



# **White Paper on Data Availability and Transparency in the U.S. Treasury Securities Market**

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## Introduction/Executive Summary

The U.S. Treasury securities (Treasuries) market is the largest and most liquid financial market in the world and a key component of both the U.S. and global financial systems. Nonetheless, concerns about the market's resilience have been raised by several events in recent years, including the October 15, 2014 flash rally, the September 2019 money market dislocations, and COVID-related disruptions in March 2020. Moreover, the market has evolved considerably over time and likely will continue to change with increased use of advanced technology, innovations in execution venues, and growth in debt outstanding. These developments have spurred increased interest by academics, market participants, and policymakers in how market resilience might be improved.<sup>1</sup>

One area of focus concerns the availability of Treasury market data to the official sector and the transparency of such information to market participants and the public. The October 2014 flash rally spurred efforts resulting in the advent of cash Treasury transaction reporting in July 2017 via the Financial Industry Regulatory Authority's (FINRA's) Trade Reporting and Compliance Engine (TRACE). That data proved valuable to the official sector in tracking prices and activity during the March 2020 disruptions. Various limitations of the data were also illuminated, including the need for more timely access to information on investor flows and positioning to help the official sector diagnose problems and identify solutions more quickly. Moreover, several studies indicate that increased transparency to market participants may lead to a more efficient and stable market.<sup>2</sup>

With this background, the Treasury Market Practices Group (TMPG) agreed to initiate a working group on data and transparency at its November 2020 meeting. The group was tasked with cataloging data that is currently available in the Treasury market, identifying any gaps and potential improvements in data completeness and transparency, and considering best practice guidance that could help support market integrity and efficiency. In November 2021, the TMPG released a draft catalog and summary note of data currently available in the Treasury cash (primary and secondary), futures, and financing

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<sup>1</sup> See, for example, Duffie, Darrell. 2020. "[Still the World's Safe Haven? Redesigning the U.S. Treasury Market after the COVID-19 Crisis](#)," Brookings Institution, Hutchins Center Working Paper 62, June; and Inter-Agency Working Group on Treasury Market Surveillance. 2021. "[Recent Disruptions and Potential Reforms in the U.S. Treasury Market: A Staff Progress Report](#)," November 8.

<sup>2</sup> See, for example, Liang, Nellie, and Pat Parkinson. 2020. "[Enhancing Liquidity of the U.S. Treasury Market Under Stress](#)," Brookings Institution, Hutchins Center Working Paper 72, December 16; Group of Thirty. 2021. "[U.S. Treasury Markets: Steps Toward Increased Resilience](#)," July; and Brookings Institution. 2021. "[Report of the Task Force on Financial Stability](#)," June 29.

markets.<sup>3</sup> Since then, the working group has finalized the catalog<sup>4</sup>, considered principles for data availability and transparency, and assessed data gaps in light of these principles and efforts already underway to fill the gaps. This paper is a culmination of these efforts.

The paper begins by reviewing why data availability and transparency are important. It first discusses the key official sector uses of Treasury data including market monitoring and market surveillance, which promote fair, orderly, and efficient markets, support the U.S. Department of Treasury's (U.S. Treasury) efforts to issue securities at the least cost over time, and facilitate effective monetary policy implementation. It then discusses how market participants use information on prices, flows, positions, and market conditions, and how this supports price discovery, market efficiency, and market fairness.

The paper continues by proposing principles for assessing data availability and transparency. The group believes that data on market prices and conditions should be available to the official sector to promote effective market monitoring and surveillance, and that data on flows and positions should be available to the official sector to promote understanding of the risks to institutions and to financial stability more broadly. The group also thinks that certain information on prices and market activity should be transparent to the private sector to allow for informed trading decisions, efficient trade execution and evaluation, and proper pricing of positions. However, the benefits of any new efforts to collect data or increase public transparency must be carefully weighed against their costs (including whether transparency changes have potential adverse liquidity impact) to ensure changes are not counterproductive to the goals of a more liquid, efficient, and resilient market.<sup>5</sup>

The paper proceeds to review the current state of data availability and transparency in the futures, cash, and financing markets, distinguishing between information available before a trade (pre-trade) and that available after (post-trade). A general finding is that differences in market structure result in differences in the level and homogeneity of data availability and transparency. Treasury futures largely trade on a single exchange, resulting in a high level and consistency of data availability and transparency. Cash and financing trades, in contrast, trade off-exchange in various venues with a variety

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<sup>3</sup> See [https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/DT\\_Draft\\_Catalogues.pdf](https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/DT_Draft_Catalogues.pdf) and [https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/DT\\_Note.pdf](https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/DT_Note.pdf).

<sup>4</sup> See [https://www.newyorkfed.org/medialibrary/microsites/tmpg/files/DT\\_Catalogs.pdf](https://www.newyorkfed.org/medialibrary/microsites/tmpg/files/DT_Catalogs.pdf).

<sup>5</sup> Releasing data with appropriately calibrated delays and/or caps on the sizes of larger trades are ways to increase transparency while mitigating unintended consequences. Ensuring that reporting requirements don't promote the migration of trading activity to non-reporting entities is another.

of protocols and reporting requirements, resulting in more varied data availability and transparency. Timely information on trade prices and quantities is thus widely available for participants or data subscribers for some market segments, but is less widely available for other market segments.

In reviewing the current state of data availability and transparency, we consider the numerous efforts recently taken and underway to improve both factors. These include: a) enhanced collection of Treasury market data through TRACE and a proposal to release transactions data for certain securities; b) the Office of Financial Research's (OFR's) pilot data collection on non-centrally cleared bilateral repurchase agreements (repos), and its proposed rule for an ongoing data collection; c) proposed enhancements to the Securities and Exchange Commission's (SEC's) Form PF, which collects data on private funds such as large hedge funds; and d) options for improving the official sector's ability to identify participants' activities across key Treasury data collections. A fuller discussion of these efforts appears below and in the recently released Staff Progress Report of the Inter-Agency Working Group on Treasury Market Surveillance (IAWG).<sup>6</sup>

The paper concludes by highlighting areas where data availability and transparency seem to fall short of the principles proposed in the paper. The group finds that data availability and transparency in the futures market are generally high, but that there are some meaningful gaps in coverage or timeliness in both the cash and financing markets. In terms of pre-trade data, the biggest gaps in availability and transparency are in the financing market, which at least partly reflects the decentralized market structure and trading protocols employed. In terms of post-trade data, there are substantive gaps in both cash and financing markets, although active evaluation of the costs and benefits of releasing cash market transactions data is ongoing. Gaps exist in flows/positions data in the cash and financing markets as well, with efforts underway to address them at least partially.

## Why Are Data Availability and Transparency Important?

Data availability to the official sector and transparency of such information to market participants and the public are important because of the many beneficial uses to which the data are put by the official sector and by market participants more broadly.

### A. Official Sector Uses

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<sup>6</sup> Inter-Agency Working Group on Treasury Market Surveillance. 2022. "[Enhancing the Resilience of the U.S. Treasury Market: 2022 Staff Progress Report](#)," November 10.

The official sector uses information on prices and market conditions for market monitoring and market surveillance. By market monitoring, we mean the evaluation of price changes, trading activity, liquidity, and other measures of market functioning for general purposes of understanding what is happening in the market and why. By market surveillance, we mean the assessment of these same factors for understanding whether the activities of one or more specific market participants may be having undue influence on the behavior of one or more securities or posing risks to market functioning or financial stability.

Market monitoring and surveillance promote fair, orderly, and efficient markets. Market monitoring enables policymakers to consider market conditions in making decisions about debt issuance, buybacks, and monetary policy implementation. In March 2020, for example, the Federal Reserve initiated purchases of Treasuries to promote smooth market functioning, relying on metrics of market functioning (and hence data) to make purchase decisions.<sup>7</sup> More generally, the Fed's practice of buying securities that are relatively cheap in its open market operations promotes market liquidity and relies on good market data. In contrast to market monitoring, market surveillance promotes fairness and market stability, with beneficial consequences for market participation, efficiency, and liquidity.

Fair, orderly, and efficient markets, in turn, support a variety of essential public purposes. First, Treasuries trade at a premium because of their extraordinary liquidity, so a liquid Treasury market supports the U.S. Treasury's efforts to issue securities at the least cost over time. Moreover, a liquid and efficient Treasury market ensures that the Fed's policy actions in the Treasury market or money markets get transmitted across the curve and to other financial markets, thereby supporting effective monetary policy implementation. In addition, Treasuries are widely used as a pricing and hedging benchmark for other securities because of their high liquidity, promoting the liquidity and efficiency of financial markets more generally. A liquid and efficient Treasury market is also a key aspect of the U.S. dollar's role as a reserve currency.

Aside from information on prices and market conditions, the official sector uses information on flows and positions to monitor the activities of institutions and evolving risks to such institutions and to financial stability more broadly. Form PF, for example, is used by the Financial Stability Oversight

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<sup>7</sup> See Logan, Lorie. 2020. "[The Federal Reserve's Market Functioning Purchases: From Supporting to Sustaining](#)," Remarks at SIFMA Webinar, July 15; Federal Reserve Bank of New York. 2021. "[Open Market Operations during 2020](#)," May; and Fleming, Michael, Haoyang Liu, Rich Podjasek, and Jake Schurmeier. 2022. "[The Federal Reserve's Market Functioning Purchases](#)," Federal Reserve Bank of New York *Economic Policy Review* 28 (1), June, 210-41.

Council (FSOC) to monitor and assess systemic risk and in the SEC's and Commodity Futures Trading Commission's (CFTC's) regulatory programs, including examinations, investigation, and investor protection efforts relating to private fund advisers.<sup>8</sup>

## B. Private Sector Uses

Market participants more broadly use information on prices, flows, positions, and market conditions to make trading decisions and to assess the quality of trade execution, thereby promoting price discovery, market efficiency, and market fairness. That is, data about prices and market conditions provide market participants with information about where there may be profitable trading opportunities, which particular securities they should buy or sell to meet their portfolio needs, and when they should trade. Once having decided what to buy or sell, such information is valuable for evaluating the competitiveness of available quotes before the trade and for evaluating execution performance after the trade. Moreover, such information can also be used by liquidity providers to better hedge and manage risks, potentially decreasing their market-making costs, and can reduce informational asymmetries, which may facilitate new entry.<sup>9</sup> For all these reasons, well-calibrated transparency can lower execution costs, promote market fairness, broaden participation, and lead to greater trading activity, price discovery, and market resilience.<sup>10</sup>

There is extensive academic literature exploring the effects of transparency on financial markets. There is general agreement from such work that even limited disclosure can improve liquidity and reduce transaction costs, although some studies show that too much transparency can reduce liquidity because traders are unwilling to reveal their intentions to trade.<sup>11</sup> One example that may be especially pertinent to the ongoing discussion of increased Treasury transparency is the experience with corporate bond transaction reporting. Several studies assess how public dissemination of corporate bond trade information affects transaction costs, finding that increased transparency is associated with

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<sup>8</sup> See, for example, [“Form PF: Reporting Requirements for All Filers and Large Hedge Fund Advisers: A Proposed Rule by the Commodity Futures Trading Commission and the Securities and Exchange Commission on 09/01/2022,”](#) Federal Register (87 FR 53832), as corrected by 87 FR 54641 (September 7, 2022).

<sup>9</sup> By liquidity providers, we mean financial institutions that stand ready to buy or sell securities from investors that have less flexibility in the timing of their trades and hence demand immediacy (or liquidity).

<sup>10</sup> “Well-calibrated” transparency may be key as excessive transparency may be detrimental to liquidity, especially for block trades or less active securities. As noted above, releasing data with appropriate delays and/or caps on the sizes of larger trades are ways to increase transparency while mitigating unintended consequences; ensuring that reporting requirements don't promote the migration of trading activity to non-reporting entities is another.

<sup>11</sup> Madhavan, Ananth. 2000. “Market microstructure: A survey,” *Journal of Financial Markets* 3, 205-58.

narrower bid-ask spreads.<sup>12</sup>

To be sure, the experiences from other markets may not apply perfectly to the Treasury market. The Treasury market is more transparent than the corporate bond market was before the introduction of trade reporting, suggesting that the benefits of greater transparency may be more modest. Conversely, given the Treasury market's widespread role as a benchmark, even slight improvements in efficiency and liquidity might produce sizeable positive liquidity externalities for related markets. Regular and predictable issuance supported by primary dealers and others is another aspect of the Treasury market that differs from other markets. It follows that the effects of any changes to market transparency on dealers' and others' incentives to support Treasury issuance deserve careful consideration.<sup>13</sup>

Aside from its role in the trading process, transparency can have broader financial stability benefits if it leads to a more liquid and active market. First, more timely and accurate information about security valuation is useful for the role prices play in valuing portfolios of assets, be they investment portfolios or securities pledged as collateral. Second, higher liquidity reduces the risk of prices deviating far from fundamentals for a given level of trading (for example, during a fire sale of assets). Both of these benefits mitigate the risks of liquidity spirals in which illiquidity and higher margin requirements reinforce one another.<sup>14</sup>

## Principles for Assessing Data Availability and Transparency

In thinking about principles for assessing data availability and transparency for the Treasury market, the TMPG was guided by the six principles provided in the 2021 Staff Progress Report of the

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<sup>12</sup> Goldstein, Hotchkiss, and Sirri (2007) find that increased transparency is associated with narrower bid-ask spreads for all but the largest trades, and attribute the decrease in trading costs to investors' enhanced ability to negotiate better terms of trade with dealers due to investors' access to better bond-pricing data. Edwards, Harris, and Piwowar (2007) find that bonds for which there is public reporting have lower transaction costs than non-transparent bonds and that transaction costs decrease when bonds' prices become more transparent. Bessembinder, Maxwell, and Venkataraman (2006) find that trade execution costs fell roughly 50 percent for bonds eligible for public reporting and 20 percent for ineligible bonds, with the latter finding suggesting a possible "liquidity externality," where by better pricing information for some bonds improves valuation and execution cost monitoring for related bonds.

<sup>13</sup> Although primary dealers are expected to bid on a pro-rata basis in all Treasury auctions at reasonably competitive prices (see <https://www.newyorkfed.org/markets/primarydealers>), their share of purchases at auction have declined over time (see Fleming, Michael, and Sean Myers. 2013. "Primary Dealers' Waning Role in Treasury Auctions," Federal Reserve Bank of New York *Liberty Street Economics*, February 20).

<sup>14</sup> For a discussion of liquidity spirals, see Brunnermeier, Markus K. and Lasse Heje Pedersen. 2009. "Market Liquidity and Funding Liquidity," *Review of Financial Studies* 22 (6), June, 2201-38.



IAWG.<sup>15</sup> One of the six is focused on transparency (“transparency that fosters public confidence, fair trading, and a liquid market”), and several of the others (including “resilient and elastic liquidity” and “prices that reflect prevailing and expected economic and financial conditions”) may benefit from increased transparency. Our principles for data and transparency are drawn from, and expand upon, those of the IAWG Staff Progress Report, especially the one on transparency, and distinguish between official sector data availability and broader public transparency, as discussed in the preceding section.

**Our first principle is that data on market prices, activity, and market conditions should be available to the official sector to promote effective market monitoring and surveillance in support of primary market issuance, secondary market functioning, and monetary policy implementation.** That is, subject to safeguards to maintain confidentiality, and that costs are not prohibitive, the official sector should have all the data it needs for market monitoring and surveillance. As discussed earlier, market monitoring and surveillance promote fair, orderly, and efficient markets which, in turn, support the U.S. Treasury’s efforts to issue securities at the least cost over time, promote effective monetary policy implementation, and benefit the financial system more broadly.

**Our second principle is that data on flows and positions should be available to the official sector to promote understanding of the risks to institutions and to financial stability more broadly.** Again, subject to appropriate safeguards and cost considerations, the official sector should have the information it needs to monitor and assess systemic risk and for the supervision and regulation of individual financial institutions and/or particular types of financial institutions.

**Our third principle is that data on prices and market activity should be available to the private sector to allow for informed trading decisions, efficient trade execution and evaluation, and proper pricing of positions to promote price discovery, market efficiency and market fairness.** The data should be available subject to the cost and confidentiality reasons mentioned above, but also subject to the limitation that transparency is not so high that it harms price discovery and market efficiency. That is, transparency should not be so high that intermediaries cannot make markets effectively and efficiently because of the risk that the market moves against them before their trade with their customer is sufficiently hedged (or unwound). Consistency is also important to ensure that reporting

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<sup>15</sup> The six principles, described in Section 4 of the report, are 1) Resilient and elastic liquidity, 2) Transparency that fosters public confidence, fair trading, and a liquid market, 3) Prices that reflect prevailing and expected economic and financial conditions, 4) Economic integration across cash, funding, and derivatives markets, 5) Financing that does not pose a significant threat to financial stability, and 6) Infrastructure that operates effectively and efficiently.

requirements don't provide incentives for trading activity to migrate to entities without such requirements.

In other markets, transaction-level transparency has been increased in steps using trade size caps and reporting delays in order to protect against too much transparency and thereby safeguard market function. Careful consideration should be given to the timeliness and level of detail of any proposed public release of Treasury transactions data so as to mitigate possible negative effects of too much transparency. For less liquid segments of the market, in particular, a graduated increase in transparency would seem especially appropriate. Achieving the appropriate degree of transparency can face resistance and hence be difficult as a change in transparency that improves price discovery and market efficiency is not necessarily beneficial to all market participants.

## Current State of Data Availability and Transparency

We proceed to characterize the current state of data availability to the official sector and the transparency of such information to market participants and the public. We do this by market segment—futures, cash, and financing—distinguishing between pre-trade and post-trade information, as well as information on flows and positions.<sup>16</sup> Where relevant, we mention recent or ongoing initiatives of the CFTC, Federal Reserve, IAWG, OFR, SEC, and U.S. Treasury that may have a bearing on data availability and transparency in the future.

### A. Futures Market

We begin our review of data availability and transparency with the futures market given the market's relatively simple structure. Futures transactions in the U.S. must trade on or report to an exchange and most Treasury futures trade on the CME Group's Chicago Board of Trade. This relatively simple market structure means that the availability and transparency of futures data is also fairly straightforward.

#### i. Pre-Trade

In the futures market, the bid and offer prices and associated quantities from the CME Group's central limit order book (CLOB) are generally available to market participants and non-market

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<sup>16</sup> Note that the paper does not characterize data availability and transparency for options on Treasury securities or Treasury futures, nor does it cover exchange-traded funds focused on Treasuries.

participants in real time via paid licensing agreements. Pre-trade price and quantity information is not available for block trades.

Due to the anonymous nature of the CME Group's order book, only the exchange and CFTC have access to account and market participant information pertaining to the submission of any quote.

#### ii. Post-Trade

Post-trade information in the futures market, including trade prices and sizes is available to market participants and non-market participants in real time via paid licensing agreements. This is true for trades that occur via the CLOB as well as for block trades, which are reported with a delay.<sup>17</sup> Open interest, trading volume, and other data are freely available, following the rules on what exchanges must make publicly available.<sup>18</sup>

Aside from what is available to market participants and the public, the exchange and the CFTC have access to information on the specific counterparties to each trade.

#### iii. Flows/Positions

Information on flows and positions in the futures market includes the CFTC's Commitments of Traders reports, including the Traders in Financial Futures report, which provides a breakdown of reportable open interest positions by trader type on a weekly basis.<sup>19</sup> Information on hedge funds' month-end gross notional exposures in U.S. Treasuries (cash plus derivatives) as collected from the SEC's Form PF is released on a quarterly basis in the SEC's *Private Fund Statistics* report and in the Fed's Enhanced Financial Accounts.<sup>20</sup>

The official sector naturally has more detailed information than is released in aggregate form to the public, including positions and exposures by specific entity.

In January 2022, the SEC proposed an amendment to Form PF to require additional data reporting by certain investment advisers to "provide the Commission and FSOC with more timely

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<sup>17</sup> For block trades, the delay is 5 minutes during regular trading hours and 15 minutes during off-trading hours.

<sup>18</sup> See "[Publication of market data on futures, swaps and options thereon: trading volume, open contracts, prices, and critical dates](#)," Code of Federal Regulations, Title 17, Section 16.01.

<sup>19</sup> See [Commodity Futures Trading Commission, Commitments of Traders Index](#) for additional information.

<sup>20</sup> For additional details, see: [U.S. Securities and Exchange Commission, Private Fund Statistics](#), and [Board of Governors of the Federal Reserve System, Enhanced Financial Accounts](#).

information to analyze and assess risks to investors and the markets more broadly.”<sup>21</sup> In August 2022, the SEC and CFTC jointly proposed amendments to Form PF requiring more granular information about activity in the Treasury securities market and associated derivatives “to improve data quality and comparability and to enhance investor protection efforts and systemic risk assessment.”<sup>22</sup>

## B. Cash Market

Data availability and transparency is more heterogeneous in the cash market given the market’s more diffuse structure. Treasury issuance is done via auction, and Federal Reserve operations (purchases or sales) and Treasury buybacks occur via multi-security auctions. Secondary market trading occurs via a variety of trading protocols and platforms, with most interdealer trading occurring on interdealer broker (IDB) CLOBs and most dealer-to-customer trading occurring via request-for-quote (RFQ) platforms or via voice/chat. Direct streaming and batch auctions are also used.<sup>23</sup>

### i. Pre-Trade

In the cash market, bid and offer prices and associated quantities are available to participants on the CLOBs, and to market participants more generally via subscription. Such information is also available to direct streaming customers. For most of the rest of the market, pre-trade information is largely limited to indicative prices, which are available to platform participants, and feeds that are sold via subscription.<sup>24</sup> Firm quotes are available to customers soliciting quotes in the RFQ or voice/chat market and may be streamed to customers. Official sector operations are distinct as they have high pre-trade transparency about quantities and security maturity ranges, with prices determined competitively.

The official sector does not have regular access to pre-trade information that is not available to market participants.

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<sup>21</sup> See [U.S. Securities and Exchange Commission, SEC Proposes Amendments to Enhanced Private Fund Reporting, January 26, 2022](#).

<sup>22</sup> See “Form PF; [Reporting Requirements for All Filers and Large Hedge Fund Advisers: A Proposed Rule by the Commodity Futures Trading Commission and the Securities and Exchange Commission on 09/07/2022](#),” Federal Register.

<sup>23</sup> For a discussion of the trading protocols used in the cash market, see Chaboud, Alain, et al. 2022. “[All-to-All Trading in the U.S. Treasury Market](#),” Federal Reserve Bank of New York *Staff Reports* 1036, October.

<sup>24</sup> Note that most on-the-run trading of notes and bonds occurs on electronic IDBs, which almost exclusively trade such securities, whereas most trading of other securities occurs in the dealer-to-customer market. It follows that the transparency of the on-the-run notes and bonds is much better. See Brain, Doug, et al. 2018. [Breaking Down TRACE Volumes Further](#),” Federal Reserve Bank of New York *Liberty Street Economics*, November 29.

## ii. Post-Trade

Post-trade information in the cash market is more limited than with futures, with trade prices and sizes from the CLOBs available to platform participants, and others via subscription. Post-trade information is generally not available for other protocols outside of the participating parties. Post-trade transparency is high for trades with the official sector, with auction, open market operation, and debt buyback stop-out prices and quantities disclosed shortly after the operations close and at the same time as private sector participants.<sup>25</sup> For auctions in particular, amounts bid and purchased by bidder category are released with the auction results, and amounts purchased by investor class are released with a lag.<sup>26</sup>

Post-trade cash market information is substantially better for the official sector, which naturally has better and more timely information about counterparties in official operations. Moreover, since the advent of Treasury TRACE in July 2017, FINRA-member broker-dealers have had to report their secondary market cash transactions in Treasuries to FINRA (and in September 2022, certain depository institutions began reporting these transactions to TRACE as well), and the official sector has had access to such data the next day.<sup>27</sup> Note that although Treasury TRACE contains many trade details, it generally does not include identifying information about dealers' counterparties for dealer-to-customer trades (other than whether they are affiliated with the dealer or not).<sup>28</sup> Trades that do not involve a FINRA-member broker-dealer or designated depository institution (such as those between foreign entities) are also excluded.

In addition to the transaction-level reporting discussed above, trading volume summary statistics are available to market participants and the public. The Federal Reserve collects information from the primary dealers on trading activity, positions, financing, and settlement fails on a weekly basis via the FR 2004 reports, and releases trading volume and other information aggregated across dealers

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<sup>25</sup> Detailed transactions data for open market operations are also released with an approximately two-year lag in compliance with the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (see [Board of Governors of the Federal Reserve System, Quarterly Transaction Data](#)).

<sup>26</sup> For a discussion and analysis of the bidder category and investor class data see Fleming, Michael. 2007. "[Who Buys Treasury Securities at Auction?](#)" Federal Reserve Bank of New York *Current Issues in Economics and Finance* 13 (1), January. For investor class allotment data. see [U.S. Department of Treasury, Investor Class Auction Allotments](#).

<sup>27</sup> The data are available to staff of the Treasury, Board of Governors of the Federal Reserve System, Federal Reserve Bank of New York, SEC, and CFTC.

<sup>28</sup> Since April 1, 2019, large IDBs have had to identify non-FINRA member counterparties in their Treasury TRACE transaction reports. See "[SEC Approves Amendment to Require Alternative Trading Systems to Identify Non-FINRA Member Subscribers in TRACE Reports for U.S. Treasury Securities](#)," Regulatory Notice 18-34, FINRA.

with a one-week lag.<sup>29</sup> FINRA also releases aggregated trading volume information on a weekly basis (and since February 2023 daily basis) based on the Treasury TRACE data.<sup>30</sup>

In terms of recent initiatives to improve data quality and availability:<sup>31</sup>

- In June 2022, the U.S. Treasury, in consultation with the IAWG, released a request for information on potential next steps that could be taken to provide additional post-trade data transparency in the market.
- In August 2022, the SEC approved FINRA's amendments to its TRACE reporting rules to improve the quality of reported data.
- In August 2022, the SEC approved FINRA's rule amendment regarding the public release of aggregated Treasury securities data, enabling FINRA to release aggregated data on a more frequent basis. In the proposal, FINRA noted the potential to release aggregate data on a daily basis, as well as to include additional information such as aggregate trade count and pricing information.
- In September 2022, certain depository institutions began reporting Treasury securities transactions to TRACE.
- In November 2022, the U.S. Treasury proposed the release of Treasury securities transaction data for on-the-run nominal coupons, with end-of-day dissemination and with appropriate cap sizes.<sup>32</sup>

### iii. Flows/Positions

Information on flows and positions in the cash market can be gleaned from an array of sources as compared to futures and includes the net Treasury security positions of primary dealers collected via the FR 2004 reports as well as the Form PF hedge fund Treasury exposures discussed earlier. Trading flows are also implicit in some of the post-trade data discussed above. Additional sources of positions data include:

- Aggregated holdings of Treasuries and agency securities by U.S. banks as reported in the Fed's H.8 statistical release, Assets and Liabilities of Commercial Banks in the U.S.<sup>33</sup>
- Individual holdings of mutual funds are reported monthly to the SEC via Form N-PORT with

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<sup>29</sup> The data are available here: [Primary Dealer Statistics](#).

<sup>30</sup> TRACE Treasury Aggregate Statistics are described here: <https://www.finra.org/filing-reporting/trace/data/trace-treasury-aggregates/about>.

<sup>31</sup> The first four initiatives listed are drawn from "[FACT SHEET: Progress of the Inter-Agency Working Group on Treasury Market Surveillance in Enhancing the Resilience of Treasury Markets](#)," September 22, 2022.

<sup>32</sup> [Remarks by Under Secretary for Domestic Finance Nellie Liang at the 2022 Treasury Market Conference](#), November 16.

<sup>33</sup> The Fed's statistical releases are available here: <https://www.federalreserve.gov/data.htm>.

holdings disclosed publicly on a quarterly basis.<sup>34</sup>

- Aggregated ownership of Treasuries by various market participant types as reported in the Fed's Z.1 statistical release, Financial Accounts of the United States.
- System Open Market Account holdings of Treasuries in aggregate and by CUSIP as reported by the Fed.<sup>35</sup>
- Aggregated holdings of Treasuries by Federal Reserve Banks and Treasuries held in custody by the Fed for foreign official and international accounts as reported in the Fed's H.4.1 statistical release, Factors Affecting Reserve Balances.
- Net transactions and aggregated holdings of Treasuries by foreign investors as reported in the U.S. Treasury's Treasury International Capital (TIC) data.<sup>36</sup>
- Monthly activity for securities within the Separate Trading of Registered Interest and Principal of Securities (STRIPS) program, including amount held in stripped form and amount reconstituted within the month, by CUSIP.<sup>37</sup>

The official sector has access to disaggregated information on the series noted above and hence more detailed information than is available to market participants and the public. Moreover, under the U.S. Treasury's large positions reporting rules, the U.S. Treasury can call for Large Position Reports on specific securities.<sup>38</sup> Even so, these sources are not comprehensive and aggregation can be difficult given the various sources and frequencies.

As mentioned earlier, the CFTC and the SEC recently proposed amendments to Form PF to require additional data reporting by certain investment advisers, which would provide the FSOC and SEC with more granular information about activity in the Treasury securities market and associated derivatives. Moreover, changes to TIC Form SLT recently took effect (in November 2022) so as to collect information on changes in fair value for TIC securities data and improve the connections between the holdings data, the purchases and sales data, and the "change in fair value" data.<sup>39</sup>

### C. Financing Market

As with the cash market, the financing market has a diffuse structure, leading to heterogeneity

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<sup>34</sup> See <https://www.sec.gov/files/formn-port.pdf>.

<sup>35</sup> See <https://www.newyorkfed.org/markets/soma-holdings>.

<sup>36</sup> For more details, see <https://home.treasury.gov/data/treasury-international-capital-tic-system>.

<sup>37</sup> For more details on STRIPS, see: <https://www.treasurydirect.gov/marketable-securities/strips/>.

<sup>38</sup> For more details, see <https://savingsbond.gov/laws-and-regulations/gsa/lpr-reports/>.

<sup>39</sup> See the [Federal Register Notice of June 2, 2021](#).

in data availability and transparency. Trading occurs via a variety of trading protocols and platforms, with interdealer trading occurring primarily on IDB CLOBs and dealer-to-customer trading occurring via various protocols, including voice/chat and electronic trading platforms. The Federal Reserve also engages in repos, reverse repos, and securities lending transactions through FedTrade, its proprietary trading system.

Data availability and transparency in the financing market are related to the manner in which securities trade and clear. Most interdealer trades are cleared through the central counterparty (CCP), the Fixed Income Clearing Corporation, using either its General Collateral Finance (GCF<sup>®</sup>) Repo Service or Delivery-Versus-Payment (DVP) Service.<sup>40</sup> Most dealer-to-customer trades (including all trades with the Fed) are settled bilaterally or via tri-party repo, although some dealer-to-customer trades are cleared using the CCP's Sponsored Service.

#### i. Pre-Trade

As with the cash market, bid and offer prices are available to participants on the IDBs, and may be available to market participants more generally via subscription. For most of the rest of the market, pre-trade information is largely limited to indicative price feeds, which are available to select customers and may also be packaged and sold. Firm quotes are available to customers soliciting quotes in the RFQ or voice/chat market. Official sector operations in repos and reverse repos are conducted via standing facilities at pre-announced minimum bid or maximum offer rates set by the Federal Open Market Committee (FOMC), with quantities determined based on demand, subject to limits.<sup>41</sup> Quantities available to be borrowed via the Fed's securities lending operations are known in advance, with fees determined at auction, subject to a minimum fee.<sup>42</sup>

The official sector does not have regular access to pre-trade information not available to market participants.

#### ii. Post-Trade

Post-trade information in the financing market is more limited than in the cash market, with

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<sup>40</sup> For a detailed discussion of the clearing and settlement protocols in the financing market for Treasury securities, see Treasury Market Practices Group. 2022. "[White Paper on Clearing and Settlement in the Market for U.S. Treasury Secured Financing Transactions](#)," November 9.

<sup>41</sup> For more information on the Fed's repo facilities, see [FAQs: Standing Repo Facility](#) and [FAQs: Reverse Repurchase Agreement Operations](#).

<sup>42</sup> See [FAQs: SOMA Securities Lending Program](#).



trade prices and sizes from the IDBs available to platform participants, and others via subscription. Post-trade information is generally not available for other protocols outside of the parties to a transaction. Post-trade transparency is high for trades with the Federal Reserve, however, with total amount submitted, total amount accepted, and award rate (weighted average rate in case of securities lending and standing repo facility operations) disclosed shortly after the operations close. Data detailing propositions accepted by counterparty type for the reverse repo facility are disclosed with a lag.<sup>43</sup>

Post-trade financing market information is substantially better for the official sector, which naturally has better and more timely information about counterparties in official operations. Although there is no reporting system for repos analogous to Treasury TRACE for cash transactions, the OFR collects transaction level data on all repos cleared at the CCP, and the Fed collects data on dealer-to-customer repos settled on BNY Mellon's tri-party repo settlement platform. Missing from these data collections are uncleared bilateral repos (that is, repos that settle bilaterally and are not centrally cleared).

In addition to the transaction-level reporting discussed above, trading activity summary statistics are available to market participants and the public. The OFR releases repo transaction volumes and average rates by venue (DVP, GCF, and tri-party) in its Short-term Funding Monitor.<sup>44</sup> Reference rates and associated volumes for Treasury repos are released by the Depository Trust & Clearing Corporation (DTCC) and the Federal Reserve Bank of New York.<sup>45</sup> Monthly snapshots of volume (GCF and tri-party repo), concentration (tri-party repo), and margins (tri-party repo) are also released by the Federal Reserve Bank of New York.<sup>46</sup> These sources are not comprehensive and aggregating across them is difficult given differences in their structures and frequencies.

In February 2022, the OFR informed the FSOC that it was working to close data gaps on uncleared bilateral repo transactions through a pilot data collection and planned subsequent rulemaking and in January 2023 the OFR proposed a rule to establish an ongoing data collection.<sup>47</sup> The SEC also

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<sup>43</sup> As with the cash data, more detailed transactions data for open market operations are released with an approximately two-year lag.

<sup>44</sup> See <https://www.financialresearch.gov/short-term-funding-monitor/>.

<sup>45</sup> See [DTCC GCF Repo Index](#) and [Federal Reserve Bank of New York, Reference Rates](#).

<sup>46</sup> See [Federal Reserve Bank of New York, Tri-Party/GCF Repo](#).

<sup>47</sup> See Hempel, Samuel J., R. Jay Kahn, Vy Nguyen, and Sharon Y. Ross. 2022. "[Non-centrally Cleared Bilateral Repo](#)," Office of Financial Research, *The OFR Blog*, August 24, and Office of Financial Research. 2023. "[Office of Financial Research Releases Proposal to Collect Data on Certain Repo Transactions](#)," January 5. Findings from an earlier pilot program are described in Baklanova, Viktoria, Cecilia Caglio, Marco Cipriani, and Adam Copeland. 2016. "[The U.S. Bilateral Repo Market: Lessons from a New Survey](#)," OFR Brief Series 16-01, January 13.

proposed, in November 2021, a rule that would require the reporting of securities lending transactions so as to improve information available to the official sector and the public.<sup>48</sup> Aside from these initiatives specifically intended to improve data quality and availability, the SEC proposed a rule in September 2022 that would enhance risk management practices for CCPs in the Treasury market and facilitate additional clearing of Treasury repo and securities transactions.<sup>49</sup> Moving some portion of repo transactions from the uncleared bilateral space (which is less transparent) to the cleared space (which is more transparent) would also result in improved transparency.

### iii. Flows/Positions

As mentioned earlier, the Federal Reserve collects information on financing activities from the primary dealers on a weekly basis via the FR 2004 reports and releases information aggregated across dealers with a one-week lag. Money market funds report their holdings, including those involving Treasury repos, on a monthly basis via the SEC's Form N-MFP, and such data are available to the public. Repos and reverse repos of Federal Reserve Banks with foreign official and international accounts and others, and securities lent to dealers, are reported on a weekly basis with a one-day lag in the Fed's H.4.1 statistical release, Factors Affecting Reserve Balances. Trading flows are also implicit in some of the post-trade data discussed above.

## Assessment of Data Gaps in Light of Principles

The preceding assessment points to areas where data availability and transparency may fall short of the principles proposed earlier in the paper. We proceed to briefly summarize where these gaps arise across markets in terms of pre-trade and post-trade information, as well as information on flows and positions. Note that a gap in data availability and transparency does not necessarily mean that something should be done to address the gap. This is because filling the gap may offer limited benefit relative to the cost and/or because the gap may be inherent to the market structure (and thus not feasible to fill without a change in structure).

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<sup>48</sup> See U.S. Securities and Exchange Commission. 2021. "[SEC Proposes Rule to Provide Transparency in the Securities Lending Market](#)" and the [Federal Register Notice of December 8, 2021](#).

<sup>49</sup> See U.S. Securities and Exchange Commission. 2022. "[SEC Proposes Rules to Improve Risk Management in Clearance and Settlement and to Facilitate Additional Central Clearing for the U.S. Treasury Market](#)," September 14.

## A. Futures Market

Pre- and post-trade futures market data availability is reasonably comprehensive, and transparency is high, with firm quotes and associated quantities and trade prices and sizes available in real time (subject to paid licensing agreements). Information on flows and positions includes the CFTC's Commitments of Traders reports, which provide a breakdown of reportable open interest positions by trader type on a weekly basis and information on hedge funds' gross notional exposures in U.S. Treasuries (as collected from the SEC's Form PF). In 2022, the CFTC and SEC proposed amendments to Form PF to improve data quality and comparability.

## B. Cash Market

In terms of pre-trade data, there are gaps in data availability and transparency in the cash market. Excellent pre-trade data is available from the CLOBs to platform participants and data subscribers, including the official sector, but not to others. Pre-trade data availability and transparency of other protocols is inherently more limited. By construction, for example, RFQ protocols typically provide firm quotes when customers indicate an interest in trading and request them. Note, however, that firm quotes may be streamed in the dealer-to-customer market as well.

There are also gaps in availability and transparency in terms of post-trade cash market data. Trade prices and sizes from the CLOBs are available to platform participants and others at a cost, but post-trade information is generally not available for other protocols (outside of the participating parties). Post-trade information is substantially better for the official sector given Treasury TRACE and the recent expansion of trade reporting to certain depository institutions, with the limitation that TRACE generally does not contain information on reporting entities' counterparties for dealer (or depository institution) trades with customers (or any information on trades between foreign entities). Aside from transaction-level data, aggregated trading volume summary statistics from Treasury TRACE and the FR 2004 are released publicly with a lag.

As far as ongoing post-trade initiatives, the SEC approved FINRA rule amendments to improve TRACE data quality and allow for the more timely release of aggregated data. The U.S. Treasury, in consultation with the IAWG, released a request for information on potential next steps for providing additional post-trade data transparency. Moreover, the U.S. Treasury recently proposed an end-of-day release of Treasury securities transaction data for on-the-run nominal coupons. It may also be worth considering whether investor class allotment data for U.S. Treasury auctions could be released with a

shorter lag.<sup>50</sup>

Information on flows and positions in the cash market is extensive and includes net Treasury security positions of primary dealers, Form PF hedge fund Treasury exposures, aggregated holdings of Treasuries and agency securities by U.S. banks, individual holdings of mutual funds, aggregated ownership of Treasuries by various market participant types, aggregated holdings of Treasuries held in custody by the Federal Reserve for foreign official and international accounts, and net transactions and aggregated holdings of Treasuries by foreign investors. The official sector has access to disaggregated information on these series and hence more detailed information than is available to market participants and the public. The official sector also has more timely access to such information. Even so, available data does not give the official sector a timely and comprehensive view of cash market flows and positions.

As mentioned above, the CFTC and SEC proposed amendments to Form PF in 2022 to improve data quality. More timely release of some of the information on flows and positions could also enhance transparency and could make sense if the release could be done without impairing market function.

### C. Financing Market

In the financing market, there are also gaps in data availability and transparency. Pre-trade price data is available from the IDBs to platform participants and data subscribers, but quantities associated with firm quotes on the IDBs are not available, even to platform participants. Pre-trade data availability and transparency of other protocols is more limited.

In terms of post-trade data in the financing market, trade prices and sizes from the IDBs are available to platform participants and others at a cost, but post-trade information is generally not available for other protocols (outside of the participating parties). Post-trade financing market information is substantially better but still limited for the official sector, with the OFR collecting transaction-level data on repos cleared at the CCP, and the Fed collecting data on dealer-to-customer repos settled on Bank of New York Mellon's tri-party repo settlement platform. Missing from these data collections are uncleared bilateral repos, but the OFR is working to close the gap through a pilot data collection and proposed rule for an ongoing data collection. (Even so, the data would remain fractured

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<sup>50</sup> Data for coupon auctions are currently released twice a month so that the time lag from issuance to reporting varies across issues by up to half a month. Even if the shortest time lag did not decrease, more frequent releases (e.g., weekly), could greatly reduce the reporting time lag for many issues.

across different segments of the market and not available on as timely a basis as could be useful.) The SEC has separately proposed a rule that would improve data availability and public transparency in the securities lending market.

## Conclusion

The TMPG is broadly supportive of data availability to the official sector and the transparency of data to market participants and the public. This report thus discusses principles of data availability and transparency consistent with these views, reviews the current state of data availability and transparency across the Treasury market, and identifies where there are gaps. The paper also identifies ongoing efforts to consider whether and how data availability and transparency to market participants can be improved, and the TMPG is broadly supportive of these efforts.

The TMPG specifically backs efforts to consider how data availability to the official sector and transparency to market participants and the public can be improved in terms of post-trade cash market information, cash market positions, and post-trade financing market information. Post-trade cash market information available to the official sector has improved substantially since the advent of Treasury TRACE reporting in July 2017, and more recently in September 2022 when certain depository institutions began reporting their transactions. Nonetheless, Treasury TRACE generally does not include information about dealers' counterparties for dealer-to-customer trades so that the official sector generally lacks real-time access to information on which types of investors are buying or selling. This results in an incomplete and delayed understanding of market developments, such as in March 2020, and could delay appropriate policy action. The TMPG supports the study of how the official sector could obtain more timely information on Treasury market activity by investor type. It also supports ongoing efforts to promote additional public transparency of existing transactions data, while proceeding in a gradual and calibrated manner.

Availability of cash market positions data to the official sector is a related data gap that should be filled, if possible. As described in the paper, information on flows and positions in the cash market can be gleaned from an array of sources. Even so, these data are not comprehensive, typically not available in real time, and frequently only available on a periodic basis. Moreover, aggregation can be difficult given the various sources and frequencies. As with the post-trade data, this results in an incomplete and delayed understanding of market developments and could delay appropriate policy action. The TMPG favors consideration of how more timely and consistent information on cash market

holdings can be provided to the official sector. It further backs timely provision of aggregated flows and positions data to the public, while ensuring market function is not impaired.

Post-trade financing market information is the last area highlighted for improvement. Such information has improved notably since the 2007-09 financial crisis, and is subject to ongoing improvement with the OFR's pilot data collection on non-centrally cleared bilateral repos and proposed rule for an ongoing data collection. That said, the reporting system for financing transactions is less centralized and currently less comprehensive than for cash market transactions. Collection by different entities means that official sector access is subject to cross-agency information sharing agreements and that data aggregation is more difficult. The TMPG supports efforts to provide more comprehensive post-trade financing market information to the official sector and to consider how official sector access to post-trade information could be more timely, comprehensive, and consistent. Appropriately aggregated and anonymized financing market information should also be made available to the public.

In addition to promoting data availability and transparency in particular areas, the TMPG supports steps to promote data transparency more widely. Transparency of trade information is often limited to platform participants or data subscribers. Given the importance of the Treasury market to a broader range of market participants and to the public more generally, the TMPG suggests that platforms, data providers, and the official sector consider where such data, either in aggregate or in part, could be made more widely available without disrupting existing business models.

The TMPG believes that the benefits of any new efforts to collect data or increase transparency must be carefully weighed against their costs to ensure any changes are not counterproductive to the goals of a more liquid, efficient, and resilient market. To that end, the group supports continued communication and collaboration between market participants and the official sector, and it welcomes input from other interested parties, including the public.

## Appendix 1: Data Availability and Transparency, Summary Tables

Official Sector Data Availability Across the Treasury Market					
	Futures	Cash			Financing
		Secondary IDB	Secondary DTC	Primary	
Pre-trade	High	Few gaps	Some gaps	High	Some gaps
Post- trade	High	Few gaps	Some gaps	High	Some gaps
Flows/positions	Few gaps	Few gaps		High	Some gaps

Public Data Transparency Across the Treasury Market					
	Futures	Cash			Financing
		Secondary IDB	Secondary DTC	Primary	
Pre-trade	High	Few gaps	Some gaps	Few gaps	Many gaps
Post- trade	High	Few gaps	Some gaps	Few gaps	Many gaps
Flows/positions	Few gaps	Few gaps		Few gaps	Many gaps

Notes: The tables provide a qualitative summary of official sector data availability and public data transparency across the U.S. Treasury securities market. A gap in data availability or transparency does not necessarily mean that something should be done to address the gap, because filling the gap may offer limited benefit relative to the cost and/or because the gap may be inherent to the market structure (and thus not feasible to fill without a change in structure).

## Appendix 2: TMPG Data and Transparency Working Group Members

### **TMPG Member and Non-Member Firm Representatives**

Priya Misra, Working Group Chair	TD Securities
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### Appendix 3: Glossary of Terms

CCP	Central counterparty
CFTC	Commodity Futures Trading Commission
CLOB	Central limit order book
DTCC	Depository Trust & Clearing Corporation
DVP	Delivery-versus-payment
FINRA	Financial Industry Regulatory Authority
FOMC	Federal Open Market Committee
FSOC	Financial Stability Oversight Council
GCF®	General Collateral Finance
IAWG	Inter-Agency Working Group on Treasury Market Surveillance
IDB	Interdealer broker
OFR	Office of Financial Research
RFQ	Request for quote
SEC	Securities and Exchange Commission
TMPG	Treasury Market Practices Group
TRACE	Trade Reporting and Compliance Engine
Treasuries	U.S. Treasury Securities
U.S. Treasury	U.S. Department of Treasury

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