Central Clearing the U.S. Treasury Market

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INTRODUCTION

In October 1956, the famed U.S. architect Frank Lloyd Wright revealed a radical and ambitious new project. The Illinois would be a mile high, four times the height of the Empire State Building (at that point still the tallest building in the world).[1] Key to this vision was a type of foundation known as the taproot,[2] which offered a means by which to secure such a towering edifice while still enabling architectural creativity[3]—or, as Wright put it, to "make rigidity possible at [ ] extreme heights."[4] A similar design had previously protected another Wright design, the Imperial Hotel in Tokyo, during the Great Kanto Earthquake of 1923, when virtually every other major building in the vicinity was leveled. It was, as Baron Kishichiro Okura declared at the time, "a monument of [his] genius."[5]

Even though Wright never ended up building the Illinois, his vision nevertheless has parallels in U.S. financial history. The market for Treasury securities represents its own kind of "taproot"—a deep and liquid market for risk-free debt that has anchored an ambitious and creative U.S. dollar economy, while also ensuring the safety and soundness of its financial and monetary system.[6] It has more than quintupled in size over the past

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1 Blair Kamin, *Frank Lloyd Wright's Mile-High Skyscraper Never Built, but Never Forgotten*, CHI. TRIB. (May 23, 2019), https://perma.cc/463Q-LPNC. Wright detailed his proposal, along with a foldout illustration, in his written work. FRANK LLOYD WRIGHT, A TESTAMENT 238–40 (1957); *see also* Peter Lobner, *Frank Lloyd Wright's 1956 Mile-High Skyscraper—The Illinois*, THE LYNCEAN GRP. OF SAN DIEGO (May 9, 2020), https://perma.cc/W79S-G4NX.

2 On the basics of the taproot structure, as outlined by Wright, see Joshua Nelson, *Designing the New Vertical Landscape*, ELEVATOR SCENE (June 12, 2020), https://perma.cc/2EY7-DJQR; *see also Facts & Figures*, BURJ KHALIFA, https://perma.cc/4VR8-NFVW (demonstrating a building actually constructed with similarities to Wright's design).

3 *See* Nelson, *supra* note 2.

4 WRIGHT, *supra* note 1, at 240.

5 Following the earthquake, when it was clear the Imperial Hotel was among the only undamaged buildings, Wright received a telegram saying, "Hotel stands undamaged as monument of your genius." Joseph M. Siry, *The Architecture of Earthquake Resistance: Julius Kahn's Truscon Company and Frank Lloyd Wright's Imperial Hotel*, 67 J. SOC'Y ARCHITECTURAL HISTORIANS 78, 96 (2008); *see also* Edward Tenner, *How Tokyo's Imperial Hotel Survived a 1923 Earthquake*, THE ATLANTIC (Apr. 1, 2011), https://www.theatlantic.com/technology/archive/2011/04/how-tokyos-imperial-hotel-survived-a-1923-earthquake/73306/.

6 *See, e.g.*, 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://perma.cc/G8N9-DP4B; *see also* Carol Bertaut, Bastian von Beschwitz & Stephanie Curcuru, *"The International Role of the U.S. Dollar" Post-COVID Edition*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (June 23, 2023), https://perma.cc/N2LB-XNKY

fifteen years, from approximately $5 trillion in mid-2008 to roughly $27 trillion as of this writing,[7] at double the growth rate of the U.S. economy.[8] But as the market has grown, its ability to function as the economic taproot has come under strain. A series of disruptions to Treasury market trading have prompted policymakers to explore measures to strengthen the market's foundations and shore up its resilience.[9]

This Essay considers this regulatory response. It focuses on the introduction of mandatory central clearing for most trades in U.S. Treasuries—a proposal seeking to significantly reshape the day-to-day functioning of the Treasury market.[10] Central clearing is a well-established means by which to reduce the risk of loss associated when trading parties default. It does so by providing a well-resourced and informed central counterparty (CCP) to step into and stand behind trades. CCPs help promote stability by reducing the probability of, and potential losses associated with, the default of a trading counterparty. But they also impose certain costs on market participants and heighten market reliance on a small number of highly systemic institutions.[11]

We analyze this mandate, detailing its likely advantages as well as its potential trade-offs from a public policy perspective.

(describing the international and financial significance of the U.S. dollar and, by extension, the Treasury market's role in supporting U.S. dollar reliance around the world).

7 *Market Value of Marketable Treasury Debt*, FED. RSRV. BANK OF ST. LOUIS (Aug. 12, 2024), https://perma.cc/97E7-CKY2; *U.S. Treasury Monthly Statement of the Public Debt (MSPD)*, FISCAL DATA (last updated Aug. 6, 2024), https://perma.cc/YZ4Y-VAV6.

8 *Gross Domestic Product*, FED. RSRV. BANK OF ST. LOUIS (Aug. 29, 2024), https://perma.cc/ZV8J-8PQE (showing that during the same period, the U.S. GDP increased from $14.6 trillion to $28.6 trillion).

9 *See, e.g.*, Jeffrey Cheng, David Wessel & Joshua Younger, *How Did COVID-19 Disrupt the Market for U.S. Treasury Debt?*, BROOKINGS INST. (May 1, 2020), https://perma.cc/5R8E-HCT9; 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*, at 23–26 (Int'l Monetary Fund, Working Paper No. WP/15/222, 2015); U.S. DEP'T OF THE TREASURY, BD. OF GOVERNORS OF THE FED. RSRV. SYS., FED. RSRV. BANK OF N.Y., U.S. SEC. & EXCH. COMM'N & U.S. COMMODITY FUTURES TRADING COMM'N, JOINT STAFF REPORT: THE U.S. TREASURY MARKET ON OCTOBER 15, 2014, at 45–49 (2015) [hereinafter U.S. DEP'T OF THE TREASURY ET AL., JOINT STAFF REPORT].

10 *SEC Adopts Rules to Improve Risk Management in Clearance and Settlement and Facilitate Additional Central Clearing for the U.S. Treasury Market*, U.S. SEC. & EXCH. COMM'N (Dec. 13, 2023), https://perma.cc/C278-S2SJ.

11 For a discussion of clearinghouses, see Yesha Yadav, *The Problematic Case of Clearinghouses in Complex Markets*, 101 GEO. L.J. 387, 406–13 (2013) [hereinafter Yadav, *The Problematic Case of Clearinghouses*]; and Dan Awrey & Joshua C. Macey, *Open Access, Interoperability, and DTCC's Unexpected Path to Monopoly*, 132 YALE L.J. 96, 123–27 (2022) (detailing the history of the Depository Trust and Clearing Corporation in the equity markets).

Our goal here is not to take a position on the wisdom of the measure. Rather, it lies in providing an account of possible consequences arising from this policy and its potential to support the critical role that the Treasury market plays in global markets.

Treasury securities are generally considered a fail-safe asset for both the U.S. as well as the global financial systems.[12] Treasuries are, first and foremost, backed by the full faith and credit of the United States and denominated in its currency, the U.S. dollar.[13] This frees them of credit risk in the traditional sense.[14] In addition, Treasuries trade in a secondary market that is cheap, easy, constantly open, and where large trades generally do not impact prevailing prices in significant ways.[15] In issuing a security that is free of default risk and highly tradable, the United States reassures investors that they can both count on guaranteed returns and transform their claim into cash whenever they choose.[16]

Their status as a default-free, tradable, and dollar-denominated asset has helped make Treasuries essential to the

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[12] *See* Anna Gelpern & Erik F. Gerding, *Inside Safe Assets*, 33 YALE J. ON REGUL. 363, 383–84 (2016) (detailing how safe assets are legally constructed and noting the role of Treasuries as the global safe-haven asset). *See generally* Lev Menand & Joshua Younger, *Money and the Public Debt: Treasury Market Liquidity as a Legal Phenomenon*, 2023 COLUM. BUS. L. REV. 224 (detailing the historical roots of the Treasury market and highlighting that liquidity in the Treasury market came about as a policy and legal construct through government design, rather than through organic private action).

[13] The Constitution assigns Congress the power to borrow "on the credit of the United States." U.S. CONST. art. I, § 8, cl. 2. Although the federal government has borrowed in different ways since 1789, after the First World War those borrowings have generally been in the form of marketable Treasury securities. *See generally* RAFAEL A. BAYLEY, THE NATIONAL LOANS OF THE UNITED STATES FROM JULY 4, 1776 TO JUNE 30, 1880 (Washington, D.C., Gov't Printing Off. 1881); PAUL STUDENSKI & HERMAN E. KROOSS, FINANCIAL HISTORY OF THE UNITED STATES (1963); KENNETH D. GARBADE, BIRTH OF A MARKET: THE U.S. TREASURY SECURITIES MARKET FROM THE GREAT WAR TO THE GREAT DEPRESSION (2012); KENNETH D. GARBADE, AFTER THE ACCORD: A HISTORY OF FEDERAL RESERVE OPEN MARKET OPERATIONS, THE US GOVERNMENT SECURITIES MARKET, AND TREASURY DEBT MANAGEMENT FROM 1951 TO 1979 (Michael D. Bordo et al. eds., 2021).

[14] The market has, at times, experienced "technical" defaults. Terry L. Zivney & Richard D. Marcus, *The Day the United States Defaulted on Treasury Bills*, 24 FIN. REV. 475, 488 (1989).

[15] *See, e.g.*, Bouveret et al., *supra* note 9, at 3; Michael J. Fleming, *The Benchmark U.S. Treasury Market: Recent Performance and Possible Alternatives*, 6 ECON. POL'Y REV., Apr. 2000, at 129, 130.

[16] *See generally* Menand & Younger, *supra* note 12 (highlighting efforts to make Treasury debt a close substitute for cash). There are various mechanisms by which Treasuries can be turned into cash, including through borrowing in the repurchase market. *See* Gabriel Rauterberg & Joshua Younger, *The Hidden Monetary State*, 56 ARIZ. STATE L.J. 987, 1022–34 (2024) (noting the broad creation of money-like, cash-adjacent claims within the financial system).

proper functioning of financial markets. Three examples illustrate the significance of Treasuries and the risk-free status that they carry. First, the price of Treasuries constitutes a benchmark for trillions of dollars in financial assets, including public equity, corporate bonds, loans, and derivatives.[17] Second, financial institutions (not just banks) maintain internal reserves of Treasuries as a protective buffer against sudden financial shocks.[18] Third, Treasuries are by far the most common collateral for securing the $4 trillion short-term lending market for financial firms (known as the repurchase or repo market).[19] Treasuries are, in that sense, a bedrock of financial stability.[20] From the standpoint of the market, this has allowed the broader banking and financial ecosystem to scale on top of them. This role is no accident, but rather the result of decades of policy[21] aimed at ensuring that Treasuries are, as the saying goes, "the deepest and most liquid market in the world."[22]

Recent disruptions have, however, caused concern about the durability of Treasury market functioning under stress.[23] While two such events were relatively fleeting for Treasury market

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17 *See, e.g.*, Fleming, *supra* note 15, at 130; Menand & Younger, *supra* note 12, at 226; *SOFR: What Is It and How Does It Work?*, CHASE BANK, https://perma.cc/6T2H-3RB6; *Secured Overnight Financing Rate Data*, FED. RES. BANK OF N.Y., https://perma.cc/6QLY-7582. By law, the Secured Overnight Financing Rate (SOFR) has become the benchmark rate for certain financial contracts, replacing the London Interbank Offer Rate (LIBOR), which had shown itself to be vulnerable to manipulation. *Federal Reserve Board Adopts Final Rule that Implements Adjustable Interest Rate (LIBOR) Act by Identifying Benchmark Rates Based on SOFR (Secured Overnight Financing Rate) that Will Replace LIBOR in Certain Financial Contracts After June 30, 2023,* BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Dec. 16, 2022), https://perma.cc/6LJB-6Y23.

18 For a discussion on this matter, see Pradeep K. Yadav & Yesha Yadav, *The Failed Promise of Treasuries in Financial Regulation*, 97 S. CAL. L. REV. 1349, 1363–76 (2024). For example, rules require banks to maintain a reserve of high quality liquid assets; Treasuries rank within the top tier of such assets, alongside cash. *See, e.g.*, Michael S. Barr, *Supporting Market Resilience and Financial Stability*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Sept. 26, 2024), https://perma.cc/8R9W-KXGD; *Supervisory Policy and Guidance Topics*, BD. OF GOVERNORS OF THE FED. RSRV. SYS., https://perma.cc/M8M5-8DRR.

19 KATIE KOLCHIN, JUSTYNA PODZIEMSKA & ALI MOSTAFA, SEC. INDUS. & FIN. MARKETS ASS'N, THE US REPO MARKETS: A CHART BOOK 3–5 (2022).

20 Yadav & Yadav, *supra* note 18, at 1363–64.

21 *See generally* Menand & Younger, *supra* note 12; Rauterberg & Younger, *supra* note 16.

22 *Remarks by Assistant Secretary for Financial Markets Joshua Frost on Recent Progress by the Inter-Agency Working Group on Treasury Market Surveillance at the Federal Reserve Bank of New York's Annual Primary Dealer Meeting*, U.S. DEP'T. OF THE TREASURY (May 8, 2024), https://perma.cc/RM98-AFMH.

23 *See* Menand & Younger, *supra* note 12, at 314–16; Rauterberg & Younger, *supra* note 16, at 1023.

function, they were nevertheless revealing. The so-called Flash Rally on October 15, 2014, for example, was a severe but short-lived disruption to trading without any obvious single triggering cause.[24] September 2019 saw overnight interest rates in the Treasury-backed repo market suddenly surge to elevated levels, prompting the Federal Reserve (the Fed) to intervene to restore rate parameters.[25] The COVID-19 shock, on the other hand, represented the first period of significant dysfunction in Treasury markets in decades.[26] In March 2020, as COVID-19 was triggering a widespread shock to financial assets, the Treasury market experienced severe disruption. Again, the Fed staged an intervention, announcing a series of large repo operations which, while not likely to be fully drawn, could, in principle, provide trillions of dollars in cash[27] to restore proper market functioning, maintain control over short-term interest rates, and avoid a systemic event.[28]

These shocks have spurred proposals to strengthen the foundation of the Treasury market.[29] The resulting slate of actions

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[24] *See* U.S. DEP'T OF THE TREASURY ET AL., JOINT STAFF REPORT, *supra* note 9, at 15–19.

[25] *See, e.g.*, 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) [hereinafter YOUNGER ET AL., POLICING THE REPO MARKET]; Jeffrey Cheng & David Wessel, *What Is the Repo Market, and Why Does It Matter?*, BROOKINGS INST. (Jan. 28, 2020), https://perma.cc/C2J8-TF2X; *Statement Regarding Repurchase Operation,* FED. RSRV. BANK OF N.Y. (Sept. 17, 2019), https://perma.cc/W3BQ-82HC.

[26] There have been numerous short-lived episodes of dysfunction in Treasury markets since the Second World War. Kenneth D. Garbade & Frank M. Keane, *Market Function Purchases by the Federal Reserve*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Aug. 20, 2020), https://perma.cc/25UE-8NF6. But the last major incident was arguably in 1958. R. Jay Kahn & Vy Nguyen, *Treasury Market Stress, Lessons from 1958 and Today*, OFF. OF FIN. RSCH. (June 9, 2022), https://perma.cc/XS6Y-J47Q.

[27] Open market operations include financing through repurchase agreements and outright purchases of Treasury and agency mortgage-backed securities. *See* 12 U.S.C. § 356 (authorizing Federal Reserve Banks "to purchase from member banks and to sell, with or without [their] indorsement, bills of exchange arising out of commercial transactions"); *see also Credit and Liquidity Programs and the Balance Sheet*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (May 10, 2021), https://perma.cc/F2PH-V2QZ.

[28] *See* 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; Annette Vissing-Jorgensen, *The Treasury Market in Spring 2020 and the Response of the Federal Reserve*, 124 J. MONETARY ECON. 19, 21 (2021); Kevin Clark, Antoine Martin & Tim Wessel, *The Federal Reserve's Large-Scale Repo Program*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Aug. 3, 2020), https://perma.cc/J78R-LH3D.

[29] Treasury market reform is typically facilitated between agencies through the Inter-Agency Working Group for Treasury Market Surveillance, which includes staff from the key stakeholder agencies. It has taken up multiple proposals from academics and practitioners. Its portfolio includes potential changes to regulations governing dealers and

includes expanding the definition of dealer activity, introducing more frequent public trade reporting, and programs like buybacks to proactively reduce trading frictions.[30] These developments are worthy of examination, but we do not discuss them here. Instead, we focus on the Securities and Exchange Commission's (SEC) rule designed to subject most trades involving Treasury securities (including repo) to central clearing.[31]

First, we observe that this clearing mandate represents a significant shift for Treasury market structure. Even as central clearing has been a mainstay in, for example, equities and derivatives, it has had more limited reach into U.S. Treasuries to date. In the first half of 2017, about 13% of trades in the secondary market for Treasuries were centrally cleared, with a further 19%

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dealer-style activity, high-frequency trading, bank capital, data collection and transparency, and changes to Treasury market infrastructure. Its stated goal is to ensure the Treasury market remains the "deepest and most liquid" in the world. *See, e.g.*, U.S. DEP'T OF THE TREASURY, BD. OF GOVERNORS OF THE FED. RSRV. SYS., FED. RSRV. BANK OF N.Y., U.S. SEC. & EXCH. COMM'N & U.S. COMMODITY FUTURES TRADING COMM'N, ENHANCING THE RESILIENCE OF THE TREASURY MARKET: 2023 STAFF PROGRESS REPORT 2 (2023) [hereinafter U.S. DEP'T OF THE TREASURY ET AL., 2023 STAFF PROGRESS REPORT].

30 *Final Rules: Changes to Definition of Dealer and Government Securities Dealer*, U.S. SEC. & EXCH. COMM'N 1 (2024), https://www.sec.gov/files/34-99477-fact-sheet.pdf. This rule seeks to widen the regulatory perimeter to potentially cover high-speed trading firms and certain other institutions (potentially including some hedge funds) by bringing those trading a certain volume of Treasuries into the definition of a government securities "dealer." *See* Kate Duguid, Costas Mourselas, Nikou Asgari & Stefania Palma, *SEC's Gensler Plays Down Hedge Fund Fears over Treasury Dealer Rule*, FIN. TIMES (Feb. 18, 2024), https://www.ft.com/content/66aa94b9-cfe9-4b98-bec7-d152212fedfb. This rule is being challenged in court. *See* Davide Barbuscia, *Hedge Fund Industry Groups Sue US SEC over Treasury Market Dealer Rule*, REUTERS (Mar. 18, 2024), https://perma.cc/K4SW-9ZJR. On the move from the prior regime requiring weekly reporting to a regime requiring daily aggregate public reporting of secondary market trades, see *Treasury Daily Aggregate Statistics—Files*, FIN. INDUS. REGUL. AUTH. (last updated Sept. 4, 2024), https://perma.cc/4MZB-TDGY. The U.S. Department of the Treasury has also instituted a new program designed to buy back older, "off-the-run" Treasury securities and to replace these with fresh, "on-the-run" Treasury bonds. *See* Davide Barbuscia, *Debt Buyback Program Set to Improve Liquidity, Says US Treasury Official*, REUTERS (June 5, 2024), https://perma.cc/JB3A-KDYV.

31 *SEC Adopts Rules to Improve Risk Management in Clearance and Settlement and Facilitate Additional Central Clearing for the U.S. Treasury Market*, *supra* note 10. The idea for central clearing for U.S. Treasuries has most recently been pioneered by Professor Darrell Duffie in his paper *Still the World's Safe Haven? Redesigning the U.S. Treasury Market After the COVID-19 Crisis* (Hutchins Ctr., Working Paper No. 62, 2020) [hereinafter Duffie, *Still the World's Safe Haven?*], and see also Darrell Duffie, Resilience Redux in the U.S. Treasury Market 33–37 (2023) (available on SSRN) [hereinafter Duffie, Resilience Redux]. *See generally* MICHAEL FLEMING & FRANK KEANE, FED. RSRV. BANK OF N.Y., THE NETTING EFFICIENCIES OF MARKETWIDE CENTRAL CLEARING (2021); Matthew McCormick & Sam Schulhofer-Wohl, *Expanded Central Clearing Would Increase Treasury Market Resilience*, FED. RSRV. BANK OF DALL. (Dec. 23, 2022), https://perma.cc/NT4T-8K4C.

subject to a mixed process,[32] while around 36% of Treasury-backed repo market trades were centrally cleared in 2021.[33] As noted more recently by SEC Chair Gary Gensler, fewer than 20% of the secondary market trades for Treasuries and around 20–30% of the repo market trades are centrally cleared.[34] This coverage represents a notably lower starting point for a transition to mandated clearing as compared with, for example, over-the-counter (OTC) interest rate derivatives that were mandated to transition to central clearing as part of post–2008 financial crisis reforms.[35]

Second, a mandate that significantly increases the volume of Treasuries transactions subject to central clearing will also significantly increase the role and influence of Treasuries CCPs themselves.[36] On one hand, this expansion can extend the reach of the benefits that central clearing offers to the market at large. For example, CCPs could fix important information gaps.[37] They

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[32] Standards for Covered Clearing Agencies for U.S. Treasury Securities and Application of the Broker-Dealer Customer Protection Rule with Respect to U.S. Treasury Securities, 89 Fed. Reg. 2,714, 2,716 (Jan. 16, 2024) (citing figures from research prepared by the Treasury Market Practices Group); TREASURY MKT. PRACTICES GRP., WHITE PAPER ON CLEARING AND SETTLEMENT IN THE SECONDARY MARKET FOR U.S. TREASURY SECURITIES 11 (2019).

[33] *See* KATY BURNE, BANK OF N.Y. MELLON, FUTURE-PROOFING THE U.S. TREASURY MARKET 7–9 (2021). Part II discusses the relatively different starting points between the OTC derivative market and Treasury market.

[34] Gary Gensler, *"From Hamilton to Yellen": Remarks Before the 10th Annual U.S. Treasury Market Conference*, U.S. SEC. & EXCH. COMM'N (Sept. 26, 2024), https://perma.cc/2WT3-J7CX; *see also SEC Adopts Rules to Improve Risk Management in Clearance and Settlement and Facilitate Additional Central Clearing for the U.S. Treasury Market*, *supra* note 10.

[35] *See* BURNE, *supra* note 33, at 7 (noting that, on lessons learned from the mandate to clear OTC derivatives, "roughly 76% of interest-rate swaps are cleared following regulations promulgated by the Dodd Frank financial law").

[36] At the moment, there is only one clearing agency registered with the SEC that serves the Treasury market: the Fixed Income Clearing Corporation (FICC). *IIB Urges SEC to Eliminate Extraterritorial Application of FICC Treasury Clearing Proposal*, INST. OF INT'L BANKERS (July 25, 2024), https://perma.cc/ZN53-ZHD7. Recently, however, the Intercontinental Exchange (ICE) and Chicago Mercantile Exchange (CME) announced their intention to providing clearing services for Treasuries. *CME Group Bids to Enter US Treasuries Clearing Business*, REUTERS (Mar. 12, 2024), https://perma.cc/8BXF-CYKQ; Bernard Goyder & Helen Bartholomew, *CME, Ice Tread Nuanced Path to US Treasury Clearing*, RISK.NET (Aug. 26, 2024), https://www.risk.net/markets/7959847/cme-ice-tread-nuanced-path-to-us-treasury-clearing.

[37] Michelle Neal, *Central Clearing in the U.S. Treasury Market: The Why and the How*, FED. RSRV. BANK OF N.Y. (Oct. 15, 2024), https://perma.cc/2XVB-RXMH (explaining that "the official sector's visibility into clearing and settlement flows is improved as more trades go through CCPs, providing enhanced monitoring"). Although regulators imposed a mandatory trade reporting regime in 2017, hedge funds, many nonbanks**,** and

can also enhance risk management on a market-wide scale. As with all CCPs, the ability to set off exposures across many more transactions should allow for more efficient and effective risk management.[38] Concentrating exposures into a single CCP could also allow dealer banks to more efficiently use their balance sheet to make markets in Treasuries, increasing their ability to expand and contract Treasuries holdings (i.e., more elasticity) under stress. Further, with reduced counterparty risk within the market, central clearing could work to facilitate all-to-all trading—where end investors (like mutual funds) can transact with one another directly in both recently issued and less frequently traded (off-the-run) securities,[39] rather than going through securities dealers to intermediate trades.

In our third contribution, we discuss the trade-offs of mandated clearing. First, a clearinghouse directly addresses default risk rather than the market's vulnerability to illiquidity. Second, there exist numerous means by which to evade the new mandate. Frequent evasion, particularly through reclassification of transactions or through offshoring of otherwise in-scope activity,

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high-speed trading firms remain out of scope. *See, e.g.*, 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://perma.cc/LAY3-SXAP. The SEC's proposed rule to extend the definition of "dealer" should capture more regulatory reporting from hedge funds and high-speed trading firms; however, its future is being reviewed judicially. High-speed trading firms are conventionally referred to as principal trading firms in Treasury market parlance. *See id.* Repo markets have also proven a particular challenge for data collection. VIKTORIA BAKLANOVA, OFF. OF FIN. RSCH., REPO AND SECURITIES LENDING: IMPROVING TRANSPARENCY WITH BETTER DATA 3–6 (2015); *see also* R. JAY KAHN & LUKE M. OLSON, OFF. OF FIN. RSCH., WHO PARTICIPATES IN CLEARED REPO? 1–2 (2021). The Joint Staff Report pointed to a need for better transparency and greater availability of data on the Treasury market. John C. Williams, *Ten Years Gone*, FED. RSRV. BANK OF N.Y. (Sept. 26, 2024), https://perma.cc/S7EL-9RFU. The Office of Financial Research has stressed the need for improved data collection on Treasury repo markets to better understand potential risks to financial stability. *See generally* Ongoing Data Collection of Non-Centrally Cleared Bilateral Transactions in the U.S. Repurchase Agreement Market, 89 Fed. Reg. 37,091 (May 6, 2024).

[38] Yadav, *The Problematic Case of Clearinghouses*, *supra* note 11, at 410–11 (discussing risk management tools commonly used by clearinghouses to mitigate their own risk).

[39] The most recently issued Treasury securities in benchmark maturities are referred to as on-the-run. All others are referred to as off-the-run. Off-the-run securities make up the bulk of the market and the holdings of long-term investors, but do not trade as frequently and are therefore considered less liquid. Investors typically must rely on dealers to intermediate in those securities as buyers and sellers are harder to match in real time. *See* Doug Brain, Michiel De Pooter, Dobrislav Dobrev, Michael J. Fleming, Peter Johansson, Frank M. Keane, Michael Puglia, Anthony P. Rodrigues & Or Shachar, *Breaking Down TRACE Volumes Further*, FED. RSRV. BANK OF N.Y.: LIBERTY ST. ECON. (Nov. 29, 2018), https://perma.cc/UTE8-GJS4.

could blunt the advantages of central clearing. Additionally, viewed more broadly, it is widely recognized that CCPs can transfer and potentially reduce systemic risk—but they do not eliminate it. This is particularly true in Treasury markets, which play a central role in financial and economic life. But importantly, this risk could be amplified by the interconnectedness of a Treasury CCP with other critical financial market infrastructure. Although it must be balanced against gains to the depth, breadth, and resiliency of the market, the potential for concentration and amplification of risk is an important consideration going forward.

This Essay proceeds as follows. In Part I, we provide a primer on the Treasury market and discuss its structure as well as the risks to market functioning. Part II offers an overview of central clearing and the clearing mandate to be applied to the Treasury market. Part III discusses the likely benefits of this proposal as well as its potential trade-offs.

I. A PRIMER ON TREASURY MARKET STRUCTURE

The market for U.S. Treasuries plays a foundational role in the economy and financial markets. This Part outlines its key features and functionalities to highlight the ways in which the U.S. Treasury market has come to support capital raising, allocation, and financial stability in both U.S. and global markets.

A. The Role of Treasuries in Public Life

When Congress instructs the federal government to spend more than it collects in revenue, those deficits are covered by borrowing.[40] Over its history, the federal government has borrowed using a variety of financial instruments, including direct loans from foreign governments as well as the issuance of interest-bearing bonds and, occasionally, non-interest-bearing

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[40] The authority of the federal government to borrow ultimately derivates from Article I of the Constitution, which empowers Congress to "borrow Money on the credit of the United States." U.S. CONST. art. I, § 8, cl. 2. For discussion of the constitutional foundations to support U.S. borrowing, see 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, 1197–1202 (2012). In addition, the Fourteenth Amendment includes a provision stating that the United States' debt "shall not be questioned." U.S. CONST. amend. XIV, § 4. For statutes that codify this power, see, for example, 31 U.S.C. § 3104(a) ("The Secretary of the Treasury may borrow on the credit of the United States Government amounts necessary for expenditures authorized by law.").

legal tender notes.[41] Until the First World War, each issuance was individually authorized by Congress. However, by that point, the massive and uncertain demands of war finance required more flexibility, and Congress authorized issuance of debt up to a limit in the Emergency Loan Act of 1917.[42] It is under that original authority that the issuance limits have been lifted many times[43] (though not without controversy[44])to allow for future borrowings through the issuance of securities backed by the "full faith and credit" of the federal government.[45]

Today, investors trade in "marketable" Treasuries—those whose ownership can be transferred before maturity.[46] Treasuries come in five main formats: Treasury bills (or T-bills) are non-interest-bearing notes with maturities from four to fifty-two weeks and are sold at a discount and redeemed at par (meaning the face value of the bond).[47] Cash management bills can also be issued to manage temporary financing needs.[48] Treasury notes and bonds bear interest at a fixed rate with maturities ranging from two to ten years or twenty to thirty years, respectively.[49] Treasury Inflation Protected Securities (TIPS) also bear interest at a fixed rate with maturities ranging from five to thirty years, but their notional value adjusts to account for inflation.[50] Finally, Floating Rate Notes (FRNs) have a two-year maturity and pay quarterly interest linked to an index of thirteen-week T-bill yields.[51]

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41 *See generally* BAYLEY, *supra* note 13; STUDENSKI & KROOSS, *supra* note 13; BRAY HAMMOND, SOVEREIGNTY AND AN EMPTY PURSE: BANKS AND POLITICS IN THE CIVIL WAR (1970).

42 Pub. L. No. 65-33, 40 Stat. 35 (1917).

43 Buchanan & Dorf, *supra* note 40, at 1185–87.

44 *See, e.g.*, *id.* at 1187–88; Garrett Epps, *Our National Debt 'Shall Not Be Questioned,' the Constitution Says*, THE ATLANTIC (May 4, 2011), https://www.theatlantic.com/politics/archive/2011/05/our-national-debt-shall-not-be-questioned-the-constitution-says/238269/.

45 Dominique Dupont & Brian Sack, *The Treasury Securities Market: Overview and Recent Developments*, 85 FED. RSRV. BULL. 785, 792 (1999); PROMONTORY FIN. GRP., EMERGING ISSUES IN THE FUNCTIONING OF THE U.S. TREASURY MARKET 10–11 (2016).

46 Dupont & Sack, *supra* note 45, at 786–87.

47 *Id.*

48 *Id.* at 788.

49 *Id.* at 786.

50 *Id.* at 800 (describing Treasury Inflation-Indexed Securities (TIIS), which form a subset of TIPS); *see also Treasury Inflation-Indexed Securities (TIIS)*, NASDAQ, https://perma.cc/WP8J-KFYP.

51 *Floating Rate Notes (FRNs)*, TREASURY DIRECT, https://perma.cc/HZ93-H2EA. In addition, Treasuries are also issued in "nonmarketable" format, meaning that they cannot be traded after they are issued. Dupont & Sack, *supra* note 45, at 786–87. Nonmarketable treasuries are typically held by government accounts, both at state and federal levels. *Id.*

Owing to their federal backing, Treasury securities are considered a risk-free asset and a safe haven during periods of stress.[52] They also trade in the "deepest and most liquid market in the world,"[53] which means they can be easily traded nearly twenty-four hours a day with among the lowest transaction costs, even for very large trades across financial markets.[54] These attributes have allowed its stock to expand dramatically, even while net interest expense declined relative to its total par amount (from 4.4% in 2008 to 1.6% in 2021) and as a fraction of total federal outlays (from 8.5% in 2008 to 5.2% in 2021), for a roughly thirteen year period following the 2008 financial crisis.[55]

1. Zero credit risk.

The presumption that the federal government will draw upon the resources of the world's largest economy to pay its debts on time leads to a presumption that Treasuries carry no default risk.[56] Indeed, creditor protection is constitutionally recognized in the Fourteenth Amendment.[57] The United States, anchored by the size and stature of its economy, markets, and institutions, is perceived as virtually certain not to default.[58] Further, given that the federal government issues the currency in which its debt obligations are denominated, the repayment of that debt is, in some sense, a tautology.

This pristine reputation has nonetheless had occasional brushes with default or near-default. It has episodically experienced possible default scenarios as it faced devasted finances

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52 *See, e.g.*, Fleming, *supra* note 15, at 130–31.

53 *Remarks by Assistant Secretary for Financial Markets Joshua Frost on Recent Progress by the Inter-Agency Working Group on Treasury Market Surveillance at the Federal Reserve Bank of New York's Annual Primary Dealer Meeting*, *supra* note 22; Lorie K. Logan, *The Federal Reserve's Recent Actions to Support the Flow of Credit to Households and Businesses*, FED. RSRV. BANK OF N.Y. (Apr. 14, 2020), https://perma.cc/E77Q-YPG7 (detailing the rationale behind describing the Treasury market as the deepest and most liquid worldwide).

54 JOSHUA YOUNGER, JAY BARRY, ALEX ROEVER, ALBERTO IGLESIAS, DEVDEEP SARKAR, BRUCE SUN & PHOEBE A. WHITE, J.P. MORGAN, 24 HOUR PARTY PEOPLE 2–4 (2015) [hereinafter YOUNGER ET AL., 24 HOUR PARTY PEOPLE].

55 *The Budget and Economic Outlook: 2022 to 2032*, CONG. BUDGET OFF. (May 2022), https://www.cbo.gov/system/files/2022-05/51134-2022-05-Historical-Budget-Data.xlsx.

56 *See, e.g.*, Fleming, *supra* note 15, at 129.

57 U.S. CONST. amend. XIV, § 4; *see also* Buchanan & Dorf, *supra* note 40, at 1188–93; Epps, *supra* note 44.

58 *See, e.g.*, Fleming, *supra* note 15, at 130. But for discussion about increased risks in the Treasury market and potential mitigation strategies, see generally Bouveret et al., *supra* note 9.

after the War of 1812 and Great Depression.[59] More recently, in 1979 the Treasury was late in sending out repayment checks to investors—a "technical default" in the sense that funds were available but late being paid.[60] Further, congressional debate over the debt ceiling since 2011 has led markets to occasionally price in greater risk of technical defaults.[61] Increased political risk was cited in the downgrade of the United States' sovereign credit rating by two major rating agencies, the first in 2011 and the second in 2023.[62] Commentators have also raised concerns about increased political risk and its potential financial impact, including on Treasury markets.[63]

Still, while some imperfections have emerged over the years, the Treasury market largely relies on the assumption that its debt comes with virtually zero credit risk and essentially no chance of outright default.

2. The deepest and most liquid market in the world.

In 1952, the Federal Reserve articulated its goals for the Treasury market as ensuring "depth, breadth, and resiliency."[64]

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59 D. ANDREW AUSTIN, CONG. RSCH. SERV., R44704, HAS THE UNITED STATES EVER "DEFAULTED"? 5–19 (2016) (detailing potential default events such as after the War of 1812, Great Depression, exit from the Gold Standard, and 1979 mini-default).

60 *See id.* at 13–14.

61 *See U.S. Bill Rates Rise on Government Default Worries*, REUTERS (Oct. 4, 2013), https://www.reuters.com/article/markets/us/us-bill-rates-rise-on-government-default-worries-idUSL1N0HU16Y; Ira F. Jersey & Sean Savage, *U.S. Treasury-Default Specter Seen in T-Bill Pricing, Liquidity*, BLOOMBERG PRO. SERVS. (Aug. 27, 2021), https://www.bloomberg.com/professional/insights/trading/u-s-treasury-default-specter-seen-in-t-bill-pricing-liquidity; Luca Benzoni, Christian Cabanilla, Alessandro Cocco & Cullen Kavoussi, *What Does the CDS Market Imply for a U.S. Default?*, FED. RSRV. BANK OF CHI. (Oct. 2023), https://perma.cc/W7HV-3RBA.

62 *See U.S. Debt Credit Rating Downgraded, Only Second Time in Nation's History*, U.S. HOUSE COMM. ON THE BUDGET (Aug. 2, 2023), https://perma.cc/ZHE9-6LB4; Binyamin Applebaum & Eric Dash, *S.& P. Downgrades Debt Rating of U.S. for the First Time*, N.Y. TIMES (Aug. 5, 2011), https://www.nytimes.com/2011/08/06/business/us-debt-downgraded-by-sp.html; *Fitch Downgrades the United States' Long-Term Ratings to 'AA+' from 'AAA'; Outlook Stable*, FITCH RATINGS (Aug. 1, 2023), https://www.fitchratings.com/research/sovereigns/fitch-downgrades-united-states-long-term-ratings-to-aa-from-aaa-outlook-stable-01-08-2023.

63 Buchanan & Dorf, *supra* note 40, at 1209; Epps, *supra* note 44. On market responses to congressional debt ceiling fights, see, for example, Alex Harris, *Debt-Ceiling Fear Sends Yields on At Risk T-Bills Above 7%*, BLOOMBERG (May 24, 2023), https://www.bloomberg.com/news/features/2023-05-24/debt-ceiling-deadline-tracker-market-worries-extend-beyond-treasury-bills.

64 *Federal Reserve System After Fifty Years: Hearings Before the Subcomm. on Domestic Fin. of the H. Comm. on Banking and Currency*, 88th Cong. 2007 (1964) (Federal

This has since been recast by the leadership of the Fed, Department of the Treasury, and other federal agencies as a desire to ensure that the Treasury market represents the deepest and most liquid in the world. In practice this means ensuring Treasuries can be monetized, or exchanged for cash, either through sales or borrowing in the repo market, at all hours of the day, in large size, quickly, and with low transaction costs. These features are a core hallmark of what makes the Treasury market special and a taproot of the global financial system.

One might presume this liquidity naturally arises from the scale, breadth of ownership, and credit risk–free nature of the Treasury market. However, it is in fact the product of a long history of legal, policy, and operational arrangements designed to ensure, among other things, that major financial intermediaries use their balance sheets to make continuous markets so that Treasuries can, in practice, remain the deepest and most liquid asset class in the world.[65]

1. *The Structure of the Secondary Market*: The secondary market for Treasuries is divided into two major segments: (1) a market where investors can trade their Treasuries with a major Treasuries intermediary (or dealer, yielding the dealer-to-client or DTC market) and (2) a market where dealers trade with each other to manage risk and distribute inventory (or interdealer market). For the most part, the DTC market is bilateral in nature, where large OTC transactions in a wide variety of securities are negotiated by phone or on electronic messaging platforms. In contrast, interdealer trading occurs on multilateral platforms, where dealers trade with one another using a central electronic trading system,[66] and almost exclusively in the most recently issued securities (the current or on-the-run issue).[67] Major dealers operate a follow-the-sun model, beginning with the opening of futures markets in Tokyo around 8:45 a.m. JST, then hand off to London around 8:00 a.m. GMT, and finally to New York until the futures pit in Chicago closes at 2:30 p.m. CST, with more limited

Open Market Committee Report of Ad Hoc Subcommittee on the Government Securities Market).

65 *See, e.g.*, Menand & Younger, *supra* note 12, at 236.

66 The largest interdealer broker platform is BrokerTec, a subsidiary of the CME. More recently, private order books and bilateral streams between dealers have grown in market share. *See* Kevin McPartland, *How Bilateral Streams for U.S. Treasuries Really Work*, CRISIL COAL. GREENWICH (June 19, 2019), https://perma.cc/H54V-VZUW.

67 *See* Harkrader & Puglia, *supra* note 37.

post-close cash market trading until around 5:30 p.m. EST.[68] Typically, daily trading volumes are massive. In the week of October 21, 2024, the average daily trading volume in the secondary market was $821 billion—with the interdealer market seeing a daily average of $443 billion, and the dealer-to-client segment seeing $378 billion.[69]

2. *The Treasury-Backed Repo Market*: Treasuries also play a critical role in, and generally dominate, the repurchase market—a system of short-term lending where the debt between financial firms is collateralized.[70] Repo markets allow Treasury investors to quickly and flexibly source cash on a temporary basis, and serve as a safe lending opportunity for short-term investors with excess cash to deploy. Repos are constructed from two linked transactions: one party will sell their Treasury security to a counterparty while simultaneously agreeing to buy it back. The unwind or sale price is typically (but not always)[71] higher than the purchase price, which functions similarly to an interest payment. The Fed conducts repo and reverse repo operations under its regular open-market-operations authority.[72] Market participants commonly use repo transactions to obtain leverage; these transactions are often referred to as a form of secured borrowing.[73] If the borrower defaults on its obligation, the lender can sell the securities at issue to pay itself back. By creating a secure and flexible market for temporarily monetizing Treasuries, repo improves the efficiency of financial markets more broadly.[74] The

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68 YOUNGER ET AL., 24 HOUR PARTY PEOPLE, *supra* note 54, at 2.

69 *Treasury Daily Aggregate Statistics—Files*, *supra* note 30.

70 Peter Hördahl & Michael R. King, *Developments in Repo Markets During the Financial Turmoil*, BANK FOR INT'L SETTLEMENTS Q. REV., Dec. 2008, at 37, 39; James Clark & Tom Katzenbach, *Examining Changes in the Treasury Repo Market After the Financial Crisis*, U.S. DEP'T OF THE TREASURY (Aug. 12, 2016), 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.

71 Repo rates can be negative, and these markups can be markdowns. This generally occurs due to dealers managing their collateral exposure in client positioning, which can become crowded in a particular security.

72 *See* Menand & Younger, *supra* note 12, at 275–76.

73 *What Is a Repo?*, INT'L CAP. MKT. ASS'N, https://perma.cc/4JF5-8TS4; TOBIAS ADRIAN, BRIAN BEGALLE, ADAM COPELAND & ANTOINE MARTIN, FED. RSRV. BANK OF N.Y., REPO AND SECURITIES LENDING 2–4 (2011).

74 For a detailed discussion of the Treasuries-backed repo market, its operational workings, and the underlying regulatory framework, see Yadav & Yadav, *supra* note 18, at 1376–87.

Treasury repo market is also expansive—$5 trillion in size in 2023, of which 69% was overnight.[75]

3. *The Changing Cast of Treasury Intermediaries*: Treasury dealers are essential to making markets in both cash and repo trading. They ensure that those markets are liquid by standing as the buyer to sellers and the seller to buyers, connecting various potential trading counterparties and holding inventory when there are timing mismatches between them. Since the 1930s, this group has been dominated by a cohort of banks and investment firms known as primary dealers.[76] These firms are selected to transact directly with the Federal Reserve Bank of New York.[77] Selection has historically been associated with having a large market share as a Treasury market intermediary. However, selection comes with obligations: primary dealers are expected to bid for their own account in auctions of Treasury securities in proportion to their activity in both markets in Treasuries and in broader markets, and are expected to fulfill other requirements.[78] Importantly, over the last decade, the electronification of trading has led to a more diversified market ecosystem as smaller principal trading firms (PTFs) specializing in high-speed automated trading have taken market share. This shift has occurred most dramatically in the interdealer market, where PTFs account for 61% of trading volume, compared to 38% for primary dealers.[79] By contrast, primary dealers have maintained their preeminence in the DTC segment, with a 76% share of market activity.[80] Primary dealers are also major repo market intermediaries, using their balance sheets to facilitate more than $5 trillion of short-term collateralized borrowing and lending.[81] It is worth noting that competitors both large and small continue to challenge their position

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75 *US Repo Statistics*, SEC. INDUS. & FIN. MARKETS ASS'N (Oct. 4, 2024), https://perma.cc/573V-RUWX.

76 KENNETH GARBADE, FED. RSRV. BANK OF N.Y., THE EARLY YEARS OF THE PRIMARY DEALER SYSTEM 9–32 (2016).

77 *Primary Dealers*, FED. RSRV. BANK OF N.Y., https://perma.cc/4N94-HDXP. Importantly, the Federal Reserve Bank of New York has been clear that selection as a primary dealer is a business relationship, not a regulatory relationship. It is careful to clarify that selection should not be construed as an endorsement or substitute for due diligence by private market counterparties considering their own business relationship with the firm. *Id.*

78 *See id.*

79 Harkrader & Puglia, *supra* note 37, tbl.1.

80 *Id.*

81 *US Repo Statistics*, *supra* note 75.

in some segments,[82] even if primary dealers have, to date, been able to more or less maintain their overall market share.

4. *A Word on Regulatory Structure*: Treasury market oversight is unique among securities markets. Authority for rulemaking and supervision is shared by at least five federal public regulators. Securities dealers housed within financial holding companies are regulated by the Fed; the SEC oversees securities firms (e.g., hedge funds or high-speed traders), interdealer trading platforms, and CCPs; the Commodity Futures Trading Commission (CFTC) regulates derivatives markets linked to Treasuries; and the U.S. Department of Treasury governs Treasury auctions.[83] Finally, the Financial Industry Regulatory Authority (FINRA), a self-regulatory organization for broker-dealer firms,[84] supports the SEC in its oversight and manages reporting systems for secondary market trades.[85] Legal scholars have pointed out that such shared oversight responsibility[86] is not an uncommon feature of U.S. administrative law.[87] To facilitate agency cooperation, the Inter-Agency Working Group on Treasury Markey Surveillance (IAWG) helps to build informational resources and establishes shared policy priorities for the Treasury market.[88] The Financial Stability Oversight Council (FSOC), born from post-2008 legislation to develop fuller surveillance and oversight of systemic risks, can also selectively engage interagency dialogue on Treasury

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82 *See* Joe Rennison, *Jump Trading Joins Challenge to Banks in Treasury Market Making*, FIN. TIMES (Aug. 20, 2018), https://www.ft.com/content/8c8a39be-9990-11e8-ab77-f854c65a4465; 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. For example, large competitors may include custody banks that specialize in safekeeping financial assets on a market-wide scale. Bank of New York Mellon (BNY Mellon) disclosed more than $150 billion in repos and reverse repos in its second quarter financial disclosure for 2023. Bank of N.Y. Mellon Corp., Quarterly Report (Form 10-Q), at 88–89 (June 30, 2023). State Street Corporation disclosed more than $230 billion in its second quarter financial disclosure for 2024. State Street Corp., Quarterly Report (Form 10-Q), at 74 (June 30, 2024).

83 For a discussion and sources of authority, see Yesha Yadav, *The Failed Regulation of U.S. Treasury Markets*, 121 COLUM. L. REV. 1173, 1177 (2021) [hereinafter Yadav, *Failed Regulation*].

84 *About FINRA*, FIN. INDUS. REGUL. ASS'N, https://perma.cc/DA2L-A96V.

85 For a discussion and sources of authority, see Yadav, *Failed Regulation*, *supra* note 83, at 1193–99.

86 *See id.*

87 As detailed by Professors Jody Freeman and Jim Rossi, shared oversight represents a common phenomenon within the administrative state. *See generally* Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131 (2012).

88 *See supra* note 29 (discussing the role of the IAWG).

market oversight.[89] These are useful and valuable tools for facilitating interagency cooperation and data sharing. Nevertheless, legal scholars have also examined complexities to such interactions that can often emerge in practice.[90]

B. Emerging Concerns About the Resiliency of the Treasury Market

The Treasury market's reputation as *the* global risk-free market has had to contend with a spate of episodes of dysfunction over the last decade. The infamous Flash Rally in 2014 served as a key catalyst. Although very short-lived with no discernable lasting impact on trading or prices, this event focused the attention of the private and public sectors on key changes to market structure following the 2008 financial crisis. Although other, more minor events intervened, the events of March 2020 constituted the first major breakdown in trading conditions in several decades. These episodes have raised concerns about the capacity of the Treasury and repo markets to function smoothly during periods of stress—when their intermediation is most necessary. Further, the increased risk of a technical default around debt-ceiling deadlines (also known as "drop dead" or "X" dates) has had significant ramifications for markets.[91]

A brief account of three key events highlighting fragilities within the Treasury and repo markets is outlined below. They are by no means exhaustive. And we present them here in temporal order rather than in order of severity. But they highlight relevant vulnerabilities and have acted as key catalysts for reform.

1. *Flash Rally*: The Flash Rally on October 15, 2014, was a significant catalyst for the focus on the resilience of the Treasury

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89 *About FSOC*, U.S. DEP'T OF THE TREASURY, https://perma.cc/M97B-8RQT.

90 Yadav, *Failed Regulation*, *supra* note 83, at 1223–27; Yadav & Yadav, *supra* note 18, at 1397–1403. *See generally* Rauterberg & Younger, *supra* note 16 (detailing a lack of central coordination in the creation of agency claims).

91 Libby Cantrill, Jerome Schneider & Tiffany Wilding, *Debt Ceiling Debate: Examining Risks Around the X Date*, PAC. INV. MGMT. CO. (Apr. 27, 2023), https://www.pimco.com/us/en/insights/debt-ceiling-debate-examining-risks-around-the-x-date; *JPMorgan Sees "Non-Trivial Risk" of a Technical Default on U.S. Treasuries as Debt Ceiling Looms*, REUTERS (Apr. 20, 2023), https://www.reuters.com/markets/us/jpmorgan-sees-non-trivial-risk-technical-default-us-treasuries-debt-ceiling-2023-04-20/; Matthew Boesler, *The Odds of US Going Past Default Date Are 25% and Rising, JPMorgan Says*, BLOOMBERG (May 24, 2023), https://www.bloomberg.com/news/articles/2023-05-24/jpmorgan-warns-odds-of-us-going-past-x-date-are-25-and-rising; *see also* TERRY BELTON, MEERA CHANDAN, KIMBERLY L. HARANO, SRINI RAMASWAMY & ALEX ROEVER, J.P. MORGAN, THE DOMINO EFFECT OF A US TREASURY TECHNICAL DEFAULT 2 (2011).

market.[92] During the morning in New York, the price of Treasury securities surged rapidly with heavy trading volumes, only to retreat just as quickly.[93] The whole event lasted about twelve minutes.[94] The magnitude of the move (more than thirty-five basis points) was so large that, if compared to typical daily price action over the prior year, just one such occurrence was exceedingly unlikely even considering the fat-tailed nature of the distribution of financial returns.[95] In investigating the incident, the IAWG (the group of five major federal regulators) did not find evidence for a single triggering cause, but it did highlight several factors that appeared to have impacted the dynamic of the day's events and signaled a material shift in Treasury market structure. Among them, arguably the most significant was the large proportion of trades executed by a handful of high frequency PTFs (comprising more than 50% of the volume).[96] Much of this activity was generated by automated trading programs transacting with themselves, producing volume without real economic activity.[97] Although not the entirety of the explanation for the day's chaotic price action and rapid withdrawal of liquidity, the flight of these PTFs was identified as a major contributing factor.[98] That high-frequency, automated trading could drive markets to such an extent pointed to a larger role for PTFs than was previously understood.[99] To address prior information gaps and the risk of future instability, a Joint Staff Report recommended a fulsome review of the tools, data collections, and multilateral information-sharing agreements at hand to ensure they "meet[ ] the needs associated with effective monitoring and oversight of the U.S. Treasury market."[100]

2. *Repo Market Stress*: On September 17, 2019, repo markets unexpectedly seized up and overnight lending rates moved dramatically higher—up to almost 10% from a previous baseline

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92 *See* U.S. DEP'T OF THE TREASURY ET AL., JOINT STAFF REPORT, *supra* note 9, at 15–19.

93 *Id.* at 15–16.

94 *Id.* at 8.

95 JOSHUA YOUNGER & JAY BARRY, J.P. MORGAN, ANATOMY OF A FLASH RALLY 2 (2016). A "fat-tailed" distribution refers to distributions where there is an abnormally high probability of extreme outcomes. *Fat Tailed Distribution and the 2008 Financial Crisis*, UNIV. OF N.C. AT CHARLOTTE, https://perma.cc/F7CR-6B4R.

96 U.S. DEP'T OF THE TREASURY ET AL., JOINT STAFF REPORT, *supra* note 9, at 21.

97 *See id.* at 35–37.

98 *Id.* at 3–5; *see also* MUNIER SALEM, JAY BARRY, JOSHUA YOUNGER & HENRY ST. JOHN, J.P. MORGAN, FAR FROM THE SHALLOW NOW? 5 (2019).

99 Williams, *supra* note 37.

100 U.S. DEP'T OF THE TREASURY ET AL., JOINT STAFF REPORT, *supra* note 9, at 48–49.

of around 2%.[101] For at least a day, overnight borrowing secured by risk-free Treasury securities was more expensive than high-yield corporate debt.[102] Although incremental stress in money markets had been building for months as the Fed withdrew cash from the banking system (quantitative tightening) and corporate tax payments were expected to temporarily exacerbate that dynamic, the ferocity of this event took many by surprise.[103] It was particularly notable in the context of still-large cash holdings by bank portfolios and other repo market participants—cash which could in principle have been lent out very profitably at much higher rates than prevailed prior to that morning.[104] The Fed's response was two-fold.[105] Initially, the Open Market Desk at the Federal Reserve Bank of New York conducted temporary open market operations to avoid the risk that spillover from repo markets would impact Fed control over policy rates.[106] In the long term, the Fed increased the overall availability of cash to the financial system to restore an "ample" supply of reserves, so that money market rates would be much less reactive to short-term fluctuations in the supply of reserves.[107] Normalcy was restored quickly. Any recurrence would risk the perceived utility of

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[101] *See* R. Jay Kahn, Matthew McCormick, Vy Nguyen & H. Peyton Young, *OFR Identifies Factors That May Have Contributed to the 2019 Spike in Repo Rates*, OFF. OF FIN. RSCH. (Apr. 25, 2023), https://perma.cc/52NA-TGRU.

[102] *See id.*; Caitlin Long, *The Real Story of the Repo Market Meltdown, and What It Means for Bitcoin*, FORBES (Sept. 25, 2019), https://www.forbes.com/sites/caitlinlong/2019/09/25/the-real-story-of-the-repo-market-meltdown-and-what-it-means-for-bitcoin/. There are, of course, important differences between repo markets and corporate debt markets. Further, with overnight loans, the actual dollars at risk when repo rates are excessively high is not large. However, we make this point to highlight that seemingly fundamental relationships, such as the relative credit risk of debt secured by risk-free collateral versus the unsecured debt of a far less creditworthy borrower, can be upended by technical factors.

[103] *See* Lorie K. Logan, *Money Market Developments: Views from the Desk*, FED. RSRV. BANK OF N.Y. (Nov. 4, 2019) [hereinafter Logan, *Money Market Developments*], https://perma.cc/ALH6-7K4X.

[104] YOUNGER ET AL., POLICING THE REPO MARKET, *supra* note 25, at 2 (noting the strength of bank cash reserves in September 2019).

[105] Logan, *Money Market Developments*, *supra* note 103.

[106] The Fed's target rate is the effective federal funds rate, which tracks overnight unsecured borrowing and lending of reserves among banks and certain other institutions with direct access to the Fed's balance sheet. However, arbitrage trading and asset allocation decisions by some money market participants (e.g., the Federal Home Loan Banks) can lead to rapid spillover from moves in repo rates to the federal funds market. Thus, repo is indirectly related to rate control for policy implementation. Roberto Perli, *Balance Sheet Normalization: Monitoring Reserve Conditions and Understanding Repo Market Pressures*, FED. RSRV. BANK OF N.Y. (Sept. 26, 2024), https://perma.cc/TP74-LUFW.

[107] *Id.*

Treasuries as collateral for short-term loans.[108] As with the Flash Rally, the event highlighted gaps in information, the complexity of estimating and tracking demand for reserves,[109] fragmentation of the repo market, and the potential for a nonlinear response from short-term interest rates.[110]

3. *March 2020 Panic*: The Treasury market suffered arguably its most concerning breakdown in March 2020.[111] As the world economy came to a sudden stop, markets panicked—for example, the Dow Jones Industrial Average lost 6,400 points (26% of its value) in just four days in March.[112] Against such a backdrop, one would expect the Treasury market to serve as a safe haven.[113] But rather than rushing to buy Treasuries, investors were predisposed to sell—to, in a sense, call in their insurance policy and exchange their Treasuries for cash.[114] Hedge funds were also forced out of relative value positions, which severely exacerbated the stress.[115] At the same time, the flight of PTFs and other high-frequency market makers led to severe illiquidity.[116] That left dealers, the largest of which were part of bank holding companies, as among the few buyers remaining. However, internal risk

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[108] *See* Long, *supra* note 102.

[109] *See* Perli, *supra* note 106.

[110] Kahn et al., *supra* note 101; *see also* Logan, *Money Market Developments*, *supra* note 103; Sriya Anbil, Alyssa Anderson & Zeynep Senyuz, *What Happened in Money Markets in September 2019?*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Feb. 27, 2020), https://perma.cc/L73U-36JK; Gara Afonso, Marco Cipriani, Adam Copeland, Anna Kovner, Gabriele La Spada & Antoine Martin, *The Market Events of Mid-September 2019*, ECON. POL'Y REV., Aug. 2021, at 1, 15–16.

[111] *See, e.g.*, 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.

[112] Mieszko Mazur, Man Dang & Miguel Vega, *COVID-19 and the March 2020 Stock Market Crash. Evidence from S&P1500*, 38 FIN. RSCH. LETTERS, Jan. 1, 2021, at 1, 1.

[113] *See* Joe Weisenthal, Tracy Alloway & Josh Younger, *How the Crisis Nearly Blew Up One of the World's Safest Trades*, ODD LOTS (Mar. 26, 2020), https://perma.cc/7D5S-KEAZ.

[114] Samson et al., *supra* note 111; Lorie K. Logan, *Treasury Market Liquidity and Early Lessons from the Pandemic Shock*, FED. RSRV. BANK OF N.Y. (Oct. 23, 2020), https://perma.cc/S4PY-3XFV.

[115] Weisenthal et al., *supra* note 113; *see also* JOSHUA YOUNGER, MUNIER SALEM & HENRY ST. JOHN, J.P. MORGAN, WHEN MARKET RISK MEETS OPERATIONAL RISK 2 (2020).

[116] Joshua Younger, *Revisiting the Ides of March, Part I: A Thousand Year Flood*, COUNCIL ON FOREIGN RELS. (July 20, 2020), https://perma.cc/ZBC2-TE6Q. The observation that high-frequency traders left the market more forcefully relative to primary dealers is contested by some commentators, who have suggested that high-frequency traders and dealers all reduced their activity. *See, e.g.*, Dobrislav Dobrev & Andrew Meldrum, *What Do Quoted Spreads Tell Us About Machine Trading at Times of Market Stress? Evidence from Treasury and FX Markets During the COVID-19-Related Market Turmoil in March 2020*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Sept. 25, 2020), https://perma.cc/U79P-TXSB.

limits, regulatory constraints, and other factors severely limited their willingness to take on inventory. Soon, not only was liquidity severely depressed, but the costs to execute even small trades in Treasury markets were ten times more than normal.[117] The functioning of Treasury markets had deteriorated severely, which was soon seen as a potential threat to financial stability more generally.[118] The solution was a sizeable liquidity injection and purchase program. At first, the Fed offered a series of repo operations totaling trillions in capacity to offer overnight and term repo financing. Then it kicked off bond purchases designed to "support the smooth functioning" of Treasury markets.[119] Normalcy was restored after a few weeks,[120] but the Fed's balance sheet had reached its largest size relative to overall economic activity since the Second World War.[121]

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[117] Lorie K. Logan, *The Federal Reserve's Market Functioning Purchases: From Supporting to Sustaining*, FED. RSRV. BANK OF N.Y. (July 15, 2020) [hereinafter Logan, *The Federal Reserve's Market Functioning Purchases*], https://perma.cc/N64E-4G7P.

[118] Adam Tooze, *2020 Was Almost Worse Than 2008*, THE ATLANTIC (Sept. 6, 2021), https://www.theatlantic.com/politics/archive/2021/09/adam-tooze-shutdown-2020-crash/619982; JOSHUA YOUNGER, MUNIER SALEM & HENRY ST. JOHN, J.P. MORGAN, WHY WE SHOULD ALL CARE ABOUT THE TREASURY FUTURES BASIS (2020); Joshua Younger, *Revisiting the Ides of March, Part III: Scary Stories to Tell in the Dark*, COUNCIL ON FOREIGN RELS. (July 23, 2020), https://perma.cc/YCY8-MTDD.

[119] Logan, *The Federal Reserve's Market Functioning Purchases*, *supra* note 117. The total purchase amount was initially limited to $500 billion, but that limit was soon lifted in favor of market-functioning objectives. Unlike prior post-2008 quantitative easing programs, the pace was never predetermined or targeted. *Press Release*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. 2 (Mar. 15, 2020), https://perma.cc/2CQP-YYSL (setting the initial $500 billion purchase amount); *Press Release*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. 1 (Mar. 23, 2020), https://perma.cc/5M6J-AGHF (lifting the limit and committing to purchase "the amounts needed to support smooth market functioning"). *See generally* DARRELL DUFFIE & FRANK M. KEANE, FED. RSRV. BANK OF N.Y., MARKET-FUNCTION ASSET PURCHASES (2023) (describing the "goals, costs, and benefits" of official-sector purchases of government securities for the purpose of restoring market functionality).

[120] *See* Logan, *The Federal Reserve's Market Functioning Purchases*, *supra* note 117.

[121] *See* MICHAEL FLEMING, HAOYANG LIU, RICH PODJASEK & JAKE SCHURMEIER, FED. RSRV. BANK OF N.Y., THE FEDERAL RESERVE'S MARKET FUNCTIONING PURCHASES 1 (2021); George J. Hall & Thomas J. Sargent, *Three World Wars: Fiscal-Monetary Consequences*, 119 PROC. NAT'L ACAD. SCI., May 3, 2022, at 1, 4–17 (comparing the scope of federal repurchase of U.S. Treasuries between major world wars and the COVID-19 pandemic). It should be noted that the Federal Reserve's response included net asset purchases of Treasuries, a program that was brought to a close in March 2022. *See, e.g.*, Lorie Logan, *Federal Reserve Asset Purchases: The Pandemic Response and Considerations Ahead*, FED. RSRV. BANK OF N.Y. (Mar. 2, 2022), https://perma.cc/V6MV-LHQE.

II. ENTER CENTRAL CLEARING

To address emerging fragilities in U.S. Treasury market structure, policymakers have proposed the introduction of central clearing to intermediate both secondary-market Treasuries trades as well as Treasury-backed repo transactions. In this Part, we describe how central clearing works and the proposed role it is expected to play in the U.S. Treasury market.

A. Some Basics of Central Clearing

The events discussed in Part I and other considerations have prompted regulators to put forward a series of measures designed to improve the Treasury market's resiliency.[122] Among the most consequential, according to market participants, is the SEC's clearing mandate.[123]

Mandating clearing in Treasury markets is understandable in light of evidence of fragilities in market structure. Clearinghouses have reliably served as long-standing pillars of securities market infrastructure, critical to trading in other systemically important markets like public equities, bonds, and derivatives. For example, the National Securities Clearing Corporation—a subsidiary of the Depository Trust & Clearing Corporation (DTCC) and the designated clearinghouse for public equity and bonds—processed around $2.5 quadrillion in 2022.[124] In the wake of the 2008 financial crisis, regulators have sought to promote central clearing to enhance financial stability. Thus, a mandate for Treasuries clearing fits a familiar institutional logic as well as recent, postcrisis policy experience in managing complex risks in financial markets.[125]

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[122] *See supra* notes 29–31.

[123] *SEC Adopts Rules to Improve Risk Management in Clearance and Settlement and Facilitate Additional Central Clearing for the U.S. Treasury Market*, *supra* note 10.

[124] *2022 Performance Dashboard*, DEPOSITORY TR. & CLEARING CORP., https://www.dtcc.com/annuals/2022/performance.

[125] Clearinghouses are, in fact, a very old idea. They date back at least to the Middle Ages—in the mid-fifteenth century, for example, King Louis XI of France convened regular fairs at which bankers could meet to agree on large payments among their houses. Exchanges offering derivatives, specifically futures contracts on commodities, are not quite as ancient, but are still remarkably old. The Chicago Board of Trade (CBOT), for example, was offering sales "to arrive" shortly after it was founded in 1848 and hosted active trading in proper futures contracts only a few years later. 1 HISTORY OF THE BOARD OF TRADE OF THE CITY OF CHICAGO 146, 193 (Charles H. Taylor ed., 1917). For a discussion of clearinghouses, see Fletcher R. Andrews, *The Operation of the City Clearing House*, 51 YALE L.J. 582, 583–90 (1942).

In this Section, we discuss why central clearing has come to play an important role in market functioning, explain how clearinghouses seek to manage the risks they take on in doing so, and set the stage for more fully examining the trade-offs of clearing within the particular architecture of the Treasury market.

1. A primer on central clearing.

Transactions in financial instruments consist of three distinct elements. The first is agreement on the terms of the trade—e.g., price, quantity, security (as applicable), and the settlement terms. The last is the settlement itself—when cash is exchanged and ownership is transferred. Everything that happens in between is generally referred to as clearing. Clearing can be performed for any number of financial transactions, including cash transfers, securities sales, repos, and derivative contracts.[126]

In a bilateral clearing arrangement, both counterparties to the trade are equally and mutually exposed to each other's failure to perform on their agreement, an exposure known as counterparty risk.[127] In central clearing, settlement obligations are transferred, or "novated," to a CCP which legally assumes responsibility for both legs of the transaction—it becomes the buyer to every seller and seller to every buyer among its members.[128] If one of the members fails to perform, the CCP is expected to protect other members against losses by maintaining sufficient resources of its own and access to the collective resources of the membership. Under unusual or exigent circumstances, certain CCPs (i.e., designated financial market utilities[129] (DFMUs)) can, if authorized by the

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[126] *See* John W. McPartland, *Clearing and Settlement Demystified*, CHI. FED LETTER, Jan. 2005, at 1 [hereinafter McPartland, *Clearing and Settlement Demystified*].

[127] TREASURY MKT. PRACTICES GRP., *supra* note 32, at 35 (explaining that counterparty risk is "[t]he risk that a counterparty will fail to complete a transfer of funds or securities in accordance with the terms and rules of the system in question").

[128] To be more specific, this is accomplished via novation, in which the CCP becomes the legal counterparty to both participants in the transaction. *See* McPartland, *Clearing and Settlement Demystified*, *supra* note 126, at 2.

[129] DFMUs are key nodes in the financial system that are designated by the Financial Stability Oversight Council (FSOC) as systemically important under Title VIII of the Dodd-Frank Wall Street Protection Act of 2010. Pub. L. No. 111-203, § 803(3), 124 Stat. 1376, 1804 (2010) (codified at 12 U.S.C. § 5462). This subjects them to enhanced supervisory oversight and regulatory requirements. MARC LABONTE, DONNA NORDENBERG & VICTOR TINEO, CONG. RSCH. SERV., R41529, *Supervision of U.S. Payment, Clearing, and Settlement Systems: Designation of Financial Market Utilities (FMUs)* 1–3 (2012).

Board of Governors, access liquidity from the central bank.[130] This combination of factors helps the CCP offer markets confidence that the selection of a trading counterparty is irrelevant to the economics of the trade. Their resources, networks, and informational advantage are thought to help CCPs reduce fire-sale risk in the event of member failure.[131] Finally, CCPs are required to maintain recovery and wind-down plans.[132]

The downside to mutualizing counterparty risk among certain market participants via a clearinghouse is the increased systemic importance of the CCP itself.[133] CCPs have numerous mechanisms to reduce this risk. First, they are highly regulated and do not take on market risk through their own trading activity. Second, they can impose solvency and institutional requirements for membership.[134] Third, they can require that high-quality collateral (or margin[135]) be posted by members to cover potential losses associated with a failure of one of those members.[136] Fourth, if those resources prove insufficient, CCPs have additional loss-sharing mechanisms to mutualize the cost of making good on this member's commitments.[137] While these measures may not completely rid markets of counterparty risk, they have generally

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130 12 U.S.C. § 5465(b). Importantly, in practice, CCPs do not generally guarantee settlement, but rather that no member will incur losses owing to the failure of another member to perform. *See* McPartland, *Clearing and Settlement Demystified*, *supra* note 126, at 2–3.

131 *See generally* Guillaume Vuillemey, *Mitigating Fire Sales with a Central Clearing Counterparty*, 55 J. FIN. INTERMEDIATION, July 2023.

132 COMM. ON PAYMENTS & MKT. INFRASTRUCTURE & TECH. COMM. OF THE INT'L ORG. OF SEC. COMM'NS, BANK FOR INT'L SETTLEMENTS, PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES 32 (2012).

133 *See, e.g.*, Awrey & Macey, *supra* note 11, at 104 n.26; Yadav, *The Problematic Case of Clearinghouses*, *supra* note 11, at 410.

134 *But see* Nahiomy Alvarez & John McPartland, *The Concentration of Cleared Derivatives: Can Access to Direct CCP Clearing for End-Users Address the Challenge?* 4 (Fed. Rsrv. Bank of Chi., Working Paper No. 2019-06, 2019) (noting that for derivatives clearing, the risk implications of clearinghouse members comprising a handful of major institutions).

135 Throughout this piece we will use "margin" and "collateral" interchangeably, which is not strictly correct in some circumstances. The Fixed Income Clearing Corporation (FICC) in particular does not collect margin, but does maintain a "Clearing Fund," the resources for which are provided by members according to their individual exposure. Those funds can, in combination with FICC's own rescuers, be used to mutualize losses owing to the default of a member. DEPOSITORY TR. & CLEARING CORP., FIXED INCOME CLEARING CORPORATION: DISCLOSURE FRAMEWORK FOR COVERED CLEARING AGENCIES AND FINANCIAL MARKET INFRASTRUCTURES 12, 41–43 (2023).

136 Yadav, *The Problematic Case of Clearinghouses*, *supra* note 11, at 410.

137 *Id.*

proven successful over time and only rarely suffered peril themselves.[138] Tellingly, during the collapse of Lehman Brothers in 2008, a derivatives clearinghouse, LCH, ensured that the risk of $9 trillion in interest rate swaps was successfully managed without recourse to its default fund.[139] Further, if prefunded contributions to the default fund are exhausted, CCPs can call upon additional financial resources from their members.[140]

2. A case study in clearing: post-2008 OTC derivatives.

Since 2009, policymakers have turned toward central clearing as a way to safeguard markets against credit risks and interconnection. Despite the widespread availability of CCPs, up until the 2008 financial crisis, trades in many systematically important markets were still often cleared bilaterally.[141] Those events exposed the flaws of this arrangement for OTC derivatives markets in particular.[142] In September 2009, the Group of Twenty (G20) recommended that the vast majority of OTC derivative contracts be mandated to clear through a CCP.[143] Most major jurisdictions have now enacted some form of clearing mandate for derivatives

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138 On debates surrounding the right design for default waterfalls, see generally Mark Paddrik & Simpson Zhang, *Central Counterparty Default Waterfalls and Systemic Loss* (Off. of Fin. Rsch., Working Paper No. 20-04, 2020). Clearinghouses have sometimes suffered or come perilously close to collapse. Notably, the CME and the Options Clearing Corporation (OCC) became highly distressed in October 1987 following the stock market crash. Ben S. Bernanke, *Clearing and Settlement During the Crash*, 3 REV. FIN. STUD. 133, 148 (1990) (noting the close call suffered by the CME and OCC); *see also* John McPartland & Rebecca Lewis, *The Goldilocks Problem: How to Get Incentives and Default Waterfalls "Just Right"*, 41 ECON. PERSPS., Mar. 2017, at 1, 3–4 (discussing the failure of HanMag Securities and its impact on clearinghouse loss allocation). *But see generally* Vincent Bignon & Guillaume Vuillemey, *The Failures of a Clearinghouse: Empirical Evidence*, 24 REV. FIN. 99 (2020) (analyzing the design attributes that can lead to clearinghouse failure and examining the failure of derivatives clearinghouse Caisse de Liquidation).

139 Julia Lees Allen, Note, *Derivatives Clearinghouses and Systemic Risk: A Bankruptcy and Dodd-Frank Analysis*, 64 STAN. L. REV. 1079, 1089–91 (2012).

140 *See* Paddrick & Zhang, *supra* note 138, at 5–7.

141 Alvarez & McPartland, *supra* note 134, at 3; *see also* Dietrich Domanski, Leonardo Gambacorta & Cristina Picillo, *Central Clearing: Trends and Current Issues*, BANK INT'L SETTLEMENTS Q. REV., Dec. 2015, at 59, 59–60.

142 Yadav, *The Problematic Case of Clearinghouses*, *supra* note 11, at 403–04.

143 FIN. STABILITY BD., IMPLEMENTING OTC DERIVATIVES MARKET REFORMS, at iii (2010) [hereinafter FIN. STABILITY BD., IMPLEMENTING OTC DERIVATIVES MARKET REFORM].

markets,[144] and the fraction of such trades that face a CCP has increased substantially since 2008.[145]

Markets have played a key role in implementing the mandate. In the United States, two major clearinghouses were already being used extensively by market participants to clear interest rate derivatives: the Chicago Mercantile Exchange's CME Clearing, founded in 1898,[146] and the LCH, founded in 1969 as a combination of the nineteenth-century London Clearing House and Paris-based Clearnet.[147] Between them, these two CCPs cleared roughly 30% of U.S. dollar–denominated interest rate swaps on the eve of the crisis.[148] By the end of 2011, as the CFTC was drafting its final rule,[149] that clearing rate was over 50%.[150]

The final CFTC rule, enacted in July 2012, largely adhered to principles laid out in international standards crafted to implement the G20 agreement.[151] The CFTC mandate covered the bulk of the market. Within a couple of years of its implementation, roughly 75% of the U.S. dollar interest rate derivatives market faced a CCP.[152]

Mandated clearing of U.S. dollar OTC derivatives appears to have succeeded in several respects. First, working through its

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144 FIN. STABILITY BD., OTC DERIVATIVES MARKET REFORMS: IMPLEMENTATION PROGRESS IN 2022, at 1 (2022).

145 INT'L SWAPS & DERIVATIVES ASS'N, EVOLUTION OF OTC DERIVATIVES MARKETS SINCE THE FINANCIAL CRISIS 3–4 (2021) [hereinafter INT'L SWAPS & DERIVATIVES ASS'N, EVOLUTION OF OTC DERIVATIVES MARKETS].

146 CME was founded as a nonprofit organization in 1898. Its clearinghouse subsidiary was founded in 1919. CME Grp., Inc., Annual Report (Form 10-K), at 5 (Dec. 31, 2023).

147 On the history of the CME Group, including the launch of the Chicago Board of Trade's first grain futures clearing arrangements in 1865, see *Timeline of CME Achievements*, CME GRP., https://perma.cc/GZG5-CURR (noting that CME Clearing began operations in 2003). On the founding and operations of LCH, see *Our History*, LONDON STOCK EXCH. GRP., https://perma.cc/4URF-XGSV.

148 Research from the International Swaps & Derivative Association (ISDA) shows that after adjusting for double counting, 28.6% of U.S. dollar interest rate swaps were clearing through a CCP as of year-end 2008. INT'L SWAPS & DERIVATIVES ASS'N, OTC DERIVATIVES MARKET ANALYSIS: YEAR-END 2011 5 (2012) [hereinafter INT'L SWAPS & DERIVATIVES ASS'N, OTC DERIVATIVES MARKET ANALYSIS].

149 On implementing standards set out by the Financial Stability Board, see generally FIN. STABILITY BD., IMPLEMENTING OTC DERIVATIVES MARKET REFORMS, *supra* note 143. On the final CFTC implementing rule, see Swap Transaction Compliance and Implementation Schedule: Clearing Requirement Under Section 2(h) of the CEA, 77 Fed. Reg. 44,441 (July 30, 2012).

150 *See* INT'L SWAPS & DERIVATIVES ASS'N, OTC DERIVATIVES MARKET ANALYSIS, *supra* note 148, at 5.

151 *See supra* note 149.

152 INT'L SWAPS & DERIVATIVES ASS'N, SWAPS INFO FIRST QUARTER OF 2024 REVIEW 3 (2024).

supervision of CCPs[153] has given the CFTC greater functional supervisory authority over the OTC derivatives market as a whole. Second, by imposing their margin rules on a wider swath of the market, CCPs have increased the amount of collateral securing derivative agreements. For example, subsequent studies observed that, as of 2014, 179% of the $2.8 trillion in total net credit exposure among OTC derivatives was covered by collateral,[154] up from 67% of the $2 trillion of net credit exposure in 2006.[155] Third, by concentrating activity within a small number of highly regulated CCPs, the clearing mandate has allowed for better monitoring of a formerly opaque market.[156] Fourth, risk-management standards promulgated in regulations were standardized and strengthened, bringing efficiencies through the systematic application of measures like set-off and netting.[157] Finally, the designation of these CCPs as DFMUs brought with it enhanced regulatory requirements and supervisory oversight.[158]

That being said, the OTC derivatives clearing mandate also brought new challenges. Importantly, there are only two CCPs of

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153 In the terminology of derivatives regulation, clearinghouses are generally called derivatives clearing organizations (DCOs). For regulatory requirements applicable to DCOs, see 17 C.F.R. § 39.39 (2024) (detailing prudential as well as governance requirements on derivatives clearinghouses).

154 INT'L SWAPS & DERIVATIVES ASS'N, ISDA MARGIN SURVEY 2015: AUGUST 2015 (2015). Close-out netting accounts for gains offsetting losses for positions between the same two counterparties. Central clearing increases the efficiency of this netting by increasing the role of the CCP as counterparty to the trades of a defaulted market participant. *See* INT'L SWAPS & DERIVATIVES ASS'N, EVOLUTION OF OTC DERIVATIVES MARKETS, *supra* note 145, at 10.

155 INT'L SWAPS & DERIVATIVES ASS'N, ISDA MARGIN SURVEY 2007 (2007). That is 74% of gross exposure (460% adjusted for close-out netting), and 39% of gross unrealized mark-to-market (154% adjusted for close-out netting). In 2006, the netted-out market value of all outstanding OTC derivatives captured in the ISDA Market Survey was 25% of their gross market value; in 2014 that figure was 16%. *See* INT'L SWAPS & DERIVATIVES ASS'N, EVOLUTION OF OTC DERIVATIVES MARKET, *supra* note 145, at 9–10. This corresponds to a 33% increase in netting efficiency associated with mandated central clearing.

156 Kathryn Judge & Richard Berner, *The Data Standardization Challenge*, *in* SYSTEMIC RISK IN THE FINANCIAL SECTOR: TEN YEARS AFTER THE GREAT CRASH 135, 147 (Douglas W. Arner et al. eds., 2019).

157 *See* Darrell Duffie & Haoxiang Zhu, *Does a Central Clearing Counterparty Reduce Counterparty Risk?*, 1 REV. ASSET PRICING STUD. 74, 75–76 (2011).

158 *See* FED. RSRV. BANK OF N.Y., IMPLEMENTATION OF THE PFMI: THE FEDERAL RESERVE'S EXPERIENCE 7, 10 (2016); BD. OF GOVERNORS OF THE FED. RSRV. SYS., U.S. SEC. & EXCH. COMM'N & U.S. COMMODITY FUTURES TRADING COMM'N, RISK MANAGEMENT SUPERVISION OF DESIGNATED CLEARING ENTITIES 13 (2011); Robert Cook, *Testimony on the Financial Stability Oversight Council*, U.S. SEC. & EXCH. COMM'N (Apr. 14, 2011), https://www.sec.gov/news/testimony/2011/ts041411rc.htm.

any meaningful size for OTC interest rate derivatives.[159] This dynamic naturally raises concerns about systemic risk. Similar considerations apply to the increased concentration among derivatives dealers—as of 2019, for example, only five dealers accounted for more than half of client exposure (as measured based on their posted margin).[160] CCPs of course have risk mitigation mechanisms beyond simply collecting margin. International standards call for default resources at many CCPs, which include funded contributions from members to supplement margin collected by members, to be sized to cover the default of their one or two largest clearing members and their affiliates.[161] The so-called Cover 1 or Cover 2 requirement is still the subject of debate,[162] but it represents a clear standard for risk management. That said, where clearing is more expensive for market participants, they tend to try to avoid doing so where possible, blunting the benefits of the mandate.[163]

On the whole, however, the CFTC mandate has been viewed as successful.[164] It has dramatically increased clearing rates in OTC derivatives markets—according to some measures by more than the mandate strictly requires.[165] In doing so, it has reduced

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159 *See generally* Ketan B. Patel, *How Concentrated Is the Clearing Ecosystem and How Has It Changed Since 2007?*, CHI. FED. LETTER, July 2024 (noting that CME Clearing and ICE Clear offer interest rate swap clearing in the United States).

160 Alvarez & McPartland, *supra* note 134, at 15.

161 COMM. ON PAYMENTS & MKT. INFRASTRUCTURE & TECH. COMM. OF THE INT'L ORG. OF SEC. COMM'NS, *supra* note 132, at 37. All CCPs are required to meet Cover 1 requirements, but those with "a more-complex risk profile" are required to meet Cover 2 requirements. *Id.*

162 *See, e.g.*, Alexander Campbell, *'Cover 2' CCP Reserve Standard Inadequate—Study*, RISK.NET (Nov. 20, 2018), https://www.risk.net/risk-management/6139641/cover-2-reserves-inadequate-for-many-ccps-study; Paulina Pielichata, *CFTC Sounds the Alarm on Clearing Capacity*, RISK.NET (Dec. 13, 2023), https://www.risk.net/risk-management/7958591/cftc-sounds-the-alarm-on-clearing-capacity; Joshua Walker, *Six CCPs Fail to Cover Concentration Risk in Esma Stress Test*, RISK.NET (July 18, 2024), https://www.risk.net/risk-quantum/7959684/six-ccps-fail-to-cover-concentration-risk-in-esma-stress-test. Some CCPs, such as FICC, are held to a Cover 1 standard. *See* FIXED INCOME CLEARING CORP., FIXED INCOME CLEARING CORPORATION GOVERNMENT SECURITIES DIVISION RULEBOOK 43 (2024) (defining the FICC's "Historical Cover 1 Liquidity Requirement").

163 *See, e.g.*, McPartland & Lewis, *supra* note 138; Paddrik & Zhang, *supra* note 138, at 2; Domanski et al., *supra* note 141; James T. Moser, *Origins of the Modern Exchange Clearinghouse: A History of Early Clearing and Settlement Methods at Futures Exchanges* 34 (Fed. Rsrv. Bank of Chi., Working Paper No. 94-3, 1994).

164 *See* DAVID SKEEL, THE NEW FINANCIAL DEAL 75 (2011).

165 INT'L SWAPS & DERIVATIVES ASS'N, RESEARCH NOTE: ACTUAL CLEARED VOLUMES VS. MANDATED CLEARED VOLUMES: ANALYZING THE US DERIVATIVES MARKET 3 (2018).

counterparty risk and improved transparency, contributing to increased financial stability more generally.

B. Central Clearing in the Treasury Market

The Treasury market presents a peculiar case where—despite being a large, complex, and diverse ecosystem—central clearing has never been a particularly important element of its structure. Indeed, the Treasury market developed a CCP much later than other markets like equities, commodities, and derivatives.[166] Despite calls for increased clearing as far back as 1969 (then to reduce the burden of physically delivering certificates),[167] the Government Securities Clearing Corporation (GSCC), the predecessor to the Fixed Income Clearing Corporation (FICC), was not formed until the Government Securities Act[168] was passed in the mid-1980s.[169] Even three decades later, central clearing in the Treasury market exhibits a patchwork of interactions in which most market participants opt to transact bilaterally (and, at the time of writing, the FICC remains the major CCP for clearing Treasuries).[170]

Today, Treasury trades in the secondary market clear only if they occur between two netting members of the FICC. In practice, those trades occur among a small subset of market participants, including primary dealers or other large financial firms.[171] The rest of the market (i.e., the dealer-to-client segment) is more likely to clear and settle bilaterally, even if one counterparty to the trade is an FICC member.[172] As Treasury market structure

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166 *See generally* Moser, *supra* note 163. By way of background, regulators were quite sanguine on clearing and settlement risk in the Treasury market until the early 1980s, when a series of dealer failures prompted review. Jeffrey Ingber, *The Development of the Government Securities Clearing Corporation*, ECON. POL'Y REV., Dec. 2017, at 33, 35.

167 U.S. DEP'T OF TREASURY & FED. RSRV., REPORT OF THE JOINT TREASURY–FEDERAL RESERVE STUDY OF THE U.S. GOVERNMENT SECURITIES MARKET 5 (1969).

168 Pub. L. No. 99-571, 100 Stat. 3208 (1986) (codified in scattered sections of 15 and 31 U.S.C.).

169 Ingber, *supra* note 166. The GSCC implemented comparison and netting services for secondary market transactions and introduced a repo netting service in 1992. *Id.* at 41–42. On the history of the DTCC, see generally Awrey & Macey, *supra* note 11.

170 Neal, *supra* note 37.

171 *See Fixed Income Clearing Corporation Government Securities Division—Member Directory*, DEPOSITORY TR. & CLEARING CORP. (last updated Sept. 5, 2024), https://perma.cc/4WXG-2ZUC.

172 A full account of Treasury market clearing arrangements is set out in the Treasury Market Practices Group (TPMG) White Paper on Clearing. The short discussion above represents a simplified summary. For the TMPG's report, see TREASURY MKT. PRACTICES GRP., *supra* note 32.

has evolved, with transaction volumes moving away from traditional dealers and toward PTFs (i.e., firms unlikely to be FICC members), central clearing has become a low-probability, fairly incidental part of trade settlement.[173] Repo markets have a notably higher incidence of clearing, particularly with the advent of sponsored membership,[174] but noncleared bilateral activity still dominates.[175] In other words, the default position has generally been one that excludes transactions from clearing where only one side is a clearing member.[176] This "out-unless" approach clearly differs from that taken in other major markets, including postcrisis OTC derivatives.

Unsurprisingly, the events of March 2020 were a key catalyst toward central clearing as a policy tool. Scholars like Darrell Duffie have argued that regulations were largely responsible for rendering dealers unable to intermediate amidst the kind of imbalance of demand that prevailed at the time.[177] Some have advocated more direct regulatory changes to address those issues, but they are cognizant of the complex political economy and potential for moral hazard.[178] Others have focused on the "plumbing" of the Treasury market which, they argued, was due for an upgrade.[179] A clearing mandate was a key part of that upgrade.[180]

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[173] *See Final Rules: Changes to Definition of Dealer and Government Securities Dealer*, *supra* note 30; Gary Gensler, *Statement on Final Rules Regarding Treasury Clearing*, U.S. SEC. & EXCH. COMM'N (Dec. 13, 2023), https://perma.cc/W5RX-X9ZZ.

[174] *A Primer on Sponsored Repo*, J.P. MORGAN (Apr. 16, 2019), https://perma.cc/E3EN-G58S; Lorenzo Migliorato, *Cleared US Repos Hit Record High as MMFs Wean Off Fed*, RISK.NET (Jan. 18, 2024), https://www.risk.net/risk-quantum/7958752/cleared-us-repos-hit-record-high-as-mmfs-wean-off-fed.

[175] Samuel J. Hempel, R. Jay Kahn, Vy Nguyen & Sharon Y. Ross, *Non-Centrally Cleared Bilateral Repo*, OFF. OF FIN. RSCH. (Aug. 24, 2022) [hereinafter Hempel et al., *Bilateral Repo*], https://perma.cc/3DKL-7GWC. Separately, a segment of the Treasury market, the tripartite clearing market, is entirely centrally cleared.

[176] The FICC's rulebook requires netting members trading with each other to clear their Treasury trades. *See* FIXED INCOME CLEARING CORP., *supra* note 162, at 180; TREASURY MKT. PRACTICES GRP., *supra* note 32, at 8.

[177] *See generally* Duffie, *Still the World's Safe Haven?*, *supra* note 31; Vissing-Jorgensen, *supra* note 28; Duffie, Resilience Redux, *supra* note 31.

[178] DANIEL K. TARULLO, HUTCHINS CTR. ON FISCAL & MONETARY POL'Y, BROOKINGS INST., CAPITAL REGULATION AND THE TREASURY MARKET 3–8 (2023) (arguing that changes to regulations that run afoul of international standards can be very politically difficult to implement in practice, and that changing international standards is a laborious process).

[179] *See* Duffie, *Still the World's Safe Haven?*, *supra* note 31, at 4.

[180] Vissing-Jorgensen, *supra* note 28, at 43.

Importantly, IAWG included a clearing mandate among its potential reforms in November 2021.[181] The SEC's final rule, approved in December 2023, is designed to ensure that most secondary-market and Treasury-backed repo trades will be centrally cleared.[182] It achieves this by requiring clearinghouses that provide CCP services for trades in Treasuries and Treasury-backed repos—for now, only the FICC—to create policies and procedures for centrally clearing all eligible trades for which either counterparty is a member of a Treasuries CCP.[183]

Briefly, this new framework will substitute an "in-unless" for the current "out-unless" approach. It requires any member of a Treasuries CCP to clear the vast majority of cash and repo trades regardless of the counterparty.[184] Importantly, that includes PTFs that trade over interdealer platforms.[185] Absent concerted and coordinated effort at evasion (which we discuss later), estimates suggest that the final rule is likely to dramatically expand the perimeter to potentially introduce as much as $4 trillion in daily transaction volume for central clearing.[186]

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[181] INTER-AGENCY WORKING GRP. ON TREASURY MKT. SURVEILLANCE, RECENT DISRUPTIONS AND POTENTIAL REFORMS IN THE U.S. TREASURY MARKET: A STAFF PROGRESS REPORT 29–31 (2021) [hereinafter INTER-AGENCY WORKING GRP., RECENT DISRUPTIONS]. It should be noted that the IAWG report also identified a number of potential risks. *Id.* The IAWG continues to periodically release progress reports on its proposed and implemented reforms, the most recent of which was issued in 2024. *See generally* INTER-AGENCY WORKING GRP. ON TREASURY MKT. SURVEILLANCE, ENHANCING THE RESILIENCE OF THE U.S. TREASURY MARKET: 2024 STAFF PROGRESS REPORT (2024) [hereinafter INTER-AGENCY WORKING GRP., 2024 STAFF PROGRESS REPORT].

[182] Standards for Covered Clearing Agencies for U.S. Treasury Securities and Application of the Broker-Dealer Customer Protection Rule with Respect to U.S. Treasury Securities, 89 Fed. Reg. at 2,717–18.

[183] The SEC's final rule will amend Exchange Act Rule 17ad-22(e)(18), which applies to covered clearing agencies, to require that these standards be applied to a CCP that offers services for Treasuries and Treasury-backed repo trading. 17 C.F.R. § 240.17ad-22(e)(18) (2025). This is a somewhat different approach to the CFTC mandate, which was authorized by statute and applies to "[a]ll persons executing a swap" (with some important exemptions). *Id.* § 50.2(a).

[184] There are some notable exemptions in the final rule, including foreign official institutions and state and local governments. Standards for Covered Clearing Agencies for U.S. Treasury Securities and Application of the Broker-Dealer Customer Protection Rule with Respect to U.S. Treasury Securities, 89 Fed. Reg. at 2,807–08.

[185] *Id.* at 2,744–46.

[186] *DTCC's FICC Treasury Clearing Activity Expected to Increase by over US$4 Trillion Daily as a Result of SEC Expanded Clearing Rules, According to New Industry Feedback*, DEPOSITORY TR. & CLEARING CORP. (June 4, 2024), https://www.dtcc.com/news/2024/june/04/ficc-treasury-clearing-activity-expected-to-increase-by-over-us$4-trillion-daily.

The SEC's final rule, then, has the potential to rapidly standardize risk management in the Treasury market in several ways. First, cleared repo trades will be collateralized via the CCP's credit risk-management framework (often referred to simply and imprecisely as margin posting[187]), in contrast to bilateral transactions, which often have no margin or haircut.[188] Second, the SEC rule includes provisions to govern how margin should be held by the CCP. The CCP will be tasked with calculating and collecting margin and ensuring that collateral belonging to a direct member participant (e.g., a Treasury dealer) is held separately from that of the dealer's client (e.g., a hedge fund) on whose behalf the dealer may be clearing the trade.[189] This might appear to be an idiosyncratic and operational change. However, as we discuss more fully below, margin segregated in that way has potentially significant implications for market structure more generally. Third, central clearing will give the CCP, and therefore regulators, greater visibility into trading activity. Fourth, it reduces fire-sale risk in the event of a member default and the potential for the failure of one member to lead to knock-on collapses as contracts go unperformed. What the impact of this far-reaching redesign is likely to be—both its benefits and costs—is a question we can now explore in the next Part.

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187 The FICC rulebook requires exposures to be collateralized by initial and variation margin. Operationally, the FICC-member counterparty to the trade is responsible for posting margin. It can choose to provide that margin on behalf of the client or to collect from the client for posting. Whether the member counterparty chooses to do so is a function of cost, as well as competitive pressures and other factors. *See J.P. Morgan on Weekly Holdings, Treasury Repo Clearing; Fitch; OnChain*, CRANE DATA (May 2, 2024), https://perma.cc/W9GM-W42X; FIXED INCOME CLEARING CORP., *supra* note 162, at 216–17. Bilateral repo is negotiated between the two counterparties, which often results in zero haircut (or posting no margin). Data collected by the Office of Financial Research suggest 70% of bilateral repo has zero margin. Samuel J. Hempel, R. Jay Kahn, Robert Mann & Mark Paddrik, *Why Is So Much Repo Not Centrally Cleared?*, OFF. OF FIN. RSCH. (May 12, 2023), https://perma.cc/7355-LKM3.

188 The IAWG had cited the risks of low- or zero-haircut repo transactions during periods of market stress. INTER-AGENCY WORKING GRP., 2024 STAFF PROGRESS REPORT, *supra* note 181, at 11.

189 The rule will amend Exchange Act Rule 17ad-22(e)(6). *See* 17 C.F.R. § 240.17ad-22(e)(6). Exchange Act Rule 15c3-3—the broker-dealer customer protection rule—will also be amended to permit Treasuries broker-dealers to debit required margin from the calculation of a broker-dealer's reserves. *See id.* § 240.15c3-3. For a discussion, see *U.S. SEC Adopts Rules Requiring Central Clearing in the U.S. Treasury Market*, SIDLEY AUSTIN LLP (Dec. 21, 2023), https://perma.cc/8TV6-99D4.

III. CAN CENTRAL CLEARING IMPROVE THE RESILIENCY OF THE TREASURY MARKET?

The Treasury market presents an intriguing case for central clearing. For one, it constitutes (arguably) the most systemically important trading environment, one possessing preeminent significance for regulatory policy, financial stability, and economic sustainability. This raises the stakes of ensuring its smooth transition into central clearing as well as maintaining the subsequent safety of CCPs. Moreover, its uniqueness—being risk-free and the deepest and most liquid market in the world—argues for tailored analysis to understand the potential implications of reform.

The move to clearing offers several potentially important payoffs: (1) reducing settlement risk and expanding direct participation in Treasury trading, (2) helping market participants to better manage pressure on their balance sheets and deploy capital and collateral more efficiently across CCPs, (3) facilitating new products and services like cross margining, and (4) enhancing information to improve the ability of regulators and supervisors to monitor the market. But there are also potential concerns to consider: (1) the difficulties in determining appropriate risk-management practices and standards when CCPs are the counterparty to the vast majority of trades and where clearing members, too, must ensure that they are safely capitalized vis-à-vis the exposures they assume;[190] (2) the increased systemic importance of Treasury CCPs; and (3) the potential for, and implications of, evasion of the mandate resulting in its policy objectives being undermined.

A. The Promise of Central Clearing

Here, we consider what many view as the most important potential benefits of central clearing: (1) reduced settlement risk and its attendant advantages, (2) more efficient use of dealer balance sheets, (3) the potential for cross margining across CCPs and products, and (4) the informational advantages of a broad clearing mandate.

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[190] Paddrik & Zhang, *supra* note 138, at 3 (noting the loss to ABN AMRO, a clearinghouse member, arising from the failure of a client).

1. Reducing settlement risks.

The introduction of central clearing should materially reduce settlement risk and produce a number of knock-on gains. Clearing reduces settlement risk in two key respects.

First, it reduces the frequency of settlement failures. Settlement failures, often referred to as failures-to-deliver (FTDs) or simply "fails," occur whenever a trade does not settle—i.e., cash is exchanged for a change in legal ownership of the security—on the previously agreed-upon date.[191] Fails can occur for a variety of reasons, including miscommunication as to the trade details, back-office operational issues, or the failure of the delivering counterparty to receive those securities from a related transaction.[192] Fails can be triggered by exogenous events, for example the disruption to back-office operations created by the September 2001 terrorist attacks,[193] or by periods of very active trading, such as the 2008- and COVID-19-related market events.[194] In the past, fails could in fact be strategic, particularly when overnight interest rates were near zero.[195] The experience of the fall of 2008 in particular motivated the Treasury Market Practices Group (TMPG) to recommend[196] a "fails charge" designed to disincentivize strategic fails.[197]

Fails can be disruptive to Treasury market functioning in several respects. For a start, they can reduce the "velocity" of repo

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191 *Daily Total US Treasury Trade Fails*, DEPOSITORY TR. & CLEARING CORP. (last updated Jan. 14, 2025), https://www.dtcc.com/charts/daily-total-us-treasury-trade-fails.

192 Large and complex markets generate long sequences of transactions in which certain settlements are contingent on others. In repo markets, this is known as a chain of rehypothecation. But this can affect Treasury secondary markets as well.

193 Michael J. Flemming & Kenneth D. Garbade, *When the Back Office Moved to the Front Burner: Settlement Fails in the Treasury Market After 9/11*, ECON. POL'Y REV., Nov. 2002, at 35, 45–47.

194 Duffie, *Still the World's Safe Haven?*, *supra* note 31, at 12.

195 *See* Michael J. Fleming & Kenneth D. Garbade, *Repurchase Agreements with Negative Interest Rates*, 10 CURRENT ISSUES IN ECON. & FIN., Apr. 2004, at 1, 3–4; Kenneth Garbade, Frank Keane & Jennifer Roush, *Treasury Market Functioning and the Zero Bound*, *in* NOTES ON ISSUES RELATED TO THE ZERO LOWER BOUND ON NOMINAL INTEREST RATES 94, 95 (2008) [hereinafter Garbade et al., *Treasury Market Functioning*].

196 The TMPG publishes "best practices" which are intended to "serve as guidelines for market participants seeking to organize their operations in a manner that fosters strong controls and reinforces overall market integrity." TREASURY MARKETS PRACTICES GRP., BEST PRACTICES FOR TREASURY, AGENCY DEBT, AND AGENCY MORTGAGE-BACKED SECURITIES MARKETS 1 (2024). They are intended for a broader set of market participants, not simply TMPG members. Compliance is not, however, strictly required.

197 *See* Kenneth D. Garbade, Frank M. Keane, Lorie Logan, Amanda Stokes & Jennifer Wolgemuth, *The Introduction of the TMPG Fails Charge for U.S. Treasury Securities*, ECON. POL'Y REV., Oct. 2010, at 45, 65–66.

by breaking chains of rehypothecation that are essential to the depth and liquidity of repo markets.[198] Second, when fails are long-lived, they can consume risk-based capital for bank dealers, which in turn can, in principle, limit their market-making capacity.[199] Third, they can affect the ability of repo counterparties to optimally structure their transactions to make the most efficient use of limited dealer balance sheet capacity (i.e., they can break so-called netted packages, which we discuss more below).[200]

Clearing can limit the incidence of fails by reducing the overall volume of transactions underlying the Treasury market through multilateral netting. Bilateral trades cannot "see" each other, and are therefore settled individually—i.e., on a "gross" basis. Because CCPs have visibility into the activity of all their members, trades can be compared and netted before settlement, reducing the likelihood that one idiosyncratic fail triggers a chain of additional fails.[201] Some have argued that reducing counterparty risk through central clearing can also reduce the burden on Treasury dealers by expanding the universe of investors who can participate directly in Treasury markets. In other words, clearing can facilitate more all-to-all trading in Treasury securities, in which investors transact directly with each other rather than through an intermediary. Importantly, this need not supplant the current dealer model. But some, including both academics[202] and practitioners,[203] have conjectured that broadening the pool of direct participants in this way could improve the efficiency, liquidity, and resiliency of the Treasury market.[204]

That said, several caveats are worth bearing in mind when evaluating the utility of reduced settlement fails. First, fails are not nearly as pervasive now as they were prior to the TMPG's recommendations. In fact, the "spike" in fails during the COVID-19 market panic was not particularly notable when viewed in a

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198 *See* Garbade et al., *Treasury Market Functioning*, *supra* note 195, at 98.

199 Fails that persist for longer than five days generate synthetic risk-weighted assets which increase overall minimum capital requirements. *See* 12 C.F.R. § 217.38 (2025).

200 David Bowman, Yesol Huh & Sebastian Infante, *Balance-Sheet Netting in U.S. Treasury Markets and Central Clearing* 18–19 (Bd. of Governors of the Fed. Rsrv. Sys., Working Paper No. 2024-057, 2024).

201 *See* FLEMING & KEANE, *supra* note 31, at 24.

202 *See* Duffie, Resilience Redux, *supra* note 31, at 37–40.

203 *See* Kate Duguid, *'All-to-All' Trading Offers Fix for Illiquid Treasuries Market*, FIN. TIMES (Apr. 16, 2023), https://perma.cc/T4WH-SY66.

204 *See id.*

longer historical series.[205] Second, persistent fails may consume capital, but the actual impact of these charges is very small. According to public data, no more than 11% of the more than $112 billion of fails in the first quarter of 2020 were assigned any risk weight, which made for a minimal impact on overall capital requirements.[206] It may also be the case that most of those long-lived fails were equities and other risky assets rather than Treasuries.

Finally, all-to-all trading may sound appealing. But its impact in practice is far from clear. For example, major market participants (e.g. commercial banks, foreign central banks, and asset managers) may not be able to access the liquidity they need from each other. This may still lead them to transact with traditional dealers, pulling liquidity away from any all-to-all market.[207]

2. Easing pressure on dealer balance sheets.

Limited dealer balance sheet capacity (or a lack of elasticity) is often cited as the prime antagonist of periods of severe dysfunction.[208] Some attribute these limits, in turn, to regulatory constraints, especially the supplementary leverage ratio (SLR).[209]

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[205] *See Primary Dealer Statistics*, FED. RSRV. BANK OF N.Y. (last updated Jan. 1, 2025), https://www.newyorkfed.org/markets/counterparties/primary-dealers-statistics (storing time-series data on fails in the market for U.S. Treasury Securities). This is not to suggest that these settlement fails were not economically meaningful in absolute terms. *See* FLEMING & KEANE, *supra* note 31, at 11–12 (noting that central clearing would likely have substantially reduced the instances of settlement fails during the March 2020 crisis).

[206] This estimate is based on a scenario in which fails are either in the grace period (zero-risk weight) or lowest-risk weight bucket (100%), with the weighted average fixed at 11.7% (from the comparison of the balance-sheet-to-risk-weighted unsettled transactions, with data sourced from the eight U.S. Global Systemically Important Bank dealers' Federal Financial Institutions Examination Council 101 Q1 2020 filings). Risk weights for unsettled transactions are found at 12 C.F.R. § 3.38 (2025). Any population in higher risk-weight categories would allow for a larger fraction in the grace period.

[207] *See* Helen Bartholomew, *All-to-All No Panacea for Treasury Liquidity*, RISK.NET (Nov. 8, 2023), https://www.risk.net/derivatives/7958210/all-to-all-no-panacea-for-treasury-liquidity. On the potential benefits of all-to-all trading and the ways in might be implemented, see generally ALAIN CHABOUD, ELLEN CORREIA GOLAY, CAREN COX, MICHAEL FLEMING, YESOL HUH, FRANK KEANE, KYLE LEE, KRISTA SCHWARZ, CLARA VEGA & CAROLYN WINDOVER, FED. RSRV. BANK OF N.Y., ALL-TO-ALL TRADING IN THE U.S. TREASURY MARKET (2024).

[208] *See, e.g.*, Nellie Liang & Pat Parkinson, *Enhancing Liquidity of the U.S. Treasury Market Under Stress* 11–12 (Hutchins Ctr. on Fiscal & Monetary Pol'y, Working Paper No. 72, 2020); Duffie, Resilience Redux, *supra* note 31, at 8–16; Menand & Younger, *supra* note 12, at 324–36.

[209] *See, e.g.*, Duffie, Resilience Redux, *supra* note 31, at 27–28. It is worth bearing in mind, however, that there is no firm consensus on the role of the SLR specifically in Treasury market dysfunction. *See* Paul Cochran, Sebastian Infante, Lubomir Petrasek, Zack Saravay & Mary Tian, *Dealers' Treasury Market Intermediation and the Supplementary*

The SLR has been the source of much hand-wringing among academics, former policymakers, and practitioners, and a fulsome discussion of its costs and benefits is beyond the scope of this Essay. But suffice it to say that, when leverage ratios constitute a binding constraint on their activity, dealers can struggle to provide elastic intermediation in risk-free securities that generally trade at very tight spreads.[210]

Central clearing potentially addresses this issue, not by changing the constraint itself, but rather by changing how its inputs are measured. The key in this instance is balance sheet netting. Netting in repo markets refers to allowing sufficiently similar but offsetting positions to cancel when measuring the size of the repo book. The rules one must abide by in claiming such netting benefits follow Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) Accounting Standards. Outright transactions in Treasury securities (i.e., buying and selling with full transfer of legal ownership) are almost always netted at the time of trade, regardless of the counterparty or other details.[211] Repo transactions, on the other hand, are netted only when the trade has the same counterparty, collateral type, and maturity (as well as certain other characteristics).[212] That means netting efficiencies for centrally cleared trades, which are all novated to one or a small number of CCPs, should generally be higher than for bilateral markets. Because that mechanically reduces total leverage exposure in the SLR, a broad clearing mandate could reduce capital requirements and allow for more balance sheet elasticity among bank-affiliated dealers without actually changing the regulations.

Leverage Ratio, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Aug. 3, 2023), https://perma.cc/5EHL-X22S. There is evidence, for example, that market risk constraints (i.e., value at risk, or VaR) played a significant role in the events of 2020 as well. *See* DARRELL DUFFIE, MICHAEL FLEMING, FRANK KEANE, CLAIRE NELSON, OR SHACHAR & PETER VAN TASSEL, FED. RSRV. BANK OF N.Y., DEALER CAPACITY AND U.S. TREASURY MARKET FUNCTIONALITY 29–32 (2023).

[210] *See generally* Falk Bräuning & Hillary Stein, *The Effect of Primary Dealer Constraints on Intermediation in the Treasury Market* (Fed. Rsrv. Bank of Bos. Rsch. Dep't, Working Paper No. 24-7, 2024) (examining the SLR and noting that tighter balance sheet constraints and dealers can result in reduced liquidity in the Treasury market).

[211] *Accounting Standards Codification: 940-320-45 Other Presentation Matters*, FIN. ACCT. STANDARDS BD. ¶ 940-320-45-3 (last updated Nov. 3, 2024), https://asc.fasb.org/1943274/2147479035. These secondary market transactions are termed "cash" trades.

[212] *Accounting Standards Codification: 860-10-55 Implementation Guidance and Illustrations*, FIN. ACCT. STANDARDS BD. ¶ 860-10-55-51B, https://asc.fasb.org/1943274/2147481239.

As before, in practice there are some caveats to consider. Recent research finds, for example, that netting efficiencies are already quite high.[213] This owes importantly to netted packages that already exist for most bilateral repo trades. Netted packages are pairs of repo and reverse repo positions involving Treasury collateral chosen to produce nearly the same interest rate risk exposure as a single transaction. This allows a given bilateral counterparty to acquire interest rate risk on a levered basis without meaningfully impacting their dealer's net balance sheet. The upshot is that the incremental impact of central clearing on dealer balance is likely to be relatively small. A related consideration is what incentives this would provide under stress. In a world of widespread central clearing, repo dealers at risk of becoming balance sheet constrained will likely do their best to line up the maturity of their repo and reverse repo positions. Since the cash lenders (money market funds) tend to prefer very short-dated positions, that will push cash borrowers toward similarly short maturities. Thus, borrowers are likely to term in their funding when markets are stressed, which increases their exposure to any funding shock.

Finally, the SLR is not the only potential constraint on dealer repo activity. Another such constraint is the surcharge applied to minimum risk-based capital ratios for G-SIBs (of which there are eight based in the United States).[214] That surcharge is determined based on five major categories of activity and exposure which are observed throughout to determine the bank's year-end score: size, interconnectedness, cross-jurisdictional activity, the bank's use of short-term wholesale funding, and complexity.[215] Short-term wholesale funding in particular includes repo funding and is measured on a gross-risk basis which does not account for

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213 Bowman et al., *supra* note 200, at 18–19.

214 *See, e.g.*, Liang & Parkinson, *supra* note 208, at 3, 8; TARULLO, *supra* note 178, at 1 n.2. The G-SIBs comprise: Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, J.P. Morgan, Morgan Stanley, State Street, and Wells Fargo. *Id.* at 1 n.2.

215 Jared Berry, Akber Khan & Marcelo Rezende, *How Do U.S. Global Systemically Important Banks Lower Their Capital Surcharges?*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Jan. 31, 2020), https://perma.cc/9DS3-VM2T. Here, we refer to the Fed's reliance on Method 2 analysis that is designed to produce a higher capital charge than that required under the internationally agreed Basel methodology (Method 1). Method 2 examines the bank's involvement in the short-term funding markets, replacing the substitutability metric required by Basel. The G-SIB surcharge ranges from 1%–5.5% under Method 2 and is calculated at the end of the year. Lorenzo Migliorato, *Six US G-Sibs Face Higher Surcharges Under Fed's Proposals*, RISK.NET (Mar. 19, 2024), https://www.risk.net/risk-quantum/7959136/six-us-g-sibs-face-higher-surcharges-under-feds-proposals.

accounting netting (in contrast to total leverage exposure). That means even if dealers can improve their netting efficiency by novating more trades to a CCP, they will likely remain constrained by some elements of the G-SIB surcharge calculation. All things considered, it is not clear if a broad clearing mandate will materially improve the elasticity of dealers making these markets.

3. Cross margining with futures and other derivatives.

Thus far, we have focused on the ways in which central clearing might affect the repo and secondary market for Treasuries.[216] But it could have a meaningful impact on derivatives as well. Treasury futures, for example, are cleared through the CME, not the FICC. Because margin is intended to protect the CCP, it must therefore be posted separately and calculated based on the exposure of each CCP only to the positions it is clearing. Therefore, a hedge fund with long (buy) positions in Treasury securities and short (sell) positions in Treasury futures might have to post substantial margin even if it is not taking much, if any, market risk in a single direction. Importantly, margin requirements on such positions can be quite volatile and generate a vicious cycle of hedge funds rapidly liquidating positions to meet collateral calls, as was likely the case in March 2020.[217]

Greater clearing of Treasury repo allows for more so-called cross margining of offsetting cash and derivative positions. In these arrangements, two CCPs develop a mechanism to transfer or share their claim to collateral posted by the trade counterparties, which in principle allows margin requirements to reflect the overall economic risk of the exposure rather than simply the side visible to each CCP individually. Such arrangements already exist for equity markets and were seen as a key element of the response of regulators and market participants to the Black Monday crash in 1987.[218] The CME and FICC in fact already have a

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[216] For an industry overview of anticipated market structure shifts in the cash and repo market following mandatory Treasuries clearing, see generally SEC. INDUS. & FIN. MKTS. ASS'N & ERNST & YOUNG LLP, U.S. TREASURY CENTRAL CLEARING: INDUSTRY CONSIDERATIONS REPORT 43–58, 68–72 (2024).

[217] *See* Joshua Younger, *Cross-Margining and Financial Stability*, YALE SCH. OF MGMT. (June 22, 2021), https://perma.cc/6KRV-39VA; *see also* Andreas Schrimpf, Hyun Song Shin & Vladyslav Sushko, *Leverage and Margin Spirals in Fixed Income Markets During the Covid-19 Crisis*, BANK INT'L SETTLEMENTS BULL., Apr. 2, 2020, at 1, 2–3.

[218] *See* NICHOLAS F. BRADY, JAMES C. COTTING, ROBERT G. KIRBY, JOHN R. OPEL & HOWARD M. STEIN, REPORT OF THE PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS 64–66 (1988).

cross-margining agreement in place and are looking to expand eligibility—a collaboration that has drawn praise in some sectors.[219] Any potential for stabilizing, even if not reducing, margin requirements on hedged positions through stress periods could improve the stability of Treasury markets.

4. Systematic information gains.

With central clearing, the Treasury market is likely to receive a much-needed source of comprehensive, reliable, and constant data. Surprisingly for a market of the size and stature of Treasuries, understanding it has long proven challenging—a fact made clear by the new market structure revealed by the Flash Rally in 2014. In their joint report, regulators cited high-quality and timely data, as well as efficient multilateral information sharing, as key to effective market surveillance and supervision.[220] Even as reforms have sought to broaden the field of vision to include major hedge funds and high-frequency trading firms, challenges remain. Repo markets are particularly difficult to monitor, especially the bilateral segment, which has not until recently been subject to mandatory data collection. Those and other data gaps have been cited—for example, by the Office of Financial Research (OFR)—as potentially impairing the ability of regulators to monitor the buildup of risks and vulnerabilities in those markets.[221]

To address this gap, the OFR recently adopted a new rule to introduce systematic data collection into the bilateral repo market.[222] Its reach is likely to dramatically increase insight into bilateral repo trading. Nevertheless, some have argued that complexities in the reporting and data collection regime could be a headwind to the collection or effective use of those data for market surveillance.[223]

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[219] *See, e.g.*, Paulina Pielichata, *Holes in the Netting: The Limits of CME–FICC Cross-Margin Deal*, RISK.NET (Jan. 15, 2024), https://www.risk.net/risk-management/7958796/holes-in-the-netting-the-limits-of-cme-ficc-cross-margin-deal.

[220] *See* U.S. DEP'T OF THE TREASURY ET AL., JOINT STAFF REPORT, *supra* note 9, at 49.

[221] Hempel et al., *Bilateral Repo*, *supra* note 175.

[222] *See* Ongoing Data Collection of Non-Centrally Cleared Bilateral Transactions in the U.S. Repurchase Agreement Market, 89 Fed. Reg. at 37,091; *Non-Centrally Cleared Bilateral Repo Data*, OFF. OF FIN. RSCH., https://perma.cc/8D4N-SNFK.

[223] *See* Letter from Jennifer W. Han, Exec. Vice President, Managed Funds Ass'n, to Michael Passante, Chief Couns., Off. of Fin. Rsch. (Mar. 10, 2023), https://perma.cc/499F-5K8D (addressing potential unintended consequences of a complex new reporting regime); DELOITTE & TOUCHE LLP, NEW REPO DATA COLLECTION INTRODUCED BY THE

Central clearing represents a potentially more promising mechanism for collecting data on activity in the Treasury market.[224] First, a CCP is able to collect granular transaction level data from entities that may otherwise fall outside of regular reporting due to gaps in the regulatory perimeter (e.g., the FINRA reporting regime has historically left out hedge funds and many high-frequency traders). Second, data standardization and central vetting should improve data quality. A deeper and more intricate picture of repos and the Treasury secondary market can facilitate a fuller understanding of the Treasury ecosystem more broadly as well as probe how disruptions in one segment impact another.[225]

On these terms, the SEC's mandate for central clearing would represent a transformation in the informational ecosystem for Treasuries.[226] Indeed, the new May 2024 OFR reporting rule for the bilateral repo market anticipates that the SEC's clearing proposal will lead to future CCPs becoming major data repositories.[227] Of course, some information gaps will likely remain even after the mandate is fully implemented. For example, some (perhaps a significant) volume of Treasuries might still remain outside of central clearing (some intended through exemptions, but some unintended, as we discuss later). That said, much of the information collected by a CCP will likely remain highly confidential and accessible only to regulators—as is the case for trade reporting in off-the-run Treasuries today.[228]

OFFICE OF FINANCIAL RESEARCH (OFR) (2024) (detailing the difficulty smaller firms might face in satisfying the new data compliance rules).

224 For discussions on the difficulty of data collection and potential solutions, see Yadav, *Failed Regulation*, *supra* note 83, at 1219–22; and Yadav & Yadav, *supra* note 18, at 1404–07.

225 *See* Yadav & Yadav, *supra* note 18, at 1388–92.

226 *See* Hempel et al., *Bilateral Repo*, *supra* note 175 (describing the current challenges in data collection in the non-centrally-cleared bilateral market). In the centrally cleared repo market, for instance, regulators acknowledge that the FICC represents an essential and reliable informational resource. *See, e.g.*, *Non-Centrally Cleared Bilateral Repo Data*, *supra* note 222.

227 *See* Hempel et al., *Bilateral Repo*, *supra* note 175; Ongoing Data Collection of Non-Centrally Cleared Bilateral Transactions in the U.S. Repurchase Agreement Market, 89 Fed. Reg. at 37,091–93.

228 *See Trade Reporting and Compliance Engine (TRACE): TRACE Data & Licensing*, FIN. INDUS. REG. AUTH., https://perma.cc/X2NG-LCWE.

B. Additional Considerations

The SEC's clearing mandate comes with several potential challenges as well. We do not take a view here on how they should be weighed relative to the potential benefits of broader central clearing. Our goal, rather, lies in detailing some potential concerns that are likely to create trade-offs. This Section focuses on: (1) the potential for evasion and (2) the new and unique systemic risks posed by a Treasury CCP.

1. Potential for evasion.

The above benefits presume that the vast majority of cash and repo Treasury trades face a CCP. Indeed, recent estimates suggest the mandate will cover more than $4 trillion of current bilateral activity.[229] But the ways in which activity in Treasury markets currently occurs—e.g., the format and terms of trades—reflect the current market structure and the incentives it provides. If those incentives change, we would expect markets to adapt, potentially in ways that might sit somewhat counter to the intent of the clearing mandate.

A key concern is the potential for evasion. Investors have already been quite vocal about the costs of central clearing,[230] as well as data privacy and security risks associated with increased disclosure, particularly what is made public and when (e.g., as seen in the Dodd-Frank reporting requirements for derivatives[231] and in response to new rules on bilateral repo data collection[232]). One way to avoid having to reveal information is to find ways to restructure transactions such that they fall outside the scope of the mandate. Commenters have identified several methods by which to do so. Taking a blunt approach, repo trades can be restructured as "securities lending" transactions. As the name suggests, in a securities lending arrangement, the owner of securities

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[229] *DTCC's FICC Treasury Clearing Activity Expected to Increase by over US$4 Trillion Daily as a Result of SEC Expanded Clearing Rules, According to New Industry Feedback*, *supra* note 186.

[230] *See* Helen Bartholomew, *Buy Side Frets over Cost of Compulsory Repo Clearing*, RISK.NET (Nov. 7, 2023), https://www.risk.net/derivatives/7958204/buy-side-frets-over-cost-of-compulsory-repo-clearing.

[231] *See* Alexander Osipovich, *Dodd-Frank Reporting Lets Traders Prey on Hedgers*, RISK.NET (Jan. 16, 2015), https://www.risk.net/commodities/2389652/dodd-frank-reporting-lets-traders-prey-hedgers.

[232] Ongoing Data Collection of Non-Centrally Cleared Bilateral Transactions in the U.S. Repurchase Agreement Market, 89 Fed. Reg. at 37,096.

lends them out for a period of time, and the borrower provides cash or some other securities to the lender as collateral. Although they are not a perfect substitute for repo, securities lending transactions are economically similar in certain key respects. This restructuring can work to place the deal outside of the clearing mandate while retaining essentially the same economics to the securities lender and cash borrower.[233]

In addition, a number of repo products are not covered by the mandate. For example, open repo lines (i.e., where the repo transaction does not have a maturity date) are not presently eligible for clearing. Further, products like guaranteed repos disintermediate dealers (i.e., FICC members) while retaining some logistical role and profit for them in the form of fees.[234] In a guaranteed repo, a dealer bank connects a repo borrower and lender, and agrees only to guarantee funding for facilitating the deal if it is ever required.[235] A dealer bank is not a direct party to the repo transaction, but merely acts as a connecter and backup funding provider.[236] In return, the dealer earns fees for convening the parties and guaranteeing funding.[237] Importantly, because the transaction is technically between the end parties (most likely not members of a CCP like the FICC), the repo transaction falls outside of the mandate.[238]

Finally, certain market participants could relocate their Treasury trades to offshore jurisdictions and into entities that fall outside the scope of the SEC's mandate and the visibility of U.S. authorities. As of the third quarter of 2023, only roughly half of hedge funds, as determined by net asset value, were domiciled in the United States, while nearly a third were located in the Cayman Islands.[239] At the same time, U.S. Treasuries represent a significant fraction of European repo activity.[240] All things considered, given the geographical spread of Treasuries trading

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233 *See* STATE ST. GLOB. ADVISORS, WHAT IS SECURITIES LENDING? (2023).

234 Shiv Rao, *Guaranteed Repo—Excluded from the US Treasury Clearing Mandate—Is a More Efficient Alternative*, FINADIUM (Jan. 30, 2024), https://perma.cc/9JYK-8AMP.

235 *See Guaranteed Repo: Innovation in the Repo Markets*, BLOOMBERG, https://perma.cc/GH7M-AQ9Y.

236 *See id.*

237 *See id.*

238 Rao, *supra* note 234.

239 DIV. OF INV. MGMT. ANALYTICS OFF., U.S. SEC. & EXCH. COMM'N, PRIVATE FUNDS STATISTICS: THIRD CALENDAR QUARTER 2023 13 (2024).

240 *See* RICHARD COMOTTO, INT'L CAP. MKT. ASS'N, EUROPEAN REPO MARKET SURVEY (2024).

outside of the United States, it is unclear how much of the overall Treasury market will end up being covered by the mandate in practice. Indeed, for mobile market participants, regulators face the risk that frequent participants in the Treasury market will decide to move their activities to foreign shores and into non-U.S. entities precisely to have the option to avoid the effect of the mandate.

Significant activity falling outside the scope of the clearing mandate presents two challenges. First, it complicates the risk management of the CCP, which will only have visibility into a fraction of the activity of its members and their clients. Second, any migration of activity offshore increases the potential blind spots of U.S. regulators and CCPs into the overall structure and activity of the Treasury market. There are, of course, opportunities for information sharing among various authorities. But reliance on cross-border information sharing requires establishing effective and fast-moving coordination mechanisms between authorities for this purpose. From the standpoint of policy goals underlying the mandate, the risk of information fragmentation within the Treasury market runs counter to the mandate's intention. It also undermines the potential for CCPs to offer high quality, comprehensive, more standardized, and timely market data.

2. Risk management.

If the SEC is in fact successful in moving significant swaths of the Treasury market into central clearing, its progress will introduce some novel and complex considerations with respect to risk management of a Treasuries CCP. Numerous scholars believe that, while systemic risk can in principle be reduced and transferred, it cannot be fully eliminated.[241] In the case of the CFTC's clearing mandate for OTC derivatives, the risk transfer shifted risk from the books of derivatives dealers to those of the CCPs. Although generally seen as an improvement, in no small part owing to the presence of two major CCPs for that market, the

[241] *See, e.g.*, Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349, 1395 (2011) ("Central clearing merely shifts counterparty risk to a clearinghouse, reducing that risk only to the extent that clearinghouses can manage risk better or are more creditworthy than individual firms."); Thomas B. King, Travis D. Nesmith, Anna Paulson & Todd Prono, *Central Clearing and Systemic Liquidity Risk*, 19 INT'L J. CENT. BANKING 85, 86–88 (2023) (describing the "potential transfer of distress 'horizontally' from one financial intermediary or market to another").

Treasury market once again presents a distinct and unique challenge. As the proportion of activity in Treasury markets that is centrally cleared increases, so too does the systemic importance of the CCPs standing behind these trades. The IAWG clearly acknowledged this risk, noting that the resilience of a Treasury CCP "is of great importance."[242]

As noted above, CCPs have well-established techniques for mitigating this risk. The first line of protection is, of course, resources provided by members that are calibrated to reflect their exposure. For example, variation margin secures the unrealized gains and losses of outstanding trades (to cover current exposure) and initial margin ensures that all positions are sufficiently over-collateralized (to cover potential future exposures).[243] CCPs also collect prefunded resources in the form of default funds to guard against any losses that exceed initial and variation margin. As noted above, international standards require that those funds are typically sized to cover the failure of the one or two largest clearing members. Should these prove insufficient,[244] CCPs can make additional cash assessments of their members to top up default funds, as well as look to their own capital to support shortfalls.[245]

Stepping further down this default waterfall, CCP recovery and resolution remains the subject of ongoing debate.[246] To be sure, the Financial Stability Board has occasionally published guidelines and standards, including one as recently as April 2024, on how such a resolution would play out in practice and how market participants might change their behavior were a CCP to find itself teetering.[247] However, real-world testing remains unknown.

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[242] INTER-AGENCY WORKING GRP., RECENT DISRUPTIONS, *supra* note 181, at 31.

[243] BASEL COMM. ON BANKING SUPERVISION, COMM. ON PAYMENTS & MARKET INFRASTRUCTURES & BD. OF THE INT'L ORG. OF SEC. COMM'NS, REVIEW OF MARGINING PRACTICES 5, 6 (2022); *see also* INT'L SWAPS & DERIVATIVES ASS'N, CCP BEST PRACTICES 11 (2019).

[244] *See* David Murphy & Paul Nahai-Williamson, *Dear Prudence, Won't You Come Out to Play? Approaches to the Analysis of Central Counterparty Default Fund Adequacy*, BANK ENG. FIN. STABILITY PAPERS, Oct. 24, 2014, at 1, 14; Campbell, *supra* note 162; Luke Clancy & Paulina Pielichata, *Bloating CCP Default Funds. New Margin Models. Are the Two Linked?*, RISK.NET (Jan. 18, 2024), https://www.risk.net/risk-management/7958810/bloating-ccp-default-funds-new-margin-models-are-the-two-linked.

[245] *See* ABN AMRO CLEARING BANK ET AL., A PATH FORWARD FOR CCP RESILIENCE, RECOVERY AND RESOLUTION 3 (2020).

[246] *See, e.g.*, Manmohan Singh & Dermot Turing, *CCP Resolution Remains Unresolved*, *in* COLLATERAL MARKETS AND FINANCIAL PLUMBING 177, 178–80 (3d ed. 2020).

[247] FIN. STABILITY BD., FINANCIAL RESOURCES AND TOOLS FOR CENTRAL COUNTERPARTY RESOLUTION 5–6 (2024).

Importantly, a Treasury CCP presents a particularly thorny challenge. The failure of any major CCP would constitute a significant systematic event. But the unique role of the Treasury market means that a Treasury CCP failure could have broader consequences. This arises from the fact that the default waterfall for other CCPs is tied to the proper functioning of the Treasury market either directly or indirectly. First and foremost, margin posted to those clearinghouses is predominantly invested in sovereign bond and repo markets.[248] CCPs can also tap repo lines and other liquidity facilities for liquidity. But those facilities are themselves collateralized by Treasuries, which again would be tied to functioning of the market and, by implication, the performance of a Treasury CCP.[249] Finally, additional cash assessments from members would presumably involve some monetization of high-quality liquid assets, likely predominantly Treasuries. If the instability of a Treasury CCP were to significantly impair market functioning (which is more likely if a greater fraction of the market is cleared), liquidity constraints on other CCPs could adversely affect their perceived stability. This dynamic increases the risk of contagion.

This risk may seem exceedingly remote. As noted above, the failure of Lehman Brothers affected more than $9 trillion in interest rate swap exposure at LCH.ClearNet; LCH.ClearNet handled this without even having to dip into the default fund.[250] However, near misses for clearinghouses and CCPs are more common than this one case study might suggest.[251] The stock market crash on Black Monday, for example, led to the near failure of the CME and First Options. For the CME, some have speculated that the worst case scenarios were arguably only avoided by the aggressive provision of liquidity, instigated by the Federal Reserve of New York, to CME's members.[252] First Options was saved only through the temporary suspension of rules around interaffiliate transactions, which allowed First Options to access Federal

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[248] Iñaki Aldasoro, Fernando Avalos & Wenqian Huang, *Liquid Assets at CCPs and Systemic Liquidity Risks*, BANK INT'L SETTLEMENTS Q. REV., Dec. 2023, at 33, 35.

[249] *See* FIN. STABILITY BD., CENTRAL COUNTERPARTY FINANCIAL RESOURCES FOR RECOVERY AND RESOLUTION 38 (2022).

[250] Allen, *supra* note 139, at 1081–82.

[251] Umar Faruqui, Wenqian Huang & Előd Takáts, *Clearing Risks in OTC Derivatives Markets: The CCP–Bank Nexus*, BANK INT'L SETTLEMENTS Q. REV., Dec. 2018, at 73.

[252] BD. OF GOVERNORS OF THE FED. RSRV. SYS., THE VIEWS OF THE BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM ON THE CONSOLIDATION OF BANK SUPERVISION AND REGULATION 13–14 (1994).

Reserve liquidity through its parent, Continental Illinois.[253] The only examples of actual failures are overseas, but there are several: the French Caisse de Liquidation des Affaires en Marchandises (1974), the Kuala Lumpur Commodity Clearing House (1983), and the Hong Kong Futures Guarantee Corporation (1987).[254] In March 2020, a client of CME Clearing member ABN AMRO failed, triggering around $200 million in losses that had to be managed.[255] More recently, the London Metals Exchange came under intense pressure due to a surge in nickel prices after the Russian invasion of Ukraine, forcing the exchange to cancel trades which, if left to stand, could have led to the default of several clearing members and, potentially, the failure of the Exchange itself.[256] In other words, as the Bank of International Settlement has put it, CCP and clearinghouse failures are a "rare but present danger."[257]

How to account for this first-among-equals place in the pantheon of systemically important institutions in the risk-management practices of Treasury CCPs is a critical consideration for policy. As it stands, there is only one such institution (the FICC) in the Treasury market.[258] This concentration risk in a single institution would be mitigated if there were several major CCPs with significant market share in the post-mandate Treasury market. However, a multiplicity of Treasury CCPs could also create a different risk, whereby the market for clearing services ends up more fragmented and where single CCPs have less volume against which to set-off and net trades or collect collateral and fees.

In the past, clearinghouse members or affiliates with access to Federal Reserve liquidity (i.e., the Discount Window) have used or been encouraged to use those resources to support CCPs during

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253 *See* Bernanke, *supra* note 138, at 148.

254 Faruqui et al., *supra* note 251, at 86; *see also* Peyton Young, *Risk Spotlight: Central Counterparties—Lessons Learned from LME's Nickel Market Closure*, OFF. OF FIN. RSCH. (Feb. 13, 2023), https://perma.cc/K9UP-7JFU (noting that a surge in the price of nickel resulted in insufficient margin on the clearinghouse for the London Metals Exchange, prompting a shutdown of the nickel market to avoid risking CCP failure).

255 Paddrik & Zhang, *supra* note 138, at 3.

256 Andy Home, *The London Metal Exchange's Near-Death Nickel Experience*, REUTERS (Dec. 1, 2022), https://www.reuters.com/article/markets/the-london-metal-exchanges-near-death-nickel-experience-andy-home-idUSL8N32R32O.

257 Faruqui et al., *supra* note 251, at 86.

258 The FICC specifically relies to some extent on a Capped Contingency Liquidity Facility (CCLF) for loss mitigation and liquidity support. *See* FIXED INCOME CLEARING CORP., *supra* note 162, at 231–34. The CCLF's efficacy is itself somewhat dependent on proper repo market functioning. That is because the FICC rulebook does not require that CCLF contributions be prefunded, only that senior bank officers attest to their incorporation into the bank's liquidity planning. *Id.* at 235.

periods of severe stress.[259] Today, most major CCPs are DFMUs under Title VIII of Dodd-Frank[260]—a designation that comes with access to the Fed's balance sheet (along with enhanced supervision).[261] DFMUs can, in principle, obtain emergency liquidity from the Fed via the Discount Window, but only under "unusual or exigent circumstances" and subject to a majority vote of the Board of Governors, consultation with the Secretary of the Treasury, and after evidencing an inability to "secure adequate credit accommodations from other banking institutions."[262]

Finally, we would be remiss not to address more operational and general business risks like cyberattacks. Both have been in the news recently following the CrowdStrike incident, where a botched security upgrade in July 2024 resulted in a number of major financial and other institutions around the globe suffering days-long disruption to services.[263] In 2023, the Industrial and Commercial Bank of China—a material player in the Treasury market—suffered a serious ransomware attack.[264] These incidents highlight the risks of such outages to key nodes in financial infrastructure. Were a major Treasury CCP to be similarly affected, the consequences could have been far more destabilizing.

Taken together, a Treasury CCP would be uniquely important and interconnected. These issues can be addressed through waterfall design, including margin as well as both actual and contingent member commitments to support its liquidity. More than one major Treasury CCP could, in principle, mitigate these risks somewhat by providing redundancy. But, in the end, we always have to contend with known unknowns and unknown unknowns—both of which take on a unique character in the case of a Treasury CCP.

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259 *See supra* notes 250–54.

260 *See* Labonte et al., *supra* note 129, at 3.

261 *See* 12 U.S.C. § 5465(a).

262 *Id.* § 5465(b).

263 *See* Dan Milmo, Julia Kollewe, Ben Quinn, Josh Taylor & Mimi Ibrahim, *Slow Recovery from IT Outage Begins as Experts Warn of Future Risks*, THE GUARDIAN (July 19, 2024), https://perma.cc/VR5A-PWAB.

264 *See* Costas Mourselas, Kate Duguid, Joshua Franklin & Hannah Murphy, *Ransomware Attack on ICBC Disrupts Trades in US Treasury Market*, FIN. TIMES (Nov. 10, 2023), https://www.ft.com/content/8dd2446b-c8da-4854-9edc-bf841069ccb8; Arjun Kharpal, *China's ICBC, the World's Biggest Bank, Hit By Cyberattack that Reportedly Disrupted Treasury Markets*, CNBC (Nov. 10, 2023), https://perma.cc/25HQ-6DPE.

CONCLUSION

As a foundational taproot of the U.S. economy, the Treasury market undergirds the financial markets that power the global economy. Over the last decade, however, occasional signs of instability have raised concerns about the ability of the Treasury market to consistently serve that function, particularly during periods of stress. Significantly expanding central clearing has emerged as a way forward to strengthen the Treasury market. Tried and tested in other contexts, CCPs offer an appealing mechanism for reducing counterparty risk and standardizing risk management, as well as ancillary benefits of much-improved data collection and market monitoring. These are all appealing features for the Treasury market. Further, in the specific case of Treasuries, concentrating activity at a single counterparty allows dealers to make more efficient use of their limited balance sheets and other scarce resources. That, in turn, offers the promise of a more consistent realization of the "depth, breadth, and resiliency" toward which policymakers have been striking for more than seventy years.[265]

That said, although the fact of these improvements is nearly a tautology, their impact in practice remains the subject of debate. In that sense, there is clear value in research that sets out realistic expectations for how a broad clearing mandate might improve the resiliency of Treasury market functioning to a broad variety of shocks. Moreover, there are several new and important trade-offs worthy of consideration. While reducing counterparty risks, CCPs cannot, by themselves, boost liquidity, suggesting that shortfalls in liquidity must be addressed using other tools and incentives. Additionally, by increasing the concentration and interconnectedness of the market, Treasury CCPs present significant systemic risk-management considerations. Some of those challenges are, in either degree or in kind, unique to a Treasury market CCP, and therefore are less amenable to being shaped by prior experience managing other important but less interconnected markets. Taken as a whole, while a clearinghouse can certainly fill some of the cracks in the Treasury market's taproot, it is not able nor designed to address every element of the demonstrated fragility

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[265] *Federal Reserve System After Fifty Years: Hearings Before the H. Subcomm. on Domestic Fin. of the Comm. on Banking and Currency*, *supra* note 64, at 2007.

of Treasury market structure by itself. As a result, the introduction of the clearinghouse represents a major intervention for reforming the Treasury market, but is far from the last word on the topic.