

# FRBSF Economic Letter

2021-12 | May 3, 2021 | Research from the Federal Reserve Bank of San Francisco

## The Last Resort in a Changing Landscape

Mary C. Daly

As lender of last resort, the Federal Reserve plays a vital role in maintaining a sound and stable financial system. But the frequency and scale of Fed interventions following disruptions like the Global Financial Crisis and COVID-19 are concerning. As the country emerges from the pandemic, it's time to focus on crafting more resilient policies, particularly by addressing Treasury market vulnerabilities and providing greater prudential oversight. The following is adapted from remarks by the president of the Federal Reserve Bank of San Francisco to the Money Marketeters on April 15.

---

I grew up in Missouri surrounded by three rivers. Nearly every spring, at least one of them would flood. Each time this happened, families, businesses, and sometimes whole communities, would be forced to higher ground until the water receded and returned to its banks.

Public programs were there to assist. Teams helped people evacuate, temporary shelters were stood up overnight, and financial support was provided for repairs and rebuilding. By many measures, these responses were a win, repeated successes of a system meant to insure against these types of disasters.

But flooding was not a rare event, it happened almost every year. Against that backdrop, the prevailing public policy seems incomplete. A patch against a problem that owed in part to known structural factors such as geography, location, and regular weather patterns.

Which takes me to what I want to discuss today. Changes in our economic and financial landscape have left us with a financial market infrastructure that is more vulnerable to disruptions. We saw this in the Global Financial Crisis and in our recent experience with the unprecedented shock of COVID-19. As the lender of last resort in the United States, the Federal Reserve was there to assist. In both cases, we intervened—provided liquidity, stabilized markets, and ensured that the financial system could continue to fulfill its role in the economy.

But the frequency and scale of our interventions are concerning. Without changes to our financial infrastructure, the Federal Reserve may regularly be called to step in to stabilize markets during turbulent periods. And not just for 100-year floods like COVID-19, but for more typical disruptions associated with average shocks to the global and domestic economy.

The Federal Reserve's role as lender of last resort will always be a critical backstop in the protection against turmoil and dislocation caused by rare or extreme events. But to fulfill the role sustainably, we need to be

the last, not the first, line of defense. Regularly relying on “save the day” interventions by the Federal Reserve can be costly, resulting in public losses and undesirable risk-taking on the part of the private sector.

As policymakers, we must continually evaluate our actions. We must use all of our experiences, even those from times of crises, to identify vulnerabilities and create a more resilient future. This means working together, across regulatory agencies, to examine the events of last year and ask what needs to be done to minimize the chances of future severe disruptions.

So as we begin to emerge from our battles against COVID-19, it is time to focus on crafting more complete policies that leave us better prepared to weather future storms, big and small. Only then can we foster a more stable, sound and resilient financial system.

## A changing landscape

The financial sector is crucial for the smooth functioning of the economy. It enables the borrowing, lending, and saving that supports growth. From that vantage point, it is a public resource, a critical infrastructure for our shared prosperity.

But many shifts, exogenous to the financial system itself, are affecting its functioning. Most notable is the decline in the neutral rate of interest, or  $r$ -star, which has been falling globally for the past three decades (Holston, Laubach, and Williams 2017, Jordà and Taylor 2019). The decline reflects slow-moving structural trends, including a step-down in productivity growth and shifts in the demand for savings and investment associated with population aging (Carvalho, Ferrero, and Nechio 2016, Williams 2017). The decline in  $r$ -star and other prevailing interest rates alone would challenge the profitability of financial firms. But lower neutral rates of interest also mean that the Federal Reserve and other central banks, constrained by the effective lower bound on interest rates, need to routinely employ “low-for-long” policies to achieve mandated employment and price stability goals (Mertens and Williams 2019, Andrade et al. 2021).

The effects of these low-for-long policies have well-documented benefits of boosting economic growth, which ultimately supports the financial system (Arias et al. 2020, Caldara et al. 2020, Bernanke, Kiley, and Roberts 2019). But they are not without trade-offs. Over time, low interest rates can put pressure on the business models of financial institutions, leading them to reach for yield, which can jeopardize the stability of the financial system (Choi and Kronlund 2018, Di Maggio and Kacperczyk 2017, Financial Stability Oversight Council 2020).

A related but additional development affecting the financial system is the broad-based increase in debt levels and leverage ratios. Government policies enacted to offset the Global Financial Crisis in the late 2000s left many advanced nations with relatively high debt-to-GDP ratios (Badia and Dudine 2019). The response to the COVID-19 pandemic has only intensified this trend. Debt has also surged in the private sector, especially among nonfinancial corporate firms (Board of Governors 2020). Notably, much of this increase in debt has been funded outside of the banking sector (Board of Governors 2020 and Financial Stability Board 2020). While the rise in public and private debt have contributed to economic growth over the past decade, the increased indebtedness has created vulnerabilities that the financial system has to intermediate.

Importantly, this increase in borrowing has had a significant impact on the U.S. Treasury market. And this is the final aspect of the changed landscape that I will focus on. The Treasury market is the largest and most liquid bond market in the world and is a critical component of the domestic and global financial infrastructure. Broker-dealers provide the lion's share of Treasury security intermediation and generally are well-positioned to meet the demands of investors to buy or sell Treasury securities.

Over the past decade, Treasury securities have also become an increasingly important part of short-term funding markets, for instance as collateral in repurchase agreements. And a sizable and growing share of Treasury securities are held by financial entities, such as hedge funds or money market funds, that in times of stress can find themselves needing to liquidate quickly to meet redemption demand. This can put pressure on broker-dealers to absorb those sales.

The pressure on the Treasury market is magnified by the fact that Treasury securities remain a safe haven investment for foreign official and private investors. Normally, this is a benefit to the U.S. economy, but in periods of global stress, when liquidity is at a premium, it increases demands on Treasury clearing that go far beyond the needs of domestic investors.

In all of these situations, broker-dealers are the primary intermediary tasked with meeting the demand for liquidity. This normally works extremely well. But, as we saw last year, these intermediaries face regulatory and internal risk limits that can challenge their ability to meet surges in demand for liquidity. Given the growing size of the Treasury market, and the potential inability of broker-dealer balance sheets to keep up, this intermediation channel could face more capacity pressure in the future. This issue has been raised by various researchers (including Duffie 2020 and Liang and Parkinson 2020), but this is an open area of study and one where no consensus has formed.

### **Lender of last resort: Crisis and response**

The onset of COVID-19 and the financial and economic disruptions that it caused, exacerbated many of the vulnerabilities embedded in the changing financial landscape. The crisis roiled financial markets. Even the bedrock Treasury market experienced a severe disruption.

In the early days of March 2020, when it became clear that COVID-19 was a pandemic that would disrupt the entire global economy, investor sentiment shifted quickly. Short-term funding markets became especially stressed. A “dash for cash” among both domestic and foreign investors resulted in a run from even relatively safe longer-dated Treasury securities to cash and Treasury bills (Acharya, Engle, and Steffen 2021). The rapid and large-scale repositioning caused trading volumes to surge and price volatility to spike. Broker-dealers, facing their own internal risk and balance sheet limits, had difficulty meeting the demand for cash. Bid-ask spreads widened, market depth fell, and the normally fluid Treasury market was strained. Stress was particularly apparent in longer-dated off-the-run securities.

The Federal Reserve System and the New York Fed's Open Market Trading Desk reacted immediately, conducting a record number of open-market operations to restore and promote smooth market functioning (Logan 2020a). This is exactly what the lender of last resort is tasked with accomplishing.

Stepping back from the crisis and the unique features of the shock, the events of last March raise questions about the resiliency of intermediation in the Treasury market during periods of market stress. A key lesson from the Global Financial Crisis was that even rare events deliver important lessons. Following that crisis, regulatory bodies across the globe made material changes to the financial system that paid dividends during the COVID-19 crisis. For example, in the United States, the regulatory framework that came out of the Dodd-Frank Act ensured that systemically important institutions entered the pandemic with sufficient capital to facilitate the forbearance and lending that has been critical to our economic recovery (see Baily, Klein, and Schardin 2017, Quarles 2020, and Brainard 2021). The question before us now is, what can we learn from the events of March 2020, and how can we use those lessons to build a more resilient financial system moving forward.

## **Building the resiliency of the financial system**

There are many potentially important topics for study, but I will focus on two that are particularly salient to the idea of building more resiliency in the financial system: short-term funding markets and greater prudential oversight for the banking system.

### *Treasury and short-term funding markets*

For the Treasury market, a number of possible reforms are currently being discussed (Smith 2021). These include the Federal Reserve creating a domestic standing repurchase facility to backstop markets in times of stress and making permanent the temporary FIMA—Foreign and International Monetary Authorities Repo Facility—to help support smooth market functioning. These actions would provide assurance to markets that liquidity will be available in times of stress, but they could also leave financial markets more dependent on their existence. So, further careful study is required.

Outside of the Federal Reserve, expanding trading platform access to more entities and using central clearing for Treasury cash markets could reduce the burden on broker-dealers and lessen the liquidity crunch in times of stress. Additionally, reconsidering the inclusion of reserves or even Treasuries in the regulatory leverage-ratio requirements for broker-dealers, particularly when markets are strained, could further facilitate capacity for clearing (see, for example, Liang and Parkinson 2020, Duffie 2020, Treasury Market Practices Group 2019, and U.S. Securities and Exchange Commission 2020). Again, these changes and expansions have potential benefits and costs so further careful study is warranted.

Looking beyond the direct functioning of the Treasury market, the stability of hedge funds and money market funds is an important priority (U.S. Department of the Treasury 2021, U.S. Securities and Exchange Commission 2021). These entities have structural funding risk that can easily spike in times of stress, contributing to the severity of runs. The Financial Stability Oversight Council (FSOC) and the Securities and Exchange Commission have signaled some movement in shoring up the resiliency of these funds, something I see as critical to ensuring that we are prepared for the next stressful shock.

### *Expanding prudential oversight*

But fixing the Treasury market and reforming other short-term funding markets is just one piece of ensuring a healthy financial system going forward. The proximity of the effective lower bound on interest rates and the necessity to keep policy rates low for longer after a downturn, can, as I mentioned earlier,

result in reach-for-yield behavior among financial firms. So, we also need to find ways to foster and maintain sustainable increases in leverage.

Regulators already have a variety of regulatory and supervisory tools that provide an effective first line of defense, including capital requirements, leverage ratios, and stress tests. These tools have proven successful at keeping the banking sector healthy and well capitalized over the business cycle, a characteristic that has served us well as we work through the pandemic (Baily et al. 2017, Quarles 2020, Brainard 2021).

But new risks emerge as the economy evolves, and we need to ensure that we are prepared for what is ahead. The banking sector is just one part of the financial system. Shadow banking was a problem during the Global Financial Crisis, and with the rapid growth of the fintech sector, there is much to consider outside our traditional areas. At the Federal Reserve, we continuously monitor the resilience and vulnerabilities of the financial system as a whole and publish our assessment in our Financial Stability Report (Board of Governors 2020). And the FSOC is actively working to ensure that all the regulatory bodies are coordinating, so that the right policy levers can be activated (Financial Stability Oversight Council 2020). But more work may need to be done to ensure that other parts of the financial infrastructure remain sound and stable.

## Policy for a changing world

Turning back to where I started, I often think about my experience growing up near a flood plain. The frequent disruptions of the rivers to peoples' lives and livelihoods. It reminds me of the importance of a last resort backstop. Protection against losses too big for any one of us to bear. But the experience also taught me the value of prevention. Of building resiliency and minimizing the chances that a backstop is needed at all.

What the rivers of Missouri really taught me is that optimal public policies are those that manage *and* mitigate risks. Backstops and prevention that result in consistently better outcomes.

This is the balance we will need to strike to ensure that our ever-changing financial system continues to fulfill its role as critical public infrastructure.

*Mary C. Daly is president and chief executive officer of the Federal Reserve Bank of San Francisco.*

## References

- Acharya, Viral V., Robert F. Engle III and Sascha Steffen. 2021. "Why Did Bank Stocks Crash during COVID-19?" National Bureau of Economic Research Working Paper 28559 (March). <https://www.nber.org/papers/w28559>
- Andrade, Philippe, Jordi Galí, Hervé Le Bihan, and Julien Mathéron. 2021. "Should the ECB Adjust Its Strategy in the Face of a Lower  $r^*$ ?" Centre de Recerca en Economia Internacional Working Paper, (February 3). [https://crei.cat/wp-content/uploads/2021/02/EAAGLBM\\_January2021-1.pdf](https://crei.cat/wp-content/uploads/2021/02/EAAGLBM_January2021-1.pdf)
- Arias, Jonas, Martin Bodenstein, Hess Chung, Thorsten Drautzburg, and Andrea Raffo. 2020. "Alternative Strategies: How Do They Work? How Might They Help?" Federal Reserve Board of Governors, Finance and Economics Discussion Series 2020-068. <https://doi.org/10.17016/FEDS.2020.068>
- Badia, Marialuz Moreno, and Paolo Dudine. 2019. "New Data on World Debt: A Dive into Country Numbers." IMFBlog, International Monetary Fund, December 17. <https://blogs.imf.org/2019/12/17/new-data-on-world-debt-a-dive-into-country-numbers/>

- Baily, Martin Neil, Aaron Klein, and Justin Schardin. 2017. “The Impact of the Dodd-Frank Act on Financial Stability and Economic Growth.” *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 3, (1, January), pp. 20-47. <https://www.rsfsjournal.org/content/rsfjss/3/1/20.full.pdf>
- Bernanke, Ben S., Michael T. Kiley, and John M. Roberts. 2019. “Monetary Policy Strategies for a Low-Rate Environment.” Federal Reserve Board of Governors, Finance and Economics Discussion Series 2019-009. <https://doi.org/10.17016/FEDS.2019.009>
- Board of Governors of the Federal Reserve System. 2020. “Financial Stability Report.” November. <https://www.federalreserve.gov/publications/2020-november-financial-stability-report-purpose.htm>
- Brainard, Lael. 2021. “Some Preliminary Financial Stability Lessons from the COVID-19 Shock.” Speech at the 2021 Annual Washington Conference, Institute of International Bankers (via webcast), March 1. <https://www.federalreserve.gov/newsevents/speech/brainard20210301a.htm>
- Caldara, Dario, Etienne Gagnon, Enrique Martínez-García, and Christopher J. Neely. 2020. “Monetary Policy and Economic Performance since the Financial Crisis,” Federal Reserve Board of Governors, Finance and Economics Discussion Series 2020-065. <https://doi.org/10.17016/FEDS.2020.065>
- Carvalho, Carlos, Andrea Ferrero, and Fernanda Nechio. 2016. “Demographics and Real Interest Rates: Inspecting the Mechanism.” *European Economic Review* 88, pp. 208–226.
- Choi, Jaewon, and Mathias Kronlund. 2018. “Reaching for Yield in Corporate Bond Mutual Funds.” *The Review of Financial Studies* 31(5 May), pp. 1,930–1,965.
- Di Maggio, Marco, and Marcin Kacperczyk. 2017. “The Unintended Consequences of the Zero Lower Bound Policy.” *Journal of Financial Economics* 123(1, January), pp. 59–80.
- Duffie, Darrell. 2020. “Still the World’s Safe Haven? Redesigning the U.S. Treasury Market after the COVID-10 Crisis.” Hutchins Center Working Paper 62, Brookings Institution, June 22. <https://www.brookings.edu/research/still-the-worlds-safe-haven/>
- Financial Stability Board. 2020. “Global Monitoring Report on Non-Bank Financial Intermediation.” December 16. <https://www.fsb.org/2020/12/global-monitoring-report-on-non-bank-financial-intermediation-2020/>
- Financial Stability Oversight Council. 2020. “Annual Report.” <https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc/studies-and-reports/annual-reports>
- Holston, Kathryn, Thomas Laubach, and John C. Williams. 2017. “Measuring the Natural Rate of Interest: International Trends and Determinants.” *Journal of International Economics* 108, supplement 1 (May), pp. S39–S75.
- Jordà, Òscar, and Alan M. Taylor. 2019. “Riders on the Storm.” FRB San Francisco Working Paper 2019–20. <https://www.frbsf.org/economic-research/publications/working-papers/2019/20/>
- Liang, Nellie, and Pat Parkinson. 2020. “Enhancing Liquidity of the U.S. Treasury Market Under Stress.” Hutchins Center Working Paper 72, Brookings Institution, December. <https://www.brookings.edu/research/enhancing-liquidity-of-the-u-s-treasury-market-under-stress/>
- Logan, Lorie K. 2020a. “The Federal Reserve’s Market Functioning Purchases: From Supporting to Sustaining.” Remarks at SIFMA Webinar, July 15. <https://www.newyorkfed.org/newsevents/speeches/2020/log200715>
- Logan, Lorie K. 2020b. “Treasury Market Liquidity and Early Lessons from the Pandemic Shock.” Remarks at Brookings-Chicago Booth Task Force on Financial Stability Meeting (via videoconference), October 23. <https://www.newyorkfed.org/newsevents/speeches/2020/log201023>
- Mertens, Thomas M., and John C. Williams. 2019. “Monetary Policy Frameworks and the Effective Lower Bound on Interest Rates.” *American Economic Association Papers and Proceedings* 109 (May), pp. 427–432.
- Quarles, Randal K. 2020. “What Happened? What Have We Learned from It? Lessons from COVID-19 Stress on the Financial System.” Speech at the Institute of International Finance, Washington, DC (via webcast), October 15. <https://www.federalreserve.gov/newsevents/speech/quarles20201015a.htm>
- Smith, Brian. 2021. “Remarks at the Federal Reserve Bank of New York’s Annual Primary Dealer Meeting.” April 8. <https://home.treasury.gov/news/press-releases/jy0116>



- Treasury Market Practices Group. 2019. “Best Practices for Treasury, Agency Debt, and Agency Mortgage-Backed Securities Markets.” July.  
[https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/TMPG\\_BestPractices\\_071119.pdf](https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/TMPG_BestPractices_071119.pdf)
- U.S. Department of the Treasury. 2021. “Readout of Financial Stability Oversight Council Meeting on March 31, 2021.” Press release, March 31. <https://home.treasury.gov/news/press-releases/jy0093>
- U.S. Securities and Exchange Commission. 2020. “SEC Proposes Rules 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>
- 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>
- Williams, John C. “Three Questions on R-Star.” *FRBSF Economic Letter* 2017-05 (February 21).  
<https://www.frbsf.org/economic-research/publications/economic-letter/2017/february/three-questions-on-r-star-natural-rate-of-interest/>

Opinions expressed in *FRBSF Economic Letter* do not necessarily reflect the views of the management of the Federal Reserve Bank of San Francisco or of the Board of Governors of the Federal Reserve System. This publication is edited by Anita Todd and Karen Barnes. Permission to reprint portions of articles or whole articles must be obtained in writing. Please send editorial comments and requests for reprint permission to [Research.Library.sf@sf.frb.org](mailto:Research.Library.sf@sf.frb.org)

Recent issues of *FRBSF Economic Letter* are available at

<https://www.frbsf.org/economic-research/publications/economic-letter/>

2021-11	Wilson	<b>Where Is the U.S. COVID-19 Pandemic Headed?</b> <a href="https://www.frbsf.org/economic-research/publications/economic-letter/2021/april/where-is-us-covid-19-pandemic-headed/">https://www.frbsf.org/economic-research/publications/economic-letter/2021/april/where-is-us-covid-19-pandemic-headed/</a>
2021-10	Lofton / Petrosky-Nadeau / Seitelman	<b>Parental Participation in a Pandemic Labor Market</b> <a href="https://www.frbsf.org/economic-research/publications/economic-letter/2021/april/parental-participation-in-pandemic-labor-market/">https://www.frbsf.org/economic-research/publications/economic-letter/2021/april/parental-participation-in-pandemic-labor-market/</a>
2021-09	Diwan / Lu / Spiegel	<b>Capitol Flow Surges and Rising Income Inequality</b> <a href="https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/capital-flow-surges-and-rising-income-inequality/">https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/capital-flow-surges-and-rising-income-inequality/</a>
2021-08	Glick / Kouchekinia	<b>Disagreement about U.S. and Euro-Area Inflation Forecasts</b> <a href="https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/disagreement-about-us-and-euro-area-inflation-forecasts/">https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/disagreement-about-us-and-euro-area-inflation-forecasts/</a>
2021-07	Daly	<b>Lessons from History, Policy for Today</b> <a href="https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/lessons-from-history-policy-for-today-speech/">https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/lessons-from-history-policy-for-today-speech/</a>
2021-06	Kwan	<b>Resilience of Community Banks in the Time of COVID-19</b> <a href="https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/resilience-of-community-banks-in-time-of-covid-19/">https://www.frbsf.org/economic-research/publications/economic-letter/2021/march/resilience-of-community-banks-in-time-of-covid-19/</a>
2021-05	Eyméoud/ Petrosky-Nadeau/ Santaeulàlia-Llopis/ Wasmer	<b>Contrasting U.S. and European Job Markets during COVID-19</b> <a href="https://www.frbsf.org/economic-research/publications/economic-letter/2021/february/contrasting-us-and-european-job-markets-during-covid-19/">https://www.frbsf.org/economic-research/publications/economic-letter/2021/february/contrasting-us-and-european-job-markets-during-covid-19/</a>