

Still the World's Safe Haven?

Redesigning the U.S. Treasury Market After the COVID-19 Crisis

Darrell Duffie

Graduate School of Business
Stanford University

ABSTRACT

I review the functionality of the secondary market for U.S. Treasuries in March 2020, when the COVID-19 crisis triggered investor flows that overwhelmed intermediaries. Although the Fed, through an unprecedented rate of Treasury purchases and other actions, was able to restore market liquidity, the design of the Treasury market was revealed to be overdue for an upgrade. I propose a study of the costs and benefits of a requirement of central clearing of the Treasury transactions of all firms that are active in the market. Without a broad central clearing mandate, the size of the Treasury market will outstrip the capacity of dealers to safely intermediate the market on their own balance sheets, raising doubt over the safe haven status of U.S. Treasuries and concerns over the cost to taxpayers of financing growing federal deficits.

This paper was prepared as background for the Hutchins Center webinar, "[COVID-19 and the financial system: How and why were financial markets disrupted?](#)" on May 27, 2020. The author is grateful for comments from Michael Fleming, Don Kohn, Nellie Liang, Antoine Martin, Bill Nelson, Jun Pan, Hyun Shin, Andreas Schrimpf, Joshua Younger, David Wessel, Haoxiang Zhu, and several anonymous market participants. All opinions expressed are author's own. He has received helpful research assistance from Sahit Dendekuri and David Yilin Yang. The author is a member of the board of Dimensional Funds, representing the interests of shareholders of mutual funds, some of which invest in Treasury securities, and has also recently been compensated for an expert report in litigation covering issues that include central clearing and all-to-all trade in the market for swaps.

Introduction

The market for U.S. Treasuries has long been viewed as the world's most liquid financial market.¹ That presumption was questioned when the COVID-19 crisis triggered heavy investor trade demands that overwhelmed the capacity of dealers to intermediate the market. Over several tense days, yields rose sharply, calling into question the longstanding view that Treasuries are a reliable safe haven in a crisis. The space available on dealer balance sheets for warehousing additional investor trade flows diminished, bid-offer spreads widened dramatically, the yields of similar-maturity Treasuries were no longer close to each other, settlement failures jumped, and market depth plummeted. I will document these facts later in this paper.

In a massive dealer-of-last-resort response designed to shore up market liquidity, the Federal Reserve System purchased \$1 trillion of Treasuries in a matter of only three weeks, and then continued to buy at a high rate. The Fed also offered unconstrained short-term financing for dealer Treasury inventories and exempted Treasuries from a key capital requirement. By mid-April, these and other emergency actions by the Fed had significantly calmed the market.

Despite the success of the Fed's aggressive actions to restore liquidity to Treasury markets, the COVID-19 crisis tested the extent to which the secondary market for Treasuries can safely and efficiently handle surges in investor trading demands that can be expected, episodically, in coming years. Although the Fed accomplished what it needed to do, *as a design principle, the lack of a robust private-market structure should not be acceptable based on the notion that the Fed is available as a dealer of last resort.*

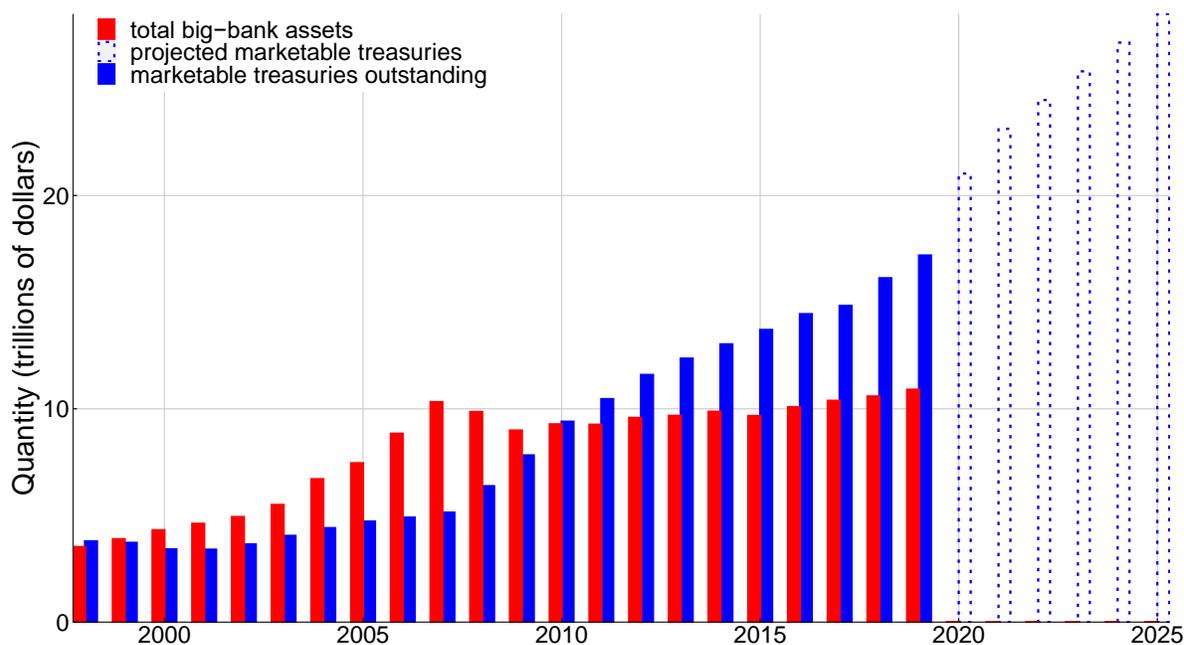
The bulk of trades of Treasury securities initiated by non-dealers are intermediated by a small number of bank-affiliated securities dealers. Regulatory reforms triggered by the financial crisis of 2008-2009, however, have limited the appetite of bank dealers to warehouse investor flows on their balance sheets. New capital requirements and other new regulations² now force bank shareholders to bear far more of the costs of financing their market-making inventories. Since 2008, growing federal deficits have caused the stock of marketable Treasuries to grow significantly relative to dealer balance sheets, as shown in Figure 1. Figure 2 shows that the total amount of marketable Treasuries has also grown dramatically relative to the quantity of Treasury inventories for which dealers obtain financing.

In short, the size of the Treasury market may have outgrown the capacity of dealers to safely intermediate the market on their own balance sheets, raising questions about the safe-haven status of U.S. Treasuries and concerns over the cost to taxpayers of financing growing federal deficits.

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1. When issuing the U.S. Treasury Department's 2016 "Notice Seeking Public Comment on the Evolution of the Treasury Market Structure," Antonio Weiss, Counselor to the Treasury Secretary, stated that "the Treasury market remains the deepest, most liquid market in the world, a source of safety and liquidity, and a haven in times of turbulence."
2. Beyond higher dealer capital requirements, increased dealer credit spreads induced by other post-crisis reforms imply higher debt funding costs for dealer inventories, as explained by Andersen, Duffie, and Song (2019) and Berndt, Duffie, and Zhu (2020).

Figure 1



Note: In blue are shown year-end total outstanding amounts of marketable Treasuries, 1998-2019 (data: FRED), with projections for 2020-2025 based on federal deficit projections made on April 13, 2020 by the [Committee for a Responsible Federal Budget](#). In red are shown the total assets of the holding companies of Goldman Sachs Group, Morgan Stanley, Merrill Lynch, Lehman Brothers, Bear Stearns, Bank of America, JP Morgan Chase, Citigroup, and Wells Fargo, from 10K disclosures.

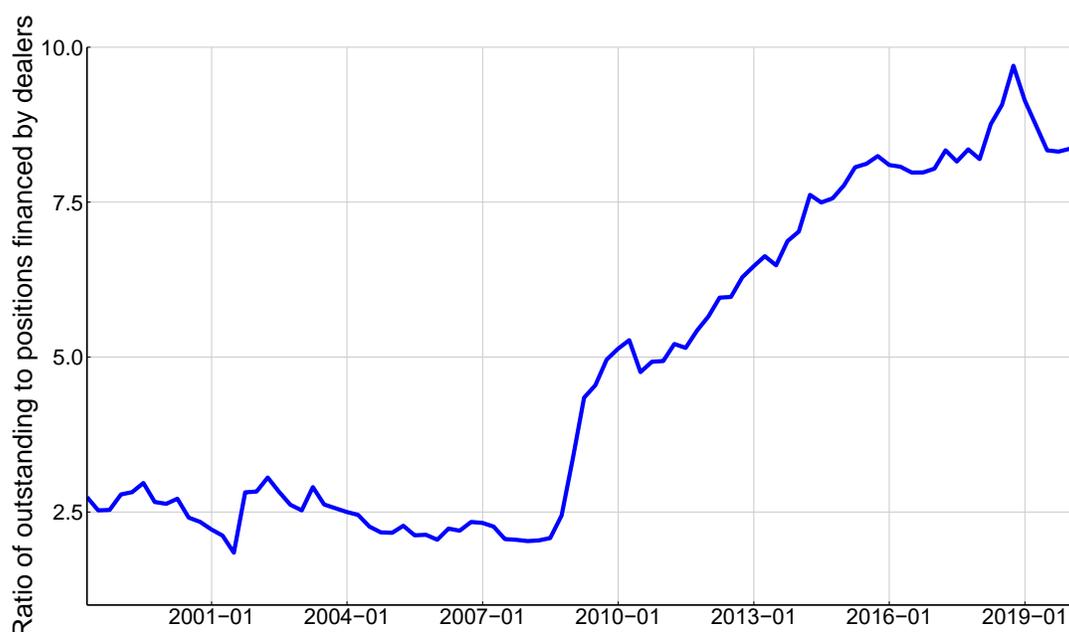
As shown in Figure 1, the stock of Treasuries outstanding is projected to grow at an even higher rate, in part because of the immense fiscal response of the U.S. government to the COVID-19 crisis. In 2020 alone, the stock of marketable U.S. Treasuries is expected³ to increase by \$3.8 trillion, from \$16.7 trillion to \$20.5 trillion. Extremely large projected fiscal deficits, relative to GDP, could also begin to increase Treasury yield volatility. If Treasury prices become more volatile, the stress on dealer balance sheets of handling surges in trade demands will be magnified by an increase in the per-unit riskiness of dealer Treasury inventories. This could exacerbate a negative feedback effect in which lower market depth causes yet greater price volatility. Some European sovereign bond issuers suffered a nasty taste of this feedback in 2011-2012.

To intermeditate the large expected increases in U.S. Treasury trade volumes using the current market design, bank holding companies would need to substantially increase their capital commitments to Treasury market intermediation. Bank holding company shareholders, however, would not benefit from this commitment of capital unless intermediation rents rise sufficiently through a widening of bid-offer spreads. The resulting illiquidity, or episodes of illiquidity, and elevated yield volatility, would adversely impact the prices of Treasuries—not a good outcome for U.S. taxpayers.

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3. This projection is based on federal deficit projections made on April 13, 2020, by the Committee for a Responsible Federal Budget.

Figure 2



Note: The ratio of total outstanding amounts of marketable Treasuries to the amounts of Treasuries for which primary dealers received financing, 1998 to end of 2019.⁴ Data: FRED and Federal Reserve Bank of New York.

Meanwhile, the risk of an accident in the plumbing of the Treasuries market, by which trades are cleared and settled, already suggests the need for a more robust system of central clearing, as I will explain later in this paper, drawing from recent work by the Treasury Market Practices Group, congressional testimony, and government reports.⁵ A major overhaul of central clearing infrastructure, coupled with new rules requiring the central clearing of the Treasury transactions of all firms that are active in the market, would relieve some of the need to warehouse trade flows on dealer balance sheets. Dealers would be better able to net their buy and sell trades with central counterparties (CCPs). Further, given broad access to a CCP, some Treasury transactions could flow directly from ultimate sellers to ultimate buyers without necessarily impinging on dealer balance sheet space. The transparency of the trade settlement process would improve, and counterparty settlement risk would decline, improving financial stability.

The infrastructure associated with this market reform would likely be expensive. Nevertheless, the future of the U.S. Treasuries market points in this direction. Regulators of U.S. Treasury markets may now wish to consider a cost-benefit analysis of a broad mandate for central clearing, similar in scope to central clearing rules for derivatives markets.

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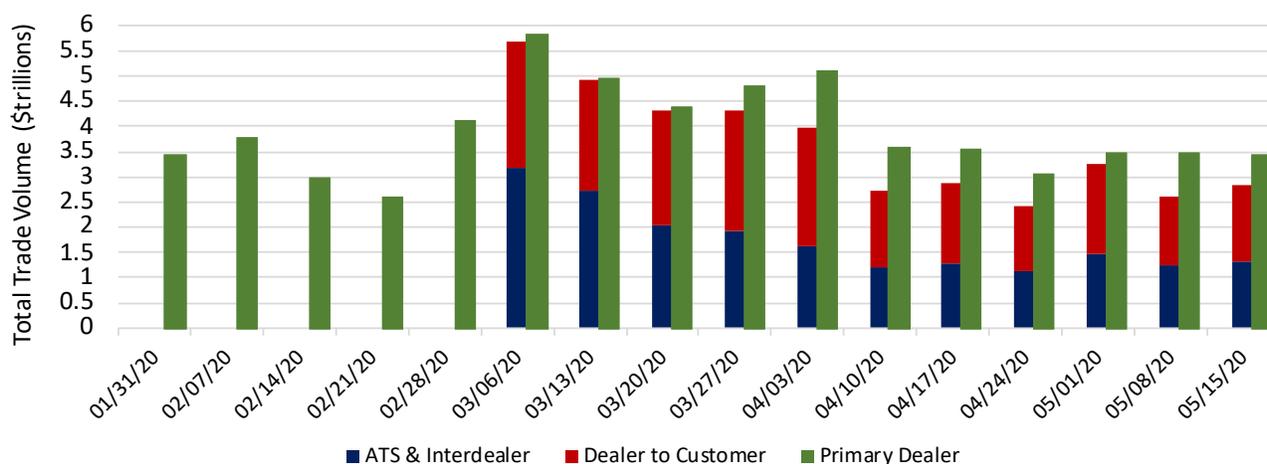
4. The quantity of Treasury securities financed includes overnight and term, nominal securities as well as TIPS, and covers securities financed with repurchase agreements and securities lending agreements.
5. The Treasury Markets Practices Group states at its [website](#) that “the TPMG is composed of senior business managers and legal and compliance professionals from a variety of institutions—including securities dealers, banks, buy side firms, market utilities, and others—and is sponsored by the Federal Reserve Bank of New York.”

The cost to taxpayers of financing federal deficits depends on the efficiency of the secondary market for Treasuries. Bids in the primary auction market for U.S. Treasuries are based largely on resale prices in the secondary market. Risks to financial instability associated with a weak market design are also consequential.

What happened to Treasury market liquidity during the COVID-19 Crisis?

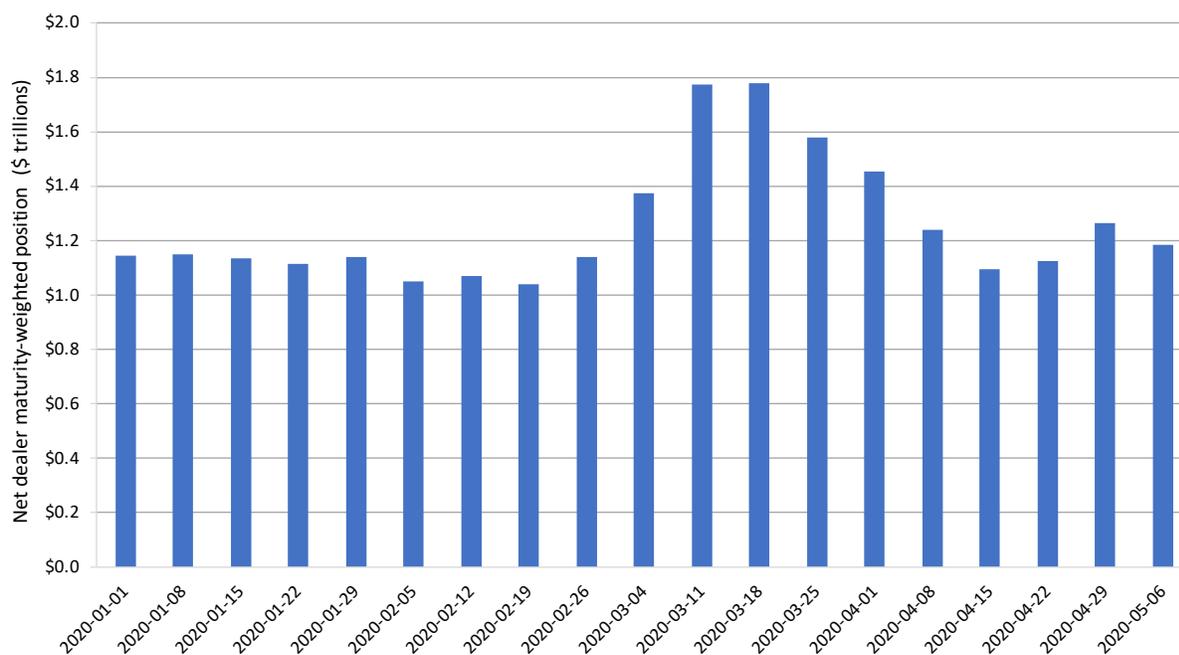
In March 2020, unusually large Treasury trading volumes (Figure 3) caused dealer net inventories to increase (Figure 4), given the need to temporarily warehouse the flood of sales from global investors responding to worsening COVID crisis news. Motivations for these sales are explained by Schrimpf, Shin, and Shushko (2020) and Cheng, Wessel, and Younger (2020). The large sellers included hedge funds and foreign official-sector investors. For example, according to the [Treasury's International Capital Flow Report](#), in March 2020, foreign holders sold, net of purchases, \$299 billion of Treasury bonds and notes. These sales may have been motivated in part by crisis-induced demands for U.S. dollar funding by foreign banks. The amount of financing that dealers needed to support their Treasury inventories rose sharply, as shown in Figure 5.

Figure 3



Note: Total Treasury market volumes. In blue, from TRACE data, interdealer volumes (including ATS), for weeks ending on the indicated dates. In red, from TRACE data, dealer-to-customer volumes. In green, from FR 2004 data, primary dealer transactions for the week ending on the Wednesday before the indicated date. FR 2004 counts a single transaction between two primary dealers as two transactions, one for each. TRACE data series are publicly accessible on a regular basis beginning only in March 2020. Data sources: [TRACE data provided by FINRA](#). FR 2004 data from [the Federal Reserve Bank of New York](#).

Figure 4



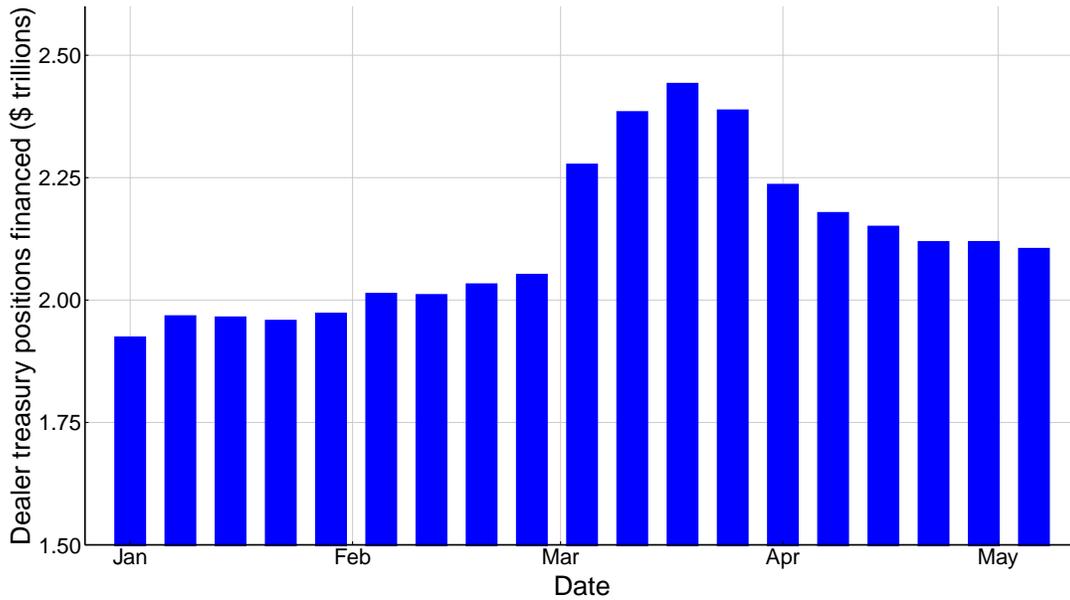
Note: The aggregate net inventory (long minus short) of primary dealers, maturity weighted (multiplying the net position in dollars by the number of years to the center of each reported maturity class) to reflect the sensitivity of market values to changes in yields. Data: [Federal Reserve Bank of New York](#).

In its 2020 Financial Stability Report, the Fed wrote: “As investors sold less-liquid Treasury securities to obtain cash, dealers absorbed large amounts of these Treasury securities onto their balance sheets. It is possible that some dealers reached their capacity to absorb these sales, leading to a deterioration in Treasury market functioning.”

The flood of customer orders to liquidate Treasury positions was only one of a number of COVID crisis-induced increases in the assets of the largest bank holding companies. Margin collateral held by bank dealers rose. Bank customers sought new loans and heightened levels of intermediation in other assets. In the short run, at least, the balance sheet space of large dealers was tightly constrained.

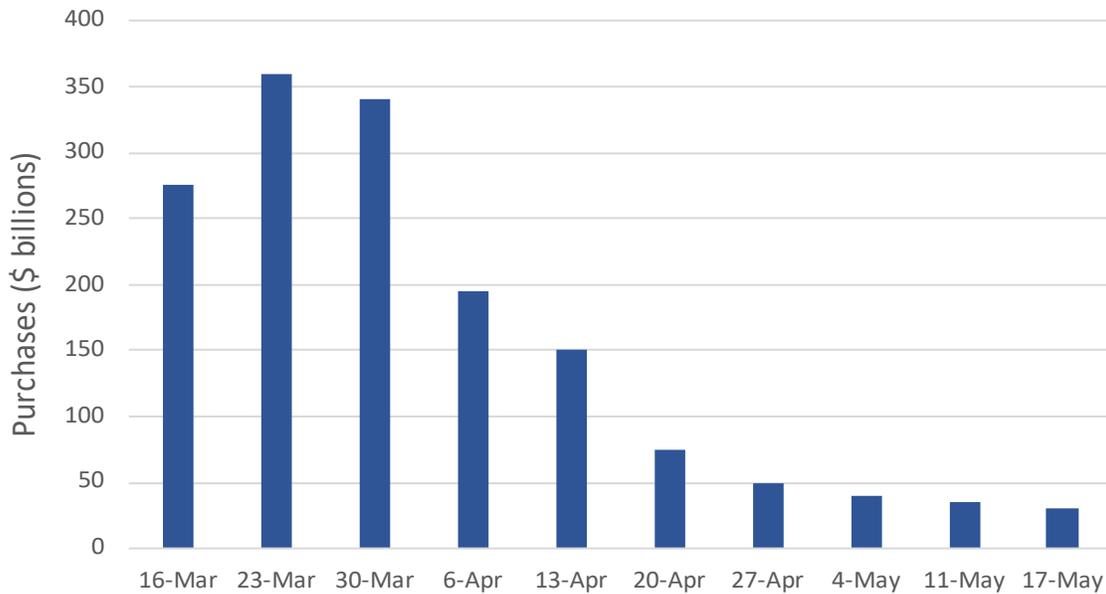
The enormous purchases of Treasuries by the Fed, shown in Figure 6, did not free as much space on dealer balance sheets as one might have hoped because the Fed pays bank dealers for these Treasuries with reserves. Although reserves (deposits at the Fed) are perfectly safe, they were subject to regulatory capital requirements under the Supplementary Leverage Ratio Rule (SLR). On April 1, the [Fed temporarily exempted](#) both Treasuries and reserves from the SLR, although it was not until the middle of May that the Office of the Comptroller of the Currency and the Federal Deposit Insurance Corporation [adopted this temporary exemption](#).

Figure 5



Note: The quantity of Treasuries for which primary dealers obtained financing, January to May, 2020. For clarity, the vertical axis begins at \$1.5 trillion. Data: ⁶ [Federal Reserve Bank of New York](#).

Figure 6



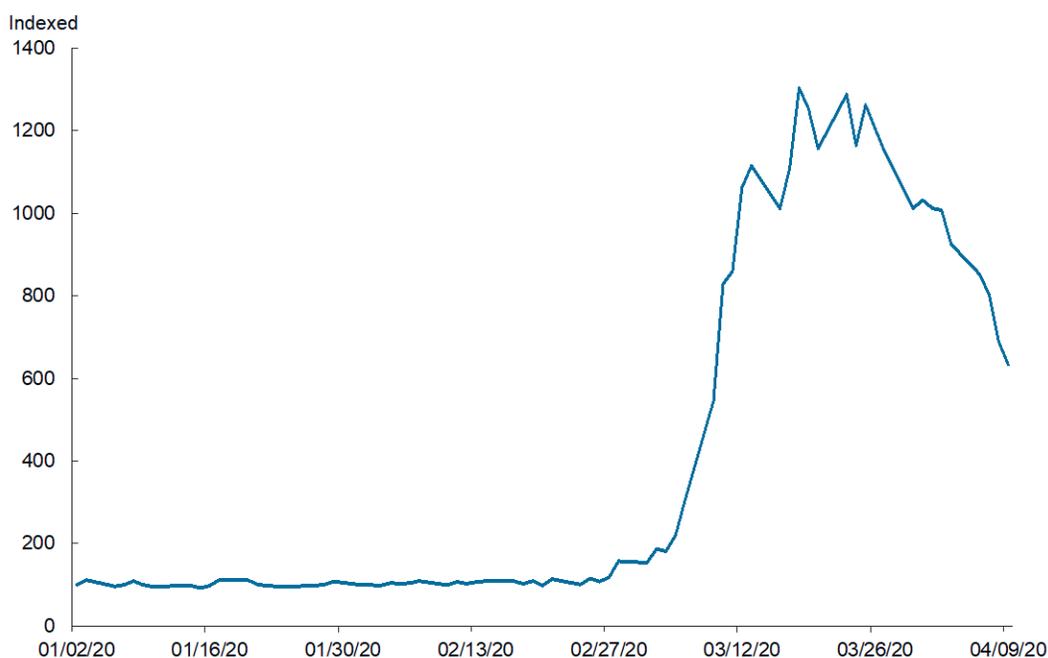
Note: Total weekly purchases of Treasuries by the Fed. The purchases for May are projections provided by the Fed. Data: Federal Reserve.

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6. The quantity of Treasury securities financed includes overnight and term, nominal securities as well as TIPS, and covers securities financed with repurchase agreements and securities lending agreements.

In the financial crisis of 2008-2009, large banks were found to be woefully under-capitalized. Bank regulators responded appropriately after that crisis with significant increases in required capital ratios. Bank shareholders are generally loath to issue new equity shares, especially in a crisis, given the expected adverse impact of issuances on share prices. In order to ensure that they can continue to meet a required ratio of capital to assets, bank executives generally prefer to limit the growth of assets over the issuance of new equity, as reflected in Figure 1, which shows a dramatic post-crisis drop in the growth rate of assets of the largest U.S. bank holding companies. For their dealer subsidiaries, when customers are demanding liquidity and balance sheets are constrained by capital ratios, dealers offer customers wider bid-offer spreads. Indeed, as shown in Figure 7, the bid-ask spreads offered by Treasury dealers to their customers increased by a multiple of over 10.

Figure 7



Note: Treasury bid-offer spreads, indexed to 100 at January 2, 2020. Figure source: Lorie Logan, Manager of the System Open Market Account and Head of the Open Market Trading Desk, Federal Reserve Bank of New York, published with her [speech of April 14, 2020](#). The underlying data source is Bloomberg Financial LP.

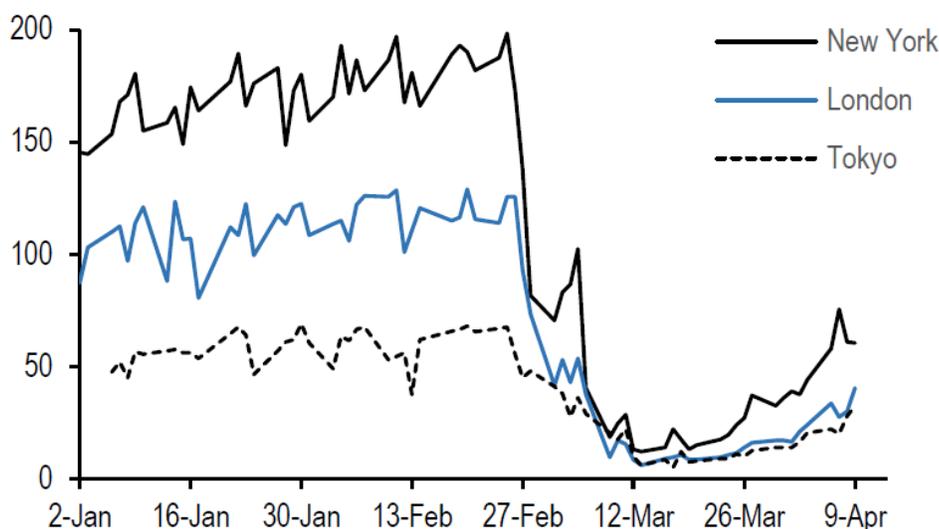
In one prominently reported⁷ anecdote, on March 16, when Vikram Rao, the head bond trader of Capital Group, asked executives that he knew at many of the big banks “for an explanation on why they wouldn’t trade, they had the same refrain: There was no room to buy bonds and other assets and still remain in compliance with tougher guidelines imposed by regulators after the previous financial crisis. In other words, capital rules intended to make the financial system safer were, at least in this instance, draining liquidity from the markets. One senior bank executive leveled with him: ‘We can’t bid on anything that adds to the balance sheet right now.’”

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7. Justin Baer, “The Day Coronavirus Nearly Broke the Financial Markets,” Wall Street Journal, May 20, 2020.

In the interdealer limit-order-book market for on-the-run 10-year Treasuries, where dealers rebalance their inventories with each other, market depth dropped by a factor of 10, as shown in Figure 8, based on J.P. Morgan analysis. A New York Fed analysis by Fleming and Ruela (2020) finds similar losses in market depth and estimates that trade price impacts⁸ increased above normal levels by a factor of over 5. The fraction of trading by PTFs dropped significantly, leaving most of the increase in order flows to be handled by dealers.

Figure 8



Note: Treasury market depth on Brokertec for 10-year on-the-run notes. The market depth shown is the total of the quantities on the order book at the inside three price tiers on both sides of the limit order book, bid and ask, divided by two, in millions, for each of the New York, London, and Tokyo trade venues, respectively. The London data are averages for local trading until the New York open. The New York data are averages from the New York open to 3pm ET. The Tokyo data are averages for the local open to London open. The figure was obtained from JP Morgan and appeared in “Almost back to ‘normal:’ An update on fixed income market liquidity,” US Fixed Income Strategy, JP Morgan, Joshua Younger and Henry St. John, April 2, 2020.

Generally, the ability of the market to digest large trade demands began to break down in mid-March. The prices of Treasuries fluctuated wildly, compared to normal. As an example, consider the extreme hit to investors holding the 30-year Treasury bond, whose yield jumped from 1.34% on March 16, 2020 to 1.77% on March 18, 2020, representing a loss in market value of over 10% in just two days.

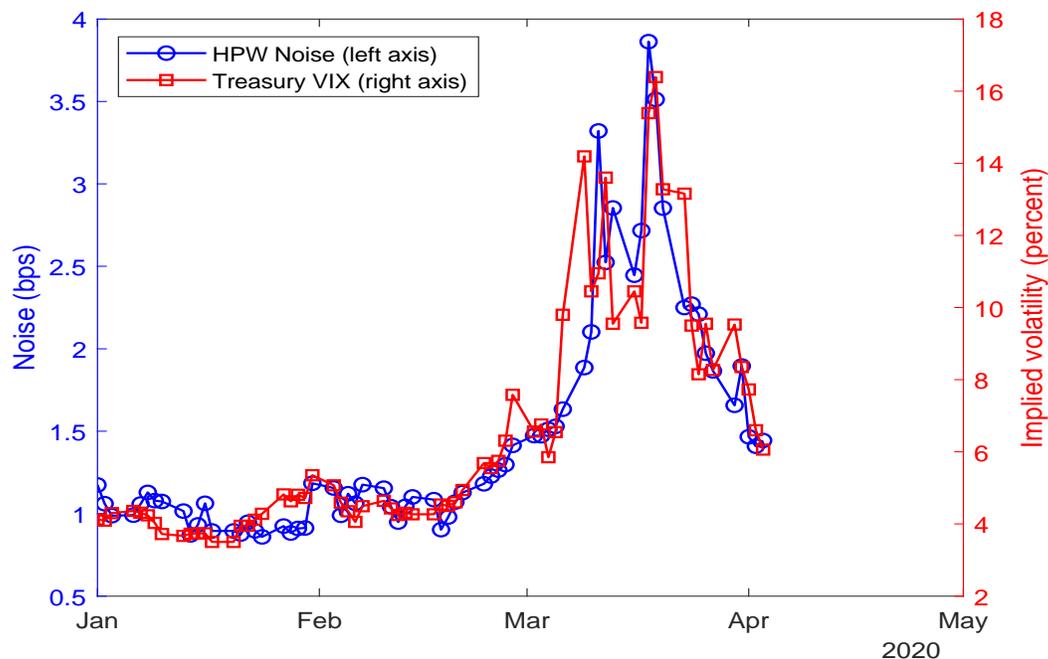
At the beginning of March, as shown in Figure 9, yields were on average about 1 basis point out of alignment with a smooth yield curve, according to a standard measure due to Hu, Pan, and Wang (2013) that is now commonly known among practitioners as “root mean squared error” (RMSE). By mid-March, however, yields were over 3 basis points out of alignment, nearly triple the usual RMSE.⁹ Off-the-run Treasuries, those not recently issued, were particularly mispriced, according to the Fed’s 2020 Financial Stability Report and the research reports of J.P. Morgan’s Fixed Income Strategy Group. Normally, hedge

8. Price impact is the impact on market prices of net order flow. Fleming and Ruela estimate price impact as the slope coefficient associated with a regression of one-minute price changes on net order flow (purchases less sales).

9. In its “U.S. Treasury Daily” research report of May 21, 2020, J.P. Morgan reported that RMSE had declined from the high of 3.0 basis points to 1.3 basis points by the middle of May.

funds and dealers would quickly step in to buy Treasuries whose prices are low relative to the price implied by Treasuries that are close-maturity substitutes. But these highly attractive profit opportunities were not taken because of the lack of market functionality.

Figure 9



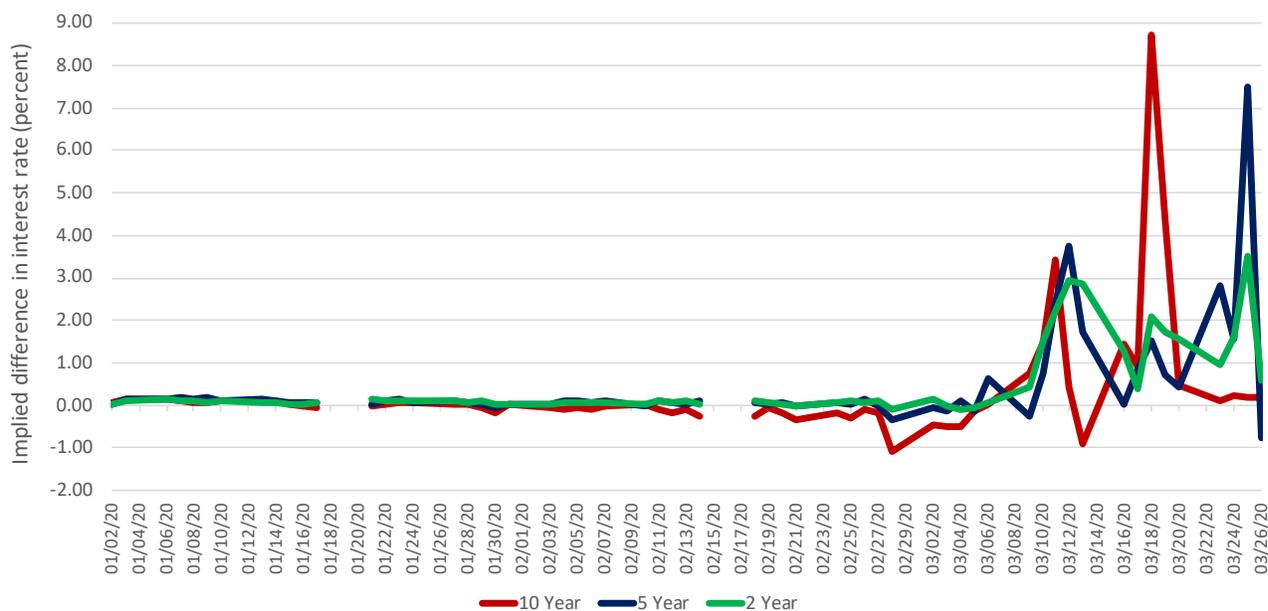
Note: Implied volatility of the 10-year Treasury note and the Hu-Pan-Wang measure of yield curve noise, in basis points. The implied volatility measure is from CBOE TYVIX data, based on options on the 10-year Treasury note. The Hu-Pan-Wang (2013) noise measure of Treasury market illiquidity is the square root of the mean squared error (RMSE) obtained when fitting the prices of Treasury securities to a smooth mathematical model of the yield curve. The figure was provided to the author by Professor Jun Pan, SAIF.

Similarly, the prices of Treasury derivatives went far out of alignment with the prices of the underlying deliverable Treasury notes, as depicted in Figure 10, which is based on the analysis of Schrimpf, Shin, and Sushko (2020). The cash-futures basis shown in this figure is the difference between the one-month repo financing rate for Treasuries and the corresponding repo rate that is implied by the prices of Treasury securities and Treasury futures contracts. In an efficient market, the actual repo rate and the implied repo rate should be nearly the same, as was the case in early 2020, given the opportunity to arbitrage the basis between the two. In mid-March, however, the cash-futures basis grew to hundreds of basis points. Large hedge funds that had previously taken positions motivated by the cash-futures basis were caught off guard. The widening of the basis generated margin calls that forced major liquidations of these basis trades,¹⁰ further contributing to dislocations in Treasury prices and adding pressure to dealer balance-sheet capacities.

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10. For more details, see Schrimpf, Shin, and Shusko (2020) and Cheng, Wessel, and Younger (2020).

Figure 10



Note: The cash-futures Treasury basis. The difference, in percent, between (a) the repo rate implied by selling Treasury futures, purchasing the cheapest-to-deliver underlying Treasury note, and closing the futures contract at maturity by delivering the Treasury note, and (b) the actual market general-collateral one-month repo rate. The data shown in the figure were provided to the author by Andreas Schrimpf, Hyun Song Shin, and Vladyslav Sushko, from Graph 3 of their paper “Leverage and Margin Spirals in Fixed Income Markets During the COVID-19 Crisis,” BIS Bulletin, Number 2, April 2, 2020.

With the Fed’s exceptionally aggressive purchases of Treasuries, the relaxation of the SLR capital rule for reserves and Treasuries, and the Fed’s offer of essentially unlimited repo financing for dealer Treasury positions, Treasury market liquidity returned significantly toward normal by mid-April, 2020, as explained in the Fed’s 2020 [Financial Stability Report](#).

Upgrading the structure of the secondary market for U.S. Treasuries

The secondary market for U.S. Treasuries has two main segments. In the customer-to-dealer segment, “buy-side” investors trade with dealers. Buy-side investors include hedge funds, pension funds, insurance firms, foreign central banks, sovereign wealth funds, operating companies (for cash management), mutual funds, and large multi-function asset management firms, among others. The second segment is the interdealer market, where dealers trade with each other and with principal trading firms (PTFs). The PTFs trade exclusively on electronic limit-order-book markets using high-frequency strategies that provide liquidity to dealers. Limit-order-book trade is mainly of on-the-run securities. In the interdealer market, dealers trade both on limit-order-book markets and also bilaterally, whether through interdealer brokers (IDBs) or directly with each other. Dealers frequently use the interdealer market to offset or hedge inventory imbalances arising from customer trades. IDBs match buyers and sellers, providing anonymity to each.

In March through May of 2020, according to TRACE data provided by FINRA, the aggregate volume of Treasury transactions was roughly balanced between the customer-to-dealer and interdealer segments of the market,¹¹ as shown in Figure 2.

Once a transaction between two parties is executed, the trade is “cleared” in a sequence of steps that prepares the trade for settlement, the final exchange of cash for securities. Central clearing involves the additional step of guaranteeing trade settlement. Once a trade is centrally cleared, the original buyer and seller are no longer exposed to each other for settlement risk—they instead face the central counterparty (CCP), also known as a “clearinghouse.”

Some interdealer Treasury transactions are centrally cleared at the Fixed Income Clearing Corporation (FICC). Other interdealer transactions are not centrally cleared, and are instead cleared on the balance sheet of an interdealer broker. Customer-to-dealer transactions are not centrally cleared. Treasury Market Practices Group (2018) estimates that 12.7% of U.S. Treasury transactions are centrally cleared for both original counterparties, and that 19.4% of transactions are centrally cleared between an interdealer broker and one of the original counterparties but not the other counterparty. The remaining 67.9% of transactions, most of which are customer-to-dealer, do not involve a CCP. Combining these estimates, a participant in the Treasuries market faces a CCP on only 22.4% of Treasury transactions.

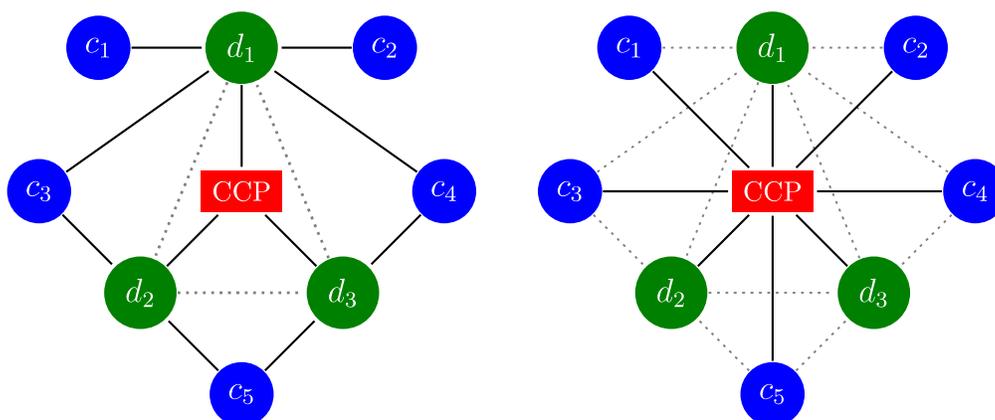
The left-hand schematic of Figure 11 illustrates the limited extent to which central clearing is currently applied in the U.S. Treasury market, primarily by dealers and interdealer brokers that are members of the Fixed Income Clearing Corporation (FICC). The right-hand schematic illustrates a hypothetical CCP that could be used by dealers, interdealer brokers, PTFs, and other large investors that trade Treasuries, such as pension funds, insurance firms, hedge funds, mutual funds, and other asset management firms.

The general lack of central clearing in the U.S. Treasury market is a significant missed opportunity to improve market robustness and efficiency, especially given the expectation of large future increases in risk flows in the Treasury market. Central clearing also improves market safety by lowering exposure to settlement failures, which rose during the most stressful days in March,¹² as shown in Figure 12.

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11. FINRA combines “ATS” and “interdealer” transactions into a single reporting category that I treat as interdealer, given that the majority of ATS trade is not customer-to-dealer (and there is essentially no “customer-to-customer” trade).
12. Although settlement fails were relatively high in mid-March in comparison to surrounding recent months, fails were much below levels experienced during the financial crisis of 2008-2009, which preceded the implementation of settlement-fail penalties, as explained by Fleming, Frank Keane, Martin, and McMorro (2014). As explained by Ingber (2017) in the context of GSCC, settlement fails can be converted by a CCP to future obligations.

Figure 11



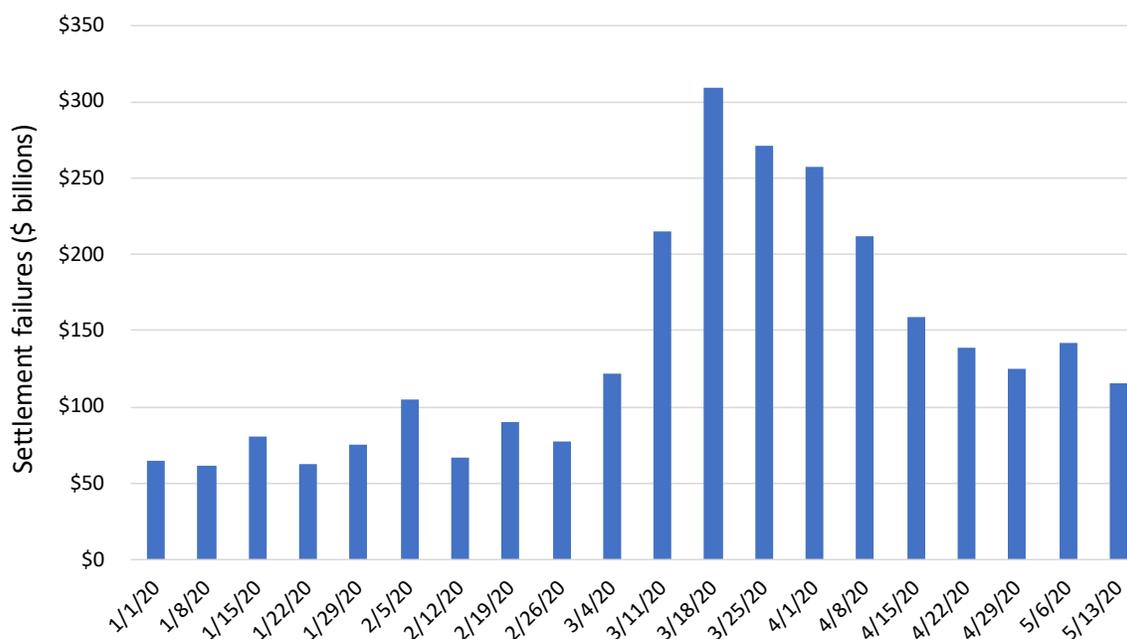
Note: The left-hand schematic illustrates the limited degree to which central clearing is currently used in the U.S. Treasury market, primarily by dealers and interdealer brokers that centrally clear at the Fixed Income Clearing Corporation (FICC). The right-hand schematic illustrates the notion of a CCP that is used by dealers, interdealer brokers, PTFs, and other firms that actively trade Treasuries, such as asset management firms and insurance firms.

Central clearing also reduces the amount of dealer balance-sheet space necessary to maintain liquid markets. This arises from improved netting, by which a dealer’s commitments to settle a buy trade with one counterparty and a sell trade with another can both be novated to the CCP, so that the dealer’s settlement commitment and counterparty exposure is only the net of the buy and sell trades. As I explain in Duffie (2019), the existence of broadly accessible central clearing also allows for the emergence of electronic trading directly between ultimate non-dealer buyers and non-dealer sellers, further reducing the amount of dealer balance sheet space necessary to efficiently match buyers and sellers.

Concerns are sometimes expressed about concentrating the settlement risk in a large market at a central counterparty, thus making the CCP systemically important and potentially “too big to fail.” Because of these concerns, large U.S. CCPs are [designated by the Financial Stability Oversight Council](#) as systemically important, which implies a heightened level of supervision by U.S. regulators. Without careful regulation, supervision, and failure resolution planning, CCPs can indeed present significant risks to financial stability (Powell, 2017).

Nevertheless, broad central clearing lowers total settlement risk, potentially significantly, through the netting of commitments to settle purchases against sales. To illustrate this concept with a simple example, suppose Firm A is due to settle a purchase of \$100 million of 10-year Treasury notes with Firm B. Meanwhile, B is due to settle of purchase of \$80 million of these Treasuries with Firm C, while C is due to settle of \$90 million with A. The total of the settlement amounts at risk is thus \$270 million. If, however, the three trades are centrally cleared at a CCP, the settlement risks collapse to \$10 million for A with the CCP, \$20 million for B with the CCP, and \$10 million for C with the CCP, for a new total amount of settlements at risk of \$40 million. Ingber (2017) provides realistic examples of netting and describes the improved netting that resulted from the formation in 1986 of the Government Securities Clearing Corporation (GSCC), a precursor of FICC.

Figure 12



Note: Settlement fails, Treasuries, primary dealers. Data: [Federal Reserve Bank of New York](#).

A broad-market properly regulated clearinghouse also improves standards for the management of counterparty risk and increases the transparency of settlement risk to regulators and market participants.

For these reasons, in 2010, the Dodd-Frank Act mandated the central clearing of all standardized derivatives, including the largest category of derivatives, standard interest rate swaps, subject to exemptions for derivatives that are used by non-financial firms for hedging purposes. According to [ISDA](#), 91% of standard interest rate derivatives transactions conducted in 2020, through May 1, were centrally cleared.

The potential settlement risk to be centrally cleared for U.S. Treasury securities is actually no greater than that for U.S. equity security trades that are already routinely centrally cleared. For example, Figure 13 shows that the total-market settlement risk for the 10-year Treasury note is typically lower than that for the SPDR S&P 500 ETF, a centrally cleared exchange-traded security. Shown in red is a rough estimate of the gross potential daily settlement risk for trades of the on-the-run 10-year Treasury note¹³ based on all transactions in both the interdealer and customer-to-dealer market segments, and incorporating the effect of daily price volatility. In blue, Figure 8 shows the larger estimated gross one-day settlement risk for the SPDR S&P500 ETF, which trades on NYSE Arca. The normal settlement cycle for equities is two days, as opposed to the one-day settlement cycle typical of Treasuries trades, so the difference in settlement risks illustrated in Figure 8 is actually understated. Like the vast majority of U.S. exchange-traded equity transactions, transactions in SPDR ETFs are centrally cleared by the [National Securities](#)

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13. This risk is the product of the dollar market value of total daily trading volume to be settled and an estimate of the one-day volatility of the return on the 10-year note, as implied by the market price of options on the 10-year note.

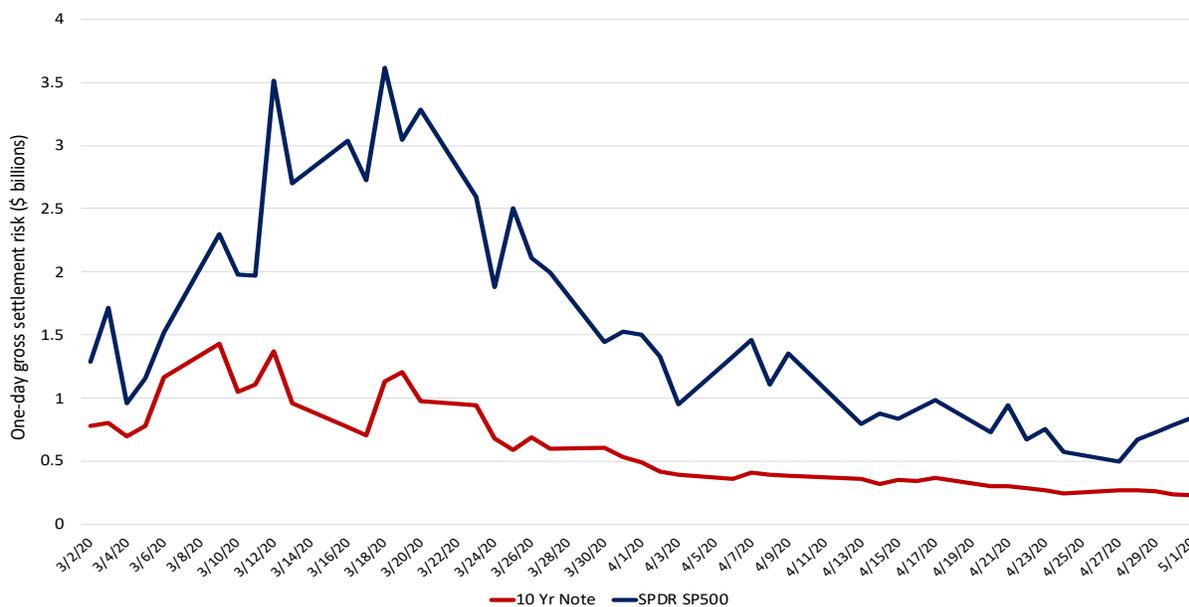
[Clearing Corporation](#), which is designated as systemically important financial market infrastructure and regulated by the Securities and Exchange Commission.

Over the past few years, the issue of expanding the central clearing of Treasury security trades has come under increasing policy discussion. In the 2015 [“Joint Staff Report on the U.S. Treasury Market,”](#) which addressed “significant and unexplained volatility” in Treasury markets that occurred on October 15, 2014, the staffs of the Treasury Department, Fed Board of Governors, the New York Fed, the SEC, and the CFTC wrote that the “significance of trading volume of firms outside the FICC membership—now larger in aggregate than that of FICC netting members—raises the question of whether trades cleared for non-CCP members are processed as prudently as those for firms inside the CCP. Trades cleared outside the CCP may not be subject to the same level of settlement risk mitigation techniques such as margin collection, disciplined clearing fund balance requirements, and pre-defined loss sharing arrangements.”

In its 2017 [“Report to President Donald J. Trump on Core Principles for Regulating the United States Financial System,”](#) the Treasury Department addressed gaps in the central clearing of Treasuries, again focusing only on the interdealer market, by writing: “First, there is less netting down of settlements than there would be if all interdealer market participants were FICC members. Second, if a large PTF with unsettled trading volumes were to fail, the failure could introduce risk to the market and market participants.” The Treasury Department concluded its recommendations in this area by writing: “To better understand these arrangements and the consequences of reform options available in the clearing of Treasury securities, Treasury recommends further study of potential solutions by regulators and market participants.”

In a 2017 [hearing of the House Financial Services Committee](#) reviewing the structure of U.S. fixed-income markets, John Shay, Nasdaq’s Global Head of Fixed Income and Commodities testified that “the clearing market structure, in our view, has fallen behind the realities of automated trading. The lack of a centralized clearing solution poses material counterparty risks to the market and leads to the following: less transparency as to the size of exposure; concentration risks; clients having to post collateral at multiple venues; and a decentralized default management process that is cumbersome and prone to delays and errors.”

Figure 13



Note: Estimated total one-day gross settlement risk for on-the-run 10-year U.S. Treasury notes and for SPDR S&P 500 ETFs. One-day gross settlement risk is defined as the dollar market value of the volume of trade multiplied by the standard deviation (“volatility”) of daily returns. Treasuries trades normally settle in one day (T+1), whereas exchange-traded equities such as the SPDR SP500 ETF settle in two days (T+2). Notional (principal amount) trade volumes for the 10-year Treasury note are weekly aggregates from [TRACE data provided by FINRA](#). The weekly total of on-the-run trade 10-year notes (shown as on-the-run “> 7 years and <= 10 years”) are divided by five to estimate average daily volume.¹⁴ The prices of the 10-year Treasury note were computed from yields reported by the U.S. Treasury. SPDR S&P 500 ETF dollar volumes are based on share trade volumes and closing prices on NYSE-Arca, from [data provided by Wall Street Journal](#). The daily standard deviation of returns is approximated by dividing the reported annualized implied volatility of the Black-Scholes option-implied volatility by the square root of the number of trading days per year. The option-implied volatility for the S&P 500 and for the 10-year Treasury note¹⁵ are from data provided by the Chicago Board Options Exchange (CBOE).

In a written submission to the same hearing, Randy Snook, executive vice president of the Securities Industry and Financial Markets Association, stated:

SIFMA supports the further investigation and study, to be led by Treasury, of the potential costs and benefits of implementing a mandatory central clearing requirement for the cash Treasury market, and we believe this study should consider all potential forms of a clearing requirement that could be implemented across the cash Treasuries product ecosystem (i.e., on and off-the run issues, the when-issued market, repos, etc.). We also support further study and evaluation of the costs and benefits of mandatory centralized repo clearing.

In a separate written submission to this hearing, Murray Pozmanter, Managing Director of DTCC (parent of FICC) and Head of Clearing Agency Services, stated that “clearing of Treasury securities would provide several benefits, including the reduction of aggregate counterparty and credit risk in the system; increased transparency; more efficient use of collateral; and increased balance sheet relief for CCP members.”

In its 2019 report, “Best Practice Guidance on Clearing and Settlement,” the private-sector Treasury Markets Practice Group summarized its position on the “Potential role for expanded central clearing in mitigating clearing and settlement risk,” writing:

The TMPG learned through its work that the changes to market structure that have occurred have also resulted in a substantial increase, in both absolute and percentage terms, in the number of trades that clear bilaterally rather than through a central counterparty. This principally stems from the increased prevalence of PTF activity on IDB platforms. The majority of dealer-to-customer activity also continues to be bilaterally cleared. Mandatory central clearing has long been required in the futures market, and under Dodd-Frank central clearing has now been mandated or incentivized for many swap instruments. Central clearing offers certain immediate benefits for individual firms, including transfer of counterparty credit risk to the CCP through novation,

...

14. This is the first regular public reporting of TRACE data bearing on Treasury markets, and is available only for aggregate weekly trade volumes by maturity class, on-the-run versus off-the-run, and only from the week of March 6, 2020.

15. Since the time at which I collected the implied volatility time series for the 10-year Treasury note, the CBOE has discontinued reporting these data.

multilateral netting of exposures, and other risk mitigation features, such as margining, that also serve to reduce liquidity risks and risks to broader market functioning. However, these need to be weighed against other considerations such as the cost of clearing, the ability to access a CCP, and the concentration risk typically associated with central clearing. Members of the TMPG did not form a consensus view as to whether increased use of central clearing services should effectively be compelled, through either a regulatory mandate or strong regulatory incentives, but there was agreement that certain market participants were less likely to voluntarily move to more widespread use of central clearing in the current environment. Thus, the TMPG believes that to the extent that public policy interests are served by moving to more widespread utilization of central clearing, that is something best addressed by the official sector.

A broad Treasury-market clearinghouse could potentially be based on an expansion of the role of FICC, or a new CCP operated by a major custody or clearing bank, or a new stand-alone facility operated as a private-sector utility or by a government agency. Tucker (2015) discusses tradeoffs associated with the choice between public-sector CCPs and private-sector CCPs.

A CCP for Treasury security transactions could, depending on the results of an effectiveness study, achieve significant further netting and operational efficiencies by incorporating the central clearing of when-issued transactions, Treasury auction settlements, and repo transactions, as was eventually done at GSCC (Ingber, 2017).

Concluding remarks

The weak functionality of the secondary market for U.S. Treasuries during March 2020 was a wake-up call. Given the enormous volumes of trade in this market that will rise markedly with the massive upcoming growth in U.S. federal debt, I believe that regulators of the U.S. Treasury market may now wish to conduct a study of the costs and benefits of introducing a broad central clearing mandate. This would improve financial stability, increase market transparency, and reduce the current heavy reliance of the market on the limited space available on dealer balance sheets for intermediating trade flows. The cost of this upgrade is not negligible. Yet similarly onerous major upgrades of U.S. financial market structure were accomplished after the financial crisis of 2008-2009, which revealed important weaknesses in the markets for repos and swaps. In the tri-party repo market, dangerous intra-day credit exposures in excess of \$1.5 trillion were significantly reduced by a [private sector task force](#) empaneled by the Federal Reserve Bank of New York. In the swap market, the Commodity Futures Trading Commission implemented Dodd-Frank legislation that mandated broad central clearing of approximately \$100 trillion in notional outstanding U.S. dollar interest rate derivatives, [according to ISDA](#).

The efficiency and stability of financial markets are public goods on which many market participants depend, without necessarily having the individual incentives to support. I expect that reforming the design of U.S. Treasury markets is a case in which the official sector now has a key role to play.

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