Averting a Treasury Market Crisis

The Treasury bond market suffered a liquidity crisis at the start of the COVID-19 pandemic. What reforms are needed to make sure it doesn't happen again?

BY MATTHEW WELLS

The U.S. government bond market sits at the foundation of the global financial system. This $24 trillion market finances the U.S. government's debt and serves as the benchmark for a host of other markets, including the mortgage, corporate debt, and municipal bond markets. Treasury bonds — often called simply "Treasurys" — serve as collateral for loans the world over, and investors, including pension funds and foreign governments, value the bonds as both investments and quick sources of cash in times of need. Indeed, U.S. banking regulations consider Treasurys to be high-quality liquid assets, essentially making them as good as cash.

In March 2020, however, uncertainty regarding the short-term functioning of global markets brought on by the COVID-19 pandemic led many holders of these securities, and those holding other sovereign bonds, to convert them to cash all at once. This strained bond markets around the world, as the influx of securities for sale led to a significant drop in prices, not just in the United States, but in Germany, Great Britain, and Japan, as well. The problem was most acute for the United States, however, due to the dollar's role as the world's dominant currency and as an investment.

During the crisis, bid-ask spreads (the difference between the buy and sell prices offered by market makers) widened, and intermediaries were unable to find buyers for the bonds at listed prices. At this point, the Fed intervened and, acting as the buyer of last resort, bought approximately $1 trillion worth of Treasurys by the end of the first quarter of 2020, restoring liquidity to the bond market.

Concerns lingered afterward. An analyst report from Bank of America in September argued that "declining liquidity and resiliency of the Treasury market arguably poses one of the greatest threats to global financial stability today." A *Wall Street Journal* article about Treasurys that month came with the cheery headline, "Bond Market Liquidity is Really Bad Right Now."

Why is market liquidity so important? While daily — and sometimes dramatic — fluctuations in Treasury prices, such as the "flash crashes" of October 2014 and September 2019, affect traders' bottom lines, price volatility stemming from a shock like that in 2020 can have far more dire consequences for the entire economy. If, in the face of some calamitous shock, sellers simultaneously sought to cash out and were unable to locate ready buyers for Treasurys, the market could grind to a halt, freezing all other markets as well. In other words, lending at almost every level would cease and borrowers ranging from the federal government to homeowners would potentially default.

As a practical matter, the Fed would likely intervene to prevent such a scenario from fully playing out. But recent reports suggest the Treasury market is again encountering liquidity challenges, with regulators and policymakers acknowledging that, while the market is well-functioning now with trading volume averaging about $600 billion per day, some changes to its structure are necessary to avoid a repeat of March 2020 or worse. In an October 2022 speech on the topic, Treasury Secretary Janet Yellen stated that reforms are being considered to "improve the Treasury market's ability to absorb shocks and disruptions, rather than to amplify them."

What is driving the market's uncertainty, and what steps can be taken to ensure its resilience?

DIFFERENT SECURITIES, DIFFERENT LIQUIDITY

What does it mean for an asset to be "liquid"? At a very basic level a liquid asset is one that can quickly be converted into cash. Market depth is one measure of liquidity, capturing the ability of Treasury sales and purchases to be made without moving prices. Sellers, as well as market-making intermediaries such as investment banks, want to be able to sell potentially large quantities of Treasurys for cash without

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the price falling. When the market lacks depth, those sellers can sell some of them to the highest bidder, but if that buyer doesn't want to purchase all of them at that price, then the rest are sold to bidders offering lower prices. Alternatively, a seller can split its order, selling some now to the highest bidder and then waiting for a buyer to emerge who offers a higher price, but waiting can be costly and uncertain. This scenario generally arises when trading volume for a security is low, as it signals a lack of demand for that security.

Liquidity within the market also can differ depending on the age and maturity of a given Treasury. On-the-run Treasurys are securities that are newly issued and are available for purchase from the Treasury Department on a set schedule. Once purchased via auction, they are desirable on the secondary market and, because of that desirability, sell at a higher price. Most of the $600 billion in daily trading volume involves "on-the-run" Treasurys.

"Off-the-run" Treasurys, in contrast, are securities that are older than the latest issue sold at auction. They are generally less liquid, sometimes taking longer to find buyers at listed prices. They are typically cheaper than "on-the-run" securities, however, and come with a slightly higher yield. Many of these securities are held until their maturity by mutual funds, pension funds, foreign central banks, or foundations.

Similarly, Treasurys with shorter maturities carry less risk and can partially avoid the market turbulence (that is, interest rate changes, inflation, and so on) that can accompany bonds with longer maturities. As the market becomes more volatile in terms of rates, it becomes less liquid, meaning it can take longer to sell those longer-maturity Treasurys.

In March 2020, rather than continue to hold onto them until their maturity as they would in normal times, many entities holding off-the-run securities sought to convert them to cash in the face of the economic uncertainty. Dealers, as a result, accumulated large inventories of both on-the-run and off-the-run securities and essentially ran out of balance sheet "space" — that is, they hit the limit on what financial regulations permitted them to hold with a given amount of capital. As a result, bid-ask spreads increased, and market depth deteriorated. "It is actually the off-the-runs that were the epicenter of the crisis," says Darrell Duffie, an economist at Stanford University. "The biggest sellers were those that had set them aside for a rainy day, and that day arrived when the World Health Organization announced a COVID pandemic."

WHAT'S DRIVING THE UNEASE?

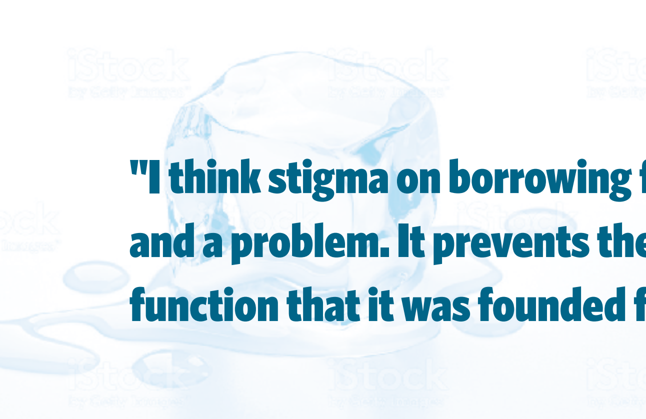
The Fed's November 2022 Financial Stability Report indicated that Treasury market liquidity was at its worst levels since the events of March 2020. If the market is generally seen as stable and volume is high, how is this possible?

First, large banks and investment firms, known as primary dealers, have taken on a lot of Treasury inventory already. The Treasury Department has issued a tremendous amount of debt in recent years, with total public debt rising from $3.6 trillion in 2002 to about $24.6 trillion today. In purchasing these bonds, dealers are potentially running out of room on their balance sheets, leading them to be much less active in both initial purchases and as intermediaries on the secondary market.

Balance sheet space is dictated in part by the Supplementary Leverage Ratio (SLR) requirements included in the post-financial-crisis-era reforms that were intended to make the financial system safer. While the reforms encouraged dealer banks to hold high-quality assets like Treasurys, the SLR required banks with over $250 billion in assets to keep at least 3 percent of the value of those assets in stockholder equity. According to Francisco Covas, head of research at the Bank Policy Institute, however, "the key constraint of bank balance sheets in intermediating Treasury markets is the supplementary leverage ratio." Covas notes that the ratio's formula reflects a previous policy framework that sought to draw banks' reserve balances down to around $25 billion. The current framework, however, aims to keep balances around $2.3 trillion. If a bank increases its Treasurys inventory, that might require it to hold more capital, reducing its ability to lend and make a profit. Dealers, as a result, may not be willing to take on more assets, as they would need to hold additional capital to not run afoul of the ratio requirements.

Second, unease may also stem from volatility and uncertainty surrounding the timeline of the Fed's monetary policy as it battles inflation. "The recent volatility in monetary policy and uncertainty over how long it will take to bring inflation down and how high rates need to go has led to a reduction in inventory to fill a balance sheet," says Covas. The November Financial Stability Report acknowledged that unease, noting that market depth for two- and 10-year on-the-run Treasurys fell considerably between October 2021 and April 2022. To avoid the volatility in these bonds with longer maturities, many market participants have concentrated their attention in the "short end" of the market, or the short-term bonds with around three-month maturities.

Further, as these primary dealers have stepped back, hedge funds and high-speed traders have stepped in as a potential source of liquidity. A 2015 joint regulators' report examining the "flash crash" on Oct. 15, 2014, noted that these firms, known collectively as principal trading firms, now account for the majority of trading and provide most of the market depth.



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But they are less regulated and bring significant leverage into the market, which can fuel instability. In March 2022, the Securities and Exchange Commission proposed a rule requiring such firms with at least $25 billion in monthly trading volume to register with the agency and meet tougher transparency and capital requirements; the proposal is still under consideration.

Finally, foreign central banks facing currency crises at home often sell Treasurys for dollars, which they use to buy and support their own currencies. Amid the uncertainty of March 2020, foreign central banks sold a record $109 billion in Treasurys, although such moves are consistent with their response to similar global events. Currently, the largest single foreign holder of Treasurys is the Bank of Japan. In November 2021, its holdings totaled $1.3 trillion but decreased to $1.08 trillion in the year since then. Partly as a result of the bank's accommodative monetary policy, the value of the yen decreased and the bank's response was to intervene by selling Treasurys and using the cash to shore up the yen in currency markets. The resulting sale of $250 billion in Treasurys into an already uncertain market might be further reducing its depth.

SHORING UP THE SYSTEM

Regulators are examining several potential reforms aimed at restoring the Treasury market's depth so that it will be able to withstand future shocks.

In October of last year, the Treasury Department surveyed primary dealers, asking for their views on the possibility of it buying back from them relatively illiquid off-the-run securities such as 20-year bonds. Dealers expect a decision on whether to proceed with buybacks and to what degree early this year. Gennadiy Goldberg, a rates strategist at TD Securities, believes the move would help market liquidity. "Buybacks would allow banks to get [bonds] off their balance sheet when there are no buyers," he said, "and would allow them to use their balance sheet more efficiently."

One change already in place that has the potential to reduce stress on the market was the Fed's creation of a standing repo facility in the summer of 2021. (See "The Fed's Evolving Involvement in the Repo Markets," *Economic Brief*, September 2021.) Rather than sell their Treasurys, eligible firms, mainly the primary dealer banks, can use the facility to quickly convert their Treasurys into overnight cash loans to satisfy their short-term cash needs. The repo facility has not been used since its creation, as the dealers and banks eligible to use it still have plenty of cash following the Fed's pandemic-era quantitative easing policy. It remains an open question, however, how much these actors will use the facility once their cash holdings decline. Some observers believe that certain Fed lending programs, such as the discount window, carry a stigma because their use signals that the borrower may be in weakened financial condition. (See "Understanding Discount Window Stigma," *Economic Brief*, April 2020.) "I think stigma on borrowing from the Federal Reserve is a big deal and a problem," says Don Kohn, a former vice chair of the Fed now at the Brookings Institution. "It prevents the Fed from performing an important function that it was founded for in 1913."

Observers suggest that there may be ways to mitigate this potential reluctance. In particular, Duffie argues that the Fed could improve the terms for using it, lowering the cost from 25 basis points — a relatively high and painful price — to a number that would both incentivize firms to use it and not signal that the user was in poor financial condition. "Then it's not such a big news story when somebody uses it," he says.

Currently, access to the repo facility is restricted to a relatively narrow set of counterparties, which includes primary dealers and depository institutions, but some market participants and observers agree that it should be expanded. At a recent New York Fed conference on the Treasury market, Jeremy Stein, a former Fed governor now at Harvard University, suggested that some of the problems of March 2020 might have been reduced if more actors, such as hedge funds and mutual funds, were allowed to access cash through the facility in times of stress. "If they knew for sure that they could come to the Fed," said Stein, "they might have held fire a little bit and not sold."

Regulators are also considering the possibility of adjusting the capital requirement framework. The SLR requirements were created in the wake of the global financial crisis, after several large banks did not have enough capital on hand to cover losses they experienced as asset values declined. To facilitate lending at the beginning of the pandemic, both reserves and Treasurys were exempted from the SLR calculations, which were last adjusted in 2014 under a different monetary policy framework when banks held dramatically fewer reserves.

While the exemption expired in March 2021, there is broad-based agreement that the ratio requirement should be adjusted in some way. Duffie claims that it "is unnecessarily reducing liquidity, and with no cost to financial stability, you could dial that one down and increase risk-based requirements to compensate for it. Financial stability and market efficiency would then be better." Kohn offers a similar judgment, suggesting that one approach would be to exempt reserves or Treasurys, or both, and raise the leverage ratio on other assets by whatever small

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amount necessary to neutralize the change. At the same time, he notes the risk-based capital requirements could be increased by adding a more actively used countercyclical capital buffer. Covas says that removing reserve balances and Treasurys from the leverage ratio is the key reform being pursued by the banking industry. These reforms have yet to be put into place, however, reflecting the complex balancing of costs and benefits involved in designing effective capital regulation.

BOLDER CHANGES TO THE MARKET STRUCTURE

More ambitious reforms are also on the table. An October 2022 New York Fed Staff Report explored the costs and benefits of "all-to-all" trading, which would constitute a significant change in the market's structure. Under this system, buyers and sellers would no longer rely on intermediation by the large banks to conduct transactions. Instead, they would engage directly with one another, and those transactions would be guaranteed by a third party. While no decisions have been made, the report states that all-to-all trading would "encourage market resilience by providing additional opportunities for trading partners to match on a trade without use of an intermediary" and result in "lower transaction costs for liquidity consumers and could improve transparency around trade data."

Transparency would be enhanced because under such a structure, all market participants would have the same real-time ability to see transactions taking place within the market. Everyone would know the prevailing price for a given security, leading to better matching between sellers and buyers. This move to more real-time reporting, however, raises some red flags for dealers. Some trades are very large and executing an entire deal can take time and occur in several steps. "If this information is available in real time," says Covas, that "would allow market participants to position against market makers and increase the costs of intermediating in Treasury markets."

Regulators and policymakers are aware of this concern and are currently implementing incremental changes. At the recent Treasury market conference in New York, Treasury Under Secretary for Domestic Finance Nellie Liang announced that the department would be pursuing the release of end-of-day transaction data for on-the-run Treasurys. This would be a first step, but she also suggested that even though the department will be "starting gradual and in a calibrated way," she anticipates eventually releasing transaction data after 60 minutes, which "would be beneficial and would still allow sufficient time for market participants to handle large transactions."

An intermediate step along the way to an all-to-all market structure is mandated and expanded "central clearing." Today, only primary dealers are obligated to submit their transactions to a central counterparty, the Fixed Income Clearing Corporation (FICC). A 2021 interagency working group report noted that only 13 percent of all Treasury cash transactions are centrally cleared. By requiring all market participants to register and clear their transactions with a designated intermediary such as the FICC, all transactions, not just those between dealers, could cancel each other out, a concept known as "netting." This could free up space on balance sheets for ongoing trading that would help keep the market liquid.

Ultimately, regulators will need to consider how to, as Kohn said in an August 2021 speech, "remove impediments to market making ... without reducing the resilience of the banking system." Similarly, Duffie suggests that if regulatory requirements are relaxed too much, "market liquidity is improved on a typical day but not on a crisis day when some big banks might fail." Market watchers and participants will be paying close attention to see whether the additional steps taken to improve the functionality of the Treasury market — if any — will be enough to withstand whatever turbulence might lie ahead. **EF**

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