from the first half of 2019 (\$138 trillion), or by 21% from the second half of 2019 (\$118.8 trillion). It is important to note that virtually all of this trading volume was either cleared through a central counterparty or required counterparties to post collateral, as discussed in Section 2.

Derivatives trading activity was robust during 2020 and market participants have noted that, overall, derivatives were “demonstrably superior in supporting effective and efficient risk transfer.”<sup>58</sup> The combination of increased demand and greater volatility did bring challenges and led to increased bid-ask spreads and the need to transact in smaller sizes during this period. For example, while the average daily volume in Q1 2020 was 23% higher than Q1 2019, the average Q1 2020 transaction size was 25% lower.<sup>59</sup> One result of this volatility was that a larger percentage of trades were executed on trading platforms in the 2020 first quarter compared to previous periods.

<sup>57</sup> The previously mentioned gross notional outstanding and gross market value are sourced from BIS derivative statistics with a global coverage, showing the point-in-time balances. In contrast, the ISDA SwapsInfo data shows the traded derivatives in the US within a certain time period (similar to an income statement view).

<sup>58</sup> PIMCO, “[Lessons from the March 2020 Market Turmoil](#),” February 2021.

<sup>59</sup> ISDA, “[The Impact of COVID-19 and Government Intervention on Swaps Market Liquidity](#)”, June 2020.

## Areas for future consideration: regulatory impact on secondary market functioning

The pandemic experience offers a unique opportunity to examine causes of and solutions to stresses that occurred in the financial markets. More specifically, areas that have come under scrutiny during the pandemic are money market mutual funds and US Treasury markets.

Certain money market mutual funds experienced sharp outflows at the onset of the pandemic that were difficult to manage in light of the characteristics of their asset holdings. As a result, in the US, the Federal Reserve established its Money Market Mutual Fund Liquidity Facility (MMLF) which provided funding to banks to purchase assets from money market mutual funds. Indeed, much of this program was intermediated through large custody banks that maintain significant relationships with money market mutual fund providers. The official-sector response to these sharp money fund outflows suggests a need to fully evaluate the financial stability costs and benefits of these structures and several official-sector institutions around the world have begun such an evaluation. More specifically, the International Organization of Securities Commissions (IOSCO)<sup>60</sup> and the U.S. Securities and Exchange Commission (SEC)<sup>61</sup> have each published reports that outline potential recommendations in light of the pandemic experience.

The way in which trading of financial instruments occurs has changed significantly over the past decade. Studies have been completed or are underway to explore how the current market structure affected market volatility during the COVID-19 pandemic. More specifically, the Financial Stability Board<sup>62</sup> has issued a holistic review of the March 2020 market turmoil and the U.S. Federal Reserve Board similarly addressed the March turmoil in its November 2020 financial stability report. The Federal Reserve Board's Financial Stability Report<sup>63</sup> in November 2020 discussed on a preliminary basis "the likely roles played by several important groups of market participants as the March events unfolded." These

groups included foreign institutions, hedge funds, principal trading firms, dealers and others.

The study found that "large-scale sales of U.S. Treasury securities by foreign investors likely contributed to the March turmoil" and that "the reduction in high-speed market-making activity [by principal trading firms] appears to have contributed to the spread of pandemic-related stresses to even the most liquid segments of financial markets." The report also noted, "Dealers were holding unusually high levels of these securities even before the pandemic, reflecting in part strong Treasury issuance over recent years. Beginning in late February... dealers absorbed large amounts of less liquid securities ... By the second week of March, amid expanding inventories, imbalanced client trading flows, and heightened volatility, some dealers reportedly reached their intermediation capacity or became increasingly unwilling to absorb further sales ... Following the expansion of the Federal Reserve's asset purchases, dealer balance sheet pressures eased in late March..."

Certain aspects of the stresses that were observed in financial market trading during the early stages of the pandemic suggest that an evaluation of how trading in financial markets is conducted and how different trading intermediaries interact with each other and the broader market in the provision of liquidity should be considered.

Some suggestions have arisen that central clearing of Treasury securities transactions could help to improve the market's robustness and efficiency. Further analysis of such a change, in terms of the netting and balance sheet benefits it could bring, and the market structure and other changes it would require, should occur in the months ahead.<sup>64</sup>

Several key areas of the regulatory regime also deserve further analysis and consideration in the context of secondary markets.

<sup>60</sup> See, <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD665.pdf>

<sup>61</sup> See, <https://www.sec.gov/news/press-release/2021-25>

<sup>62</sup> See, <https://www.fsb.org/2020/11/holistic-review-of-the-march-market-turmoil/>

<sup>63</sup> See, <https://www.federalreserve.gov/publications/files/financial-stability-report-20201109.pdf>

<sup>64</sup> A recent comment by IMF economist Manmohan Singh suggests that the benefits of Treasury central clearing are not as large as some have indicated. See, "[Net Losers? Benefits of Clearing US Treasuries are Cloudy](#)", Risk.net, May 4, 2021.



The specific case of the LR merits consideration. In the early phases of the crisis, several regulators made temporary adjustments to leverage requirements – by exempting the inclusion of government securities in their calculation – with the express intent of supporting the functioning of government debt securities markets. Concerns around the LR and its impact in incentives to intermediate low-risk assets, such as US Treasury and other government securities, are not new. As discussed previously, academics and regulators alike have considered the potential for the LR and its treatment of low-risk government securities to impair market functioning. Both the recent experience of the pandemic, as well as recent regulatory actions to modify the treatment of low-risk government securities in leveraged capital, should serve as important data as regulators consider the future of leverage capital requirements in the regulatory framework.

In addition, while there is no question that the financial system and the economy have benefited from greater amounts of required capital and liquidity, these new requirements and recent events do raise important questions regarding the transfer of liquidity by liquidity providers into securities markets, especially on short notice when volatility is high and rising. A number of issues, including potential market signals created by diminished liquidity, as well as supervisory expectations about the appropriate amount of liquidity over and above regulatory minimum, are relevant for understanding the ability of underwriters to support securities market issuance.

One additional important issue for consideration is the potential trade-off between financial regulation and official-sector intervention in financial markets. To the extent that various forms of regulation reduce the ability of bank liquidity providers to quickly and robustly deploy capital and liquidity to support the smooth and continuous functioning of securities markets, the official sector may find that either direct intervention or other forms of market support may be required on a more frequent basis. Without being definitive about the underlying causes of recent official intervention during the pandemic, recent experience highlights the importance of this issue as a matter of public policy.

As noted earlier in this report, capital procyclicality issues are currently a subject of discussion between policymakers and market participants. In particular, the market risk capital framework and Credit Valuation Adjustment (CVA) demonstrate procyclical features. The previously cited analysis of 20 banks compiled by ISDA, IIF and GFMA showed a sharp increase in trading book RWAs during the first quarter of 2020 at the height of the pandemic. For the CVA, RWAs increased by more than 45%, while counterparties' credit risk and market risk RWAs rose by 20% and 22%, respectively.<sup>65</sup> In light of the upcoming changes in the trading book capital framework, including the Fundamental Review of the Trading Book, it is worthwhile to consider how the procyclicality dimension will evolve with the transition to the new regime.

Since the GFC, there has been a push to implement measures to limit counterparty risk through CCPs, as mentioned in Section 1, and, as part of that, market strengthening to implement margin requirements that change, depending on the economic cycle. Principle 6 of the CPSS/IOSCO *Principles for financial market infrastructures* states, “A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.”<sup>66</sup> Naturally, a risk-based margin system is likely to require more collateral in times of market stress and less collateral in calmer conditions.

From a prudential perspective, procyclical margining requirements protect CCPs – and thus market participants using CCPs – from increased counterparty risk stemming from high volatility; so purely from that perspective CCP margin should not be capped. However, from a market stability perspective, excessive procyclical margin requirements can amplify shocks to market participants because they have to post more collateral to support the same position exactly as liquidity or cash becomes a concern, potentially leading to the need to hasty (or “fire”) sales that exacerbate market volatility. To manage this trade-off is where anti-procyclicality tools come in: to dampen the impact of significant volatility spikes rather than eliminate margin changes altogether.

<sup>65</sup> ISDA, [IQ in Brief: Trading Book Capital](#), November 2020.

<sup>66</sup> Committee on Payment and Settlement Systems, Technical Committee of the International Organization of Securities Commissions, “[Principles for financial market infrastructures](#),” April 2012

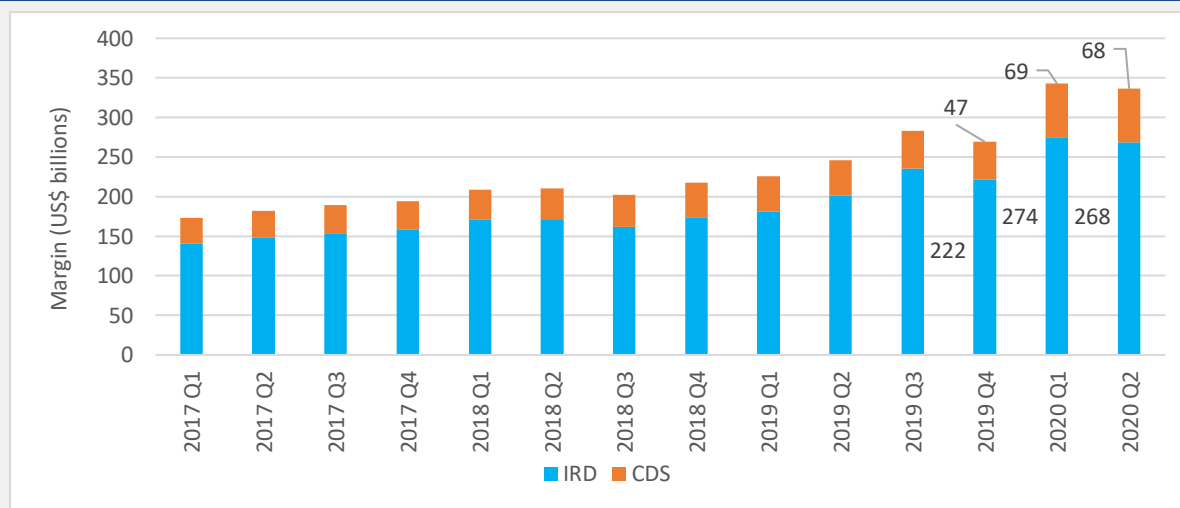
The experience during the pandemic proved to be an effective test of margin requirements, although all major European and US CCPs have employed anti-procyclicality (APC) measures. CCP members had to post higher margins, totaling \$342.8 billion of IM<sup>67</sup> during Q1 2020, while the pandemic was at its initial peak, as shown in Figure 4.17. While higher margins reduced overall counterparty risk in the overall system, market participants faced significant margin pressure and often sudden increases in margin calls, posing instability to the markets. Moreover, it meant that market participants had less capacity to deploy collateral for other uses. Some market participants had to sell assets at fairly low prices, which exacerbated negative impacts on market prices during the crisis. Additionally, increased volume and market volatility directly increased variation margin.<sup>68</sup> Margin models reacted to the heightened volatility, which further drove up margin requirements.<sup>69</sup> These increases in margins posed significant challenges for banks' liquidity management.

The experience – especially in March 2020 – has led a large number of industry participants to call for additional research and consideration of APC

measures in order to safeguard market stability during a crisis. The BoE suggested assessing the effectiveness of the measures taken by CCPs, acknowledging that “[p]rudent margining should not be a trade-off with liquidity risk ... Some adjustment to the changing market conditions was to be expected. The effectiveness of the measures taken by CCPs to avoid large and unexpected increases in initial margin requirements during the March period should be considered further.”<sup>70</sup>

One additional issue also merits further consideration. The significant efforts undertaken by the FRB to provide temporary dollar liquidity to markets via the FX swap lines mechanism as well as the corresponding repo facility have had a positive effect during the COVID-19 crisis by helping local banking systems access US dollars in order to continue to finance US dollar positions. We would suggest that policymakers consider expanding this initiative to enhance dollar liquidity for emerging markets and developed markets and that G20 finance ministries and central banks work collaboratively with the International Monetary Fund toward this end.

**Figure 4.17: Margins for typical derivative products increased significantly during the early stages of COVID-19**



**Initial margins for IRD and CDS both increased significantly during the COVID-19 pandemic**

**Source:** ISDA analysis based on CCP disclosures.

<sup>67</sup> Initial margins are the amount of collateral required when clearing members enter trades with the CCP.

<sup>68</sup> Variation margin is paid by clearing members on a daily or intraday basis to reduce the exposure created by carrying high-risk positions.

<sup>69</sup> VaR-based models usually adapted automatically to the increased liquidity by inclusion of new observations in the lookback period. Other models, for instance SPAN-based model parameters, are updated based on predefined or emergency parameter updates.

<sup>70</sup> Bank of England, “[What role did margin play during the Covid-19 shock?](#)” June 2020.

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