THE FAILED PROMISE OF TREASURIES IN FINANCIAL REGULATION

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ABSTRACT

U.S. government Treasury bonds ("Treasuries") anchor financial stability. Public regulation mandates that financial firms maintain deep buffers of Treasuries that can be sold for cash in a crisis. In private lending between financial firms—running into trillions of dollars daily—Treasuries are the preferred form of collateral, designed to make debt fully resistant to default.

But this unquestioned reliance on Treasuries in public and private self-regulation has created a financial system that rests on fragile foundations. The first fundamental problem—thus far unnoticed in existing literature—lies in the system-wide tension that is present when both public and private self-regulation depend on the same scarce Treasuries/cash for survival.

This tension plays out in the common system of intermediation that supports both public and private self-regulation. Crucially, financial regulation places its trust in the competencies of twenty-four large financial firms—primary dealers—that uphold both the buying and selling of Treasuries as well as the supply of Treasuries to lending markets for use as collateral. This system of intermediation, however, is far from perfect. As we show, primary dealers confront incurable information gaps when allocating

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cash and Treasuries between private lending and public trading markets. Further, facing scarcity, primary dealers must choose whether to devote resources to one space over the other. Finally, as for-profit actors, primary dealers have no reason to continue intermediating if the cost-benefit trade-off turns sour. As it stands, for financial regulation to remain resilient, its mechanisms for intermediating Treasuries must also be lucrative.

The second problem lies in the fragmented system of supervision that governs an interconnected public trading and private lending market for Treasuries. Multiple regulators are in charge, but they lack coordination mechanisms, complementary regulatory approaches, and institutional mandates to facilitate cooperation. It follows that regulators have failed to spot shared risks to Treasuries intermediation and to develop mechanisms to correct them.

This Article sets out a three-part solution to better realize the promise of Treasuries for financial regulation: (1) enhancing transparency across trading and lending markets, (2) developing consolidated oversight, and (3) mandating that primary dealers maintain intermediation during crises. With Treasuries anchoring public regulation and trillions in private contracting, their fragility represents a danger that policymakers can ill afford to ignore.

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INTRODUCTION

When COVID-19 shocked the financial system in March 2020, the (then) $17 trillion market for Treasuries became one of its most unexpected casualties.[1] As equity and corporate bond markets reeled, investors rushed to sell Treasuries and raise cash to remain solvent.[2] Their reaction was exactly as expected. Viewed as failure-proof, Treasuries provide the world with its most dependable safe haven. When other markets run into distress, Treasuries are supposed to buffer the fall by ensuring a constant supply of default-free assets and cash for those that sell them.[3] Recognizing this fortress-like quality, public regulation and private industry rely systematically on Treasuries as *the* shield to protect financial markets against panic, collapse, and uncertainty.[4]

1. Karen Brettell, *U.S. Treasury Market Faces Structural Issues Even as Liquidity Improves*, REUTERS (Apr. 22, 2020, 11:26 AM), https://www.reuters.com/article/us-health-coronavirus-treasuryliquidity-idUSKCN224311 [https://perma.cc/YF52-JN3D]; Jeffrey Cheng, David Wessel & Joshua Younger, *How Did COVID-19 Disrupt the Market for U.S. Treasury Debt?*, BROOKINGS: UP FRONT (May 1, 2020), https://www.brookings.edu/blog/up-front/2020/05/01/how-did-covid-19-disrupt-the-market-for-u-s-treasury-debt [https://perma.cc/WRY4-RWCM]; *U.S. Treasury Monthly Statement of the Public Debt of the United States (MSPD)*, U.S. DEP'T OF THE TREASURY, https://fiscaldata.treasury.gov/datasets/monthly-statement-public-debt/summary-of-treasury-securities-outstanding [https://perma.cc/QVS7-M5YT] (showing outstanding marketable (that is, tradable) debt of $27.3 trillion for the end of July 2024). In March 2020, the U.S. Treasury owed marketable debt equaling $17.1 trillion. *Id.*

2. Andreas Shrimpf, Hyun Song Shin & Vladyslav Sushko, *Leverage and Margin Spirals in Fixed Income Markets During the Covid-19 Crisis*, BANK FOR INT'L SETTLEMENTS BULL., Apr. 2, 2020, at 1–2; Darrell Duffie, *Still the World's Safe Haven?: Redesigning the U.S. Treasury Market After the COVID-19 Crisis* 2–8 (Hutchins Ctr. on Fiscal & Monetary Pol'y at Brookings, Working Paper No. 62, 2020), https://www.brookings.edu/wp-content/uploads/2020/05/WP62_Duffie_v2.pdf [https://perma.cc/97SY-CT64] (detailing the events of March 2020 and the response by authorities to shore up the market).

3. Antoine Bouveret, Peter Breuer, Yingyuan Chen, David Jones & Tsuyoshi Sasaki, *Fragilities in the U.S. Treasury Market: Lessons from the "Flash Rally" of October 15, 2014* 5–6 (Int'l Monetary Fund, Working Paper No. WP/15/222, 2015) (noting the importance of Treasuries as the "bedrock of the financial system"); Michael Fleming & Francisco Ruela, *Treasury Market Liquidity During the COVID-19 Crisis*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Apr. 17, 2020), https://libertystreeteconomics.newyorkfed.org/2020/04/treasury-market-liquidity-during-the-covid-19-crisis.html [https://perma.cc/7N56-SDJ3].

4. Cheng et al., *supra* note 1.

Public financial regulation mandates that Treasuries constitute a sizable part of the rainy day safety buffers of any number of regulated financial firms.[5] The assumption here is that Treasuries can, by dint of quick sales, release cash in a crisis, allowing a firm to pay off its creditors and, in turn, prevent creditors from also going bust themselves.[6] Using similar logic, the private market for lending between financial firms—running at trillions of dollars daily—also depends on Treasuries as the preferred form of collateral.[7] By securing debt using Treasuries, lenders can be sure that they will be repaid, either by the borrower as promised, or by selling the Treasuries collateral.[8] This unquestioned confidence in Treasuries as collateral means that parties do not even need to conduct due diligence on one another, so long as sufficient Treasuries can secure the debt.[9] Indeed, it is taken for granted that the price of Treasuries will not fall when that of assets, like corporate bonds or equities, crashes. In other words, investors rush to safety during crises by putting capital into Treasuries and maintaining (or increasing) their price.[10]

March 2020, however, upended these assumptions. Rather than Treasuries providing reliable trading (or liquidity)—allowing sellers to cash out without distorting prices—investors found themselves unable to transact on reasonable terms.[11] Execution costs increased by 50%–500%, and market depth—or the quantity of offers (quotes) available to trade—plunged to 10%–38% of earlier values.[12] Testifying before the Senate Banking Committee in February 2021, the Chair of the Federal Reserve ("the Fed"), Jerome Powell, remarked that the Treasury market did not have "the capacity to handle" the pressure.[13] Treasuries' prices became chaotic and fell out of

5. *See* discussion and sources *infra* Section I.C.

6. *See* discussion and sources *infra* Section I.C; *see also, e.g.*, Marco Macchiavelli & Luke Pettit, *Liquidity Regulation and Financial Intermediaries* 15–17 (Fed. Rsrv. Bd., Wash., D.C., Working Paper No. 2018-084, 2018) (describing the impact of the liquidity coverage ratio on the incentive of financial firms to build reserves of Treasuries).

7. *See, e.g.*, *What Types of Asset Are Used as Collateral in the Repo Market?*, INT'L CAP. MKT. ASS'N., https://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/repo-and-collateral-markets/icma-ercc-publications/frequently-asked-questions-on-repo/6-what-types-of-asset-are-used-as-collateral-in-the-repo-market [https://perma.cc/F7MF-D7UN] (highlighting the significance of government debt as collateral and the high reliance on U.S. Treasuries for funding).

8. *See* discussion and sources *infra* Section II.A.

9. *See generally* Bengt Holmstrom, *Understanding the Role of Debt in the Financial System* (Bank for Int'l Settlements, Working Paper No. 479, 2015).

10. Zhiguo He, Stefan Nagel & Zhaogang Song, *Treasury Inconvenience Yields During the COVID-19 Crisis*, 143 J. FIN. ECON. 57, 57 (2022) (observing that during crises, the price of Treasuries enjoys a price premium owing to the safety and liquidity provided).

11. Adam Samson, Robin Wigglesworth, Colby Smith & Joe Rennison, *Strains in US Government Bond Market Rattle Investors*, FIN. TIMES (Mar. 12, 2020), https://www.ft.com/content/1a305358-6450-11ea-a6cd-df28cc3c6a68 [https://perma.cc/54R6-696V].

12. Fleming & Ruela, *supra* note 3.

13. *The Semiannual Monetary Policy Report to the Congress: Hearing Before the U.S. Comm. on*

sync with those in related markets.[14] As detailed by Annette Vissing-Jorgensen, this price instability had nothing to do with changes to the country's economic fundamentals (for example, inflation).[15] Instead, its cause was the rapid deterioration of trading conditions in the Treasury market with large investors rushing in to sell.[16] As such, with equity markets plunging almost 3,000 points daily, the price of Treasuries also dropped precipitously, instead of increasing or staying stable as should have been the case for the world's premier safe haven.[17]

Worryingly, the disruptions in March 2020 were not a one-off event. Rather, as shown by Matthias Fleckenstein and Francis A. Longstaff, market confidence in the capacity of Treasuries to steadfastly provide a safe haven has diminished significantly in recent years. Fleckenstein and Longstaff observe that Treasuries have traded much more cheaply to their fair value at key moments in modern financial history, with sizable price discounting observed during the 1997 Asian Financial Crisis, the 2000s, and frequently between 2015–2020.[18] Taken together, these repeated performance failures call into question the core assumption made by public and private financial regulation in relying so fundamentally on Treasuries as safe assets: that their default-free nature means that Treasuries are also always perfectly tradable at fair prices.[19] We close this gap in the literature to show that this assumption is simply wrong. Rather, while Treasuries can be regarded as risk-free, the market that trades them is not, diminishing their capacity to act as an anchor for public as well as private industry self-regulation. In this Article, we make two claims to detail: (1) the fragile system of intermediation that underpins Treasuries' distribution, and (2) the deeply

Banking, Hous. & Urb. Affs., 117th Cong., at 02:13:49 (Feb. 23, 2021), https://www.banking.senate.gov/hearings/02/12/2021/the-semiannual-monetary-policy-report-to-the-congress [https://perma.cc/SR9P-NX8G].

14. Cheng et al., *supra* note 1.

15. Annette Vissing-Jorgensen, *The Treasury Market in Spring 2020 and the Response of the Federal Reserve*, 124 J. MONETARY ECON. 19, 21 (2021).

16. *Id.* (noting abnormally large sales by mutual funds, hedge funds, and foreign governments); *see also* U.S. DEP'T OF THE TREASURY, BD. OF GOVERNORS OF THE FED. RSRV. SYS., FED. RSRV. BANK OF N.Y., U.S. SEC & U.S. COMMODITY FUTURES TRADING COMM'N, RECENT DISRUPTIONS AND POTENTIAL REFORMS IN THE U.S. TREASURY MARKET: A STAFF PROGRESS REPORT 7–15 (2021).

17. He et al., *supra* note 10, at 57–58. On the legal construction of safe assets, see generally Anna Gelpern & Erik F. Gerding, *Inside Safe Assets*, 33 YALE J. ON REGUL. 363 (2016).

18. Matthias Fleckenstein & Francis A. Longstaff, *Treasury Richness* 2, 5 (Nat'l Bureau of Econ. Rsch., Working Paper No. 29081, 2021); *see also* Yesha Yadav, *A Blueprint for Reforming Treasury Markets* 4–7 (Vand. Univ. L. Sch., Legal Stud. Rsch. Paper Series, Working Paper No. 20-58, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3739971 [https://perma.cc/8P5V-A4U7] (discussing recent disruptions).

19. Samson et al., *supra* note 11. For a detailed discussion on the ineffective regulatory structure for Treasury markets, focusing on the secondary market for Treasuries trading, see generally Yesha Yadav, *The Failed Regulation of U.S. Treasury Markets*, 121 COLUM. L. REV. 1173 (2021).

flawed model of market supervision that is ill-matched to contend with the risks created by faulty intermediation.

In our first contribution, we show that there is a fundamental, internal tension within a system in which both public and private financial regulation rely on scarce Treasuries to support economic survival. This tension and interconnection crystallize in a shared system of intermediation that must, at once, manage the buying and selling of Treasuries with the public as well as ensure the constant supply of Treasuries collateral to the private lending market.

For a start, this system of intermediation is remarkably fragile. Opacity, conflict, and complexity are pervasive. Crucially, regulation places trust in the capacity of (currently) twenty-four large banks and investment firms—known as primary dealers—to intermediate Treasuries. Primary dealers are uniquely authorized to purchase Treasuries from the government at auction and then to distribute them widely.[20] This role puts primary dealers center stage in the secondary market for buying and selling Treasuries with investors, in which they sell to those that want to buy and buy from those that want to sell. In this way, primary dealers help operationalize the assumption made in public financial regulation that Treasuries can always be liquidated by those needing cash or bought by firms wanting a reliable safe asset—all at fair and stable prices.

Primary dealers also act as critical intermediaries for the approximately five trillion dollars in exposure in the private market for short-term lending[21]—known as the repurchase or repo market—in which Treasuries constitute the preferred form of collateral.[22] The repo market allows financial firms with cash to lend it to others that need it.[23] To eliminate default risk,

20. Jeffrey Cheng & David Wessel, *What Is the Repo Market, and Why Does It Matter?*, BROOKINGS: UP FRONT (Jan. 28, 2020), https://www.brookings.edu/blog/up-front/2020/01/28/what-is-the-repo-market-and-why-does-it-matter [https://perma.cc/GUG6-3KXA]; *Primary Dealers: List of Primary Dealers*, FED. RSRV. BANK OF N.Y., https://www.newyorkfed.org/markets/primarydealers [https://perma.cc/TQ8F-NAQD].

21. *US Repo Statistics*, SEC. INDUS. & FIN. MKTS. ASSOC. (Aug. 26, 2024), https://www.sifma.org/resources/research/us-repo-statistics [https://perma.cc/A55S-V8DE] (noting that the size of the primary dealer repo segment is over five trillion dollars).

22. Legally, short-term credit transactions are structured as a sale and repurchase agreement, meaning that the securities are "sold" in return for cash and then bought back when the agreement terminates. By structuring this as a sale and repurchase, the Lender legally owns the securities, and it can sell them in an event of default. For discussion and sources, see *infra* Section II.A. We do not discuss purchases and sales by the Fed in its monetary policy operations in this Article. For analysis, see generally Carolyn Sissoko, *The Collateral Supply Effect on Central Bank Policy* (Aug. 21, 2020) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3545546 [https://perma.cc/3KN9-WAR5].

23. This describes the classic repo market, in which cash is borrowed. In "reverse repo" markets, firms seek to borrow Treasuries against cash collateral.

lending is short-term and secured (mostly using Treasuries).[24] By ensuring firms can borrow cash whenever they need, the repo market provides a lifeline to financial firms to address everyday funding demands.[25] Within the repo market, primary dealers match borrowers with lenders.[26] They also act as lenders by using their own cash to serve those looking to borrow.[27] Finally, dealers borrow for themselves in the repo market as a way of funding their firm's everyday operations.[28] In intermediating the supply of Treasuries to the repo market, primary dealers help insulate financial firms against default and systemic fallout.

Primary dealers confront steep and pervasive costs when intermediating across both the secondary market for Treasuries as well as the repo market. Information gaps are endemic. This opacity is structurally unavoidable in the repo market. Because Treasuries represent the preferred form of collateral and lending is short-term, due diligence is deemed unnecessary.[29] By design, primary dealers lack the tools and incentives to carefully monitor the default risk posed by parties with whom they contract.[30] They are also unable to fully gauge, on a market-wide basis, how this risk is building—for example, whether certain counterparties might be growing more indebted, less likely to repay, and whether to continue to lend to them, and on what terms.[31]

To be sure, using Treasuries as collateral should mean that primary dealers and the financial market have nothing to fear from default. But this view glosses over the damaging effect of opacity on intermediation. A system-wide absence of real-time information means that primary dealers are justified in being overly cautious when the prospect of default does arise and in quickly cutting off credit to counterparties across the board on account

24. Cheng & Wessel, *supra* note 20.

25. *Id.*

26. SIFMA RSCH., THE US REPO MARKETS: A CHART BOOK 4–5 (2022), https://www.sifma.org/wp-content/uploads/2022/02/SIFMA-Research-US-Repo-Markets-Chart-Book-2022.pdf [https://perma.cc/A4S2-L4GV]. On tri-party repo, see *Tri-Party/GCF Repo*, FED. RSRV. BANK OF N.Y., https://www.newyorkfed.org/data-and-statistics/data-visualization/tri-party-repo/index.html#interactive/volume/collateral_value [https://perma.cc/9DAC-S9ZK] (stating that around four trillion dollars of the six-trillion-dollar repo market is supported by Treasuries collateral).

27. *See generally Fixed Income Outstanding*, SEC. INDUS. & FIN. MKTS. ASS'N., https://www.sifma.org/resources/research/fixed-income-chart [https://perma.cc/9AYU-FSA6].

28. Cheng & Wessel, *supra* note 20.

29. *See generally* Holmstrom, *supra* note 9. On opacity in the repo market that has not been addressed by post-2008 reform, see generally Paolo Saguato, *The Liquidity Dilemma and the Repo Market: A Two-Step Policy Option to Address the Regulatory Void*, 22 STAN. J.L. BUS. & FIN. 85 (2017).

30. In segments of the repo market that are cleared by a third-party, there is more transparency, data collection, and publication. This data collection has been increasing since October 2019. *See generally* R. JAY KAHN & LUKE M. OLSON, OFF. OF FIN. RSCH., WHO PARTICIPATES IN CLEARED REPO? (2021), https://www.financialresearch.gov/briefs/files/OFRBr_21-01_Repo.pdf [https://perma.cc/3YQ2-4BZ7] (detailing data collected by regulators from cleared repo markets).

31. *See* discussion and sources *infra* Section III.A.

of not knowing exactly where the problem lies and how widespread it may be. Dealers might demand more Treasuries collateral to match unknown but higher levels of risk—even from borrowers that appear to be safe. In the absence of detailed information, withdrawing intermediation is rational, even advisable, to ensure that primary dealers do not keep lending to any number of defunct firms. After all, there is no rule forcing primary dealers to keep trading.[32] From the standpoint of the market and its regulation, however, this kind of preventative action is harmful, chaotic, and liable to amplify distress. Financial firms can end up suddenly unable to meet their daily funding needs, or to roll over past debt, having to quickly find the cash to repay if a dealer calls in a repo loan or makes an existing one more expensive.[33]

Opacity also raises doubts about whether Treasuries collateral is even capable of being enforced, that is, traced and sold by a primary dealer to recover the amount owed after default. Because the market lacks real-time reporting and due diligence, a borrower may not actually own the Treasuries collateral it offers up to secure a debt. Rather, collateral can belong to another party that has agreed to let the borrower use it for a time.[34] Collateral reuse is commonplace in Treasury-backed repo markets. Complex collateral chains, in which the same Treasury circulates to collateralize multiple loans, has become a feature.[35] For example, a Lender takes Treasuries from a Borrower as collateral. The Lender can then use these same Treasuries as collateral to borrow cash for itself. According to Manmohan Singh of the International Monetary Fund, each Treasury security collateralizes around three repo loans.[36] Reuse affords gains in efficiency. In good times, prized Treasuries can help release credit for numerous parties. But during crisis and with opacity endemic, doubts are raised about whether the collateral is traceable and capable of being sold.[37] Stated bluntly, even though a particular Treasury can be reused multiple times to release credit, it can be sold only once to cover a loss. Those believing they have a right to its proceeds may

32. Alexandra Scaggs, *Please Let's Stop Saying US Primary Dealers Are Required to Make Markets (Updated)*, FIN. TIMES (June 17, 2016), https://www.ft.com/content/b6c87a0f-6d50-3f46-b27a-5ecc83d12dc5 [https://perma.cc/8Q9G-QPF7].

33. On the 2008 Financial Crisis and the effects of the repo runs on the real economy, see, e.g., Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on the Repo*, 104 J. FIN. ECON. 425, 435–36 (2012); Caitlin Long, *The Real Story of the Repo Market Meltdown, and What It Means for Bitcoin*, FORBES (Sept. 25, 2019, 2:55 PM), https://www.forbes.com/sites/caitlinlong/2019/09/25/the-real-story-of-the-repo-market-meltdown-and-what-it-means-for-bitcoin [https://perma.cc/23X8-QX4F].

34. *See* discussion and sources *infra* Sections II.A & IV.A.

35. Long, *supra* note 33.

36. *Id.*

37. *Bilateral Repo Data Collection Pilot Project*, OFF. OF FIN. RSCH., https://www.financialresearch.gov/data/repo-data [https://perma.cc/VYY6-FH2C] (describing available data on the bilateral repo market as "scant").

find that the Treasury no longer exists precisely when they need it the most. Opacity means that dealers and others cannot know in advance how complex their collateral chain will be, and whether their collateral is as protective as regulation readily assumes.[38]

Primary dealers also confront opacity in the secondary market for buying and selling Treasuries with investors.[39] Home to over $600 billion in average daily turnover in both 2020 and 2021, this market lacks real transparency.[40] Trades are not reported publicly in real time.[41] The secondary market did not have a comprehensive trade reporting regime until 2017, capable of delivering insights on a trade-by-trade level.[42] The regime that is currently in place mandates reporting to regulators only (rather than wider dissemination). Until February 2023, trading statistics were published weekly and in aggregate, after which regulators permitted once-daily reporting to the public (also in aggregate terms). The reporting regime has also had major gaps historically (for example, it has not required hedge funds to report trades).[43] Limited, comprehensive real-time disclosure adds to the

38. *See* discussion and sources *infra* Section III.A.

39. *See* U.S. DEP'T OF THE TREASURY, BD. OF GOVERNORS OF THE FED. RSRV. SYS., FED. RSRV. BANK OF N.Y., U.S. SEC & U.S. COMMODITY FUTURES TRADING COMM'N, JOINT STAFF REPORT: THE U.S. TREASURY MARKET ON OCTOBER 15, 2014 15–19 (2015); James Collin Harkrader & Michael Puglia, *Principal Trading Firm Activity in Treasury Cash Markets*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Aug. 4, 2020), https://www.federalreserve.gov/econres/notes/feds-notes/principal-trading-firm-activity-in-treasury-cash-markets-20200804.html [https://perma.cc/9WNL-3TUC]; *e.g.*, Robert Mackenzie Smith, *Client List Reveals HFT Dominance on BrokerTec*, RISK.NET (Sept. 23, 2015), https://www.risk.net/derivatives/interest-rate-derivatives/2426923/client-list-reveals-hft-dominance-on-brokertec [https://perma.cc/6428-PWMB] (showing that the top eight traders on the main interdealer Treasuries trading platform (BrokerTec) were high speed traders); Portia Crowe, *High Frequency Traders Are Dominating Another Huge Market*, BUS. INSIDER (Sept. 23, 2015, 10:57 AM), https://www.businessinsider.com/high-frequency-traders-dominate-the-treasuries-market-2015-9 [https://perma.cc/S25Y-QDGP].

40. *US Treasury Securities: Issuance, Trading Volume, Outstanding, Holders, Yield Curve Rates*, SIFMA RSCH., https://www.sifma.org/resources/research/us-treasury-securities-statistics/us-treasury-securities-statistics-sifma [https://perma.cc/BB7Y-MUJF]. *See generally* Harkrader & Puglia, *supra* note 39.

41. *Now Available - Weekly Aggregated Reports and Statistics for U.S. Treasury Securities*, FINRA (Mar. 10, 2020), https://www.finra.org/filing-reporting/trace/now-available-weekly-aggregated-reports-and-statistics-us-treasury [https://perma.cc/8WZA-W5E9].

42. Harkrader & Puglia, *supra* note 39.

43. *Id.*; *see Treasury Daily Aggregate Statistics - Files*, FINRA, https://www.finra.org/finra-data/browse-catalog/about-treasury/daily-file [https://perma.cc/7S67-6BZ9] (providing daily reporting on trading volume); *Treasury Weekly Aggregate Statistics*, FINRA, https://www.finra.org/finra-data/browse-catalog/about-treasury/weekly-data [https://perma.cc/VBL3-JCHB] (providing weekly reporting of U.S. treasuries trades, discontinued after February 2023). On February 6, 2024, the SEC approved rules that requires those engaging as a government securities dealer and providing significant liquidity to the market "as a part of a regular business" to register with the SEC, become a part of a self-regulatory organization, and comply with various securities laws. Whereas the earlier trade reporting regime applied to broker-dealers only, thereby excluding hedge funds typically, the new regime can capture liquidity-providing hedge funds and require these funds to register as broker-dealers. These new rules have proved controversial and are being challenged in court by hedge fund industry participants at

monitoring costs faced by primary dealers, forcing them to buy and organize trading data privately. This can add delays and inaccuracies to data processing, making it harder to determine how risks are building in real time (for example, predicting large orders, predatory traders, or price dislocations).

This opacity feeds tension within a system of intermediation that must meet the needs of both public and private financial regulation at the same time. That is, actions taken by primary dealers to protect repo market operations for private firms can come at a cost to maintaining trading in the secondary market for the wider public.

Reliance on Treasuries as collateral in repo funding markets means that the availability of these securities for trading in secondary markets can become restricted. The repo market requires trillions of dollars in Treasuries (and cash) to be set apart daily to support private lending and borrowing.[44] The free-float of Treasuries—or the amount of Treasuries that are circulating freely at a given point in time—is thus reduced by what must be earmarked to support trillions in daily repo operations.[45] In a crisis, primary dealers must rapidly shore up Treasuries collateral in repo operations to protect financial stability and ensure that sufficient collateral exists to support trillions in exposure between private firms. In cases when the repo market gets securely ring-fenced, secondary markets can become strained as primary dealers have a smaller supply of assets with which to respond to investors wanting to buy and sell Treasuries in a panic.[46]

the time of writing. U.S. SEC, FINAL RULES: CHANGES TO DEFINITION OF DEALER AND GOVERNMENT SECURITIES DEALER 1 (2024), https://www.sec.gov/files/34-99477-fact-sheet.pdf [https://web.archive.org/web/20240708062607/https://www.sec.gov/files/34-99477-fact-sheet.pdf]. On the challenge of the new rules in court, see, e.g., Kate Duguid, *Treasury Market Reforms Draw Flak from Funds and High-Speed Traders*, FIN. TIMES (June 30, 2022), https://www.ft.com/content/4cc84b80-caca-4ed7-998c-2fb1956ec930 [https://perma.cc/4C62-9GTN]; Davide Barbuscia, *Hedge Fund Industry Groups Sue US SEC over Treasury Market Dealer Rule*, REUTERS (March 18, 2022, 1:27 PM), https://www.reuters.com/markets/us/hedge-fund-industry-groups-sue-us-sec-over-treasury-market-dealer-rule-2024-03-18 [https://perma.cc/RN7B-SCDG].

44. *See generally* SIFMA RSCH., *supra* note 26.

45. *See* David Lam, Bing-Xuan Lin & David Michayluk, *Demand and Supply and Their Relationship to Liquidity: Evidence from the S&P 500 Change to Free Float*, 67 FIN. ANALYSTS J. 55, 55–57 (2011); Xiaoya (Sara) Ding, Yang Ni & Ligang Zhong, *Free Float and Market Liquidity Around the World*, 38 J. EMPIRICAL FIN. 236, 237 (2016). To take a stylized example, if the face value of a single Treasury bond is $1,000, and a particular Treasury bond issue has five million such bonds, then the total face value issued is $5 billion. That is the total supply. Suppose two million of these bonds have been bought by the Fed and are not readily available for being bought and sold. Suppose further that another two million of these bonds are passively held long-term in private accounts, and are, again, not readily available for buying and selling. Thus, at any point of time, only $1 billion is the available "free float."

46. The short-term financing rate in repo trades also links the prices of Treasuries with those of Treasury bond futures contracts. "Basis" or "relative-value" trades ensure that these three remain economically aligned. The high volatility of the repo rate during March 2020 led to large short-term losses for hedge funds doing relative-value trades. An Office of Financial Research study suggests that leveraged

Opacity contributes to the challenge primary dealers face in ensuring steady intermediation to both repo and secondary markets. A lack of full and real-time information means that primary dealers face constant difficulties in attempting to predict the needs of the repo market—like how much cash and Treasuries are needed on any given day. These demands are hard to predict in any event. As a market for funding the daily life of financial firms, pressure on the repo market can vary wildly depending on any number of factors like seasonality (for example, making payroll), time of day (for example, reduced demand during lunchtimes), and the nature of the firm's business (for example, banks requiring large amounts of cash).[47] In March 2020, for example, weekly collateral needs varied by more than $350 billion for positions held by primary dealers.[48] While the secondary market for Treasuries tends to be more stable, crises can trigger an unexpected spike. For example, total aggregate weekly trading in the turbulent week of March 6, 2020, was around $5.7 trillion. By late July, however, activity volumes had normalized, and the secondary market saw around $3 trillion in weekly aggregate trading volume.[49]

This tension between protecting repo markets and maintaining resilience in secondary trading creates the danger that intermediaries stop performing when the costs of doing so become too high. Regulation does not require dealers to remain trading.[50] If the cost-benefit trade-off of intermediation becomes overly expensive, intermediaries withdraw. Or, they choose to protect one market over the other, depending on profitability, important client relationships, and keeping a reputational halo.[51] Stated differently, for public and private financial regulation to currently remain credible, Treasuries intermediation must be lucrative business for primary dealers.

When primary dealers face such a choice, they have powerful incentives to resolve the tension in favor of the repo market. The repo market is much larger than the secondary market. For example, to take a more typical week

hedge funds cashing out of these "basis trades" are unlikely to have amplified the illiquidity in treasury securities during the March panic. DANIEL BARTH & JAY KAHN, OFF. OF FIN. RSCH., BASIS TRADES AND TREASURY MARKET ILLIQUIDITY 11–13 (2020), https://www.financialresearch.gov/briefs/files/OFRBr_2020_01_Basis-Trades.pdf [https://perma.cc/7UMW-CZ6A]. *But see* Jeanna Smialek & Deborah B. Solomon, *A Hedge Fund Bailout Highlights How Regulators Ignored Big Risks*, N.Y. TIMES (Jul. 23, 2020), https://www.nytimes.com/2020/07/23/business/economy/hedge-fund-bailout-dodd-frank.html [https://perma.cc/5C2V-UPCU].

47. *See generally* Cheng & Wessel, *supra* note 20.

48. *See* discussion *infra* Section IV.A.

49. *See* discussion *infra* Section IV.A.

50. Scaggs, *supra* note 32.

51. *See generally* SIFMA RSCH., *supra* note 26 (on the dominance of primary dealers in repo markets).

in 2020, for example, the week of July 29, 2020, the average daily trading in the secondary market by primary dealers was $518 billion and their average daily risk exposure was $271 billion.[52] By comparison, in the repo market, primary dealers had lent out around $1.58 trillion and borrowed $1.81 trillion of Treasuries.[53] Taken together, their repo activity measured about six times their average daily secondary market trading volume of Treasuries, and about twelve times their daily average exposure in the Treasuries secondary market.[54] With its size and repeat client relationships, dealers can make profitable gains by focusing resources in the repo market ahead of the secondary market.[55] But this private preference comes with a collective price, in which the secondary market can become disrupted and fails to function as a safe haven for investors at large. Taken as a whole, serious pressures on dealer balance sheets can damage Treasury market function. As shown by Darrell Duffie et al., the quality of U.S. Treasury market operations deteriorates markedly when dealers are forced to delve deep into their balance sheet to intermediate trading.[56]

In our second contribution, we show that regulators are poorly placed to recognize the tension between a system of public and private financial regulation that is so deeply reliant on Treasuries to function.

That regulators have failed to account for the structural interlinkages between repo and secondary markets is not surprising. From the institutional standpoint, secondary trading and repo markets are subject to a patchwork system of fragmented oversight, governed by a rule book that has failed to adapt to changing market design.[57] The market does not have a lead regulator; oversight of the secondary market is shared by five or more agencies.[58] The repo market, by contrast, looks largely to the Federal Reserve ("the Fed") and the Federal Reserve Bank of New York ("NY Fed") for supervision.[59] This confusing division of authority breeds gaps and blind

52. *See* sources and discussion *infra* Sections IV.A–B.

53. *See* sources and discussion *infra* Section IV.B.

54. *See* sources and discussion *infra* Section IV.B.

55. Adam Copeland, Isaac Davis, Eric LeSueur & Antoine Martin, *Lifting the Veil on the U.S. Bilateral Repo Market*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (July 9, 2014), https://libertystreeteconomics.newyorkfed.org/2014/07/lifting-the-veil-on-the-us-bilateral-repo-market.html [https://perma.cc/X4BZ-4YHA]. Copeland et al. estimate that primary dealers are involved in almost 80% of repos in the bilateral repo market—the largest segment in which parties connect and lend to one another directly. *Id.*

56. Darrell Duffie, Michael Fleming, Frank Keane, Claire Nelson, Or Shachar & Peter Van Tassel, *Dealer Capacity and US Treasury Market Functionality* 2 (Bank for Int'l Settlements, Monetary & Econ. Dep't, Working Paper No. 1138, 2023).

57. *See generally* Yadav, *supra* note 19 (discussing and analyzing the regulation of Treasury market structure).

58. *Id.*, at 1193–99, 1219–27.

59. *Id.*

spots. Owing to fragmentation and an absence of coordination, regulators lack a coherent picture of the risks that run between repo and secondary markets. Rulemaking is costly given the need to overcome bureaucratic walls and divergences in institutional mandates and approaches between different regulators.[60]

Importantly, each market is regulated in accordance with distinctive methodological approaches. The secondary market for Treasuries trading (broadly speaking) hews to a more capital markets–based approach that focuses on generating smooth trading, price efficiency, and trade reporting to regulators.[61] By contrast, repo markets fall under a more "prudential" framing that protects the systemic soundness of firms and the market. Disclosure and pricing carry far less emphasis than ensuring that firms avoid default and do not sicken one another if one of them collapses.[62] A prudential model prioritizes collateralization and deep capital buffers, and can come with the (implied) promise of federal protection in case firm failure sets off systemic contagion.[63] These differences in regulatory approach complicate rulemaking, monitoring, and coordination challenges already pervasive to the task of overseeing Treasury repo and secondary markets. Regulators cannot fill information gaps because Treasuries collateralization reduces the need to gather and disclose data in real time. Data gathering in the secondary market also remains patchy. Without full information, policymakers cannot know what tools might work best to prevent sudden loss of liquidity and price distortions. Because *ex post* interventions to stabilize the market are available, regulators may prefer to rely on them rather than to engage in complex, *ex ante*, administratively costly rulemaking. When the Treasury market failed in March 2020, the Fed stepped in immediately, making around $1.5 trillion in cash and Treasuries available to primary dealers in a bid to revive intermediation.[64]

60. *Id.*

61. Doug Brain, Michiel De Pooter, Dobrislav Dobrev, Michael J. Fleming, Peter Johansson, Collin Jones, Frank M. Keane, Michael Puglia, Liza Reiderman, Anthony P. Rodrigues & Or Shachar, *Unlocking the Treasury Market Through TRACE*, FED. RSRV. BANK N.Y.: LIBERTY ST. ECON. (Sept. 28, 2018), https://libertystreeteconomics.newyorkfed.org/2018/09/unlocking-the-treasury-market-through-trace [https://perma.cc/23EG-VS9Q] (describing liquidity in Treasuries trading and emphasizing greater reporting to regulators as a way to create understanding of the market).

62. VIKTORIA BAKLANOVA, ADAM COPELAND & REBECCA MCCAUGHRIN, FED. RSRV. BANK OF N.Y., REFERENCE GUIDE TO U.S. REPO AND SECURITIES LENDING MARKETS 34–37 (2015) (highlighting efforts to prevent contagion in repo markets). *See generally* Cheng & Wessel, *supra* note 20; SIFMA RSCH., *supra* note 26; *17. Who Regulates the Repo Market?*, INT'L CAP. MKT. ASS'N., https://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/repo-and-collateral-markets/icma-ercc-publications/frequently-asked-questions-on-repo/17-who-regulates-the-repo-market [https://perma.cc/JT8H-JD84].

63. *See* discussion and sources *infra* Part III.

64. Nick Timiraos & Julia-Ambra Verlaine, *Fed to Inject $1.5 Trillion in Bid to Prevent 'Unusual Disruptions' in Markets*, WALL ST. J. (March 12, 2020, 5:08 PM), https://www.wsj.com/articles/fed-to-

A final observation on the economic significance of the Treasury market. From the standpoint of political economy, weakness in Treasury market structure is profoundly problematic for the status of U.S. debt as *the* global risk-free asset that is a lynchpin for financial stability. As Anna Gelpern and Erik Gerding write, the notion of a risk-free asset is one that is legally constructed rather than being intrinsically real.[65] Default arises as a matter of contractual design.[66] It is conventionally believed that the United States will pay its debts. However, in theory, it may default.[67] The most tangible manifestation of Treasuries, their power and prestige, comes from the workings of the market—by investors buying and selling Treasuries, or by using Treasuries as collateral to release economic value. Public oversight and private industry self-regulation reinforce this real-world compact. This collective practice makes failures in Treasury market structure particularly dangerous for the long-term dominance of the United States. With the Treasury's risk-free status ultimately ephemeral, a disrupted market undermines the most fundamental article of faith about the power of the U.S. economy and its financial system.[68]

In conclusion, to repair the broken promise of Treasuries in financial regulation, this Article proposes a three-part solution for reform. As a starting point, it advocates for systematically greater transparency and reporting, particularly in more opaque repo markets. A richer understanding of how this market works can help regulators and dealers manage their risks, address conflicts, and unravel complexities between the secondary and repo markets. Secondly, the Article seeks to require dealers to maintain intermediation, rather than exit the market at will. Even with information, dealers can still stop intermediating both repo and secondary trading whenever this task becomes too difficult or expensive. As noted earlier, there are no rules keeping key dealers in the market in crisis periods, and so such intermediation can disappear at any moment. To counter this risk, we

inject-1-5-trillion-in-bid-to-prevent-unusual-disruptions-in-markets-11584033537 [https://perma.cc/RE9Q-TDZF]. This funding was just one measure out of many that was implemented by the Federal Reserve ("the Fed") and the Federal Reserve Bank of New York ("NY Fed") to strengthen the liquidity of Treasuries and other securities markets. For discussion of the Fed's larger response to COVID-19, see also Michael Fleming, Asani Sarkar & Peter Van Tassel, *The COVID-19 Pandemic and the Fed's Response*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Apr. 15, 2020), https://libertystreeteconomics.newyorkfed.org/2020/04/the-covid-19-pandemic-and-the-feds-response.html [https://perma.cc/UV5S-H8GU].

65. *See generally* Gelpern & Gerding, *supra* note 17.

66. *See generally id.*

67. *See generally id.* Our thanks also to Mitu Gulati for underscoring this point. On the contractual basis for default in U.S. government debt and analysis of historical instances in which the United Sttes has failed to pay (most recently in 1979), see generally D. ANDREW AUSTIN, CONG. RSCH. SERV., R44704, HAS THE U.S. GOVERNMENT EVER "DEFAULTED"? (2016).

68. Our thanks to Anna Gelpern for this framework of thinking about risk-free assets.

propose that regulators expressly require key dealers to affirmatively maintain trading and price stability in Treasuries, even in crisis.[69] We consider this to be necessary in light of the fundamental reliance that financial regulation places on the steadfastness of the intermediation system for Treasuries. Importantly, such a mandate is familiar. For example, trading on the New York Stock Exchange ("NYSE") was long maintained by dealers that contracted to support trading and price stability during crises.[70] In addition to being well-worn and familiar, this mandate offers realistic assurance that the Treasury market will always provide liquidity, and, in particular, do so when such liquidity is most needed and when the chances of market failure are greatest. Finally, we support thoroughgoing reform of the regulatory structure for the repo and secondary market to harness the potential for coordination offered by the Financial Stability Oversight Council ("FSOC").[71] Created in the wake of the 2008 Financial Crisis, we believe that it is well placed to coordinate a more streamlined approach to rulemaking and supervision and to holistically view the repo and secondary market for Treasuries as interconnected.[72]

This Article proceeds as follows. Part I provides an overview of why Treasuries are risk-free and the reliance placed on their risk-free status in public regulation. It details the centrality of primary dealers to intermediation and market function. Part II analyzes the workings of the multitrillion-dollar repo market and the anchoring role of Treasuries in private contracting. Part III develops a novel account of the interconnected risks of intermediation in both repo and secondary markets to show that it is undermined by opacity, conflict, and complexity. Part IV sets out a solution to remedy fragility in Treasury market design. Part V concludes.

I. TREASURIES AND THE FINANCIAL SYSTEM

Beyond funding the affairs of state, the Treasury market represents a foundational pillar of global financial stability. A Treasury bond is perceived to be a default-free security that is capable of being traded easily at fair prices, offering investors an asset that can serve as a safe, cash-like store of value.[73] These attributes ensure that Treasuries occupy a central place in

69. Thanks to conversations with Kumar Venkataraman and policymakers for thinking around this idea.

70. *See* discussion and sources *infra* Section III.B.

71. This proposal supports and refines the proposal set out in Yadav, *supra* note 19.

72. *Id.* at 1236–44 (introducing the importance of coordination under the Financial Stability Oversight Council ("FSOC")).

73. Michael Fleming, *How Has Treasury Market Liquidity Evolved in 2023?*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Oct. 17, 2023), https://libertystreeteconomics.newyorkfed.org/2023/10/how-has-treasury-market-liquidity-evolved-in-2023 [https://perma.cc/2UTR-D4LX].

regulation as an asset capable of being used by financial institutions to protect themselves and the market from sudden insolvency and systemic collapse. In public regulation, financial firms must keep Treasuries as part of their firm's rainy day reserves. By owning Treasuries, firms hold a security that has predictable cash flows and is assumed to be rapidly tradable to generate cash when it is in trouble. Similarly, Treasuries are critical to private self-regulation in anchoring everyday lending between financial firms. They constitute the preferred form of collateral in the five-trillion-dollar repurchase market, allowing firms to borrow and lend to one other safely without undertaking prior due diligence.[74]

This Part explains why Treasuries have acquired this stature as the foremost safe asset and haven for global financial stability.[75] It highlights that the usefulness of Treasuries is comprised of two main attributes: (1) they are, for all intents and purposes, default-free, meaning that the United States will pay its debts, and (2) they are supposed to be highly tradable (or liquid), capable of being bought and sold in their secondary market with ease, at a fair price, and without trades causing prices to become distorted.[76] These two attributes, while linked, are distinct from one another. This Part describes the key features of this secondary market and its regulation. Like any other active market, Treasuries trade in an environment that is operationally complex and risky. These risks are amplified by a unique framework of public oversight that is fragmented and lacking in leadership, making rulemaking and supervision subject to coordination costs and delays.[77]

74. Peter Hördahl & Michael R. King, *Developments in Repo Markets During the Financial Turmoil*, BIS Q. REV., Dec. 2008, at 37, 39 (detailing the flight to Treasuries in repo markets during the 2008 Financial Crisis); James Clark & Tom Katzenbach, *Examining Changes in the Treasury Repo Market After the Financial Crisis*, U.S. DEP'T OF THE TREASURY: TREASURY NOTES (Oct. 12, 2016), https:/www.treasury.gov/connect/blog/Pages/Examining-Changes-in-the-Treasury-Repo-Market-after-the-Financial-Crisis.aspx [https://web.archive.org/web/20161222095332/https:/www.treasury.gov/connect/blog/Pages/Examining-Changes-in-the-Treasury-Repo-Market-after-the-Financial-Crisis.aspx] (noting the high use of Treasury collateral in repo markets). *See generally* John Mullin, *The Repo Market Is Changing (and What Is a Repo, Anyway?)*, FED. RSRV. BANK OF RICHMOND (2020), https://www.richmondfed.org/publications/research/econ_focus/2020/q1/federal_reserve [https://perma.cc/994U-8LNF].

75. Bouveret et al., *supra* note 3, at 5–6.

76. Fleming, *supra* note 73.

77. *See generally* Yadav, *supra* note 19 (discussing the regulatory system for U.S. Treasuries).

A. WHY TREASURIES ARE RISK-FREE

The Treasury market is critical to economic life in the United States and the health of financial markets globally.[78] Public debt has proven to be a transformative force for the country.[79] It has allowed Congress to implement major policy initiatives such as public works projects, wars, and efforts to counteract economic misfortunes.[80] The Treasury market provides policymakers with power to pursue far-reaching goals.[81] Policies do not have to be constrained by present-day taxpayer contributions. Rather, the Treasury can tap into global capital markets to raise money.[82] Crucially, the economic and political heft of the United States enables investors to have confidence that whatever they lend to the Treasury will be repaid exactly as promised.[83] This credibility means that the United States can borrow to fund itself much more cheaply than other countries with weaker economies and political institutions.[84]

Holding a default-free asset can be uniquely advantageous. Investors can be sure that the money they lend to the U.S. government is safe. Importantly, Treasuries provide a counterpoint to a portfolio containing a mix of investments with riskier options like corporate debt or equity. Whereas other assets involve varying cash flows, uncertainties in valuation, periods where they become hard to sell, or lose their value (in case of

78. This descriptive account of the U.S. Treasury market and its significance is based on and extends the analysis set out in Yadav, *supra* note 19, at 1187–90.

79. Marcin Kacperczyk, Christophe Pérignon & Guillaume Vuillemey, *The Private Production of Safe Assets*, 76 J. FIN. 495, 496–98 (2021); Dominique Dupont & Brian Sack, *The Treasury Securities Market: Overview and Recent Developments*, FED. RSRV. BULL., Dec. 1999, at 785, 786–87, https://www.federalreserve.gov/pubs/bulletin/1999/1299lead.pdf [https://perma.cc/SAF9-G6HY]. *See generally* Gelpern & Gerding, *supra* note 17.

80. Matt Phillips, *The Long Story of U.S. Debt, from 1790 to 2011, in 1 Little Chart*, ATLANTIC (Nov. 13, 2012), https://www.theatlantic.com/business/archive/2012/11/the-long-story-of-us-debt-from-1790-to-2011-in-1-little-chart/265185 [https://perma.cc/WNU3-Z829]; Peter M. Garber, *Alexander Hamilton's Market Based Debt Reduction Plan* 14–16 (Nat'l Bureau of Econ. Rsch., Working Paper No. 3597, 1991).

81. *See* Phillips, *supra* note 80.

82. *See generally* Justin Lahart, *The Treasury Market Is Having a Senior Moment*, WALL ST. J. (June 6, 2018, 1:53 PM), https://www.wsj.com/articles/the-treasury-market-is-having-a-senior-moment-1528307631 [https://perma.cc/6BEU-VAAY]; RAFAEL A. BAYLEY, THE NATIONAL LOANS OF THE UNITED STATES, FROM JULY 4, 1776, TO JUNE 30, 1880 (2d ed. 1882), https://catalog.hathitrust.org/Record/009011064 [https://perma.cc/P526-BGDN]. For historical context, see Dupont & Sack, *supra* note 79, at 786–87.

83. *See generally* Dupont & Sack, *supra* note 79.

84. Neil H. Buchanan & Michael C. Dorf, *How to Choose the Least Unconstitutional Option: Lessons for the President (and Others) from the Debt Ceiling Standoff*, 112 COLUM. L. REV. 1175, 1177–81 (2011) (detailing the constitutional basis for government borrowing). *See generally* Garrett Epps, *Our National Debt 'Shall Not Be Questioned,' the Constitution Says*, ATLANTIC (May 4, 2011), https://www.theatlantic.com/politics/archive/2011/05/our-national-debt-shall-not-be-questioned-the-constitution-says/238269 [https://perma.cc/H8L8-SDCU].

bankruptcy), Treasuries are not supposed to face any such danger.[85] Instead, investors believe Treasuries will perform in accordance with their terms, retain value, price, and currency stability. It follows that Treasuries have long been viewed as the safe haven for domestic as well as foreign investors, including other sovereigns looking to invest their reserves.[86]

The key attributes of a Treasury bond—default-free, denominated in the U.S. dollar, designed to be paid out in specific maturities and simple to value—are bolstered by its tradability (for example, its ability to be bought and sold quickly and cheaply without significantly impacting prices).[87] Official government reports into the Treasury market commonly begin by observing that it constitutes the "deepest and most liquid government securities market in the world."[88]

This liquidity represents a hallmark without which Treasuries could not attract investors as easily.[89] Those holding Treasuries would not be able to turn them into cash, while those wishing to add Treasuries to their portfolios would struggle to purchase them. If investors lack liquidity, they will charge the U.S. government more to reflect the cost of keeping a less tradable investment on their books.[90]

B. MAKING TREASURIES TRADABLE

Through much of its history, regulators have relied on a cohort of international banks and investment banks—designated as primary dealers—to support intermediation in Treasury markets.[91] After the initial issue by the U.S. Treasury (in what is called the "primary" market), the secondary market for day-to-day trading of Treasury securities is divided into two parts: (1) the segment where primary dealers and other dealers transact externally with customers (like foreign governments, or mutual funds) to buy and sell Treasuries, and (2) the interdealer segment where dealers internally transact

85. *U.S. Treasury Securities*, FINRA, https://www.finra.org/investors/learn-to-invest/types-investments/bonds/types-of-bonds/us-treasury-securities [https://perma.cc/2SJL-4274].

86. Yadav, *supra* note 19, at 1186–90. *See generally* Gelpern & Gerding, *supra* note 17.

87. James Clark & Gabriel Mann, *A Deeper Look at Liquidity Conditions in the Treasury Market*, U.S. DEP'T OF THE TREASURY: TREASURY NOTES (May 6, 2016), https:/www.treasury.gov/connect/blog/Pages/A-Deeper-Look-at-Liquidity-Conditions-in-the-Treasury-Market.aspx [https://web.archive.org/web/20160808194502/https:/www.treasury.gov/connect/blog/Pages/A-Deeper-Look-at-Liquidity-Conditions-in-the-Treasury-Market.aspx] (discussing liquidity metrics for the Treasury market and noting transitional elements in market structure).

88. *Id.*; Statement from Luis A. Aguilar, Comm'r, U.S. Sec. & Exch. Comm'n, Ere Misery Made Me Wise - The Need to Revisit the Regulatory Framework of the U.S. Treasury Market, (Jul. 14, 2015), https://www.sec.gov/news/statement/need-revisit-regulatory-framework-us-treasury-market [https://perma.cc/QXC8-LKHY].

89. Cheng et al., *supra* note 1; Samson et al., *supra* note 11.

90. On the characteristics of safe assets, see generally Gelpern & Gerding, *supra* note 17.

91. Dupont & Sack, *supra* note 79, at 787.

with one another in order to even out or otherwise manage the inventories they hold of Treasuries. If some dealers want Treasuries but do not have them, while others wish to sell, the interdealer trading market offers a space for Treasury dealers to be able to transact with one another.[92] Historically, primary dealers have played a critical role in each of these three parts of the market.[93]

Treasuries at Auction: Primary dealers are expected to use their deep pockets to bid for new Treasury securities when they are issued at government auctions. These bids must be at competitive prices, meaning that primary dealers cannot comply with their obligations by simply making unrealistic and unrealizable bids.[94] The government places great trust in primary dealers by relying on these firms to act as counterparties at every issue of public debt. In their 2007 study, Michael Fleming et al. show that primary dealers purchased an average of 71% of new issues.[95]

Given regular and heavy demands on their balance sheets, primary dealers are chosen from among those that can demonstrate the financial capacity to purchase, hold, and trade these securities. Though the NY Fed slightly relaxed eligibility conditions in 2016, the firms that perform primary dealer functions come from the ranks of well-regulated financial institutions—mostly banks.[96] As part of their agreement, primary dealers provide the NY Fed with weekly reports into the activities of the Treasury market.[97]

92. *See* KEVIN MCPARTLAND, GREENWICH ASSOCS., SIZING AND SEGMENTING IN THE U.S. TREASURY MARKET 2 (2017), https://www.greenwich.com/fixed-income-fx-cmds/sizing-and-segmenting-trading-us-treasury-market-0 [https://perma.cc/TLS5-KFQT]; Ken Monahan, *TRACE "Unlocks" the Treasury Market for the Official Sector. Everyone Else Gets a Peek Through the Keyhole*, COAL. GREENWICH (Oct. 3, 2018), https://www.greenwich.com/blog/frbny-trace-unlocks-treasury-market-everyone-else-gets-peek-through-keyhole [https://perma.cc/53LM-PK6S] (noting some complexities to this core design, for example, to highlight bilateral trading between dealers as a portion of the secondary market).

93. For a fuller discussion and sources, see Yadav, *supra* note 19, at 1199–203.

94. *Primary Dealers: Specific Expectations & Eligibility Requirements*, FED. RSRV. BANK OF N.Y. [hereinafter *Specific Expectations*], https://www.newyorkfed.org/markets/primarydealers [https://perma.cc/TQ8F-NAQD]. *See generally Federal Reserve Bank of New York Policy on Counterparties for Market Operations*, FED. RSRV. BANK OF N.Y. (Nov. 9, 2016), https://www.newyorkfed.org/markets/counterparties/policy-on-counterparties-for-market-operations [https://perma.cc/7DX3-HDJR].

95. MICHAEL FLEMING, GIANG NGUYEN & JOSHUA ROSENBERG, FED. RSRV. BANK OF N.Y., HOW DO TREASURY DEALERS MANAGE THEIR POSITIONS? 7 (2007); Michael J. Fleming, *Who Buys Treasury Securities at Auction?*, 13 CURRENT ISSUES ECON. & FIN. 1, 3 (2007), https://www.newyorkfed.org/medialibrary/media/research/current_issues/ci13-1.pdf [https://perma.cc/F3TQ-PUWS].

96. *Specific Expectations*, *supra* note 94; *FAQs About the New York Fed's Counterparty Framework for Market Operations*, FED. RSRV. BANK OF N.Y. (Nov. 9, 2016), https://www.newyorkfed.org/markets/counterparties/faq-counterparty-framework-for-market-operations [https://perma.cc/A4RN-YXGN]. To qualify, firms must be regulated as a well-capitalized bank or as a broker-dealer under the jurisdiction of the SEC and the Financial Industry Regulation Authority.

97. *Specific Expectations*, *supra* note 94.

Secondary Market – Dealer-Client: The secondary market comprises two major segments. In the dealer-client market, investors like foreign governments or mutual funds come to buy or sell Treasuries. This segment is critical for ensuring that Treasuries are widely available and capable of performing their stabilizing, protective function. Trading volume for a recent single day—July 31, 2024—in this dealer-client segment was about $735 billion.[98]

Primary dealers have a major advantage in the dealer-client market. As large and internationally active financial firms, they possess an ample base of clients with which to transact. This network provides the means by which to operationalize the protective function of Treasuries by ensuring they are widely distributable.[99] Importantly, by dint of their participation in Treasury auctions, primary dealers have sizable inventories of securities that they can transmit.[100] Indeed, when seeking to bid for Treasuries at auction, primary dealers usually collect indications of interest from major clients beforehand, ensuring that that they are able to capture and meet demand more precisely.[101]

The structure of the dealer-client market is based on an over-the-counter design. Clients contact primary dealers (and other dealers) using telephones or computer screens to ask for bids on what they are willing to buy and sell and at what price.[102] It rewards those most capable of developing repeat relationships with leading investors like foreign governments, insurance, or pension funds. By their proximity to Treasury auctions, the ability to anticipate client appetites, and experience, primary dealers generally represent an efficient and informed disseminator of Treasuries across the world.[103]

98. *Treasury Daily Aggregate Statistics – Files*, FINRA (Jul. 31, 2024), https://www.finra.org/finra-data/browse-catalog/about-treasury/daily-file [https://perma.cc/N9DX-G6MZ] (choose "July 2024"; then choose "July 31, 2024"). *See generally* Brain et al., *supra* note 61.

99. *Specific Expectations*, *supra* note 94 (making it a condition for designation that an applicant be able to show that they have been active in making a market in Treasuries); *e.g.*, Joe Rennison, *Amherst Pierpont Becomes 'Primary Dealer' for US Treasury Debt*, FIN. TIMES (May 6, 2019), https://www.ft.com/content/b3911dc8-7047-11e9-bbfb-5c68069fbd15 [https://perma.cc/7KYB-WNAN] (describing the importance of transacting with a Primary Dealer for certain kinds of investors).

100. KEVIN MCPARTLAND, GREENWICH ASSOCS., U.S. TREASURY TRADING: THE INTERSECTION OF LIQUIDITY MAKERS AND TAKERS 3 (2015), https://www.greenwich.com/fixed-income-fx-cmds/us-treasury-trading-intersection-liquidity-makers-and-takers [https://perma.cc/P7MV-6Z9T].

101. FLEMING ET AL., *supra* note 95, at 2–3.

102. This is a simple description of a request-for-quote system that, in the dealer-to-client segment of the Treasury market, is provided by two major providers, Bloomberg and Tradeweb. This is not an exchange-type system, but a platform that enables an electronic interaction bilaterally between a customer-dealer, or between a customer and multiple dealers to request bids. For discussion, see generally MCPARTLAND, *supra* note 100.

103. Rennison, *supra* note 99 (discussing the gains of primary dealer status).

Secondary Market – Interdealer: The interdealer market represents the other main segment of the secondary market.[104] It helps Treasuries dealers to even out their reserves by selling what they do not need to other dealers or dipping into this market to buy when they face a shortfall. On July 31, 2024, the day chosen above to illustrate recent dealer-client trading, the volume of trading in the interdealer segment was similar in magnitude to that of dealer-client trading, at around $729 billion.[105]

The interdealer market fulfills two key functions. One, it helps reduce the risk that primary dealers and others face gluts or scarcity in their inventory of Treasuries. It provides a mechanism whereby the availability of Treasuries can be modulated between dealers to meet their external client demands. Primary dealers can sometimes face sudden, one-sided demand. With COVID-19 triggering panic in March 2020, investors sought *en masse* to sell Treasuries in order to get their hands on cash.[106] According to Vissing-Jorgensen, sales by foreign investors, mutual funds, and the household sector (including hedge funds) came to around $287 billion, $266 billion, and $194 billion, respectively, in the first quarter of 2020 alone.[107]

A market to regulate supply and demand ensures that the dealer-client market is not disrupted because dealers are unable to obtain Treasuries or cash. For example, confronting heavy demand to buy from a sovereign, dealers can go into the interdealer market to supplement thinning reserves. By doing so, they fulfill client demand. The ability to sell excess inventory to other dealers means that dealers face fewer costs in keeping securities on their balance sheets.

Two, the ability to meet client demand smoothly means that the market becomes less vulnerable to sudden spikes or plunges in Treasury prices. When dealers can transact with one another to manage their supply of cash and Treasuries, they can lower costs to clients. The effects of scarcity or oversupply can be managed, helping markets remain more reliable and affordable for investors.[108]

104. Brain et al., *supra* note 61; *see* MCPARTLAND, *supra* note 100, at 6–7.

105. FINRA, *supra* note 98. *See generally* Brain et al., *supra* note 61.

106. Colby Smith & Robin Wigglesworth, *US Treasuries: The Lessons from March's Market Meltdown*, FIN. TIMES (July 28, 2020), https://www.ft.com/content/ea6f3104-eeec-466a-a082-76ae78d430fd [https://perma.cc/B9FN-RSFT] (noting investor surprise at misfiring Treasuries prices).

107. Vissing-Jorgensen, *supra* note 15, at 21; *see also* Bryan Noeth & Rajdeep Sengupta, *Flight to Safety and U.S. Treasury Securities*, REG'L ECONOMIST, July 2010, at 18, https://www.stlouisfed.org/-/media/project/frbstl/stlouisfed/files/pdfs/publications/pub_assets/pdf/re/2010/c/treasury_securities.pdf [https://perma.cc/5DKE-DWWK] (showing how Treasuries and their stabilizing features provide a safety buffer against other volatile asset classes).

108. *See generally* Harkrader & Puglia, *supra* note 39.

It is worth briefly noting that, from the mid-2000s, the interdealer market has undergone a structural shift to transition from an analog space to one that is now largely automated.[109] Its plumbing has transformed from reliance on telephones to the use of fast, artificially intelligent algorithms to drive trading.[110] High-frequency trading ("HFT")—in which Treasuries are being bought and sold in milliseconds or less—dominates, driving around 50–75% of trading volume.[111] One study showed that the median time between trades in ten-year Treasury notes in 2015 was around ten milliseconds.[112] A decade earlier in 2006, trading speed for this note stood at around one hundred times slower, with transactions occurring around one second apart.[113] To be sure, this trend is a secular one. Electronic, automated trading has become the norm in equities and derivatives markets, reflecting growth in computing power, data processing, and artificial intelligence since the mid-2000s.[114] Its extensive embrace within the historically staid Treasury market has nevertheless come as something of a surprise.[115]

109. Bouveret et al., *supra* note 3, at 6–10. *But see generally* MCPARTLAND, *supra* note 100 (highlighting that a segment of the interdealer market uses voice-based trading but posits that this portion deals with trading off-the-run Treasuries).

110. Bouveret et al., *supra* note 3, at 6–9; Bruce Mizrach & Christopher J. Neely, *The Microstructure of the U.S. Treasury Market* 6–7 (Fed. Rsrv. Bank of St. Louis, Working Paper No. 2007-052B, 2008) (detailing key aspects of Treasury microstructure and the historical reliance on over-the-counter trading). *See generally* JOHN BATES, U.S. COMMODITY FUTURES TRADING COMM'N, ALGORITHMIC TRADING AND HIGH FREQUENCY TRADING: EXPERIENCES FROM THE MARKET AND THOUGHTS ON REGULATORY REQUIREMENTS (2010), http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/tac_071410_binder.pdf [https://perma.cc/3YBA-2E7R].

111. Greg Laughlin, *Insights into High Frequency Trading from the Virtu Initial Public Offering* 2–4 (Ctr. for Analytical Fin., Univ. of Cal. Santa Cruz, Working Paper No. 11, 2014) (discussing the common strategies used by high-frequency trading ("HFT") market makers); *see* U.S. SEC. & EXCH. COMM'N, EQUITY MARKET STRUCTURE LITERATURE REVIEW, PART II: HIGH FREQUENCY TRADING 4–7 (2014) (setting out the key features of high-frequency trading).

112. Ernst Schaumburg & Ron Yang, *The Workup, Technology, and Price Discovery in the Interdealer Market for U.S. Treasury Securities*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Feb. 16, 2016), https://libertystreeteconomics.newyorkfed.org/2016/02/the-workup-technology-and-price-discovery-in-the-interdealer-market-for-us-treasury-securities.html [https://perma.cc/J732-XL98].

113. *Id.*

114. Johannes Breckenfelder, *Competition Among High-Frequency Traders and Market*, CTR. FOR ECON. POL'Y RSCH.: VOXEU (Dec. 17, 2020), https://cepr.org/voxeu/columns/competition-among-high-frequency-traders-and-market-liquidity [https://perma.cc/U24T-VWZK]; U.S. SEC. & EXCH. COMM'N, *supra* note 111, at 4 (noting that over 50% of all trading volume on listed equities could be attributed to HFT); GOV'T OFF. FOR SCI., FORESIGHT: THE FUTURE OF COMPUTER TRADING IN FINANCIAL MARKETS 20–48 (2012) (describing the welfare-enhancing gains for markets owing to algorithmic and HFT).

115. U.S. DEP'T OF THE TREASURY ET AL., *supra* note 39, at 15–19 (describing surprise by regulators at discovering that interdealer Treasury markets were seeing high levels of HFT trading).

High-speed trading has given rise to sources of instability.[116] An automated interdealer market has introduced new types of traders with a different profile to primary dealers.[117] HFT firms tend to be smaller securities firms that specialize in computerized trading across multiple types of assets, such as equities. Leading HFT firms are not household names, despite driving heavy volumes of trading. Firms like KCG, Spirex, XR Trading, or Jump Trading—while not as well-known as J.P. Morgan or Wells Fargo—have risen to become major suppliers of liquidity in the interdealer market.[118]

C. CENTRALITY OF TREASURIES IN PUBLIC REGULATION

Owing to their default-free status and perceived liquidity, Treasuries have become the go-to protective asset in public financial regulation.[119] Following the 2008 Financial Crisis, with top financial firms collapsing or

116. Automation and HFT have brought benefits on several measures. Michael J. Fleming, *Measuring Treasury Market Liquidity*, FED. RSRV. BANK OF N.Y. ECON. POL'Y REV., Sept. 2003, at 62, https://www.newyorkfed.org/research/epr/03v09n3/0309flem/0309flem.html [https://perma.cc/Q69K-5ACV]; *see also* Jonathan Brogaard, Terrence Hendershott & Ryan Riordan, *High Frequency Trading and Price Discovery* 5, 32–33 (Eur. Cent. Bank, Working Paper No. 1602, 2013). *But see* Tobias Adrian, Michael J. Fleming, Daniel Stackman & Erik Vogt, *Has U.S. Treasury Market Liquidity Deteriorated?*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Aug. 17, 2015), https://libertystreeteconomics.newyorkfed.org/2015/08/has-us-treasury-market-liquidity-deteriorated.html [https://perma.cc/4HGA-PHBR] (noting that bid-ask spreads suggest ample liquidity but noting deterioration on some other measures). For discussion, see generally George J. Jiang, Ingrid Lo & Giorgio Valente, *High-Frequency Trading in the U.S. Treasury Market Around Macroeconomic News Announcements* (H.K. Inst. for Monetary Rsch., Working Paper No.19/2018, 2018) (noting that high-frequency trading improves price efficiency around macroeconomic events but diminishes liquidity and market depth); Alain P. Chaboud, Benjamin Chiquoine, Erik Hjalmarsson & Clara Vega, *Rise of the Machines: Algorithmic Trading in the Foreign Exchange Market*, 69 J. FIN. 2045 (2014) (highlighting rapid market-wide efficiencies but also the risk of correlated automated responses to information).

117. Brain et al., *supra* note 61.

118. Crowe, *supra* note 39.

119. It should be noted that the protective power of Treasuries came under serious scrutiny in the wake of the collapse of Silicon Valley Bank, Silvergate Bank, and Signature Bank in spring 2023. Even though banks held Treasuries as part of their rainy-day buffers, rising inflation resulted in the value of their Treasuries holdings falling precipitously, such that they could not be relied on to save distressed banks in a crisis. Contemplated reforms responding to the March 2023 banking crisis included provisions designed to rethink how Treasuries ought to be accounted for on bank balance sheets. In the immediate aftermath of the 2023 bank crisis, the Fed offered banks a facility that allowed Treasuries to be valued at par value in order to permit banks to extract cash by collateralizing their Treasuries. A full discussion is outside the scope of this Article. For discussion, see, e.g., Mark Maurer, *Banks, Investors Revive Push for Changes to Securities Accounting After SVB Collapse*, WALL ST. J. (Mar. 20, 2023, 1:44 PM), https://www.wsj.com/articles/banks-investors-revive-push-for-changes-to-securities-accounting-after-svb-collapse-99caa9ce [https://web.archive.org/web/20240714153150/https://www.wsj.com/articles/banks-investors-revive-push-for-changes-to-securities-accounting-after-svb-collapse-99caa9ce]. For information on the Fed's Bank Term Funding Program, see Press Release, Bd. of Governors of the Fed. Rsrv. Sys., Federal Reserve Board Announces It Will Make Available Additional Funding to Eligible Depository Institutions to Help Assure Banks Have the Ability to Meet the Needs of All Their Depositors (Mar. 12, 2023), https://www.federalreserve.gov/newsevents/pressreleases/monetary20230312a.htm [https://perma.cc/2VR8-JFMS].

needing bailouts, the rapid loss of solvency raised worries about how best to avoid a repeat episode.[120] The causes of the 2008 Financial Crisis are complex.[121] Reform has sought to address numerous vulnerabilities.[122] But to bluntly mitigate the catastrophic effects of firms becoming unable to pay out on short-term debts and triggering a domino of failures, buffers of rainy-day and high-quality liquid assets ("HQLA") now represent a mainstay of financial regulatory design.[123]

To illustrate, banks are required to maintain a cushion of highly liquid assets that can help them to cover their short-term outflows over a stressed thirty-day period. Importantly, firms should be able to convert these assets into cash within just one day, without these assets losing value. In other words, assets must be highly liquid and their fire sale in stressed circumstances ought not to cause their prices to become distorted. Overall, banks need to keep more than 100% of their expected thirty-day liquidity needs in the form of HQLA.[124] This liquidity-coverage ratio ("LCR") represents a post-2008 reform hallmark, designed to ensure that firms do not cause contagious failures by failing to make good on their immediate commitments.[125] By preserving sufficient reserves of cash and cash-like assets, firms can feel safe in their ability to pay, while others are reassured that they will be repaid. The comfort of reliable liquidity buffers can work to limit the chances of a destructive run, when firms might try and seize cash and other assets in the worry that their counterparties cannot pay.[126]

Treasuries rank in the highest tier of liquid assets for firms seeking to build their buffers of HQLA alongside pure cash and deposits with the Fed.[127] While cash and Treasuries are not exactly equivalent (for example,

120. *See, e.g.*, *Banking: Regulatory Reform*, FED. RSRV. BANK OF S.F., https://www.frbsf.org/banking/regulation/regulatory-reform [https://perma.cc/LX8B-JHML].

121. *See, e.g.*, MICHAEL S. BARR, HOWELL E. JACKSON & MARGARET E. TAHYAR, FINANCIAL REGULATION: LAW AND POLICY 59–73 (2d ed., 2021).

122. *Id.* at 64–65 (focusing on the scope of the Dodd-Frank Wall Street Reform and Consumer Protection Act 2010); Claudio Borio, Marc Farag & Nikola Tarashev, *Post-Crisis International Financial Regulatory Reforms: A Primer* (Bank for Int'l Settlement, Working Paper No. 859, 2020).

123. *See generally Supervisory Policy and Guidance Topic: Capital Adequacy*, BD. OF GOVERNORS OF THE FED. RSRV. SYS., https://www.federalreserve.gov/supervisionreg/topics/capital.htm [https://perma.cc/BCJ3-L4TU].

124. J.P. MORGAN, LIQUIDITY INVESTORS AND BASEL III 4–5 (2015) (discussing methodologies used to calculate high-quality liquid assets ("HQLA")).

125. *See* MARK HOUSE, TIM SABLIK & JOHN R. WALTER, FED. RSRV. BANK OF RICHMOND, UNDERSTANDING THE NEW LIQUIDITY COVERAGE RATIO REQUIREMENTS 4–5 (2016), https://www.richmondfed.org/-/media/richmondfedorg/publications/research/economic_brief/2016/pdf/eb_16-01.pdf [https://perma.cc/6YB8-TU3J]. *See generally* Liquidity Risk Management Standards, 12 C.F.R. §§ 329.1–.50 (2020).

126. *E.g.*, MORGAN RICKS, THE MONEY PROBLEM: RETHINKING FINANCIAL REGULATION 102–45 (2016) (describing panics resulting from short-term debt holdings).

127. Jane Ihrig, Edward Kim, Cindy M. Vojtech & Gretchen C. Weinbach, *How Have Banks Been*

one has to sell a Treasury to generate cash), regulation assumes that they fall within the bandwidth of the same ultrasafe, ultra-stable, and ultra-liquid asset-type that can meet the need for immediate redemptions.[128] Further, Treasuries are supposed to do be bought and sold quickly without causing serious price distortions. Regulation encourages banks to hold unencumbered Treasuries and does not impose any discounting on the value of the Treasuries held.[129]

It is widely accepted that the LCR has had a dramatic impact on how banks fund themselves and on the kinds of business that they undertake. By being mandated to keep this thick buffer of HQLA to cover outflows over a stressed 30-day period, banks confront a constant demand to maintain (and have access to) a regular supply of Treasuries and cash. In consequence, they have dramatically increased their Treasuries holdings to reflect efforts at compliance.[130] On the other side, firms have sought to also adapt their business lines to reduce or adjust the size of the liabilities to be covered within the 30-day window. Services like offering large deposit holdings to clients have incurred a cost in the form of LCR holdings.[131] As banks must develop new business lines, they need to keep one eye on the Treasuries/cash market to maintain constant compliance with LCR requirements.

Beyond banks, the significance of Treasuries as a cash-like, highly liquid buffer of value has led to financial firms raising their holdings across the board. For example, as Nellie Liang and Pat Parkinson note, open-ended mutual funds hold as much as 12% of all Treasuries outstanding, while hedge funds maintain around 9%.[132] According to Liang and Parkinson, such deep reserves of safe-haven securities in the hands of regulated firms point to a readiness on their part to sell Treasuries *en masse* in order to raise cash in distress.[133]

Managing the Composition of High-Quality Liquid Assets?, 101 FED. RSRV. BANK ST. LOUIS REV. 177, 181 (2019).

128. Daniel K. Tarullo, *The September Repo Price Spike: Immediate and Longer-Term Issues*, BROOKINGS (Dec. 5, 2019), https://www.brookings.edu/research/the-september-repo-price-spike-immediate-and-longer-term-issues [https://perma.cc/MT9M-2GZS] (highlighting divergences between cash and Treasuries despite similar regulatory treatment).

129. J.P. MORGAN, *supra* note 124, at 4–5.

130. *See* Vladimir Yankov, *The Liquidity Coverage Ratio and Corporate Liquidity Management*, BD. OF GOVERNORS OF THE FED. RSRV. SYS.: FEDS NOTES (Feb. 26, 2020), https://www.federalreserve.gov/econres/notes/feds-notes/the-liquidity-coverage-ratio-and-corporate-liquidity-management-20200226.htm [https://perma.cc/XC9A-56VS].

131. J.P. MORGAN, *supra* note 124, at 4–5.

132. Nellie Liang & Pat Parkinson, *Enhancing Liquidity of the U.S. Treasury Market Under Stress* 6 (Brookings, Hutchins Ctr., Working Paper No. 72, 2020), https://www.brookings.edu/wp-content/uploads/2020/12/WP72_Liang-Parkinson.pdf [https://perma.cc/KYR7-WXLG].

133. *Id.* at 6–7. *See generally* Kenechukwu Anadu & Viktoria Baklanova, *The Intersection of U.S. Money Market Mutual Fund Reforms*, *Bank Liquidity Requirements, and the Federal Home Loan Bank*

D. REGULATING THE SECONDARY MARKET

This central place for Treasuries gives multiple major regulators an interest in their workings. Perhaps reflecting this quality, the oversight framework for Treasuries divides authority between several regulators, with none having lead status, but all having a stake in supervision.[134]

Rather than having one lead regulator, like the Securities and Exchange Commission ("SEC") is for equities, oversight of Treasuries is divided between at least five major agencies: the Fed, the NY Fed, the U.S. Treasury, the SEC, the Commodity Futures Trading Commission ("CFTC") and the Financial Industry Regulatory Authority ("FINRA").[135] The Fed supervises the banks, the SEC and FINRA oversee the securities firms, while the Treasury and NY Fed ensure surveillance over the auction process. The NY Fed also exercises designation authority for primary dealers, but it is not an official regulator for primary dealers.[136] The CFTC regulates derivatives markets that are linked to Treasuries trading—notably, Treasury futures.[137] Overlapping authority is commonplace in U.S. administrative law. As Jody Freeman and Jim Rossi outline, regulators sharing authority bring unique expertise. But they also face impediments, such as barriers to information sharing and the need for coordination in the completion of everyday oversight.[138]

Likely in view of their risk-free status, the usual bevy of rules that apply to traders in major markets either do not exist for Treasuries—or do so weakly. This latitude is born out of the broad exemptions that Treasuries enjoy under the Securities Act of 1933 and the Securities Exchange Act of 1934.[139] Regulators themselves often lack a concrete picture about which rules apply to Treasuries and how they should be implemented.[140]

System (Fed. Rsrv. Bank of Bos., Risk and Pol'y Analysis Unit, Working Paper RPA 17-05, 2017) (discussing the interaction between money market mutual fund liquidity reforms and bank holdings of Treasuries).

134. Yadav, *supra* note 19, at 1193–97 (discussing fully the regulatory structure for the Treasuries secondary market).

135. This framework was set up by the Government Securities Act 1986, 15 U.S.C. § 78o-5 (2018). For a detailed discussion of the framework setting out the spheres of authority of various regulators, see Yadav, *supra* note 19, at 1193–97.

136. Yadav, *supra* note 19, at 1193–96; FED. RSRV. BANK OF N.Y., *supra* note 20.

137. Yadav, *supra* note 19, at 1193–96.

138. Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131, 1181–88 (2012); Yadav, *supra* note 19, at 1177–78.

139. Monahan, *supra* note 92. Treasuries are still subject to standard anti-fraud protection under Rule 10b-5 and § 10b of the Securities Exchange Act. On exempt securities, see 15 U.S.C. § 77(c); 15 U.S.C. § 78(n). Rule 10b-5 prohibits deception and manipulation with respect to "any security" and does not exclude otherwise exempted government securities. *See also* Margaret V. Sachs, *Are Local Governments Liable under Rule 10b-5? Textualism and Its Limits*, 70 WASH. U. L.Q. 19, 19–26 (1992).

140. *E.g.*, Letter from Stephen Luparello, Dir., U.S. SEC Div. of Trading and Mkts., to Robert W.

Commentators observe that out of the thousands of FINRA rules for equity broker-dealers, around forty-six apply to broker-dealers in Treasury markets.[141]

Interestingly, the most visible divergence from classic securities markets regulation (for example, equity and corporate bonds) lies in the area of reporting and information dissemination. Treasuries have historically lacked a trade-by-trade reporting regime.[142] Since 2017, FINRA-regulated securities firms are required to report their trades. Banks must do so as well.[143] Despite this reform, however, the 2017 regime has long left serious gaps. Those that did not traditionally fall within the category of either a broker, dealer, or bank were not required to report to FINRA. For example, a number of HFT securities firms have typically not reported directly, and neither have hedge funds.[144] In February 2024, the SEC passed a series of measures requiring major liquidity providers—regardless of their institutional category—to register with the SEC and to report their trades. The functional aim of such rulemaking arguably lies in broadening the regulatory perimeter to require reporting by and cast a spotlight on those undertaking major Treasuries-related business (for example, high-speed traders and hedge funds). But, the SEC's actions were met with heavy resistance and a court challenge to their validity.[145] At least until the SEC's new regulations are implemented, data in relation to non-reporting firms must be captured indirectly—for example, when a non-reporting trader transacts with one that falls under the general 2017 mandate, or data is supplied by a trading platform.[146] Further, public reporting of Treasuries data

Cook, CEO, FINRA (Aug. 19, 2016), https://www.sec.gov/divisions/marketreg/letter-to-finra-regulation-of-us-treasury-securities.pdf [https://perma.cc/8BKU-8BDT].

141. Monahan, *supra* note 92; *0150. Application of Rules to Exempted Securities Except Municipal Securities*, FINRA, https://www.finra.org/rules-guidance/rulebooks/finra-rules/0150 [https://perma.cc/QP2Q-6NTR] (discussing FINRA provisions applicable to Treasuries broker-dealers).

142. STEVEN T. MNUCHIN & CRAIG S. PHILLIPS, U.S. DEP'T OF THE TREASURY, A FINANCIAL SYSTEM THAT CREATES ECONOMIC OPPORTUNITIES: CAPITAL MARKETS 73–75 (2017); Brain et al., *supra* note 61 (noting the historic lack of reporting and the impact of the first year of the law with respect to delivering insights about the market).

143. FINRA, Order Approving Proposed Rule Change Relating to the Reporting of Transactions in U.S. Treasury Securities to TRACE, 81 Fed. Reg. 73167 (Oct. 24, 2016).

144. BARBARA NOVICK, DAN VEINER, HUBERT DE JESUS, DANIEL MAYSTON, JERRY PUCCI, EILEEN KIELY, STEPHEN FISHER & SAMANTHA DEZUR, BLACKROCK, LESSONS FROM COVID-19: MARKET STRUCTURE UNDERLIES INTERCONNECTEDNESS OF THE FINANCIAL MARKET ECOSYSTEM 8–9 (2020), https://www.blackrock.com/corporate/literature/whitepaper/viewpoint-lessons-from-covid-19-market-structure-november-2020.pdf [https://perma.cc/KE5V-CV4X] (noting the difficulty in procuring information on hedge fund trading activities). *See generally* Harkrader & Puglia, *supra* note 39.

145. *See* U.S. SEC, *supra* note 43; Duguid, *supra* note 43; Barbuscia, *supra* note 43.

146. Brain et al., *supra* note 61. Since April 2019, regulators updated reporting rules to mandate that interdealer trading platforms be able to identify an HFT trader explicitly. Previously, an HFT trade was not specifically identified in reporting. Harkrader & Puglia, *supra* note 39. *See generally* Liz Capo McCormick, *U.S. Recommends Release of Treasuries Trading Volume Statistics*, BLOOMBERG LAW

is fairly light and recent. The public gained access to Treasuries secondary market trading data but only since March 2020. This data has generally presented aggregate totals for weekly trading in different kinds of Treasury securities, moving only to daily aggregate reporting beginning in February 2023.[147]

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In summary, the Treasury market represents a critical pillar of the U.S. economy and financial system. Treasuries are viewed as risk-free. This label, however, conflates two aspects of Treasuries: (1) the likelihood of repayment and (2) their trading in secondary markets. With respect to the former, it is widely accepted that the United States will not default. However, in relation to the latter, the system of trading for Treasuries does present real risks. It reflects a design choice that places primary dealers as centerpieces in intermediation. Crucially, Treasuries fall under a system of oversight that is fragmented and without a lead authority. With reporting data only recently becoming available, and lacking comprehensive coverage, regulators face coordination and information costs when seeking to understand the riskiness of this market and its intermediation.

II. TREASURIES AND PRIVATE INDUSTRY SELF-REGULATION

In addition to playing an anchoring role in public regulation, Treasuries have become the lynchpin for safeguarding the six-trillion-dollar market for short-term credit between financial firms. Default-free and highly liquid, Treasuries are the choicest type of collateral, capable of being sold rapidly when a borrower cannot pay. In the repurchase market, any number of financial institutions borrow and lend cash/securities to one another to meet their daily funding needs—with Treasuries being the preferred type of collateral. Particularly after the 2008 Financial Crisis, firms have come to depend on Treasuries as collateral in the repo market, with around four trillion dollars dependent on Treasuries to secure debt. Because repo debt is short-term and collateralized using Treasuries, it is "informationally insensitive," meaning, so safe that due diligence is unnecessary.[148]

This Part describes how Treasuries have become essential to maintaining the system of financial self-regulation that drives over four trillion dollars in daily lending between financial firms. Just as in the

(Sept. 23, 2019, 10:59 AM), https://news.bloomberglaw.com/banking-law/u-s-recommends-release-of-treasuries-trading-volume-statistics [https://perma.cc/TLM3-WRJS] (detailing the reasons behind the historic lack of transparency in Treasuries markets).

147. *Treasury Daily Aggregate Statistics - Files*, FINRA, *supra* note 43.

148. Tri Vi Dang, Gary Gorton & Bengt Holmström, *The Information View of Financial Crises*, 12 ANN. REV. FIN. ECON. 39, 40 (2020).

secondary market, primary dealers are the major intermediaries in repo operations, performing a variety of functions as lenders, borrowers, and connectors that match clients. In highlighting the centrality of primary dealer intermediation, this Part describes why this task can be challenging and costly in repo markets, with the risk that primary dealers can quickly withdraw and temporarily restrict credit when their job becomes too difficult.[149] These challenges are not easily addressed through the regulatory framework. Unlike the secondary market for Treasuries, the repo market is regulated under a more prudential format, focused on maintaining the safety and soundness of participating firms and transactions. With a far lower emphasis on disclosure, the repo market constitutes an opaque environment by design, obscuring an understanding of its workings and its interlinkages with the Treasuries secondary market.

A. PRIVATE CREDIT IN FINANCIAL MARKETS

The repo market—offering short-term, secured credit—represents a solution to the funding needs of large financial firms. A basic repo transaction works as follows. A Lender (a firm with cash) offers to loan money to a Borrower (a firm needing cash).[150] As with any loan, this transaction carries the risk that the Borrower might default. To limit the risk of losses arising from default, the market (1) ensures that the loan is collateralized and (2) keeps the maturity of the loan short (usually overnight, but it can sometimes extend to a month).[151] The repo market thus represents a market for secured loans. If the Borrower cannot pay back the cash, the Lender can simply sell the securities and recover their money. The collateral that a Borrower provides is in the form of securities, like Treasuries, corporate bonds, mortgage-backed securities, or stock.[152] Treasuries, unsurprisingly, constitute the most prized form of collateral. In terms of pricing, the value of the collateral exceeds the size of the loan by an amount

149. Gary Forton & Andrew Metrick, *Securitized Banking and the Run on Repo*, 104 J. FIN. ECON. 425, 426–27 (2012) (noting the role of runs in the repo market as a systemic event contributing to the 2008 Financial Crisis); *see* DANIEL K. TARULLO, BANKING ON BASEL 15 (2008); *e.g.*, V.V. Chari & Ravi Jagannathan, *Banking Panics, Information, and Rational Expectations Equilibrium*, 43 J. FIN. 749 (1988). On post-2008 capital regulation, see, e.g., Section 171, Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 171, 124 Stat. 1376, 1435–38 (2010). *See generally* Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983) (detailing the classic bank run, in which depositors rush to get their money back, putting bank solvency in jeopardy); *Basel III Implementation*, FED. RSRV. BD. OF GOVERNORS, https://www.federalreserve.gov/supervisionreg/basel/usimplementation.htm [https://perma.cc/HJF4-79WN]; Cheng & Wessel, *supra* note 20.

150. Cheng & Wessel, *supra* note 20.

151. *Id.*

152. *Id.*

called the "haircut." The riskier the collateral, the larger the haircut.[153] Treasuries usually come with a haircut of around 2% for overnight borrowing.[154] A Borrower looking for a $100 overnight cash loan will need to provide the Lender with $102 in Treasuries.[155]

As noted above, the maturity of loans is short, usually overnight. But loans are routinely rolled over.[156] This means that the loan is refreshed as it comes due: the Borrower can keep using the cash, while the Lender keeps the collateral. The short maturity structure gives Lenders the ability to control their exposure. If the Lender senses trouble, it can ask for the loan to be paid back, or it can choose to ask for more collateral to reflect any additional risk posed by the transaction. If the Borrower cannot repay, the Lender can sell the Treasuries. Danger arises for the market if the Lender feels unable to continue lending or rolling over existing loans, forcing a number of its borrowers into distress where they must pay up or find additional securities to keep borrowed cash.[157]

The repo market is mainly divided in two: (1) the bilateral market and (2) the tri-party repo market. Further, repo transactions come in two distinct types: (1) repo trades and (2) reverse repo trades.

In the bilateral repo market, parties transact directly with one another and privately organize their own risk management. By contrast, in the tri-party repo market, the administration and settlement of trades are handled by a third-party firm that intercedes between parties to manage the risk of ensuring the trade executes.[158]

The classification of whether a repo transaction represents a repo or reverse repo depends on whether the dealer is borrowing or lending cash in the transaction.[159] In a repo, the dealer is borrowing cash (and providing

153. Generally, the haircut reflects the worst-case loss of value of the collateral over the (overnight or longer) life of the loan.

154. Grace Xing Hu, Jun Pan & Jiang Wang, *Tri-Party Repo Pricing*, 56 J. FIN. & QUANTITATIVE ANALYSIS 337, 345 (2021).

155. *See, e.g.*, *id.*

156. *See* Cheng & Wessel, *supra* note 20.

157. RICKS, *supra* note 126, at 102–45.

158. There is also the general collateral finance ("GCF") repo market, which is an interdealer repo market with the Fixed Income Clearing Corporation ("FICC") as the central clearing counterparty. In the tri-party repo market, J.P. Morgan and Bank of New York Mellon have historically facilitated clearing and settlement. In tri-party repo, the transactions tend to be secured by a wider range of assets. Because collateral categories are broader, the tri-party repo market is not always helpful for dealers to source specific securities but can be useful as a place to park cash short-term. *See* VIKTORIA BAKLANOVA, CECILIA CAGLIO, MARCO CIPRIANI & ADAM COPELAND, OFF. OF FIN. RSCH., THE U.S. BILATERAL REPO MARKET: LESSONS FROM A NEW SURVEY 2 (2016) (discussing Treasuries trading implications more fully); BAKLANOVA ET AL., *supra note* 62, at 5–7; Cheng & Wessel, *supra* note 20; *see also* KAHN & OLSON, *supra* note 30, at 4–6 (detailing the composition of the cleared repo market).

159. *Repo and Reverse Repo Agreements*, FED. RSRV. BANK OF N.Y., https://www.newyorkfed.org/

collateral). In a reverse repo, the dealer is lending cash (and receiving collateral).[160] Figure 1.A shows the size of the bilateral repo market over the period 2013–2023.[161] There are 2 points to note: (1) the daily size of the bilateral repo market, comprising both repo and reverse repos, has varied from $3.9 trillion to $5.1 trillion over the last ten years and (2) on average, around 75% of the collateral in the bilateral repo segment comprises Treasuries, meaning that Treasury securities valued at about $3 trillion to $4 trillion remain locked up as "passive" collateral to prevent default, thereby reducing the "float" readily available with dealers for secondary market trading.[162] Figure 1.B shows the size of tri-party repo market over the past decade.[163] For example, in December 2021, the daily size of the tri-party repo market stood at around $3.7 trillion, around $2.5 trillion of which was backed by Treasuries.[164] Given the higher risk of direct trading, the bilateral repo market uses Treasuries as collateral in a much larger proportion of its transactions.

The feature that gives the repurchase (repo) market its name describes the legal arrangements that underlie how a typical repo works. The transaction is effectively structured as a sale and repurchase of securities even though it is, for all intents and purposes, a loan. The Borrower (seeking cash) sells its securities to the Lender (for the cash) with the promise to buy them back at a pre-agreed price the next day (or whenever the deal matures). The pre-agreed repurchase price represents the amount of the loan alongside an additional slice of compensation.[165] Because the Lender legally owns the securities, it can sell them if the Borrower defaults. The Bankruptcy Code specifically allows repo Lenders to sell collateralized securities even if the Borrower files for bankruptcy. Ordinarily, without such protection, Lenders would be stopped from doing so by the Code's automatic stay on enforcement actions.[166]

markets/domestic-market-operations/monetary-policy-implementation/repo-reverse-repo-agreements [https://perma.cc/D8ZY-LB9E].

160. Cheng & Wessel, *supra* note 20.

161. *See infra* Appendix Figure 1.A.

162. SIFMA RSCH., *supra* note 26, at 6.

163. *See infra* Appendix Figure 1.B.

164. FED. RSRV. BANK OF N.Y., *supra* note 26.

165. SIFMA RSCH., *supra* note 26, at 3–4.

166. There are a variety of safe harbors for different kinds of financial contracts. Repurchase agreements are defined under 11 U.S.C. § 101(47) (2022). Under the Code, lenders are restricted by the application of the automatic stay, 11 U.S.C. § 362(a) (2022). *See also* 11 U.S.C. § 547 (2022) (ensuring that preferences are scrutinized); 11 U.S.C. § 365(e)(1) (2012) (stating that so-called ipso facto clauses are unenforceable. These clauses automatically create a condition of default by the fact of the debtor's bankruptcy filing). For lender protection, lenders might seek out ways to lift the stay or claim adequate protection under § 362(d)(1) (2022). Because repos are allowed to be closed out in the event of a borrower's bankruptcy filing, repo lenders do not have to face the costs and consequences entailed by seeking adequate protection or looking to lift the stay.

Scholars observe that repo markets tend to function as a "bank-like" system for financial firms.[167] Those that have cash can earn money by lending it and taking collateral. In turn, those that need cash but have securities can offer their securities as collateral in return for access to cash. Repo markets reflect the reality that financial firms are unique. They cannot park millions and billions of dollars in a bank account. Those with cash want this money to generate some return, rather than having it languish unproductively. On the other side, some firms' asset base focuses on holding securities rather than cash (for example, if they invest heavily in securities as underwriters).[168] The repo market unlocks value by allowing those that need cash to borrow it on a short-term and secured basis, while permitting those with cash to be able to lend it out and make money from this transaction.[169]

Secondly and relatedly, repo markets enable financial firms to use leverage if their business model and balance sheet can support it. For example, suppose a firm has 100 Treasuries, each valued at $100. The typical haircut for Treasuries is 2%. The firm can borrow $9,800 against this collateral. It can then use these funds to buy 98 Treasuries, following which it can again use the 98 Treasuries as collateral to borrow $9,600. It can then use these funds to buy 96 Treasuries and so on, potentially achieving up to 50 times leverage.

Equally, the same Treasuries may be used in multiple transactions. Repo markets permit dealers to take Treasuries belonging to a client and to use these as collateral for their own purposes in the repo market.[170] A hedge fund with 100 Treasuries can entrust a Dealer with their safekeeping. Rather than simply let these assets be unproductive in an account, the Dealer and hedge fund agree that the Dealer can use the Treasuries for the Dealer's private credit needs. In return, the Dealer can offer the hedge fund a line of credit on cheaper terms than what might otherwise have been possible. Because the Dealer can control the Treasuries, it can use them as collateral to borrow funds from a Lender. The Lender, too, can take these same

167. Gordon & Metrick, *supra* note 33, at 433; RICKS, *supra* note 126, at 40.

168. *See* Manmohan Singh, *Collateral Velocity is Rebounding*, FIN. TIMES (May 21, 2019), https://www.ft.com/content/2cc138a5-df70-3b62-9bd5-6fdf76ecac38 [https://perma.cc/9F65-SJXT] (noting the ability of collateral that is pledged by bank clients to be reused as collateral by the bank).

169. Cheng & Wessel, *supra* note 20.

170. Often, this can happen in perfectly normal course. For example, the dealer could be functioning as a pure intermediary routing a loan from a municipal corporation to a hedge fund but with each party transacting through the dealer. The dealer will receive a security from the hedge fund as collateral for the loan, and at the same time, pledge the same collateral to the municipal corporation. But there may often not be a one-to-one correspondence, and the ratio of collateral used by the dealer to that available could be greater than 100%.

Treasuries and reuse them for more borrowing.[171] According to Infante et al., by dint of contractual agreements, primary dealers are generally permitted to reuse the vast majority of the Treasury collateral that they hold for clients. Studies suggest that as much as 85% of all Treasuries collateral may be subject to reuse.[172]

Reusing collateral has a number of important benefits for both dealers and their clients. It means that dealers can provide cheaper intermediation across the board. Rather than having to buy Treasuries and spend cash to do so, a dealer can request permission from its client to borrow their securities. In turn, the client also receives cheaper services.[173] Reuse also means that the market unlocks maximum value from a Treasury. Rather than only be used once in one trade, reuse can extract economic gains when Treasuries are used across multiple transactions.[174] So long as parties can repay, reuse can help lower the costs of intermediation and accessing repo credit affordably.[175]

But reusing collateral can also be dangerous.[176] While profitable in good times, collateral reuse can amplify distress in crisis. It undermines the assumption that repo markets provide fully secured lending. If the Hedge Fund client demands its Treasuries back, the Dealer faces a problem—as do others along the collateral chain. The Dealer must immediately source the Treasuries to return to the Hedge Fund.[177] If the Dealer has used Treasuries

171. This arrangement describes a prime brokerage agreement in which the Dealer offers hedge funds and other clients a range of services such as a line of credit on cash and securities, trade execution, and so on. A client's assets are agreed to be pledged with the Dealer as prime broker with the express agreement that the Dealer can reuse this collateral for its own account. For more detail, see, e.g., Richard Comotto, *Repo, Re-Use and Re-Hypothecation*, ICMA CENTRE (Dec. 14, 2013), https://icmacentre.blog/2013/12/14/repo-re-use-and-re-hypothecation [https://perma.cc/Q4DS-AE7V].

172. Sebastian Infante, Charles Press & Jacob Strauss, *The Ins and Outs of Collateral Re-Use*, BD. OF GOVERNORS OF THE FED. RSRV. SYS.: FEDS NOTES (Dec. 21, 2018), https://www.federalreserve.gov/econres/notes/feds-notes/ins-and-outs-of-collateral-re-use-20181221.html [https://perma.cc/69JZ-9DAZ].

173. Sebastian Infante, *Liquidity Windfalls: The Consequences of Repo Rehypothecation*, 133 J. FIN. ECON. 42, 43 (2019) (detailing that primary dealers can generate gains for themselves by using their intermediary status to negotiate varying terms with varying counterparties and benefiting from differing haircuts).

174. *See* Hyejin Park & Charles M. Kahn, *Collateral, Rehypothecation, and Efficiency*, 39 J. FIN. INTERMEDIATION 34, 34 (2019).

175. John Dizard, *The Horror Scenario Lurking in the Plumbing of Finance*, FIN. TIMES (July 23, 2021), https://www.ft.com/content/a0482f69-be5c-4d92-ae59-17a8e2b2cdde [https://perma.cc/FD3D-6PZX] (noting the importance of reusing Treasuries in unlocking credit for financial firms).

176. Dealers do have legal restrictions in their ability to reuse collateral, as stipulated by the Federal Reserve's Regulation T and the Exchange Act Rule 15c3–3, limiting dealers from exceeding 140% of the a client's balance for the dealer's proprietary activities. 17 C.F.R. § 240.15c3-3 (2023); 12 C.F.R. § 220 (2023); *see* Manmohan Singh & James Aitken, *The (Sizable) Role of Rehypothecation in the Shadow Banking System* 3–5 (Int'l Monetary Fund, Working Paper No. WP/10/172, 2010).

177. *See* Manmohan Singh, Senior Economist, Int'l Monetary Fund, Presentation to Brookings Institution, Understanding the Role of Collateral in the Financial System (Feb. 23, 2015), https://

to borrow cash, it must find cash to pay its Lender back and recover the Treasuries. Where the Dealer has failed (like Lehman Brothers), the Hedge Fund can find itself caught up in long legal proceedings to recover the assets.[178]

The fragility of collateral chains was made clear around September 16, 2019, when rates to borrow cash in the repo market spiked, climbing to almost 10% from about 2% in the week prior.[179] In seeking to understand why, a number of commentators pointed to concerns about the quality of the collateralization—and whether collateral chains of reused Treasuries could be counted on as watertight. Manmohan Singh of the International Monetary Fund estimated that, in the 2018 Treasury repo market, around three separate actors believed that they were entitled to the very same Treasury security.[180] This imputed a reuse rate of 2.2. That is, in addition to the actual owner (for example, the Hedge Fund above), 2.2 further firms considered themselves entitled to the Treasury collateral.[181] Owing to uncertainties about whether lending was really fully collateralized, primary dealers and others became wary of parting with cash, despite the promise of an almost 10% interest rate on offer that day.[182] As this episode makes clear, even though a Treasury can be reused multiple times as collateral, it can only be sold once to cover exposure. In an informationally opaque environment, in which parties do not know if they might be the one caught without viable collateral, it makes sense for primary dealers to stop intermediation and withdraw from the market.

B. INTERMEDIATION IN THE REPO MARKET

Primary dealers are the key intermediaries in the Treasuries-backed repo market. According to Copeland et al., primary dealers appear to intermediate around 80% of the bilateral repo market.[183] In addition to serving the financing needs of clients, primary dealers also use the repo

www.brookings.edu/wp-content/uploads/2015/02/20150223_collateral_markets_transcript.pdf [https://perma.cc/L733-NJ8V].

178. *See generally* Manmohan Singh & James Aitken, *Deleveraging After Lehman—Evidence from Reduced Rehypothecation* (Int'l Monetary Fund, Working Paper No. WP/09/42, 2009).

179. Long, *supra* note 33; *see also* Cheng & Wessel, *supra* note 20.

180. *See* Long, *supra* note 33; *see also* Singh, *supra* note 168.

181. Singh, *supra* note 168; Long, *supra* note 33. *See generally* Liz Capo McCormick & Alex Harris, *The Repo Market's a Mess. (What's the Repo Market?)*, BLOOMBERG (Dec. 17, 2019, 9:22 PM), https://www.bloomberg.com/news/articles/2019-09-19/the-repo-market-s-a-mess-what-s-the-repo-market-quicktake [https://web.archive.org/web/20240717071025/https://www.bloomberg.com/news/articles/2019-09-19/the-repo-market-s-a-mess-what-s-the-repo-market-quicktake].

182. As discussed later, commentators also suggested that post-Crisis regulatory reforms imposed prudential requirements that reduced the ability and incentives of large banks to lend cash. See, for discussion, McCormick & Harris, *supra* note 181; Long, *supra* note 33.

183. Copeland et al., *supra* note 55.

markets to secure funding for themselves.[184]

As intermediaries, primary dealers are tasked with fulfilling a number of functions in the repo market. At the most basic level, they match borrowers with lenders. When one client has cash (for example, a mutual fund), while another needs it (for example, a bank), the primary dealer connects both parties and facilitates the repo transaction (for a price). A more engaged role involves the primary dealer acting as one side of the repo trade for a client, either as borrower or as lender. When doing so, the primary dealer deploys the power of its balance sheet to take risk directly on its books.[185]

Primary dealers have unique advantages when it comes to intermediating the Treasuries-backed repo market. Beyond access to government auctions, they also possess positional dominance. For one, as connected nodes in financial markets, with access to networks of global clients, primary dealers represent trusted repositories for client cash and securities. In return to offering services and expertise, dealers acquire access to vast amounts of client securities and cash that can be reused for repo operations. Because the repo market enables collateral reuse, dealers can subsidize the costs of intermediation.

In addition, this central position affords primary dealers some informational advantages. They are well-placed to identify, connect, and transact with counterparties. Primary dealers are likely to have knowledge about which kinds of firms tend to hold sufficient cash (for example, mutual funds) to lend, and who has enough securities to be able to borrow. Repeat relationships can help build trust, deepen knowledge about the client's financials, and allow the primary dealer to more precisely price the terms of repo debt. Connections with multiple clients can permit primary dealers to fulfill orders for larger volumes of Treasuries/cash in which a dealer can tap and pool assets across clients. Crucially, this ability to tap into a sprawling

184. *See* MARCO ARNONE & PIERO UGOLINI, PRIMARY DEALERS IN GOVERNMENT SECURITIES 16–17 (2004) (describing the importance of financial capacity). *See generally* Viral V. Acharya, Michael J. Fleming, Warren B. Hrung & Asani Sarkar, *Dealer Financial Conditions and Lender-of-Last-Resort Facilities*, 123 J. FIN. ECON. 81 (2016) (noting the importance of access to the Fed's emergency lending facilities in the run-up to the 2008 Financial Crisis to preserve continuity in dealer market making); Press Release, Bd. of Governors of the Fed. Rsrv. Sys., Federal Reserve Board Announces Establishment of a Primary Dealer Credit Facility (PDCF) to Support the Credit Needs of Households and Businesses (Mar. 17, 2020), https://www.federalreserve.gov/newsevents/pressreleases/monetary20200317b.htm [https://perma.cc/WJZ4-T6AA] (discussing the Fed's 2020 emergency facilities); *Primary Dealer Credit Facility (2008)*, FED. RSRV. BANK OF N.Y., https://www.newyorkfed.org/markets/pdcf.html [https://perma.cc/8LNF-T85A] (discussing the earlier 2008 Primary Dealer support facility). On the essential role of dealer balance sheets for maintaining high-quality intermediation in U.S. Treasury markets, see generally, e.g., Duffie et al., *supra* note 56.

185. Cheng & Wessel, *supra* note 20.

network of resources can strengthen the financial system because its key intermediaries are positioned to supply liquidity in an elastic way.[186]

Finally, primary dealers are active throughout financial markets and supply liquidity in a variety of assets like equities and corporate bonds.[187] This broad-based participation in capital markets puts primary dealers in a strong position to use their experience and expertise to better predict demand for repo funding. For example, by being active suppliers of liquidity to the corporate bond market, primary dealers are likely to have a detailed understanding of who the key buyers of bond issues are likely to be (for example, insurance firms or mutual funds). This can provide special insight into possible future pockets of demand for Treasuries/cash collateral in which investors might need short-term cash to purchase a sizable volume of bonds.

C. REGULATING THE REPO MARKET

Despite its short-term and collateralized nature, the repo market is criticized for its structural instability and the profound risk that it poses for the financial system.[188] Scholars argue that the repo market suffers from a similar vulnerability to banks: the chance that it suffers a run in which lenders are frightened enough to recall their short-term debt *en masse*. According to Gary Gorton and Andrew Metrick, a major catalyst for the 2008 Financial Crisis came from a run in one part of the repo market, making it impossible or expensive for financial firms to continue funding themselves.[189] In Gordon and Metrick's study, the collateral underlying the repo loans was largely comprised of mortgage-backed securities that plunged in value.[190] Even where underlying securities were not as risky, the fear that they could be and that repo borrowers would be unable to repay ramped up what lenders were charging or caused them to call in their loans.[191]

186. *See, e.g.*, Mathias S. Kruttli, Phillip J. Monin, Lubomir Petrasek & Sumudu W. Watugala, *Hedge Fund Treasury Trading and Funding Fragility: Evidence from the COVID-19 Crisis* 3 (Fed. Rsrv. Bd., Wash. D.C., Working Paper No. 2021-038, 2021) (noting that the largest dealers (G-SIBs) provided 11–13% higher repo funding to hedge funds during the March 2020 crisis).

187. Hendrik Bessembinder, William Maxwell & Kumar Venkataraman, *Market Transparency, Liquidity Externalities, and Institutional Trading Costs in Corporate Bonds*, 82 J. FIN. ECON. 251, 262 (2006) (highlighting dealer inventory management in corporate bonds). *See generally* Paul Schultz, Inventory Management by Corporate Bond Dealers (May 11, 2017) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2966919 [https://perma.cc/7M3F-XZKR]; Jaewon Choi, Yesol Huh & Sean Seunghun Shin, *Customer Liquidity Provision: Implications for Corporate Bond Transaction Costs*, 70 MGMT. SCI. 187 (2024) (discussing the practice of prearranging trades).

188. *See, e.g.*, Diamond & Dybvig, *supra* note 149, at 401–04 (discussing banks runs); *e.g.*, RICKS, *supra* note 126, at 103–40.

189. *See generally* Gorton & Metrick, *supra* note 33.

190. Gorton & Metrick, *supra* note 33, at 430.

191. Gorton & Metrick, *supra* note 33, at 1 (analyzing the bilateral repo market); Saguato, *supra*

Unlike banks, the repo market lacks preventative structural safeguards, like deposit insurance, that could mitigate the risk of a run.[192] Instead, after 2008, it largely relies on Treasuries collateralization to assure parties that they will be repaid.[193]

This focus on collateralization reflects the prudential approach that characterizes the regulation of the repo market. Broadly, a slew of capital rules for financial institutions take account of a primary dealer's repo participation to calculate how much capital it needs.[194]

As detailed in Part I, banks must maintain a supply of highly liquid assets that can help them to remain solvent in the event of a sudden cash drain. The mandate that major financial institutions buffer themselves up with a thick reserve of highly liquid assets reflects the lessons learned in 2008 that underscored the potential for a liquidity crunch, as exemplified by the repo market's failure.[195]

However, their obvious utility and importance notwithstanding, these liquidity rules have also been blamed by some commentators for amplifying the instability in repo operations. In September 2019, when cash in the repo market seemed to run dry, no bank came forward to take advantage of what would have been a lucrative opportunity to lend (with a rate of 10% on offer). According to some commentators, post-2008 liquidity rules meant that banks did not wish to lend cash because they preferred to maintain high cash reserves and meet their compliance requirements. Importantly, the Fed pays interest on the cash reserves that it holds in its accounts for banks. If these interest payments are sufficiently high, banks might hesitate before using the cash for repo lending.[196] As Joshua Younger et al. observe, large banks were

note 29, at 116–18. As shown by Copeland et al., the increased margin signaling a run in the repo market was largely confined to the bilateral repo market. In the tri-party repo market, in which repos trading is intermediated by clearing and risk management, such sharp increases in margin did not take place. ADAM COPELAND, ANTOINE MARTIN & MICHAEL WALKER, FED. RSRV. BANK N.Y., REPO RUNS: EVIDENCE FROM THE TRI-PARTY REPO MARKET 2–4 (2014). *See generally* RICKS, *supra* note 126.

192. Gorton & Metrick, *supra* note 33, at 426–27; *see* GARY GORTON, SLAPPED IN THE FACE BY THE INVISIBLE HAND: BANKING AND THE PANIC OF 2007 2–4 (2009) (analyzing the role of banking panics and arguing that the repo markets were similarly vulnerable). *See generally* BAKLANOVA ET AL., *supra* note 62; ZOLTAN POZSAR, TOBIAS ADRIAN, ADAM ASHCRAFT & HAYLEY BOESKY, FED. RSRV. BANK OF N.Y., SHADOW BANKING (2010).

193. Peter Madigan, *The Meteoric Rise of Treasuries*, BNY MELLON (Sept. 2019), https://www.bnymellon.com/us/en/insights/aerial-view-magazine/the-meteoric-rise-of-treasuries.html [https://web.archive.org/web/20240601183605/https://www.bnymellon.com/us/en/insights/aerial-view-magazine/the-meteoric-rise-of-treasuries.html].

194. Cheng & Wessel, *supra* note 20 (highlighting the discussion around whether the liquidity-coverage ratio can impact repo market regulation).

195. Yankov, *supra* note 130.

196. Cheng & Wessel, *supra* note 20; *see Interest on Reserve Balances*, BD. OF GOVERNORS OF THE FED. RSRV. SYS., https://www.federalreserve.gov/monetarypolicy/reqresbalances.htm [https://perma.cc/D5WQ-SGTN]. *See generally* 12 C.F.R § 204 (2023).

not short of cash in mid-September 2019.[197] They held around $700 billion in cash reserves—far in excess of what was required of them under law.[198] On paper at least, they should have been able to direct some of these funds into the repo market and ease the costs of lending. This suggests that dealers preferred to prioritize keeping a thick liquidity buffer, accruing interest in their account with the Fed and waiting out the uncertainty, rather than actively deploying their balance sheet to alleviate it.[199]

In addition to liquidity ratios, primary dealer banks can also become subject to a "capital surcharge" over and above the basic capital buffer that banks maintain—resulting in banks seeking out ways to avoid the full force of paying this extra cost. Under post-2008 rules, the surcharge kicks in when a bank is deemed to be large and systemic.[200] The greater the size and interconnectedness of a dealer bank, the greater the likelihood that it faces a higher charge.[201] From the standpoint of policy, this systemic surcharge serves the purpose of ensuring the financial markets are better girded against the possibility that a large bank fails because this bank should have a deeper buffer from which to cover its losses. However, as an unintended consequence, it can motivate dealer banks to suddenly reduce the depth of their repo intermediation in order to avoid becoming sufficiently large and interconnected to become subject to a higher capital charge.[202]

Industry analysts report that large, systemically important banks routinely seek out ways to show a reduced footprint when it comes time for regulators to assign scores for the purposes of the surcharge.[203] Under this

197. JOSHUA YOUNGER, RYAN J. LESSING, MUNIER SALEM & HENRY ST. JOHN, J.P. MORGAN, WHAT IS PREVENTING THE BANKS FROM POLICING THE REPO MARKET? 2 (2019).

198. *Id.*

199. *Id.* (noting that stress testing may favor reliance on cash reserves rather than Treasuries as a way of showing their ability to withstand extreme crisis). *But see* Kruttli et al., *supra* note 186, at 18 (showing that G-SIBs were providing higher levels of repo funding to hedge funds during the March 2020 crisis).

200. 12 C.F.R. § 217.403 (2015). It should be noted that U.S. regulators are discussing potential reforms to bank capital regimes that may work to increase bank capital buffers, focusing on larger banking firms. A full discussion is outside the scope of this Article. For an outline of proposed reforms, see, e.g., David Wessel, *What Is Bank Capital? What Is the Basel III Endgame?*, BROOKINGS (Mar. 7, 2024), https://www.brookings.edu/articles/what-is-bank-capital-what-is-the-basel-iii-endgame [https://perma.cc/B4QZ-397V].

201. *See* BANK FOR INT'L SETTLEMENTS, BASEL COMM. ON BANK SUPERVISION, THE G-SIB ASSESSMENT METHODOLOGY – SCORE CALCULATION 1–2 (2014) (setting out the factors that determine the intensity of a bank's interconnectedness and systemic size); Wayne Passmore & Alexander H. von Hafften, *Are Basel's Capital Surcharges for Global Systemically Important Banks Too Small?*, BD. OF GOVERNORS OF THE FED. RSRV. SYS.: FEDS NOTES (Feb. 27, 2017), https://www.federalreserve.gov/econresdata/notes/feds-notes/2017/are-basels-capital-surcharges-for-global-systemically-important-banks-too-small-20170223.html [https://perma.cc/9MSP-8UQD] (analyzing and critiquing the BCBS's methodology for calculating the surcharge).

202. Cheng & Wessel, *supra* note 20.

203. *See generally* JOSEPH ABATE, BARCLAYS, GSIB SCORE: REPO DIET (2019). These assessments

regime, banks have incentives to reduce their systemic activities to just below the threshold at which a higher charge would apply. Because activities in the repo market constitute one signal of a bank's interconnectedness, heavily limiting the depth of its involvement can help a bank to reduce the capital surcharge it faces.[204] Further, owing to the short-term nature of repo lending, dealers can precisely time their retraction to quickly closeout repo transactions before being rated.[205] This kind of behavior—while perhaps rational for any single dealer—clearly poses problems for the market as a whole. Repo markets can experience a broad fall in the intensity of intermediation around times when dealers are to be assessed for a surcharge.[206] Even if the market can predict that such an eventuality will occur, episodic illiquidity can still create periods of fragility in which firms struggle to get the repo loan they need at an acceptable price. Indeed, even the fact of anticipating such liquidity-draining milestones can constitute a self-fulfilling prophecy. Firms may be less willing to come forward with their cash and Treasuries to trade assuming likely frictions in the market. Whenever dealers decide to scale down their intermediation, even if temporarily, it can introduce a broad slowdown in the flow of credit across the financial system.

In summary, private self-regulation in financial markets looks to Treasuries to protect firms and the system against default. Private lending between firms in the repo market relies on primary dealers for intermediation. Despite being collateralized using Treasuries, however, the repo market suffers from built-in risks. It is opaque by design. Reuse of Treasuries collateral creates a source of instability in crisis. Short-term financing can dry up quickly. Dealers are free to withdraw or reduce intermediation. That being said, with around four trillion dollars in daily lending backstopped by Treasuries, the financial system is entrenched in its belief that Treasuries constitute the protective safe asset to anchor private industry self-regulation.

III. THE FALSE PROMISE OF TREASURIES

This Part argues that systematic reliance on Treasuries in public and private financial regulation is internally in tension. First, we show that the secondary market and the repo market are inextricably linked and

usually take place at year-end, meaning that large dealer banks may be incentivized to reduce their repo activities at the end of the year.

204. *See generally id.*

205. *See generally* Adam Freedman & Francisco Covas, *The GSIB Surcharge and Repo Markets*, BANK POL'Y INST. (Nov. 26, 2019), https://bpi.com/the-gsib-surcharge-and-repo-markets [https://perma.cc/RRB4-7XHZ].

206. *Id.*

interdependent such that loss of function in one market can affect the other. Secondly, primary dealer intermediation, underpinning both markets, is subject to a slew of costs and problems. Opacity is pervasive. This prevents primary dealers from gaining a full picture of the risks. This increases the challenge facing primary dealers to navigate the internal conflict between the repo and the secondary market operations. With trillions of dollars in Treasuries and cash collateral locked-in to support the repo market, the secondary market for trading Treasuries can face a shortfall, especially during crises. In seeking to resolve this tension, primary dealers are likely to favor intermediating in the market in which they will gain the most, economically and reputationally. Alternatively, if neither market provides lucrative gains, primary dealers will rationally have every reason to withdraw intermediation altogether.

Additionally, this Part observes that the regulatory system is ill-placed to recognize the risks of an interconnected repo and secondary market for Treasuries. The Treasury market is overseen by a panoply of agencies. Their approaches to oversight diverge. Cooperation costs are built-in to a fragmentated system of oversight.[207] Regulatory incapacity increases the dangers of risky intermediation for Treasury market fragility and casts further doubt on the ability of Treasuries to function as safe assets in public and private financial regulation.

A. OPACITY, INFORMATION COSTS, AND MONITORING

Opacity in the repo market and the secondary market adds systematic information costs to primary dealer intermediation. A lack of full and real-time information limits monitoring and makes it harder for primary dealers to anticipate demand on their balance sheets. If the costs of opacity become too much, primary dealers may limit or withdraw intermediation to one or both markets.[208]

Primary dealers face uncertainties from a number of sources in intermediating both Treasury secondary trading and repo markets. First, both markets are home to a diverse set of users whose needs for cash and securities can vary unexpectedly. The repo market exemplifies this vulnerability.

Taking data from the periodic reports that primary dealers provide to the NY Fed, it becomes clear that Treasuries' exposure of primary dealers is much greater in the repo markets relative to the Treasury secondary

207. Yadav, *supra* note 19, at 1173.

208. McCormick & Harris, *supra* note 181; Saguato, *supra* note 29, at 113–15 (discussing repo market opacity). *See generally* Long, *supra* note 33.

market.[209] Figure 2 shows the average daily primary dealer exposure to outstanding repos and reverse repos over the period from 2016 to 2023.[210] Similarly, Figures 3.A and 3.B show, respectively, the average daily primary dealer inventory exposure in the secondary market, and the average daily trading volume in the secondary market.[211] The data underlying the charts show that the average daily collateral exposure of primary dealers in the Treasury-backed repo market averaged $1.91 trillion in 2020 and $1.84 trillion in 2021. In contrast, the average net primary dealer exposure to the Treasuries' secondary market totaled only around $244 billion in 2020 and $159 billion in 2021. Even the average daily trading volume of primary dealers in the Treasury secondary market—that includes *both* buying and selling by primary dealers—was only around $500 billion in both 2020 and 2021.

Importantly, the repo market also exerts large unpredictable demands on dealer balance sheets. By contrast, the secondary market is steadier. The data underlying Figure 2 shows that the average daily collateral exposure of primary dealers in the Treasury-backed repo market varies wildly and unpredictably from 1 week to the next. In 2020, this week-to-week difference varied from under $1 billion to $385 billion during the year and averaged around $72 billion. The average daily collateral used by primary dealers for the Treasury-backed repo market also continued to vary substantially from one week to the next in 2021, with weekly changes exceeding $100 billion about 20% of the time. Further, these position changes in the repo market are not correlated from week-to-week, reflecting constantly shifting market-wide needs.[212]

209. The NY Fed provides data on primary dealers that is updated weekly. This data includes the overall positions and transactions of primary dealers in the Treasury secondary market, and their positions in repos and reverse repos, collateralized not only by Treasuries, but also by other assets. Figures 2, 3.A, 3.B, and 4 are based on data on primary dealers from January 2016 to December 2023. *See infra* Appendix Figures 2, 3.A, 3.B & 4. We utilize these figures in our discussion in this Part and use this data to develop the charts. *Primary Dealer Statistics*, FED. RSRV. BANK OF N.Y., https://www.newyorkfed.org/markets/counterparties/primary-dealers-statistics [https://perma.cc/HJ5B-GTT3].

210. Figure 2 relates to the positions of primary dealers in repo markets. It plots several attributes of interest relating to the exposure of primary dealers as a group, each measured in billions of dollars: (1) the weekly outstanding repo and reverse repo positions collateralized by Treasuries and (2) the weekly outstanding repo and reverse repo positions collateralized by all assets. The difference between the repo and reverse repos held by primary dealers measures effectively the net borrowing from the repo market of primary dealers as a group. *See infra* Appendix Figure 2.

211. Figures 3.A and 3.B relate to activities of primary dealers in the Treasury secondary market. *See infra* Appendix Figures 3.A & 3.B. Figure 3.A plots for the eight-year period the net inventory exposure of primary dealers in Treasuries, and also their net inventory exposure to all assets. Similarly, Figure 3.B plots the transaction volume of primary dealers in Treasuries, and also their transaction volume across all assets. All figures are in billions of dollars.

212. *See generally* Narayan Y. Naik & Pradeep K. Yadav, *Risk Management with Derivatives by Dealers and Market Quality in Government Bond Markets*, 58 J. FIN. 1873 (2003) (showing greater predictability in government bond dealer positions in the United Kingdom).

By contrast, the secondary market is much less dramatic. Using data underlying Figure 3.A, it saw average weekly variation in primary dealer exposures of only around $17 billion in both 2020 and 2021, with maximum weekly variation of only $46 billion. These figures reflect a consistent pattern over time. Figure 4 shows the sizable extent by which changes in primary dealer exposures to the repo market dominate changes in primary dealer exposures to the Treasury secondary market between 2016–2023.[213]

Relatedly, primary dealers are also subject to the vagaries of how other dealers use Treasuries and cash in repo intermediation. Primary dealers do not intermediate all bilateral repo transactions. Copeland et al. estimate that around 20% of transactions are not intermediated by primary dealers.[214] While primary dealers occupy an outsize and influential position, their perch only allows them a partial view. Consequently, primary dealers confront blind spots about how these other firms use collateral and cash. This can create further difficulties for primary dealers in seeking to estimate the Treasuries and cash required to sustain repo operations as well as Treasury secondary markets.[215] For example, hedge funds have emerged as active and intriguing players in repo markets. According to one 2021 study, hedge funds have doubled their exposure to Treasuries to $2.4 trillion between 2018–2020, holding around $1.4 trillion in Treasuries in mid-2019, compared to the largest banks that held only around $524 billion at that time.[216] In addition to using the repo market to borrow to fund themselves, hedge funds have also taken over some of the trading and liquidity supplying functions traditionally performed by major dealers.[217]

Opacity attaching both to the repo market and to hedge funds has precluded a clear understanding of what kinds of risks hedge funds pose for dealers. For example, hedge funds are well-known for taking on debt to pursue trading strategies.[218] Hedge fund participation raises the danger that leveraged funds become a credit risk for dealers that fund them. In addition, owing to their smaller balance sheets, hedge funds may need to sell Treasuries and also pull back quickly from providing liquidity to the rest of

213. Figure 4 encompasses both the Treasury secondary market and the repo market. It plots weekly changes in the total outstanding repo and reverse repo Treasury collateral of primary dealers against the weekly changes in the exposure of primary dealers to Treasuries due to their market-making role in Treasury secondary markets. *See infra* Appendix Figure 4.

214. Copeland et al., *supra* note 55.

215. *Id.*

216. Alexandra Scaggs, *Hedge Funds Now Dominate the Treasury Market. They Failed Their First Test.*, BARRON'S (May 22, 2021), https://www.barrons.com/articles/suspect-behind-recent-treasury-market-dysfunction-highly-leveraged-hedge-funds-51621625376 [https://perma.cc/M9CU-BYRC].

217. *Id.*

218. *Id.*

the market.[219] The March 2020 crisis has shone a spotlight on the potentially destabilizing role of hedge funds in Treasuries.[220] It also highlights the pervasive danger for dealers from corners of the market they are less familiar with yet whose activities can nevertheless dramatically impact their own.

Second, primary dealers face difficulties from their participation as intermediaries in capital markets more broadly. Crucially, primary dealers are active liquidity suppliers to risky assets.[221] Figure 3.A shows that about one-third of net primary dealer exposure has been in risky non-Treasury securities. Figure 3.B shows that primary dealer trading volume in non-Treasuries is comparable to that in Treasuries, such that risks arising out of trading in non-Treasury assets are similar in volume to those arising from Treasuries.

Further, Figure 2 shows that the exposure of primary dealers to non-Treasuries collateral in repos and reverse repos is about 20% to 25%. Non-Treasury collateral generally comprises mortgage and asset-backed securities.[222] As Gary Gorton and Andrew Metrick observe, these securities pose especially high risks where parties rush to liquidate their loans in fear of the collateral losing value quickly.[223] This non-Treasury segment can heighten the risk of a repo run and force primary dealers to limit their intermediation across the board, including in Treasuries repo and secondary markets.

Third, information costs are exacerbated by difficulties in the ability of primary dealers to understand whether the Treasuries collateral they hold is actually viable. In other words, can this collateral be traced and readily sold for cash? Lengthy collateral chains, formed by reusing Treasuries multiple times, muddy understanding of whether this collateral is available in a default. Information sources are scant. Primary dealers do not have to report data on their use of client collateral in their weekly disclosures to the NY Fed.[224] This means that they do not need to tell the NY Fed about how they

219. *See generally* Kruttli et al., *supra* note 186.

220. Scaggs, *supra* note 216. *See generally* Kruttli et al., *supra* note 186; BARTH & KAHN, *supra* note 46.

221. *See generally* Jonathan Brogaard & Yesha Yadav, *The Broken Bond Market* (Vanderbilt Law Research Paper No. 21-43, 2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3941941 [https://perma.cc/2EKG-DGR4] (discussing the extensive role of dealers in corporate bond markets generally).

222. Supply shocks to primary dealers' cash flows can also arise from episodic volatility in the short-term borrowing and lending rates implied by repo transactions. These directly impact the costs and risks they face in managing inventory for market making.

223. Gorton & Metrick, *supra* note 33, at 426. *See* Saguato, *supra* note 29, at 106–07, 116–18 (noting the risk of runs from low-quality securities in 2008).

224. Singh, *supra* note 177; *see* BD. OF GOVERNORS OF THE FED. RSRV. SYS., REPORTING GUIDELINES FOR PREPARING THE FR 2004 PRIMARY GOVERNMENT SECURITIES DEALERS REPORTS 12,

use collateral that clients entrust to them in safekeeping. This leaves firms (and regulators) to guesstimate exposures.[225]

The perceived safety of the Treasuries-backed repo—and the difficulty of mapping out collateral chains—can act as a disincentive for primary dealers and others to invest in information gathering. Even if they do go to the trouble of mapping out the risk, the constantly evolving nature of repo market exposures means that this map of underlying collateral chains can change quickly.

Information and monitoring costs in the repo and secondary market for Treasuries contribute to imperfections in intermediation.[226] Higher costs in understanding and pricing risk can result in intermediation becoming more selective, expensive, and governed by private interests at a cost to the public good. In response to these costs, primary dealers may temporarily cut off credit in repo, including to one another. Without the ability to fund themselves using repo operations (for example, to borrow cash), they may also withdraw from the secondary market and stop buying and selling Treasuries to investors. Critically, incomplete transparency in repo and the secondary markets can shield primary dealers that withdraw intermediation. They may be quicker to leave the market whenever they see fit owing to the impossibility of being publicly identified as the dealer that stopped supplying liquidity.

B. CONFLICT BETWEEN PUBLIC AND PRIVATE REGULATION

Primary dealers also face a conflict when intermediating cash and Treasuries between the repo and secondary markets, particularly during crisis. Supporting the health of one market (for example, maintaining systemic stability in repo) can come at the expense of the other (providing liquidity to the secondary market).

This task of accomplishing successful intermediation across both markets is complicated by a number of factors. Primary dealers must decide how they allocate the "free float" of Treasuries available to them. They must examine the volume of Treasuries that is freely available and decide how much of this float should be allocated between the secondary and repo markets.

https://www.federalreserve.gov/reportforms/forms/FR_200420130331_i.pdf [https://perma.cc/SC3F-WSUH].

225. *See generally* OFF. OF FIN. RSCH., *supra* note 37; Infante et al., *supra* note 172.

226. To be sure, opacity is improving in certain parts, notably, the cleared repo markets and efforts by regulators to gather more data since around 2019. *See* KAHN & OLSON, *supra* note 30, at 1–2.

This calculus reveals the depth of the internal conflict at play between the secondary and repo market. Critically, the free float of Treasuries is reduced by the large amounts of cash and securities that are "locked-in" in the repo market.[227] This means that large volumes of this float become passively captured as collateral in the repo market.

Specifically, during 2020, the daily average Treasuries transaction volume in the secondary market was around $603 billion. Compared to this, the dollar volume of primary dealer Treasury collateral in repos during 2020 was $1.9 trillion, and the dollar volume of such collateral in reverse repos was $1.7 trillion. Taken together, without reuse, Treasuries valued at a daily average of about $3.6 trillion were captured as passive collateral in the repo contracts of primary dealers in just the bilateral repo market. This is about twelve times the average exposure of primary dealers, and six times their daily Treasury trading volume in the secondary market. This inference is not specific to 2020. Rather as seen in Figures 2, 3.A, and 3.B, these trends are persistent. High amounts of captured Treasuries float—necessary to repo operations—drastically reduce the volume of Treasuries that are available for trades in the secondary market.[228]

These restrictions create difficulties for intermediation by primary dealers. Captured repo collateral imposes rigidity on primary dealers that reduces how fully they can supply liquidity to the secondary market during crisis. The secondary market can experience sudden and unexpected pressure from investors to perform. For example, total aggregate trading in the Treasury secondary market in the weeks of March 6, 2020, and March 13, 2020, came to around $5.7 and $4.9 trillion, respectively—an especially turbulent 2 weeks during which the Treasury market essentially stalled.[229] By contrast, as secondary trading activity normalized, it started seeing approximately half the volume by summer 2020.[230]

Trillions in passive repo collateral create a source of fragility for the secondary market, generating logistical and financial difficulties for primary dealers: (1) dealers might have to constantly warehouse a reserve of Treasuries to support Treasury secondary trading during periods of high demand or (2) they can risk having to buy Treasuries during a crisis in order

227. Lam et al., *supra* note 45, at 55–57; Ding et al., *supra* note 45, at 237–38; *see, e.g.*, Kuan-Hui Lee, *The World Price of Liquidity Risk*, 99 J. FIN. ECON. 136, 138 (2011) (discussing the relevance of the free float of securities to liquidity and pricing).

228. This data is estimated from information submitted to the NY Fed on Form FR 2004 by primary dealers. FED. RSRV. BANK OF N.Y., *supra* note 209.

229. *Trade Reporting and Compliance Engine (TRACE)*, FINRA, https://www.finra.org/filing-reporting/trace/data/trace-treasury-aggregates [https://perma.cc/GKR8-BZMM] (choose "LOAD MORE"; then choose "Week of March 2, 2020" and "Week of March 9, 2020).

230. *Id.* (choose "LOAD MORE"; then choose "Week of July 27, 2020").

to meet demand. The first option creates costs because dealers have to allocate capital for buying and maintaining Treasuries supply, limiting profits from intermediation. In the second case, they run the risk that Treasuries become costlier to source, potentially resulting in reduced margins for their business. A third option always remains on the table: to reduce intermediation and avoid the need to source expensive Treasuries during difficult periods. This trade-off requires primary dealers to balance their private interests with public ones. When Treasuries' float is limited and demand in secondary trading exceeds existing reserves, the incentives of dealers to remain committed to Treasuries trading diminishes.

The coexistence of the secondary and repo markets—both intermediated by primary dealers—thus reveals real structural tensions. The growth of repo lending, demanding higher volumes of Treasuries float, can result in a corresponding decrease in securities available to lubricate the secondary market. This trade-off creates a complex problem for policy. If repo lending represents a desirable and efficient form of funding for financial institutions, ensuring it is done safely is of paramount concern. At the same time, a growing reliance on repo operations for financial institutions results in fragilities for the secondary market and the regulation that depends on it.

Moreover, as intermediaries for both markets, primary dealers have incentives to prioritize the needs of one market over another depending on private preferences. This favoring of one market over another can be motivated by a number of reasons. For example, primary dealers may see larger profits, lower risk, and reputational gains from ensuring the continuity of repo lending than from supplying expensive liquidity to the secondary market. Repo markets are far larger and primary dealers earn fees for matching counterparties.[231] It is one in which primary dealers dominate and have repeat relationships with major clients. Moreover, dealers are themselves beholden to the repo market for their own financing needs. For dealers, then, there is a lot to gain from seeing a growth in the size of the repo financing market—even if this means periodic retreats from the more competitive secondary market for Treasuries in which primary dealers have lost ground to high-speed electronic traders.[232]

The consequences of how primary dealers navigate this trade-off is a critical matter for public policy. If primary dealers are motivated to step away from intermediating in secondary markets, their actions call into question the view that Treasuries trade in a market that is deeply and constantly liquid. Rather, it points to one that is chronically vulnerable to the

231. *See* Copeland et al. *supra* note 55.
232. *See* Yadav, *supra* note 19, at 1207–15.

private preferences of its key intermediaries who are unlikely to continue offering resilient tradability at a cost to themselves. More broadly, for public and private financial regulation to remain credible, its intermediation must be able to deliver continued lucrative profit to its major dealers.

C. A UNIQUE CONFIGURATION OF UNKNOWN UNKNOWNS

As detailed above, primary dealers navigate a tricky and costly task in intermediating across both the repo and secondary market for Treasuries. Opacity limits the ability of a dealer to build a real-time understanding of the activity in the repo market external to that dealer—most importantly, where Treasuries collateral is located, and whether it can be captured and sold in an emergency. Motivation to monitor is low. The secondary market's limited historic reporting also reduces sight of pockets of disruptive trading—and the arrival of greater competition between primary dealers and newer high-speed automated traders lowers the attractiveness of the secondary market as a place to do vibrant business. Importantly, intermediation represents a source of conflict. Dealers are caught between preserving trillions in passive collateral in the repo market to maintain its safety and soundness—and using cash and Treasuries to supply liquidity to the secondary market. Especially if collateral reuse results in uncertainty about the quality of collateral, primary dealers have every incentive to ring-fence the Treasuries and cash they have for repo operations, even if demand in secondary markets is spiking. Critically, despite dependence on the services of primary dealers to preserve intermediation, they can withdraw from both spaces whenever costs and uncertainties become too high.[233]

This combination of risks represents an unprecedented set of problems for intermediation in the repo and secondary markets. It leaves dealers and policymakers facing many unknowns.

First, as shown in Part I, the repo market has grown its reliance on Treasuries collateral sharply following the 2008 Financial Crisis as a way to privately regulate short-term credit between firms. Whereas an earlier era looked to a variety of riskier assets like mortgage-backed securities, the last decade has observed a marked shift in the direction of Treasuries as favored collateral.[234] With Treasuries now collateralizing around $4 trillion of repo debt, concerns about locking-in and ring-fencing collateral carry special salience given the potential for catastrophic damage to financial stability if this collateral reserve becomes unstable.

233. Scaggs, *supra* note 32.

234. Gorton & Metrick, *supra* note 33, at 430 (noting the reliance on mortgage-backed securities as collateral in repo markets).

Second, post-Crisis regulation also puts special weight on Treasuries as a mandatory asset for capital buffers. As discussed in Part I, Treasuries are particularly important for post-Crisis public regulation, with financial institutions required to maintain deep buffers of high-quality liquid assets. This signal reliance by public regulation raises the stakes for primary dealers to ensure the secondary market is supplied with trading opportunities for those firms that need to liquidate their Treasuries in a financial crunch or to buy Treasuries when a safe asset is needed. As detailed by Vissing-Jorgensen, mutual funds sold more Treasuries in 2020 than they did after the 2008 Financial Crisis, owing to the thicker reserves of Treasuries they held coming into 2020.[235]

On the other side, detailed in Part II, post-Crisis reforms also impose these liquidity requirements and capital surcharges on primary dealers themselves and necessitate compliance with regulations that protect these firms from becoming too big to fail. According to some commentators and scholars, these rules can also make primary dealers more hesitant to supply liquidity to the repo and the secondary market, depleting reserves of cash and Treasuries, and falling out of compliance. Importantly, scholars also note that a stricter compliance environment following post-Crisis reforms has reduced primary dealer motivation to support intermediation—and opened the door for other firms to enter the fray. While a broader trend across debt markets, commentators note that non–primary dealers (for example, hedge funds) have stepped into the breach to supply liquidity more actively.[236] If this trend continues, primary dealers could face more information gaps arising from the activities of those that are new to the market as well as greater competition that diminishes their profits from intermediation.

Third, as outlined in Part II, the secondary market for Treasuries has experienced radical shifts, as primary dealers have lost ground to high-speed traders in the interdealer segment. According to one study of the major interdealer trading platform, BrokerTec, eight out of the top ten traders on the venue came from the ranks of HFT firms, rather than primary dealers. Primary dealers have continued to dominate the dealer-client segment. But this rapid waning of their professional power shows that that the secondary market has become more crowded with new entrants, and the incentives of primary dealers to take on costs to keep trading are quickly becoming weaker

235. Vissing-Jorgensen, *supra* note 15, at 24–25.

236. *See* Kruttli et al., *supra* note 186, at 1–2. The increased participation of hedge funds in the U.S. Treasury liquidity supply has heightened the stakes for regulators and hedge funds looking to challenge the SEC's February 2024 rulemaking. For hedge funds, the ability to remain outside the reporting perimeter has arguably allowed greater strategic flexibility for firms to determine how they might deploy Treasuries intermediation as a trading technique. For discussion, see, e.g., Duguid, *supra* note 43; Barbuscia, *supra* note 43.

in the face of competition.[237]

Putting these factors together, Treasuries intermediation has newly evolved into an especially complex, contradictory, and costly prospect for primary dealers, policymakers, and regulation. It is also foundational to financial markets and their stability post-2008. This coming together of regulatory need and operational complexity in managing intermediation requires that regulators be equipped to spot and address the risks at the heart of a straining Treasury market structure. As argued below, this is far from the case given the highly fragmented state of current regulatory design.

D. A BREAKDOWN IN REGULATION

The regulatory framework to oversee the repo and secondary market for Treasuries is ill-equipped to respond to the vulnerabilities underlying their market structure. Supervisory approaches for repo and Treasuries markets are divided between a "securities" model on the one hand (for secondary trading) and a prudential one on the other (for repo). This leaves regulators unable to develop a consolidated approach to oversight that recognizes the interdependence between the repo financing market that relies on Treasuries collateral and secondary trading that needs Treasuries to be capable of being bought and sold to realize their value quickly, cheaply, and at fair prices.

The regulatory framework for secondary trading in Treasuries is institutionally fragmented without any overarching coordination mechanism to guide rulemaking and supervision.[238] As detailed in Part I, unlike equities markets that, for example, fall primarily within the jurisdiction of a single regulator (the SEC), Treasuries lack a single lead overseer. Oversight is shared between at least five major bodies: the U.S. Treasury, NY Fed, the Fed, the SEC, and CFTC. FINRA also oversees securities broker-dealers and is instrumental in data collection from reporting firms after 2017.[239]

Fragmentation raises serious concerns in the context of an interconnected, internally conflicted repo and secondary trading market.[240] First, information sharing becomes hobbled by institutional barriers and bureaucratic divergences in how information is collected and analyzed.[241] Consider the so-called "Flash Rally" in the Treasury secondary market. On October 15, 2014, the Treasury secondary market experienced around thirty

237. *See* Yadav, *supra* note 19, at 1208–15.

238. *See id.*

239. *Id.* at 1193–99, 1219–22 (detailing the framework for regulating Treasuries under the Government Securities Act of 1986 and analyzing the implications); *see also* Jerry W. Markham, *Regulating the U.S. Treasury Market*, 100 MARQ. L. REV. 185, 199–208 (2016).

240. *See* Yadav, *supra* note 19, at 1193–99.

241. *Id.* at 1219–22 (noting the effects of bureaucratic divisions).

minutes of aberrant, anomalous trading at the start of the trading day, characterized by prices surging to some of their highest historic levels for inexplicable reasons.[242] Eventually, prices reverted to normal but not without first sending capital markets into chaos and confusion.[243] Regulators undertook a thoroughgoing, yearlong joint investigation into the event's possible causes and implications.[244] While the final report did not unearth any smoking gun, the investigation itself was illuminating. During the inquest, commentators singled out the legal and logistical difficulties experienced by different agencies in collecting and sharing information with one another.[245] The CFTC, for example, required time to conclude an information-sharing agreement in order to forward its data to other regulators.[246] The report further revealed that regulators lacked information to such a degree that they were shockingly unaware of major transformations underway in the Treasury market, specifically, the shift to high-speed, automated trading from a primary-dealer dominated, more analog interdealer market.[247]

In other words, fragmentation points to serious institutional challenges for regulators seeking to understand the interconnected machinations of the repo and secondary markets.[248] Agencies may not feel comfortable or be permitted to share information on those they supervise.[249] The 2017 trade reporting regime, instituted in the wake of the Flash Rally, requires that covered securities firms report their data to FINRA.[250] Banks, on the other hand, have to provide reports of their trading to banking regulators, suggestive of the especially sensitive nature of bank exposures.[251] To harmonize the process, FINRA and the Fed have engaged in a yearslong dialogue on coordination of data collection, under which FINRA could acquire bank-reported data as an agent of the Fed.[252]

242. U.S. DEP'T OF THE TREASURY ET AL., *supra* note 39, at 15–19.

243. *Id.*

244. *Id.* at 1–2.

245. Ryan Tracy & Andrew Ackerman, *The New Bond Market: Regulators Scramble to Keep Up*, WALL ST. J. (Sept. 23, 2015, 8:02 PM), https://www.wsj.com/articles/the-new-bond-market-the-u-s-treasury-struggles-to-keep-up-1443027850 [https://perma.cc/DM37-FA8W]; U.S. DEP'T OF THE TREASURY ET AL., *supra* note 39, at 15–20.

246. Tracy & Ackerman, *supra* note 245.

247. U.S. DEP'T OF THE TREASURY ET AL., *supra* note 39, at 15–19.

248. For detailed discussion, see Yadav, *supra* note 19, at 1219–22.

249. Tracy & Ackerman, *supra* note 245.

250. Harkrader & Puglia, *supra* note 39 (stating that FINRA-regulated broker-dealers are required to report their trades to FINRA, excluding hedge funds).

251. *Trade Reporting and Compliance Engine (TRACE)*, FINRA, https://www.finra.org/filing-reporting/trace [https://perma.cc/NC8G-KTWQ]; Harkrader & Puglia, *supra* note 39.

252. *See* Press Release, Bd. of Governors of the Fed. Rsrv. Sys., Federal Reserve Board Announces Plans to Enter Negotiations with FINRA to Potentially Act as Collection Agent of U.S. Treasury Securities Secondary Market Transactions Data (Oct. 21, 2016), https://www.federalreserve.gov/

Different regulatory regimes mean that regulators each have varying amounts of information on those they supervise.[253] Whereas primary dealers banks and broker-dealers are overseen by various dedicated banking and securities regulators, like the Fed, the SEC, and FINRA, other major participants like hedge funds are regulated on a much looser basis.[254] By design, hedge funds fall under a lighter touch, more opaque regulatory regime with fewer disclosures.[255] To be sure, post-2008 rulemaking does extend the regulatory perimeter to cover their activities more fully than before. Notably, bigger hedge funds must provide disclosures on various types of exposures in financial markets in a bid to help regulators map out their systemic footprint.[256] But the intensity of their overall regulatory scrutiny is generally far less intense than that faced by banks, broker-dealers, or mutual funds.[257] Importantly, within the Treasuries market, hedge funds have generally fallen outside of the reporting obligation for their secondary market trades because they do not fall under the category of broker-dealers or banks.[258] This is expected to change, at least for the most active hedge fund Treasuries traders, as the SEC's new registration and reporting rules take effect. Given the enormity of their exposure to Treasuries and the potential scale and impact of their activities, their historic exclusion from reporting has left regulators without a valuable and essential repository of data. In addition to hedge funds, many high-speed automated traders also do not qualify as FINRA broker-dealers—though again, this may change for more active players as the SEC rulemaking takes effect.[259] The erstwhile regulatory regime has nevertheless allowed many such firms to avoid direct reporting of trades in the interdealer market. It is worth highlighting that even though the SEC has taken steps to bridge these gaps by passing new rules to encompass hedge funds and HFT firms within a registration and reporting regime, their chances of future success appear uncertain in view of industry resistance to reforms and potentially drawn-out court challenges.[260] A 2019

newsevents/pressreleases/other20161021a.htm [https://perma.cc/BQ2W-WQ68].

253. For detailed discussion, see Yadav, *supra* note 19, at 1219–22.

254. Kruttli et al., *supra* note 186, at 1–2 (noting that hedge funds are much less regulated than broker-dealers and provide fewer disclosures).

255. *Id.*

256. Nabil Sabki & Nadia Sager, *Five Lessons for Form PF*, PRAC. COMPLIANCE & RISK MGMT. FOR SEC. INDUS., July–Aug. 2013, at 35, 35 (highlighting information that must be disclosed and its purposes).

257. Kruttli et al., *supra* note 186, at 1–2; FINRA, *supra* note 251; Harkrader & Puglia, *supra* note 39. For detailed discussion, see Yadav, *supra* note 19, at 1219–22; NOVICK ET AL., *supra* note 144, at 8–10.

258. NOVICK ET AL., *supra* note 144, at 7–8 (noting the negative impact of hedge fund non-reporting in Treasury markets).

259. Harkrader & Puglia, *supra* note 39; Yadav, *supra* note 19, at 1219–22.

260. Duguid, *supra* note 43; Barbuscia, *supra* note 43.

supplement to the reporting regime requires Treasuries trading platforms to identify traders in records.[261] As such, regulators can get information on particular securities firms should they need it.[262] However, reporting to regulators is not direct—and they must absorb costs to get data on an ex post basis.[263]

Gaps in information and roadblocks to cooperation have limited the ability of regulators to share insights on the major risks to Treasury secondary and repo markets. And fragmentation in regulatory design and pockets of opacity are essentially fatal to the enterprise of constructing a picture of the vulnerabilities affecting intermediation and developing ex ante constraints to control the risks.[264]

In addition to fragmentation, Treasury repo and secondary markets also operate under systems of oversight that diverge in their methodological approaches. As detailed in Part II, the Fed and the NY Fed represent the prudential end of the regulatory spectrum. Focusing on safety and soundness, a prudential approach ensures preservation of systemic safety and soundness as its critical mission. This can mean less emphasis on disclosure and transparency, for example, and more on ensuring that markets remain insulated from the risk of sudden runs and default on credit.[265] By contrast, the SEC and FINRA represent quintessential securities markets regulators, offering deft expertise in building efficient and transparent trading markets and protecting investors.[266] Instead of financial stability as the core guiding mission, securities market regulators nurture trading markets, underpinned by the dissemination of information, efficient price formation, and capital allocation.[267] To be clear, these are generalizations. The SEC, for example, also focuses on financial stability (e.g., by regulating the stability of money market funds that constitute an essential part of the repo market).[268] The Fed regularly engages with securities markets to ensure that the infrastructure,

261. Yadav, *supra* note 19, at 1197.

262. *Id.* at 1219–22; Harkrader & Puglia, *supra* note 39.

263. Yadav, *supra* note 19, at 1219–22.

264. For detailed analysis and background, see *id.* at 1219–22.

265. *See About the Fed*, BD. OF GOVERNORS OF THE FED. RSRV. SYS., https://www.federalreserve.gov/aboutthefed.htm [https://perma.cc/KY59-9HUQ] ("The Federal Reserve . . . promotes the stability of the financial system and seeks to minimize and contain systemic risks through active monitoring and engagement in the U.S. and abroad; promotes the safety and soundness of individual financial institutions and monitors their impact on the financial system as a whole.").

266. *What We Do*, U.S. SEC. & EXCH. COMM'N, https://www.sec.gov/Article/whatwedo.html [https://perma.cc/R353-R77U] ("[O]ur mission . . . [is] protecting investors, maintaining fair, orderly, and efficient markets, and facilitating capital formation."); *What We Do*, FINRA, https://www.finra.org/about/what-we-do [https://perma.cc/34RG-H869].

267. U.S. SEC. & EXCH. COMM'N, *supra* note 266.

268. *Money Market Funds*, U.S. SEC. & EXCH. COMM'N, https://www.sec.gov/spotlight/money-market.shtml [https://perma.cc/HZ7F-XGEJ].

such as exchanges, is protected against collapse.[269] These generalizations, however, aide in understanding key differences between the purposes and approaches of regulators tasked with overseeing secondary and repo markets for Treasuries.

This divergence can explain why regulators have failed to connect the shared risks facing Treasury repo and secondary markets, and to oversee both in a more consolidated way. Neither the prudential nor the securities-based model neatly fits the secondary or the repo market. For a start, the interdealer secondary market—a fairly classic securities market with heavy and liquid daily turnover—holds enormous systemic implications for the economy. If this market stops working, like in March 2020, a swath of economic actors cannot meet critical prudential needs. Concretely, reliance by public regulation on Treasuries' liquidity (e.g., HQLA) ties the proper functioning of the interdealer market to the prudential survival of any number of financial firms and the larger system.

Yet the regulatory methods used to oversee interdealer Treasuries trading fit neither a prudential nor a capital markets paradigm and leave risks exposed. Trade-by-trade reporting is of recent vintage (2017)—and only for regulators. Public reporting is limited—with data released only in aggregate form. This reticence to widely disclose potentially sensitive Treasuries trades recognizes the systemic quality of the market. However, other regulatory aspects undermine this focus on curbing systemic risks. Perhaps most importantly, lightly regulated actors are afforded ample latitude to trade in secondary markets without having to report their activities. Hedge funds, especially, are a case in point. But high-speed securities trading firms are another. Now firmly dominant in the interdealer market, such high-speed trading firms have not fallen within the regulatory regime for broker-dealers. Therefore, they have not been subject to reporting rules (but see above for anticipated changes in response to new regulatory measures).[270] Crucially, they have typically also been able to skirt other measures designed to address prudential risks—notably, capital requirements on broker-dealer firms that require safekeeping of rainy-day assets.[271] This leads to a possibility that highly influential traders have been transacting with only a thin base of

269. Colleen Baker, *The Federal Reserve's Supporting Role Behind Dodd-Frank's Clearinghouse Reforms*, HARV. BUS. L. REV. ONLINE 177, 178–80 (2013), https://www.hblr.org//wp-content/uploads/sites/18/2013/04/Baker_The-Federal-Reserves-Supporting-Role.pdf [https://perma.cc/LD7U-9G3X] (detailing the financial and supervisory support that the Federal Reserve provides to securities clearinghouses).

270. *See generally* Harkrader & Puglia, *supra* note 39.

271. Elad L. Roisman, Comm'r, U.S. Sec. & Exch. Comm'n, Remarks at U.S. Treasury Market Conference (Sept. 29, 2020), https://www.sec.gov/news/speech/roisman-us-treasury-conference-2020-09-29 [https://perma.cc/6LAN-PVD8].

capital, making them sensitive to losses and liable to exit rather than continue supplying liquidity especially during crisis.[272]

Similarly, the regulatory strategy for overseeing repos fails to account for the complex dynamic between Treasuries repo and the secondary market. As detailed in Part II, repo markets are overseen through a decidedly prudential lens. Capital buffers help safeguard against runs and collapse.[273] Collateral plays a pivotal role in reducing default risk.[274] Because of this collateral and the fear of runs, real-time detailed disclosure is limited.[275] Yet despite this focus on safety and soundness, the workings of the repo market fail to account for the role of the secondary market in maintaining the repo market's smooth workings.[276] This interconnection exists for a number of reasons: (1) if secondary markets experience illiquidity, Treasuries' prices can become unstable and distorted, impacting the viability of Treasuries as collateral; (2) repo lenders that wish to liquidate Treasuries will find themselves unable to do so in an illiquid secondary market; and (3) if primary dealers cannot buy and sell Treasuries in secondary markets, they may lack the ability to source cash and securities to fulfill repo lending. As seen in March 2020, for example, firms selling Treasuries *en masse* caused secondary trading to stall and badly disrupted securities prices.[277] With the value of Treasuries directly tied to the viability of firm liquidity buffers, a lack of attention to the securities market undermines the functioning of the prudential one.

In summary, this Part shows that public and private regulation's reliance on Treasuries is subject to a number of failures arising from a flawed system of intermediation. We show that the Treasury-backed repo and secondary trading markets are connected by a common intermediary: the primary dealer. In entrusting maintenance of the trading and repo markets to primary dealers, public and private regulation has failed to account for a number of costs that mean liquidity in both markets becomes tenuous. Primary dealers incur information and monitoring costs, navigate conflict between the needs of the repo versus the secondary market, and attend to their own private business preferences. These challenges are particularly dangerous owing to the needs of a financial regulatory system that puts Treasuries at the center both in public oversight and private self-regulation. In its second contribution, this Part argues that the regulatory framework for

272. *Id.*
273. *See* discussion and sources cited *supra* Section II.C.
274. *See* discussion and sources cited *supra* Section II.C.
275. *See* discussion and sources cited *supra* Section II.C.
276. *See* discussion and sources cited *supra* Section II.C.
277. *See* discussion and sources cited *supra* note 1.

the repo and secondary markets is fragmented, inadequate, and insufficiently adaptive to provide consolidated supervision of a connected set of markets. The result is a Treasury market that is relied on for its resilience, but one whose foundations are poorly understood and subject to rapid erosion.

IV. PATHWAYS TO STABILITY

This Article shows that the Treasury market suffers from fragilities in intermediation that makes it unstable and unreliable, casting doubt on the assumption used by regulation to place Treasuries at the center of financial stability. To begin remedying the structural deficiencies identified in this Article, we outline three proposals. Our focus lies in enabling public and private actors to strengthen the quality of liquidity and improve their understanding of the market's risks ex ante.[278] We recognize that if the Treasury market fails—like it did in March 2020 and in September 2019—it will be a near certain recipient of ex post federal emergency assistance. Indeed, in January 2022, regulators announced the creation of a permanent standing facility to lend securities and cash to repo market participants when the need arises.[279] Our focus is on taking first steps to develop strong ex ante mechanisms to improve information flows, enhance liquidity, and ensure that primary dealers are well supervised even within a highly fragmented regulatory framework. We suggest (1) developing greater transparency and information sharing in repo and Treasuries trading markets, (2) encouraging major liquidity suppliers—both primary dealers and key HFT traders—to invest in maintaining the liquidity of the market, even in times of distress, and (3) bringing greater consolidation and coordination to the regulatory framework, and requiring regulators to link supervision of the Treasury secondary markets and the Treasuries-backed repo markets more systematically.[280]

278. Manmohan Singh, *Collateral Reuse and Balance Sheet Space* 12 (Int'l Mon. Fund, Working Paper No. WP/17/113, 2017) (highlighting the pressure on dealer balance sheets to absorb repo market exposures—and the impact of regulations on balance sheet capacity).

279. Gara Afonso, Lorie Logan, Antoine Martin, William Riordan & Patricia Zobel, *The Fed's Latest Tool: A Standing Repo Facility*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Jan. 13, 2022), https://libertystreeteconomics.newyorkfed.org/2022/01/the-feds-latest-tool-a-standing-repo-facility [https://perma.cc/5U3Q-95K7].

280. In December 2023, the SEC approved the introduction of a mandate for central clearing for Treasuries trades in both secondary and repo markets. This mandate imposed a requirement on firms that are members of a clearinghouse to subject their Treasuries trades to risk management by a central clearinghouse. Nonmembers (for example, hedge funds and HFTs) would not be required to centrally clear their trades if they only transact with one another. At least in theory, such a mandate can improve data collection and risk mapping within U.S. Treasuries trading. Nevertheless, gaps remain, for example for trades executed between nonmembers of a clearinghouse. In addition, this proposal is far away from implementation. Its scale is ambitious, and it is unclear how the implementation process may impact how effectively a clearinghouse may resolve concerns surrounding opacity and risk management for U.S. Treasuries and collateralization. A full discussion of this proposal is outside the scope of this Article but

A. TRANSPARENCY AND PRUDENTIAL SAFETY

As detailed in Part III, information gaps are endemic within the repo and secondary markets for participants as well as regulators. These gaps obscure an understanding of how repo and secondary trading intersect and what risks are created by dint of this connection. Reform must begin by developing reliable mechanisms for improving transparency and information flows as a first step toward empowering regulators and market participants.

Information gaps are deeply embedded throughout the Treasury market, in both the secondary trading and repo market. Reforms in 2017 and 2019 have brought reporting to secondary markets. But it is limited by significant gaps in coverage (for example, excluding hedge funds and high-speed securities firms). Public, real-time transparency is restricted. Repo markets, opaque by nature, lack systematic, up-to-date reporting.[281] This allows private parties to avoid thorough due diligence. But it is far from obvious that it is protective in all cases. Collateral reuse creates opaque chains that instill a potentially false sense of confidence in which multiple parties all count on owning a single security. Further, opacity has costs even if transparency also comes with downsides. Market participants may overreact during crises, lacking information, and not knowing with which firms the problems lie.[282] Opacity also constrains how flexibly primary dealers manage inventories, respond to the behavior of a variety of clients as well as unknown dealers that are also active in supplying liquidity.

As a first matter, we propose increasing the information and scope of reporting available to regulators and its participants.[283] This applies to both the repo as well as the secondary market. For the repo market, this represents a paradigm shift in approach. However, we believe that it offers a much-needed lever for those in the market to take steps to assess supply and demand of Treasuries/cash more precisely. It also lowers the cost of public surveillance. Regulators remain stymied in their ability to capture real-time data on repo exposures, particularly for bilateral exposures. As Victoria Baklanova writes, supervisors are left to the grind of painstaking and patchy data collection practices that require them to piece together information from

will be addressed in further scholarship by the authors. For an outline and discussion of the clearing rule, see, e.g., Press Release, U.S. Sec. & Exch. Comm'n, SEC Adopts Rules to Improve Risk Management in Clearance and Settlement and Facilitate Additional Central Clearing for the U.S. Treasury Market (Dec. 13, 2023), https://www.sec.gov/news/press-release/2023-247 [https://perma.cc/T657-SCRU]. *See also U.S. SEC Adopts Rules Requiring Central Clearing in the U.S. Treasury Market*, SIDLEY (Dec. 21, 2023), https://www.sidley.com/en/insights/newsupdates/2023/12/us-sec-adopts-rules-requiring-central-clearing-in-the-us-treasury-market [https://perma.cc/RB5H-27BT].

281. Infante et al., *supra* note 172.

282. Long, *supra* note 33.

283. *Id.*

weekly or quarterly mandatory disclosures, on-the-ground examinations, or informal reporting by financial firms.[284] Such data collection is costly, quickly out-of-date, and imposes analytical costs on account of its lack of standardization and comprehensive coverage.[285] To be sure, since late 2019, this situation is improving. Regulators have ramped-up data collection in cleared segments of the repo market. In May 2024, the Office of Financial Research approved a new rule to enhance reporting and data collection in the bilateral repo market.[286] But market-wide, real-time data gathering remains elusive for now, and the outcome of future efforts remains uncertain.[287]

Reporting in this market has a number of benefits. It requires dealers to develop mechanisms to record their repo trades on a real-time, granular basis ex ante, to track the collateral that attaches to a particular repo, and to determine whether collateral attaching to it might be subject to reuse. Reporting can help create systematization in relation to capturing exposures and discipline about understanding the robustness of the collateral. In addition, it can create incentives for primary dealers to be more diligent with respect to understanding how collateral is sourced, whether it might be subject to reuse, how many times, and what the risks of such reuse might be during a period of distress. Importantly, we believe that such information ought to be shared regularly between regulators and the primary dealers (at least) as a group. Key intermediaries ought to develop mechanisms whereby they circulate insights about their repo exposures to one another on a regular basis with the goal of understanding collective exposures, the robustness of collateralization, and the potential market availability of cash and securities in case of need. This allows market participants to share emerging concerns, prepare for problems, and for regulators to also be ready to deal with the consequences of fallout.

Invariably, there will be pushback on a proposal to create transparency in prudential spaces. It goes against the grain of conventional wisdom in regulating prudential risks.[288] But, despite attachment to the status quo, regulators have begun to soften their stance on keeping utmost secrecy in banking and prudential areas. For example, in banking, regulators are now

284. VIKTORIA BAKLANOVA, OFF. OF FIN RSCH. BRIEF SERIES 15-03, REPO AND SECURITIES LENDING: IMPROVING TRANSPARENCY WITH BETTER DATA 3–6 (2015), https://www.financialresearch.gov/briefs/files/OFRbr-2015-03-repo-sec-lending.pdf [https://perma.cc/EB7P-WCFF].

285. *Id.*

286. Press Release, Office of Financial Research, OFR Adopts Final Rule for Data Collection of Non-Centrally Cleared Bilateral Transactions in the U.S. Repurchase Agreement Market (May 6, 2024), https://www.financialresearch.gov/press-releases/2024/05/06/ofr-adopts-final-rule-for-data-collection [https://perma.cc/X74D-HNZ8].

287. On data gathering efforts, see generally KAHN & OLSON, *supra* note 30.

288. *See, e.g.*, Infante et al., *supra* note 172.

increasingly revealing some of the results of bank stress tests.[289] Even in the repo market, some public reporting has emerged for its cleared segments.[290] While far from full transparency, this easing of traditional fetters against disclosure in banking can hint at potential openness to real-time reporting and information sharing. In addition, regulators and market participants might also balk at the cost of enabling Treasury market transparency given the interconnected complexities of the repo market and its daily size. There is also the ever-present concern that too much disclosure could result in triggering the exact externalities that everyone seeks to avoid—a run that results in a catastrophic drain on the market's liquidity and forces regulators to have to step in and stop the bleed.

Nevertheless, such concerns are not insurmountable, and while downsides exist, the costs embedded in the status quo are also high. Importantly, the repo market is not hermetically sealed. It does allow for some pockets of reporting (albeit not to the public). In particular, the tri-party repo market—that relies on a formal system of clearing and settlement—allows for greater reporting, collateral tracking, and unraveling of the complexity inherent in trades.[291] Stated differently, the market is amenable to systematization if parties so choose. In addition, the costs of recording trades, and tracking and reporting collateral, should not be prohibitively daunting. Primary dealers and others already do risk management as individual firms, though not on a standardized basis.[292] Notably, regulators routinely look to dealers self-reporting their activities as a means of gaining insights about the market. Surveys are commonplace as part of public efforts to study the ins-and-outs of the bilateral marketplace from those that inhabit it most closely.[293] Moreover, a real-time data repository for the bilateral repo market would save both market participants and regulators from having to perform expensive data collection, analysis, and extrapolation of the possible state of the market on a given day. Rather than guesstimates, parties could rely on a more standard and reliable reserve of information from which to understand an already complex market.

Perhaps most importantly, the centrality of Treasuries to stability means that opacity presents an incalculably high cost in which the market suffers

289. Daniel K. Tarullo, *Are We Seeing the Demise of Stress Testing?*, BROOKINGS: UP FRONT (June 25, 2020), https://www.brookings.edu/blog/up-front/2020/06/25/stress-testing [https://perma.cc/2Y5L-R8H4] (highlighting the tension between transparency and opacity in bank stress test reporting).

290. OFF. OF FIN. RSCH., OFR U.S. REPO MARKET DATA RELEASE METHODOLOGY FOR DVP CLEARED REPO (2021), https://www.financialresearch.gov/data/files/2021-04--Methodology-DVP.pdf [https://perma.cc/8UUS-6ZHW].

291. BAKLANOVA, *supra* note 284, at 3–6.

292. *Id.*

293. *See, e.g.*, *id.*; Infante et al., *supra* note 172.

on account of being poorly understood and inadequately protected. As made clear in March 2020, the dislocation in the market cast a pall of doubt among market participants about the resilience of Treasuries during a global crisis.[294] Seen from this perspective, failure to understand the market and its dynamics carries not just financial costs, but also implies larger damage from the standpoint of political economy. Finally, to avoid the potential for sudden runs (transparency, it should be noted, may also avoid runs if dealers and others better understand their exposures), data circulation around the market may be staggered and delayed.[295] For example, the repository would provide data to a closed loop of recipients (potentially the major dealers) and do so with a delay (perhaps circulating information at intervals during the day, or perhaps at the end of each day). In other words, while transparency and reporting may appear daunting at first glance, there are ways of structuring it that can allow for some aggregation and promote a careful, calibrated approach to information consumption, collation, and analysis.

B. INCREASING RESILIENCE IN INTERMEDIATION

A lack of information can fuel a race to the exit by intermediaries, resulting in liquidity draining quickly and causing distress for investors as well as firms needing to fund themselves. More reporting can provide clarity to dealers when it comes to pricing their risks. But it leaves open the possibility that they exit the market at even small signs of trouble. To ensure dealer engagement in maintaining Treasury market resilience, we suggest exploring tools to incentivize market makers to assume an affirmatively active role during periods of crisis—especially in the secondary market. As highlighted by the events of March 2020, the secondary market can face enormous strain during crisis as investors rush in to transact in Treasuries. Resilience here—when the market does not buckle under stress—helps ensure that Treasuries can perform their regulatory role as safety buffers. For the secondary market, such a duty would cover both primary dealers as well as high-speed security firms. Both types of dealers are vulnerable to exiting the market rapidly, causing a decline in available liquidity and distortion in prices.[296]

An affirmative duty on key dealers to remain trading can help to build more certainty around liquidity provision in the Treasury market. To be sure,

294. Smith & Wigglesworth, *supra* note 106.

295. This is the case, for example, for data published on cleared repos. *OFR U.S. Repo Markets Data Release Information*, OFF. OF FIN. RSCH., https://www.financialresearch.gov/short-term-funding-monitor/datasets/repo [https://perma.cc/9LYM-59QU].

296. Cheng et al., *supra* note 1; Claire Jones, *More 'Money' Treasuries Would Calm Repo Markets*, FIN. TIMES (Feb. 11, 2020), https://www.ft.com/content/a710474b-3ff5-42fc-b9ab-83325e878716 [https://perma.cc/LX6C-JFTM].

regulators face a trade-off in introducing such affirmative duties. Imposing higher transaction costs on traders can discourage them from entering the market or encourage them to pass the costs of liquidity onto investors that use the Treasury market. On the other hand, affirmative duties can be beneficial, especially given the importance of securing liquidity for Treasuries. If dealers can simply leave depending on their own preferences, they will be likely to exit exactly when the Treasury market is most necessary—during a crisis. Investors may come to regard the perception of its fail-safe liquidity as illusory, primed to dry up whenever danger strikes.

Historically, regulators have not required primary dealers to keep the market going in a crisis—perhaps assuming that they would do so anyway. Given their long-assumed dominance, perhaps this assumption could be justified. But it cannot hold now. As detailed in this Article, the Treasury market as a whole is facing new pressures, created by heavy dependence by public and private regulation on its services. In addition, the arrival of high-speed trading firms as well as nontraditional types of repo intermediary (for example, hedge funds) add to the pressures facing primary dealers and can contribute to how they navigate private decisions about continuing to provide liquidity.

An affirmative duty to maintain market liquidity can offer greater certainty that dealers make a real effort to stay, rather than simply exiting the market. Such a duty would require an affirmative obligation on traders to remain, particularly during crises.[297]

A duty to remain trading—applied to the most active dealers (primary dealers and high-speed securities firms alike)—can help to preserve price continuity and assure investors of resilient liquidity. Most importantly, it can motivate those charged with staying to play a role in monitoring and safeguarding operations through ex ante private oversight. Those that must trade, under a new duty, in all conditions ultimately bear the costs of any fallout from disruptive trading strategies or other traders that are creating outsize risks for others. This duty ought to prompt dealers to pay attention to the quality, sophistication, and reliability of their trading behavior. In this way, a duty to remain changes the trade-off governing the behavior of large Treasuries traders. Faced with the prospect of bearing potentially heavy losses if the market goes awry, taking risks starts to look more costly. Currently, easy exit and light-touch regulation have made taking careless or

297. Our thanks to Kumar Venkataraman for insights into this proposal. Anand and Venkataraman make the economic case for establishing affirmative market maker obligations in stock markets as a way to prevent volatility and price discontinuity. Amber Anand & Kumar Venkataraman, *Market Conditions, Fragility, and the Economics of Market Making*, 121 J. FIN. ECON. 327, 348 (2016).

deliberate risks a low-cost option.[298]

To be clear, an affirmative duty to remain is not an unlimited one, forcing firms to comply to the point of making themselves insolvent, fighting enormous fires in Treasuries at a cost of their own existence. For example, some nontraditional dealers like HFT traders tend to be smaller and less capitalized.[299] They cannot be expected to deplete their entire balance sheet to remain trading. Bigger bank dealers will have a more intensive obligation owing to their capacity to remain trading longer. That being said, a duty to remain is also likely to result in otherwise thinly capitalized firms to have to develop deeper capital buffers in readiness. Those subject to a duty will be the most active traders. Ensuring that they are better buffered provides assurance that those charged with maintaining Treasuries intermediation have the capacity to do so.

Practically, firms are likely to resist such a duty. If they have to pay large sums to selflessly protect the market, they will rationally demand a large ex ante price from the U.S. Treasury for their commitment. And regulators might consider how they ought to compensate traders that become subject to this duty. For example, one option might be to afford them special access to information on Treasuries trading order flow and repo operations as a way to help them to calibrate their risk. As above, this can lower the costs of monitoring and also help dealers to modulate their supplies of Treasuries and cash for secondary trading.

Importantly, this idea is not new to markets—earlier eras had once demanded that a designated group of traders withstand losses to protect markets in times of stress. Those that earned the designation also enjoyed certain privileges and status as a result.[300] While such a duty may not be critical in other markets in which liquidity provision is voluntary, introducing it for Treasuries is more than justified given the crucial importance of ensuring trading continuity in Treasuries in crises. During a crisis, affirmative liquidity provisions would clearly provide greater assurance of resilience. It also forces dealers to more fully confront the responsibility that comes with the fact of transacting in securities whose workings possess near existential significance for the global economy, further helping to strengthen market integrity.

298. Yadav, *supra* note 19, at 1227–30.

299. Roisman, *supra* note 271.

300. *See generally* Lawrence R. Glosten & Paul R. Milgrom, *Bid, Ask and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders*, 14 J. FIN. ECON. 71 (1985).

C. FIXING THE BREAKS IN REGULATION

Developing better information flows and ensuring the market's resilience must also be accompanied by reform at the level of public oversight.[301] This Article points to the need to develop a coordinated and hybrid approach to oversight for the Treasury market that is capable of overcoming tension between different regulatory philosophies (prudential versus market based). Remedying the ill effects of institutional fragmentation is necessary as a condition precedent to more fully understanding how the market works, identifying the risks and producing a set of rules that can mitigate structural vulnerabilities at the intersection of the repo and secondary markets.

As argued in this Article, the need for coordination between regulators takes on urgency in light of the interlinkages connecting Treasury repo and secondary markets. With a common set of intermediaries—the primary dealers—Treasuries-backed repo and the secondary markets depend on one another for each to be able to fulfill its respective mission. A patchwork system of oversight makes little sense within an ecosystem in which the trading of high-speed securities firms impacts the liquidity of collateral propping up the four-trillion-dollar Treasuries-backed repo market; or where the enormous collateral and cash needs of the repo market put the resiliency of the Treasury trading markets in jeopardy. Rules to simply govern one or the other market by itself are not enough. Rather, this Article makes clear that the Treasury market exists as a whole, underpinned by the trading and funding mechanisms working together to deliver what is universally recognized as the lynchpin of the world's financial order.

A near-term fix to the problem of regulatory fragmentation and ad hocism lies in making FSOC expressly into a coordinating supervisory agency for Treasury and repo markets.[302] Created by post-2008 rulemaking, the FSOC is designed to create a layer of consolidation over the patchwork of U.S. financial regulators. With the 2008 Financial Crisis showcasing systemic interconnections in financial markets, the FSOC's creation offers an administrative response to the risks of agencies working just on single parts of an otherwise entangled system.[303] By requiring the FSOC to bring

301. Yadav, *supra* note 19, at 1238–44 (setting out a detailed proposal for consolidation in oversight under the FSOC). This Article advocates for this proposal and also includes greater focus on accounting for the unaddressed subject of the interlinkages between repo and Treasuries trading.

302. *Id.* at 1241–43 (proposing the FSOC as a coordinating overseer for the Treasury market).

303. *See generally About FSOC*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/fsoc/about/Pages/default.aspx [https://perma.cc/6YEC-YCK2]. The FSOC has been a controversial overseer since its establishment. For discussion, see Hilary J. Allen, *Putting the "Financial Stability" in Financial Stability Oversight Council*, 76 OHIO STATE L.J. 1087, 1090–95 (2015) (noting the propensity for the FSOC to have gaps and breakdowns); Daniel Schwarcz & David Zaring, *Regulation*

multiple regulators together, it provides a way to ensure that regulators share information, develop a plan for reform, scrutinize and debate their own supervisory methodologies, and arrive at a mode of overseeing Treasuries that recognizes the linkages between trading and repo markets. As shown in this Article, this means developing a more hybrid regulatory strategy that is capable of moving beyond blunt prudential versus securities market approaches.

Introduction of the FSOC as a coordinating regulator for Treasuries is only a first step toward creating a governance model for public oversight. Even with the FSOC, agencies may struggle to work together. They may fail to share data or coordinate. Opacity may hamper attempts to understand how risks move between repo and Treasuries trading. In the absence of a strong system of supervision, the Treasury market may well just be left to depend on the Fed's ex post interventions in a crisis. But disruptions to U.S. Treasury secondary and Treasury-backed repo markets (for example, in March 2020) show that the current fragmentation and disorganization between regulators is untenable and harmful. Coordination through FSOC begins a process of deeper institutional reform.[304] Further, systematized transparency (for example, through disclosure and reporting) offers a way to help bridge the difficulties faced in developing a hybrid approach to overseeing the interlinkages between Treasuries-backed repo and Treasuries trading markets. With all regulators able to share in data from both repo markets and Treasuries, understanding interdependencies should become practicable. Information—in addition to saving collection costs and bridging institutional hurdles to communication—can foster collective focus on a connected marketplace. This approach of co-opting banking and securities regulators and ensuring greater coordination through the FSOC offers a way out of the bifurcated approaches that treat repo and trading markets as basically distinct and subject to separate modes of scrutiny.

This Part proposes a three-part solution to place Treasury markets on a stronger footing to better withstand the weight this market carries for the financial system and the economy. It proposes first developing stronger information flows to increase reporting and transparency, affording primary

by Threat: Dodd-Frank and the Nonbank Problem, 84 U. CHI. L. REV. 1813, 1851–53 (2017) (highlighting the significance of deterring systemic risk development through the FSOC); Christina Parajon Skinner, *Regulating Nonbanks: A Plan for SIFI Lite*, 105 GEO. L.J. 1379, 1389–93 (2017) (noting the expansive powers of the FSOC in designation).

304. For example, the SEC itself put out a detailed proposal to provide thoroughgoing reform of Treasuries trading platforms. The systemic importance of such platforms would point to the importance of prudential regulators also being involved. Press Release, U.S. Sec. & Exch. Comm'n, SEC Proposes Rules to Extend Regulations ATS and SCI to Treasuries and Other Government Securities Markets (Sept. 28, 2020), https://www.sec.gov/news/press-release/2020-227 [https://perma.cc/YA3E-TRND].

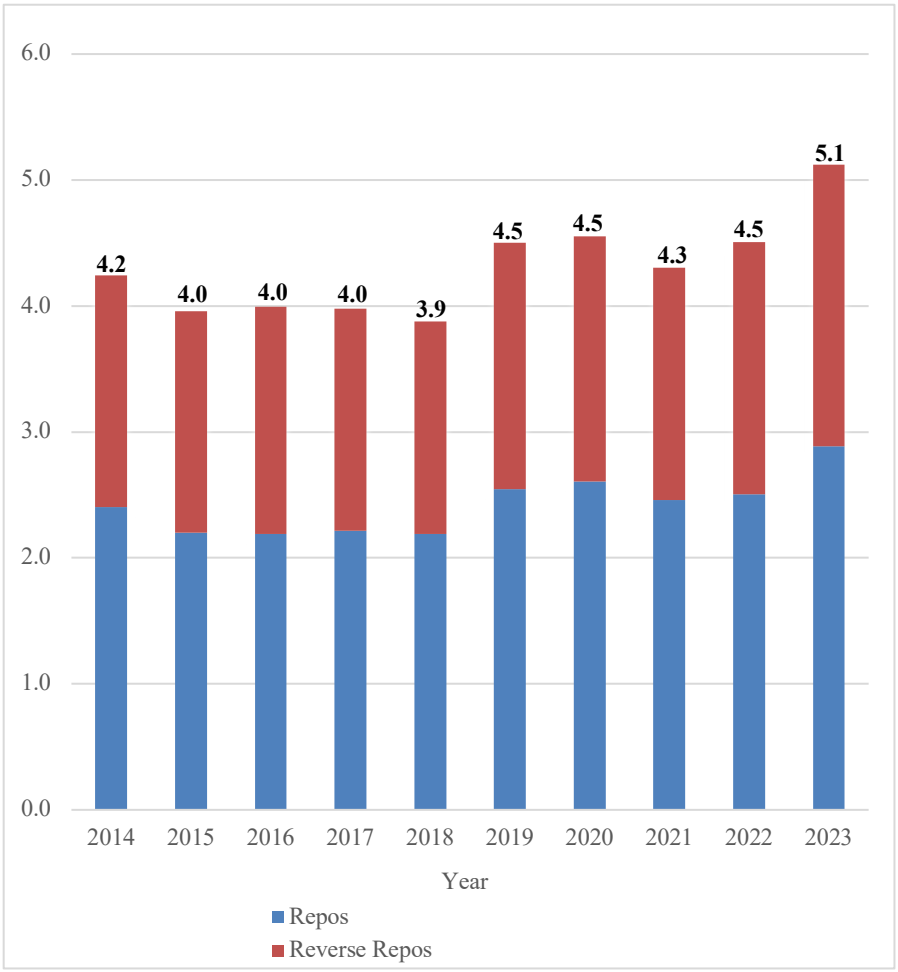
dealers greater ease in monitoring exposures as well as giving regulators a clearer idea about the market's structural weaknesses in real time. In addition, an affirmative obligation on major dealers to remain trading creates confidence in the resiliency of liquidity across the marketplace, especially during crises. Finally, we advocate for regulatory oversight that can bridge fragmentation and offer a more consolidated, coordinated system of supervision. The FSOC provides a convening authority. But, looking forward, fixing the fractures in regulation would help to ensure that the Treasury market's overseers are well positioned to match the realities of its critical importance to financial market stability.

CONCLUSION

Financial stability rests on a central idea that Treasuries represent a bulwark against distress, representing the foremost risk-free asset anywhere on the globe. Free of default risk and trading in a market with supposed plentiful liquidity, public and private regulation are anchored to Treasuries for their function and assume that Treasuries will protect firms and markets from collapse. In this Article, we show why this assumption is incorrect. While Treasuries themselves are viewed as risk-free, the market that distributes them is not. It is pervasively subject to flawed intermediation. Importantly, the demands of public and private industry regulation are internally in conflict, crystallizing the harms of faulty intermediation. Despite their importance, these risks in the secondary and repo markets remain undertheorized and poorly understood, leaving Treasuries perpetually at risk of failing to perform their protective role. Without real reform, the first steps to which we outline here, we worry that Treasuries cannot live up to their reputation, undermining their promise for regulation as the anchor in financial system stability.

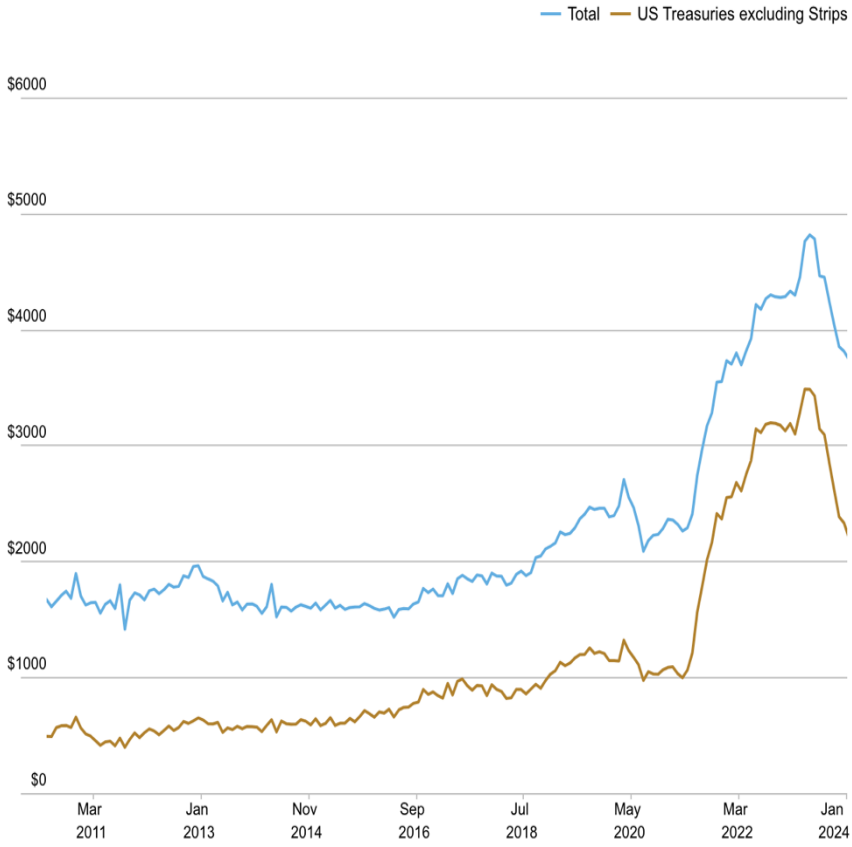
APPENDIX: FIGURES

FIGURE 1.A. Bilateral Repo Market Collateral Outstanding ($ Trillions)



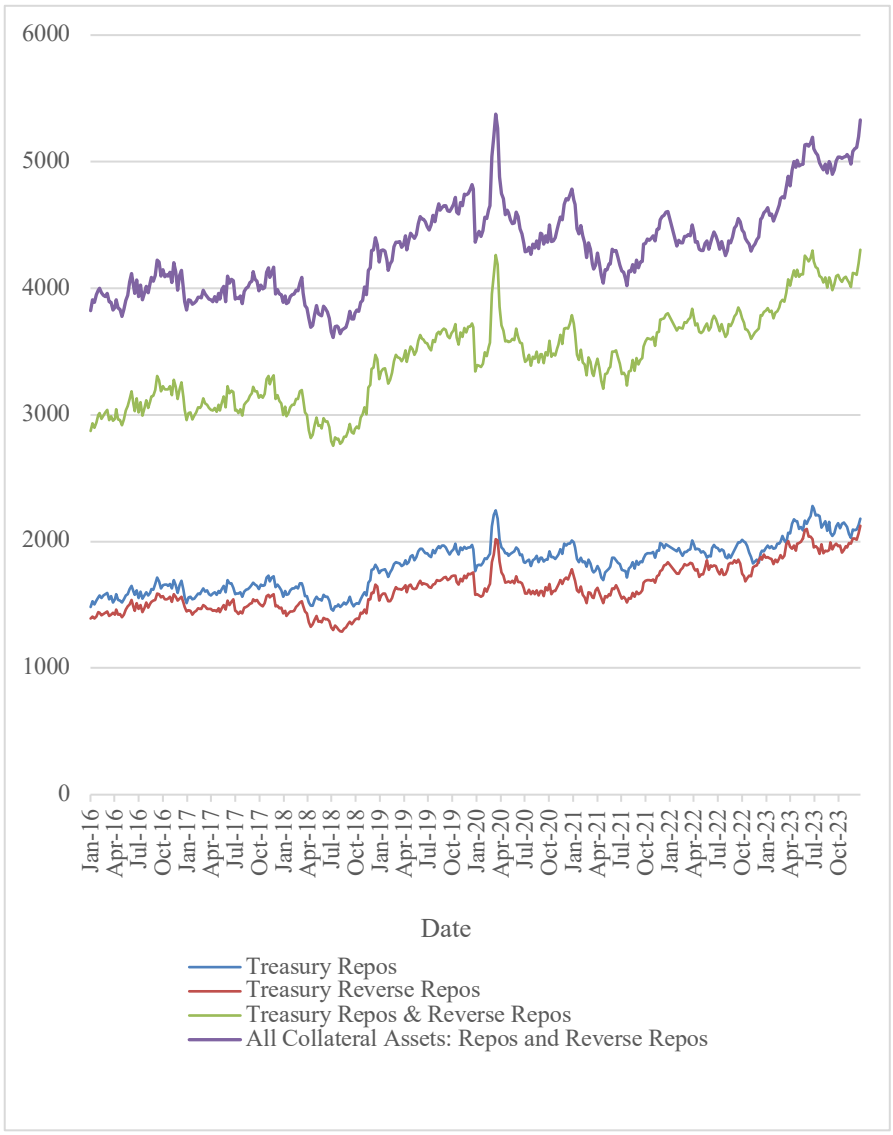
Sources: SIFMA RSCH., *supra* note 26 (providing figures for the bilateral repo and reverse repo markets through 2021); SEC. INDUS. & FIN. MKTS. ASSOC., *supra* note 21 (providing data through July 2024).

FIGURE 1.B. Tri-Party Repo Market Collateral Outstanding ($ Billions)



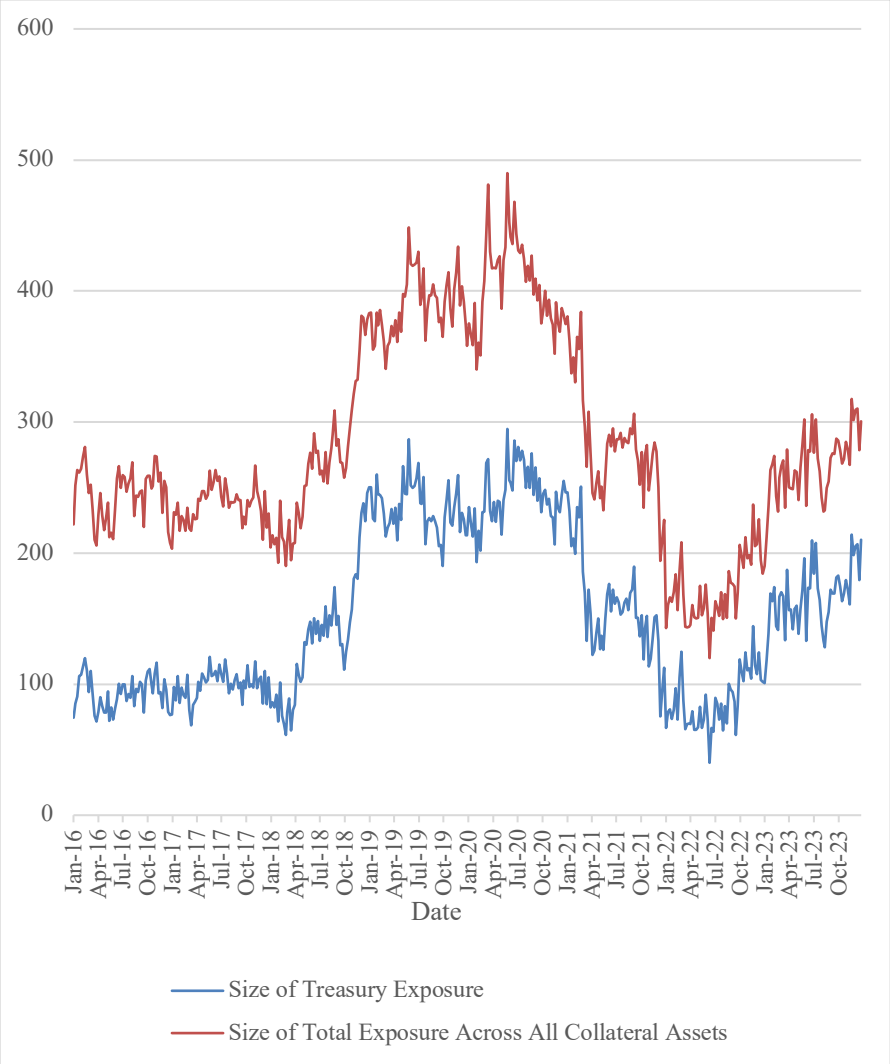
Source: FED. RSRV. BANK OF N.Y., *supra* note 26 (select "Total" and "US Treasuries excluding Strips").

FIGURE 2. Primary Dealer Repos and Reverse Repos Outstanding ($ Billions)



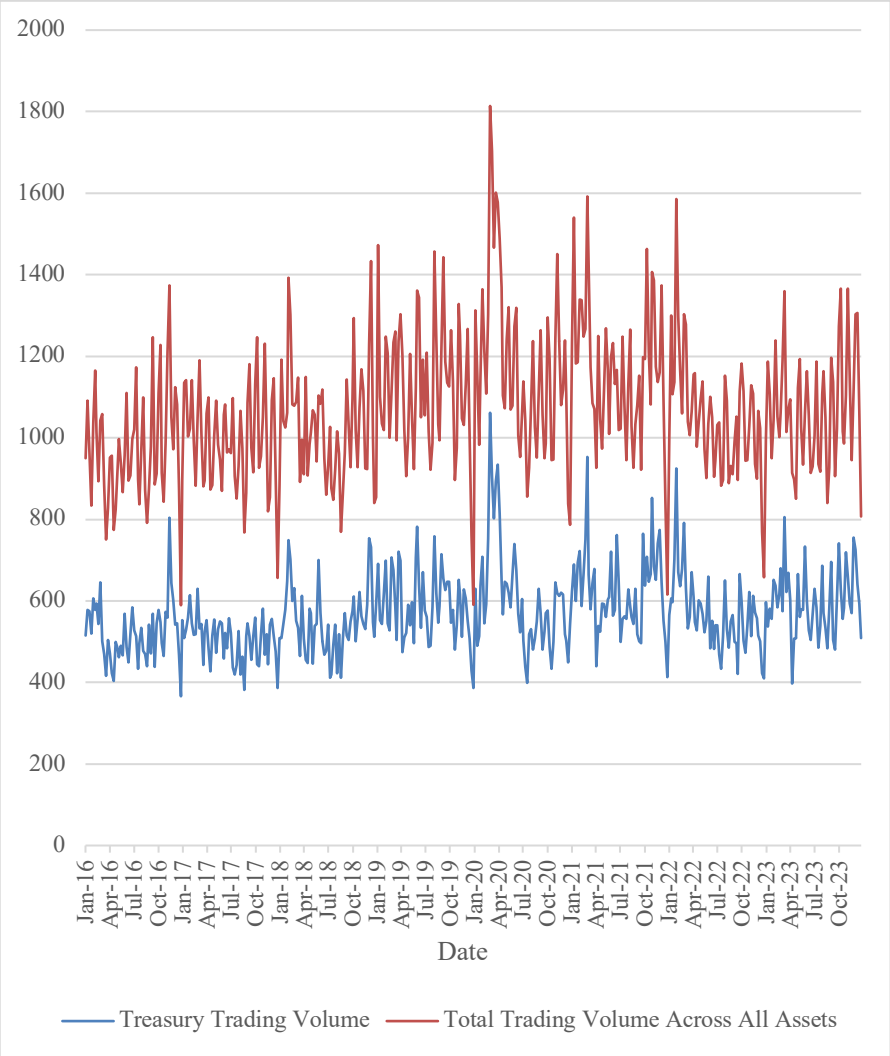
Source: FED. RSRV. BANK OF N.Y., *supra* note 209 (providing raw data on trades and positions of primary dealers).

FIGURE 3.A. Secondary Market Trading of Primary Dealers: Daily Inventory Risk Exposure ($ Billions)



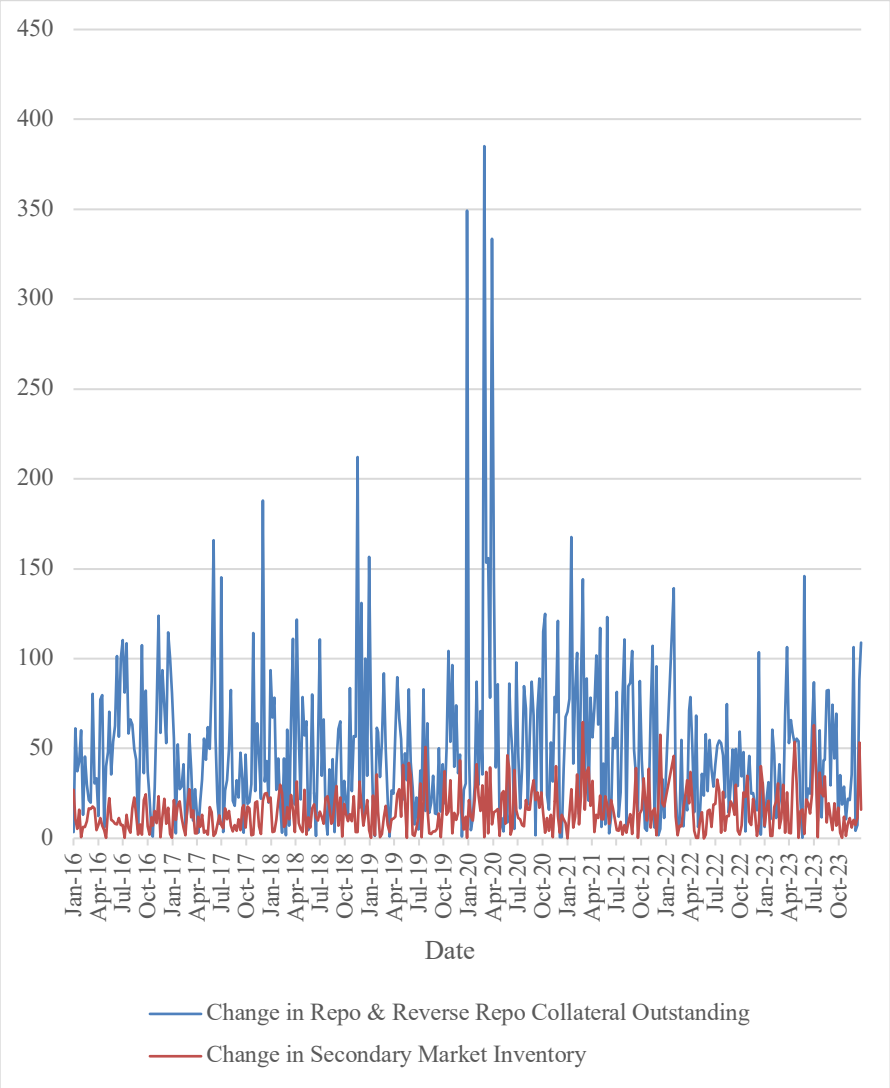
Source: FED. RSRV. BANK OF N.Y., *supra* note 209 (providing raw data on trades and positions of primary dealers).

FIGURE 3.B. Secondary Market Trading of Primary Dealers: Daily Trading Volume ($ Billions)



Source: FED. RSRV. BANK OF N.Y., *supra* note 209 (providing raw data on trades and positions of primary dealers).

FIGURE 4. Daily Changes in Primary Dealer Treasury Holdings: Repo Market vs. Treasury Secondary Market ($ Billions)



Source: FED. RSRV. BANK OF N.Y., *supra* note 209 (providing raw data on trades and positions of primary dealers).