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Some Preliminary Financial Stability Lessons from the COVID-19 Shock

Remarks by

Lael Brainard

Member

Board of Governors of the Federal Reserve System

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It has now been one year since the devastating effects of the first wave of the COVID-19 pandemic hit our shores, a year marked by heartbreak and hardship.[1] We look forward to a brighter time ahead, when vaccinations are widespread, the recovery is broad based and inclusive, and the economy fully springs back to life. But we should not miss the opportunity to distill lessons from the COVID shock and institute reforms so our system is more resilient and better able to withstand a variety of possible shocks in the future, including those emanating from outside the financial system.

The Dash for Cash

Investor sentiment shifted dramatically in the early days of March 2020 with the realization that COVID would disrupt the entire global economy. Short-term funding markets became severely stressed as market participants reacted to the advent of this low-probability catastrophic event. The abrupt repositioning and repricing of portfolios led to a dash for cash, as even relatively safe Treasury holdings were liquidated, volatility spiked, and spreads in Treasury and offshore dollar funding markets widened sharply. Forceful and timely action by the Federal Reserve and other financial authorities was vital to stabilize markets and restore orderly market functioning.

Although some parts of the financial system that had undergone significant reform in the wake of the Global Financial Crisis remained resilient, the COVID stress test highlighted significant financial vulnerabilities that suggest an agenda for further financial reform. I will briefly comment on these areas of vulnerability as well as areas where earlier reforms led to greater resilience.

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[1] I am grateful to Namirembe Mukasa and Filip Zikes, as well as David Bowman, Marta Chaffee, Sally Davies, Kurt Lewis, Jennifer Lucier, Patrick McCabe, Travis Nesmith, and Nancy Riley, for their assistance in preparing these remarks. These remarks represent my own views, which do not necessarily represent those of the Federal Reserve Board or the Federal Open Market Committee.

Short-Term Funding Market Vulnerabilities

The COVID shock brought to the fore important vulnerabilities in the systemically important short-term funding markets that had previously surfaced in the Global Financial Crisis. Signs of acute stress were readily apparent in intermediaries and vehicles with structural funding risk, particularly in prime money market funds (MMFs). Indeed, it appears these vulnerabilities had increased, as assets held in prime MMFs doubled in the three years preceding last March. When the COVID shock hit, investors rapidly moved toward cash and the safest, most liquid financial instruments available to them. Over the worst two weeks in mid-March, net redemptions at publicly offered institutional prime MMFs amounted to 30 percent of assets. This rush of outflows as a share of assets was faster than in the run in 2008, and it appears some features of the money funds may have contributed to the severity of the run.[2]

The run in March forced MMFs to rapidly reduce their commercial paper holdings, which worsened stress in short-term funding markets. Funding costs for borrowers shot up, and the availability of short-term credit at maturities beyond overnight plunged. These markets provide the short-term credit many businesses need to keep operating and meet payrolls. So when short-term funding markets shut down, it can imperil many businesses, too.

For the second time in 12 years, a run on MMFs triggered the need for policy intervention to mitigate the effect on financial conditions and the wider economy. To head off the risk of widespread business failures and layoffs, the Federal Reserve took a number of actions, including announcing the Commercial Paper Funding Facility on March 17 and the

[2] Preliminary research by Federal Reserve staff has found that investor withdrawals accelerated as prime funds' liquidity levels fell close to the 30 percent weekly liquid assets threshold, where these funds can impose redemption fees or suspend redemptions temporarily. See Lei Li, Yi Li, Marco Macchiavelli, and Xing (Alex) Zhou (2020), "Liquidity Restrictions, Runs, and Central Bank Interventions: Evidence from Money Market Funds," working paper.

Money Market Mutual Fund Liquidity Facility on March 18, 2020. Following the announcement of these facilities, prime MMF redemptions slowed almost immediately, and other measures of stress in short-term funding markets began to ease.

The March 2020 turmoil highlights the need for reforms to reduce the risk of runs on prime money market funds that create stresses in short-term funding markets. The President's Working Group on Financial Markets has outlined several potential reforms to address this risk, and the Securities and Exchange Commission recently requested comment on these options.[3] If properly calibrated, capital buffers or reforms that address the first-mover advantage to investors that redeem early, such as swing pricing or a minimum balance at risk, could significantly reduce the run risk associated with money funds. Currently, when some investors redeem early, remaining investors bear the costs of the early redemptions. In contrast, with swing pricing, when a fund's redemptions rise above a certain level, the investors who are redeeming receive a lower price for their shares, reducing their incentive to run.[4] Similarly, a minimum balance at risk, which would be available for redemption only with a time delay, could provide some protection to investors who do not run by sharing the costs of early redemptions with those who do. Capital buffers can provide dedicated resources within or alongside a fund to absorb losses and reduce the incentive for investors to exit the fund early.

To be sure, domestic money market funds are not the only vulnerable cash-management investment vehicles active in U.S. short-term funding markets. For example, offshore prime money funds, ultrashort bond funds, and other short-term investment funds also experienced

[3] See U.S. Department of the Treasury (2020), *Report of the President's Working Group on Financial Markets: Overview of Recent Events and Potential Reform Options for Money Market Funds* (Washington: Department of the Treasury), https://home.treasury.gov/system/files/136/PWG-MMF-report-final-Dec-2020.pdf; and U.S. Securities and Exchange Commission (2021), "SEC Requests Comment on Potential Money Market Fund Reform Options Highlighted in President's Working Group Report," press release, February 4, https://www.sec.gov/news/press-release/2021-25.

[4] That is, when a fund's net asset value "swings" down, redeeming investors receive a lower price for their shares.

stress and heavy redemptions last March. The runs on offshore MMFs that hold dollar-denominated assets like commercial paper underscore the importance of working with international counterparts to increase the resilience of short-term funding markets. We are supporting the work of the Financial Stability Board to assess options for mitigating the vulnerabilities of MMFs globally and report on them later this year.

The COVID shock also highlighted the structural vulnerabilities associated with the funding risk of other investment vehicles that offer daily liquidity while investing in less-liquid assets, such as corporate bonds, bank loans, and municipal debt. Open-end funds held about one-sixth of all outstanding U.S. corporate bonds prior to the crisis.[i] Bond mutual funds, including those specializing in corporate and municipal bonds, had an unprecedented $250 billion in outflows last March, far larger than their outflows at any time during the 2007–09 financial crisis. The associated forced sales of fund assets contributed to a sharp deterioration in fixed-income market liquidity that necessitated additional emergency interventions by the Federal Reserve. In assessing possible reforms to address this run risk, swing pricing could be helpful, because it reduces the first-mover advantage for running from a fund by imposing a cost when redemptions are high. Swing pricing has been used for more than a decade in European mutual funds, where it has been shown to slow redemptions in stress events.[5] In the United States, mutual funds have not adopted swing pricing, in part because of technical obstacles.

[5] See Dunhong Jin, Marcin Kacperczyk, Bige Kahraman, and Felix Suntheim (2019), "Swing Pricing and Fragility in Open-Ended Mutual Funds," IMF Working Paper 19/227 (Washington: International Monetary Fund, November), https://www.imf.org/en/Publications/WP/Issues/2019/11/01/Swing-Pricing-and-Fragility-in-Open-end-Mutual-Funds-48729.

Treasury Market Functioning

The COVID shock also revealed vulnerabilities in the market for U.S. Treasury securities. The U.S. Treasury market is one of the most important and liquid securities markets in the world, and many companies and investors treat Treasury securities as risk-free assets and expect to be able to sell them quickly to raise money to meet any need for liquidity. Trading conditions deteriorated rapidly in the second week of March as a wide range of investors sought to raise cash by liquidating the Treasury securities they held. Measures of trading costs widened as daily trading volumes for both on- and off-the-run securities surged. Indicative bid-ask spreads widened by as much as 30-fold for off-the-run securities. Market depth for the on-the-run 10-year Treasury security dropped to about 10 percent of its previous level, and daily volumes spiked to more than $1.2 trillion at one point, roughly four standard deviations above the 2019 average daily trading volume. Stresses were also evident in a breakdown of the usually tight link between Treasury cash and futures prices, with the Treasury cash–futures basis—the difference between prices of Treasury futures contracts and prices of Treasury cash securities eligible for delivery into those futures contracts—widening notably.

Selling pressures were widespread, reflecting sales by foreign official institutions, rebalancing by asset managers, a rapid unwinding of levered positions, and precautionary liquidity raising. Available data suggest that foreign institutions liquidated about $400 billion in Treasury securities in March, with more than half from official institutions and the remainder from private foreign investors, at a time when offshore dollar funding markets also experienced acute stress. Domestic mutual funds sold about $200 billion during the first quarter, selling their less-liquid Treasury securities in order to raise cash to meet investor redemptions. Hedge funds reduced long cash Treasury positions by an estimated $35 billion.[6]

Dealers play a central role in the Treasury market by buying and selling securities and providing financing to investors. Their capacity or willingness to intermediate these flows was strained amid the elevated uncertainty and intense and widespread selling pressure in mid-March. Operational adjustments associated with the rapid move to remote work may also have inhibited intermediation.

The acute stresses in the Treasury market necessitated emergency intervention by the Federal Reserve at an unprecedented scale. The Federal Open Market Committee authorized purchases of Treasury securities and agency mortgage-backed securities (MBS) "in the amounts needed" to support smooth market functioning of these markets.[7] Between March 12 and April 15, the Federal Reserve increased its holdings of Treasury securities by about $1.2 trillion and agency MBS by about $200 billion. The Federal Reserve provided overnight and term repurchase agreement (repo) operations to address disruptions in Treasury financing markets. These actions rapidly restored market functioning, and a variety of indicators had returned to pre-COVID levels by the summer.[8]

While the scale and speed of flows associated with the COVID shock are likely pretty far out in the tail of the probability distribution, the crisis highlighted vulnerabilities in the critically important Treasury market that warrant careful analysis. A number of possible reforms have

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[6] See Board of Governors of the Federal Reserve System (2020), *Financial Stability Report* (Washington: Board of Governors, November), https://www.federalreserve.gov/publications/2020-november-financial-stability-report-purpose.htm.

[7] See the Committee's March 23, 2020, postmeeting statement (quoted text in paragraph 2), which is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm.

[8] See Lorie Logan (2020), "Treasury Market Liquidity and Early Lessons from the Pandemic Shock," speech delivered at the Brookings-Chicago Booth Task Force on Financial Stability (TFFS) meeting, held via videoconference, October 23, https://fedinprint.org/item/fednsp/88983.

been suggested to strengthen the resilience of the Treasury market. For instance, further improvements in data collection and availability have been recommended to enhance transparency related to market participants, such as broker-dealers and hedge funds. Some have suggested that the Federal Reserve could provide standing facilities to backstop repos in stress conditions, possibly creating a domestic standing facility or converting the temporary Foreign and International Monetary Authorities (FIMA) Repo Facility to a standing facility.[9] Other possible avenues to explore include the potential for wider access to platforms that promote forms of "all to all" trading less dependent on dealers and, relatedly, greater use of central clearing in Treasury cash markets.[10] These measures involve complex tradeoffs and merit thoughtful analysis in advancing the important goal of ensuring Treasury market resilience.

Offshore Dollar Funding Markets

The global dash for cash also led to severe stress in offshore dollar funding markets, where foreign exchange swap basis spreads increased sharply to levels last seen in the Global Financial Crisis. Foreign banking organizations serve as key conduits of dollar funding for foreign governments, central banks, businesses, nonbank financial institutions, and households.[11]

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[9] See Board of Governors of the Federal Reserve System (2020), "Federal Reserve Announces Establishment of a Temporary FIMA Repo Facility to Help Support the Smooth Functioning of Financial Markets," press release, March 31, https://www.federalreserve.gov/newsevents/pressreleases/monetary20200331a.htm; and Board of Governors of the Federal Reserve System (2019), "Minutes of the Federal Open Market Committee: January 29–30, 2019," https://www.federalreserve.gov/monetarypolicy/fomcminutes20190130.htm.

[10] See Treasury Market Practices Group (2019), *Best Practice Guidance on Clearing and Settlement* (New York: TMPG, July), https://www.newyorkfed.org/TMPG/best_practices.html; Darrell Duffie (2020), "Still the World's Safe Haven? Redesigning the U.S. Treasury Market after the COVID-19 Crisis," Hutchins Center Working Paper #62 (Washington: Brookings Institute, May), https://www.brookings.edu/wp-content/uploads/2020/05/WP62_Duffie_updated.pdf; and U.S. Securities and Exchange Commission (2020), "SEC Proposes to Extend Regulations ATS and SCI to Treasuries and Other Government Securities Markets," press release, September 28, https://www.sec.gov/news/press-release/2020-227.

[11] For a discussion of the importance of liquidity regulation for these operations, see Lael Brainard (2019), "Statement on Proposals to Modify Enhanced Prudential Standards for Foreign Banks and to Modify Resolution Plan Requirements for Domestic and Foreign Banks," April 8, https://www.federalreserve.gov/newsevents/pressreleases/3B1F641BEB4A485B994EBC38165F0F3B.htm#aboutMenu.

They hold $14 trillion in dollar-denominated claims—about half of the total global dollar claims of banks. The Federal Reserve and several other central banks responded swiftly to distress in the offshore dollar funding markets by announcing the expansion and enhancement of dollar liquidity swap lines on March 15, followed on March 19 by the reopening of temporary swap lines with the nine central banks that had temporary agreements during the Global Financial Crisis. On March 30, the Federal Reserve introduced a new temporary FIMA Repo Facility to support the liquidity of Treasury securities held by foreign monetary authorities, an important innovation. Following these interventions, foreign exchange swap basis spreads started moving down almost immediately and within a few weeks reached their levels before the COVID shock.

Central Clearing

The reforms put in place pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) in response to the previous crisis appear to have supported the resilience of the financial system as it absorbed the COVID shock. Importantly, regulators instituted global reforms to encourage and, in some cases, mandate central clearing after observing the loss of confidence in key banking intermediaries during the Global Financial Crisis associated with the opaque web of bilateral derivatives contracts. As a result, during the COVID turmoil, the greatly expanded scope of central clearing, with the attendant reduction in counterparty and settlement risks, supported the orderly functioning of critical securities and derivatives markets amid sharply increased trading volumes and spiking volatility. Moreover, several central clearing platforms (CCPs) successfully handled problems that emerged at a few smaller market participants, without noticeable spillovers to other markets and institutions.

However, as part of the risk controls that are inherent in central clearing, the COVID market turmoil generated exceptionally large flows of cash through CCPs from market participants with mark-to-market losses to those participants with corresponding gains. Furthermore, during the March COVID turmoil, a number of CCPs collected significantly higher financial resources from their members to protect against increased risk as captured by their risk models. These demands for liquidity were met adequately, and the markets operated efficiently and effectively, although the sudden spikes in CCP requirements may have stressed the liquidity positions of some trading firms. And while CCPs performed well during this period of stress, forceful public emergency interventions and the strong capitalization of banks likely mitigated the risks of large clearing member defaults.

The COVID-19 shock presents an important opportunity to reflect on lessons learned about central clearing by the public and private sectors. CCPs could consider the effects of the market dysfunction on their liquidity risk-management plans, including their assumptions regarding the ability to raise cash from noncash assets or securities. In addition to reassessing their liquidity planning, CCPs could also assess the tradeoffs between their own risk-management decisions and broader financial stability concerns, particularly in light of how CCPs may have contributed to deleveraging by some market participants in March by the magnitude of the increases in financial resources they collected when trading and volatility spiked. CCPs could assess their margin models, consider improvements to reduce pro-cyclicality, and consider increased transparency to help clearing members anticipate margin calls during periods of volatility. The holistic review by the Financial Stability Board, in which we participate, could provide important insights into these issues.[12]

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[12] See Financial Stability Board (2020), *Holistic Review of the March Market Turmoil* (Basel, Switzerland: FSB, November), https://www.fsb.org/wp-content/uploads/P171120-2.pdf.

Bank Capital and Liquidity

The resilience of the banking sector in response to the COVID shock underscores the importance of guarding against erosion of the strong capital and liquidity buffers and risk-management, resolution, and stress-testing programs put in place pursuant to the Dodd-Frank Act. Banks entered the pandemic with strong capital and liquidity buffers, especially those banks whose size and complexity are systemically important. Strong capital and liquidity buffers allowed the banking system to accommodate the unprecedented demand for short-term credit from many businesses that sought to bridge the pandemic-related shortfalls in revenues. Banks' capital positions initially declined because of this new lending and strong provisioning for loan losses but have since risen above their pre-pandemic levels, reflecting better-than-expected loan performance and a reduction in credit provision as well as caps on dividends and restrictions on share repurchases in the past several quarters.

Strong capital and liquidity positions will remain important, as banks still face significant challenges—including an environment of higher-than-normal uncertainty. For instance, some sectors of commercial real estate loans and commercial and industrial loans are more vulnerable than before the crisis. Similarly, net interest margins could remain in the lower part of their historical ranges for some time. Although losses and delinquency rates on bank loans are currently low, performance could deteriorate as borrowers exit forbearance, with particularly hard-hit businesses and households facing arrears on rent and mortgage payments.[13] Recent developments have been encouraging, but downside risks remain, which could delay recovery and lead to higher losses.

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[13] According to the Senior Loan Officer Opinion Survey on Bank Lending Practices, banks expect demand to strengthen and loan performance to deteriorate for most loan categories over 2021, with the exception of C&I loans to large and middle-market firms. The survey is available on the Board's website at https://www.federalreserve.gov/data/sloos/sloos-202101.htm.

Bank resilience benefited from the emergency interventions that calmed short-term funding markets and from the range of emergency facilities that helped support credit flows to businesses and households. While the results of our latest stress test released in December 2020 show that the largest banks are sufficiently capitalized to withstand a renewed downturn in coming years, the projected losses take some large banks close to their regulatory minimums.[14] According to past experience, banks that approach their regulatory capital minimums are much less likely to meet the needs of creditworthy borrowers. It is important for banks to remain strongly capitalized in order to guard against a tightening of credit conditions that could impair the recovery.

Cyclical Vulnerabilities

Structural vulnerabilities such as those discussed earlier could interact with cyclical vulnerabilities in the financial system, potentially magnifying the associated risks. Valuations are elevated in a number of asset classes relative to historical norms. After plunging as the pandemic unfolded last spring, broad stock price indexes rebounded to levels well above pre-pandemic levels. Some observers also point to the potential for stretched equity valuations and elevated volatility due to retail investor herd behavior facilitated by free online trading platforms. Risk appetite in credit markets is also elevated, with high-quality investment-grade (IG) corporate debt trading at slightly negative real yields and issuance of leveraged loans returning to 2019 levels. While financial markets are inherently forward-looking, taking into account the prospects of widespread vaccinations and substantial fiscal support, a variety of risks related to

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[14] For these reasons, I supported preserving capital at large banks. See Lael Brainard (2020), "Statement [on Rule to Simplify Capital Rules for Large Banks]," March 4, https://www.federalreserve.gov/newsevents/pressreleases/brainard-statement-20200304a.htm and "Statement [on Stress Tests for 2020]," June 25, https://www.federalreserve.gov/newsevents/pressreleases/brainard-statement-20200625c.htm.

the virus could result in a sudden change in investor risk sentiment. This could, for instance, trigger outflows from corporate bond mutual funds and other managed funds with an investor base that is sensitive to fund performance. Commercial real estate prices are susceptible to declines if the pace of distressed transactions picks up or if the pandemic leads to permanent changes in patterns of use—for instance, a decline in demand for office space due to higher rates of remote work or for retail space due to a permanent shift toward online shopping.

Debt loads at large nonfinancial firms were high coming into the pandemic and remain so. Measures of leverage at large firms remain near the historical highs reached at the beginning of 2020, with the aggregate book value of debt exceeding 35 percent of assets in the third quarter. A large portion of IG debt is currently at the lowest IG rating, making this debt vulnerable to downgrades. Such downgrades may bring insurers, mutual funds, and other regulated institutional investors closer to internal or statutory thresholds on their holdings of non-IG securities, potentially forcing these institutions to shed assets.

Over a longer horizon, changes in the economic environment associated with low equilibrium interest rates, persistently below-target trend inflation, and low sensitivity of inflation to resource utilization could be expected to contribute to a low-for-long interest rate environment and reach-for-yield behavior. In these kinds of environments, it is valuable to deploy macroprudential tools, such as the countercyclical capital buffer, to mitigate potential increases in financial imbalances.

The Path Ahead

The COVID shock subjected the financial system to an acute stress that necessitated emergency interventions on a massive scale by financial authorities around the world. The COVID turmoil underscores the importance of ensuring the financial system is resilient to a wide range of shocks, including those emanating from outside the financial system. Regulators and international standard-setting bodies have an opportunity to draw important lessons from the COVID shock about where fragilities remain, such as in prime MMFs and other vehicles with structural funding risk. A number of common-sense reforms are needed to address the unresolved structural vulnerabilities in nonbank financial intermediation and short-term funding markets.

[i] Note: This speech was updated on March 31, 2021. The original version of this speech stated that "Funds that invest primarily in corporate bonds saw record outflows in March 2020. These open-end funds held about one-sixth of all outstanding U.S. corporate bonds prior to the crisis."