

# An Overview of the Treasury Cash-Futures Basis Trade

December 20, 2023

As the size of the U.S. Treasury market has reached record levels, recent attention has focused on whether the paired trade of selling a Treasury futures contract and buying an underlying Treasury security that is deliverable under that futures contract, the so-called basis trade, poses a financial stability risk. Articulated concerns regarding the basis trade focus on certain datapoints that suggest the trade has reached a record size, and by extension, posit that the potential for a disorderly unwind of the trade represents a vulnerability in the U.S. Treasury market. This statement by the Committee on Capital Markets Regulation describes the basis trade and the current financial market landscape and addresses concerns about the basis trade as well as the benefits that the basis trade provides the Treasury market and the broader economy.

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## I. Mechanics of the Basis Trade

The Treasury cash-futures basis trade is a relatively straightforward arbitrage of price differences that can emerge between Treasuries securities (aka “**cash Treasuries**”) and Treasury futures. In the cash Treasuries market, Treasury securities are bought and sold today for cash, while in the Treasury futures market, Treasury securities are bought and sold for a future delivery date, but at a fixed price that is agreed upon today. Put simply, if the price for cash Treasuries is cheaper than the futures price, arbitrageurs can purchase Treasury securities at the lower cash price while simultaneously agreeing to sell Treasuries at a higher price in the future, thus profiting from the difference. This price difference is referred to as the “**basis**,” hence the “**basis trade**.” However, as explained below, the basis trade also involves costs, including through margin requirements applied to the futures leg and the interest rate on the “**repo**” financing of the cash Treasuries leg. The spread between futures and cash prices must be greater than these costs for the trade to remain profitable.

### 1. Basics of the basis trade

The basis trade involves two legs. One leg entails the purchase of a U.S. Treasury security for cash, thus a long position (the “**long leg**”). The other leg of the trade entails the sale of a Treasury futures contract (the “**short leg**”). In general, a Treasury futures contract entails a promise to deliver a Treasury security that lies within a specified range of maturities (the “**delivery bond basket**”).<sup>1</sup> A Treasury security within the delivery bond basket must be delivered at a future date for a fixed price. The Chicago Mercantile Exchange (“**CME**”) currently offers futures contracts for eight different baskets of maturities, ranging from the 2-year note with deliverable maturities of 1.75 to 2 years to the Ultra T-Bond with deliverable maturities of 25 to 30 years.<sup>2</sup> The CME also offers futures contracts on the 5-year Treasury note, promising delivery of a Treasury security with remaining maturity longer than 4 years 2 months and original maturity of no more than 5 years 3 months.<sup>3</sup> Thus, for example, a 5-year Treasury note purchased as part of the first leg can be used as the deliverable security for the short futures position in the second leg. Effectively, the trader has purchased a Treasury security today for the **cash price**, while simultaneously agreeing to sell that same security at a future date at the **futures price**. Traders conduct this trade when the futures price exceeds the cash price (net of financing costs discussed below), thus capturing the difference. While no trade is entirely free of risk, participants in the basis trade are hedged against future Treasury security price movements since the short futures position is hedged by the long cash position, and by necessity, there is price convergence at the expiry date of the futures contract (since the cash bond can be delivered under the futures contract).

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<sup>1</sup> See *The Basics of U.S. Treasury Futures*, CME GRP. (Apr. 18, 2023), <https://www.cmegroup.com/trading/interest-rates/basics-of-us-treasury-futures.html>.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

## 2. Repo financing of the long leg

In practice, hedge funds finance the purchase of the cash Treasury by borrowing cash in the Treasury repo market, using the purchased Treasury as collateral. The term of repo borrowing can be overnight or for a longer term, with overnight repo generally offering the least expensive interest rate (the “**repo rate**”), while longer term repo offers more durability and certainty given the elimination of refinancing risk. Importantly, the repo rate must be less than the arbitrage profit earned on the spread between the futures price and the cash price for a basis trade to be profitable. If the repo rate becomes too high relative to the basis, then the basis trade would lose money. Therefore, while the overnight repo rate is generally the least expensive, the overnight nature of the borrowing exposes hedge funds to refinancing risk since the overnight rate can increase during the term of the basis trade position.

Hedge funds typically use repo borrowing because purchasing cash Treasuries in the long leg of the basis trade requires a full outlay of cash, thus implicitly limiting the amount of basis trade activity they can conduct by their cash holdings. The Treasury repo market allows hedge funds to borrow the cash needed for the Treasury purchase in the long leg, thus permitting hedge funds to perform the trade without tying up significant amounts of cash.

## 3. Margin requirements of the short leg

While repo borrowing allows hedge funds to increase their activity in the long leg of the basis trade, the margin requirements for Treasury futures in the short leg also dictate the total volume of basis trade activity that a hedge fund can conduct. This is because the hedge fund must outlay cash by posting “**initial margin**” (i.e., a fixed percentage of the Treasury future contract value) when selling the futures contract. For example, if the initial margin is set at 3% and the Treasury futures contract value is \$100 million, the hedge fund must post \$3 million in cash as initial margin. Therefore, the hedge fund can only engage in as much selling of Treasury futures, i.e., the short leg of the basis trade, as it holds the cash necessary to meet initial margin requirements. Additionally, while the initial margin represents the amount of cash necessary to initiate a Treasury futures contract, the “**maintenance margin**” represents the amount of cash necessary to maintain the trade after execution. Typically, the maintenance margin is 10% lower than the initial margin, thus allowing some extent of losses on the position before additional margin is required. If the value of the futures position drops below the maintenance margin, the hedge fund must post daily “**variation margin**”. Therefore, in practice, prudent risk management dictates that additional reserves are held to guard against possible changes in margin levels.

## 4. Basis trade arbitrage opportunity

The existence of the basis trade arbitrage opportunity stems from the varied preferences of Treasury market participants. The supplier of U.S. Treasuries is the U.S. government that issues debt to raise cash to fund the budget of the United States. On the demand side for U.S. Treasuries, while many investors choose to purchase cash Treasuries, a significant segment of institutional investors prefer to invest in Treasuries through futures rather than cash purchases. The preference for futures over cash arises because the same long exposure to Treasuries can be obtained through futures with significantly less upfront cash than a cash purchase. For example, an institutional

investor can obtain \$100 million of long exposure to 5-year Treasuries by purchasing cash Treasuries for \$100 million or can alternatively obtain that same \$100 million long exposure through a 5-year Treasury futures contract, outlaying only the initial margin (e.g., \$3 million for a 3% margin requirement) rather than 100% of the purchase price. The extra \$97 million in cash can then be invested in other high-yielding asset classes.

It is important to note that the U.S. government does not sell Treasury futures. Rather, market participants buy and sell Treasury futures with each other on an exchange, specifically the CME. Myriad market participants are active in the Treasury futures markets, including asset managers, hedge funds, banks and proprietary trading firms.

## II. Risks and Potential Losses

Despite the hedged nature of the basis trade, there are potential risks involved in the trade. The two key risks relate to the repo borrowing used to finance the long leg of the basis trade and the margin requirements applicable to the short leg of the trade.

### 1. Risk from the repo market

One risk to hedge funds with respect to the basis trade is a significant disruption in the Treasury repo market. As explained above, hedge funds pay interest on their repo borrowing, set by the repo rate, used to finance the cash Treasuries purchased in the long leg of the basis trade. However, the term of the repo is typically less than the term of the futures contract (especially where overnight repo is used), so hedge funds need to rollover their repo borrowing, subjecting the hedge fund to “**rollover risk**” since repo rates fluctuate. If the repo rate were to spike significantly, the increased financing costs would exceed the arbitrage profits earned in the trade, leading to potential losses for the hedge fund. In this case, the hedge fund would likely seek to exit the trade entirely by unwinding its long and short positions, rather than continuing the trade at a loss. From a Treasury market perspective, the concern is that a spike in repo rates could affect large volumes of basis trade positions at the same time, resulting in market-wide downward pressure on Treasury prices as hedge funds simultaneously unwind their basis trades and sell their long positions.

From the perspective of the repo lender, there is a risk of loss in the case that the repo borrower defaults on the loan. In that case, the repo lender has a claim to the Treasury security collateral to satisfy the repayment obligation of the borrower. In some cases, including repo financing with a zero haircut (i.e., a loan made in the amount of the full market value of the collateral), the value of the Treasury collateral may have dropped below the loan amount, rendering the collateral insufficient to cover the full value of the cash loan. In these cases, a master netting agreement may provide the repo lender with recourse to the repo borrower’s excess margin posted on the futures leg of the basis trade position.

### 2. Risk from futures margin requirements

Another risk with respect to the basis trade stems from increases in margin requirements for the Treasury futures position in the short leg of the trade. For example, if the initial margin requirements for Treasury futures were to increase from 3% to 5%, due to an increase in market volatility, hedge funds would be required to post additional cash margin on their short futures position. If the trade has become unprofitable as a result or hedge funds lack the cash to meet the higher margin requirements, then they would unwind the trade. As with a disruption in repo financing, the forced unwinding of positions could affect many basis trade positions at the same time, again resulting in market-wide downward pressure on Treasury prices.

### 3. Overcollateralization of the basis trade

In general, leverage amplifies the impact of small price movements, so traders post collateral to ensure they have sufficient loss absorbing resources. In the case of the basis trade, the leveraged positions are effectively overcollateralized, which reduces the likelihood that a basis trader will incur a loss that exceeds their collateral.

This is because futures contracts opened on the CME not only require initial margin and variation margin that account for fluctuations in Treasury prices, but also are effectively hedged by the cash Treasuries in the long leg of the trade. The CME does not consider the hedging provided by the long position as part of their margin requirements. Hedge funds must therefore post full initial and variation margin for their short Treasury futures position despite also holding a hedged long position in cash Treasuries, effectively overcollateralizing the Treasury futures position at the futures clearinghouse.

### III. Discussion of Certain Concerns with the Basis Trade

Recent reports by the Bank for International Settlements (“BIS”) and Federal Reserve (the “Fed”) suggest that current basis trade activity could pose certain risks to the stability of the U.S. Treasury markets. The BIS Quarterly Review notes that the short futures leg of the basis trade is reaching levels comparable to the levels “in the run-up to the repo market turmoil of September 2019...and the US Treasury dislocations of March 2020.”<sup>4</sup> The BIS report further warns that “sudden fluctuations in... [futures] ‘margin leverage’ may give rise to destabilizing margin spirals,”<sup>5</sup> also noting that “[a] disorderly reduction in margin leverage exacerbated fixed income market distress in both 2019 and March 2020.”<sup>6</sup> Finally, the BIS concludes that “[g]iven these experiences, the current build-up of leveraged short positions in US Treasury futures is a financial vulnerability worth monitoring because of the margin spirals it could potentially trigger.”<sup>7</sup>

The Federal Reserve has also raised issues with respect to the basis trade. A recent Fed report notes that the current levels of Treasury repo activity and short Treasury futures positions are indicative of increased basis trading activity, although conceding that such positions are only consistent indicators of increased activity and not conclusive evidence.<sup>8</sup> The report notes that if basis trade activity has increased, then “sustained large exposures by hedge funds present a financial stability vulnerability.”<sup>9</sup>

While these reports suggest that recent basis trade activity may pose a risk to U.S. Treasury markets, several facts about the basis trade run counter to this concern. First, the recent data illustrating the growing levels of basis trade volume does not adequately consider the overall growth of the U.S. Treasury market and the fact that related supply and demand imbalances are what is driving basis trade activity. Second, while basis trading does involve a degree of leverage, the trade is well collateralized, and the level of basis trading leverage has trended downward recently and is currently near a five-year low. Third, it is important to note that the basis trade contributes positively to the overall efficiency of Treasury markets by lowering the U.S. government’s borrowing costs, while also helping to boost pension fund returns for workers and retirees and allowing investment capital to flow to more productive uses. Finally, while the March 2020 Treasury market turmoil is put forth as evidence of the potentially dangerous impact of basis trades on Treasury market stability, subsequent analysis of the episode does not conclusively support that concern. We now discuss each of these issues in greater detail.

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<sup>4</sup> Fernando Avalos & Vladyslav Sushko, *Margin Leverage and Vulnerabilities in US Treasury Futures*, BIS Q. REV., Sept. 2023, at 4, 4, available at [https://www.bis.org/publ/qtrpdf/r\\_qt2309.pdf](https://www.bis.org/publ/qtrpdf/r_qt2309.pdf).

<sup>5</sup> *Id.*

<sup>6</sup> *Id.* at 5.

<sup>7</sup> *Id.*

<sup>8</sup> See Daniel Barth, R. Jay Kahn & Robert Mann, *Recent Developments in Hedge Funds’ Treasury Futures and Repo Positions: Is the Basis Trade “Back”?* (Bd. Governors Fed. Reserve Sys., FEDS Notes, Aug. 30, 2023), <https://doi.org/10.17016/2380-7172.3355>.

<sup>9</sup> *Id.*

### 1. Basis trade volumes should be evaluated in the context of the growing Treasury market.

Both the BIS report and Fed note cite the increased volume among leveraged funds of short Treasury futures positions – the short leg of the basis trade – to suggest that the overall volume of basis trade activity is reaching historic levels, and therefore potentially posing financial stability risks. As noted above, the BIS argues that “the current build-up of leveraged short positions in US Treasury futures is a financial vulnerability worth monitoring because of the margin spirals it could potentially trigger.”<sup>10</sup> However, several facts regarding the current basis trade environment, as well as structural features of the basis trade, mitigate these concerns.

First, current basis trade levels are not reaching historical highs when viewed in the context of the overall Treasury market. A recent BIS report highlights that leveraged funds’ net short positions in U.S. Treasury futures, a proxy for basis trade activity, reached \$600 billion in September 2023, which is comparable to the level of short positions “in the run-up to the repo market turmoil of September 2019...and the US Treasury market dislocations of March 2020...”<sup>11</sup> However, absolute levels of short Treasury futures positions do not tell the complete story of basis trade activity.

As noted above, basis trade activity is premised on a price dislocation between cash Treasuries and Treasury futures, which in turn hinges on supply and demand fluctuations in each market. In particular, as the supply of cash Treasuries changes, it is expected that basis trade activity would change accordingly. Therefore, a more relevant context for the recent short Treasury futures activity is not absolute levels of futures interest independent of cash Treasury supply, but rather total short interest as a percentage of total Treasury debt outstanding.

Viewed as a relative measure, short Treasury futures interest is well below the activity seen in 2019 and 2020. As illustrated in **Figure 1**, short Treasury futures as a percentage of overall Treasury debt outstanding was only 4.1% as of September 2023, down from 5.1% in February 2020 (shortly before the March 2020 disruption) and 5.8% in July 2019.

In addition, while short Treasury futures are a component of basis trades, not all Treasury futures short positions by leveraged funds constitute basis trade activity. Either way, regardless of the extent to which such short interest is a proxy for basis trading, the current levels of short positions by leveraged funds do not constitute a historic percentage of the overall market for U.S. Treasuries.

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<sup>10</sup> See Avalos & Sushko, *supra* note 4, at 5.

<sup>11</sup> Id. at 4.



Figure 1<sup>12</sup>

MEASURE (ALL VALUES IN \$MILLIONS)	7/30/2019	2/25/2020	9/19/2023
Leveraged Money Short Positions	\$921,285	\$857,762	\$1,047,839
Leveraged Money Net Short (Short-Long)	\$608,754	\$434,177	\$696,613
U.S. Marketable Debt	\$15,968,140	\$16,918,525	\$25,477,563
PERCENTAGES			
Shorts as % of Marketable Debt	5.8%	5.1%	4.1%
Net Shorts as % of Marketable Debt	3.8%	2.6%	2.7%

Sources: CFTC Commitments of Traders Report and [fred.stlouisfed.org](https://fred.stlouisfed.org)

Second, regardless of the metric used to evaluate the level of basis trade activity (i.e., absolute or relative levels of short Treasury futures), the fact remains that hedge funds do not directly cause a rise in basis trade volume. As explained above, hedge funds merely respond to pricing dislocations or inefficiencies between cash Treasuries and Treasury futures. The incentive for a hedge fund to engage in a Treasury basis trade hinges entirely on the arbitrage opportunities that result from Treasury market inefficiencies, which in turn are driven by changes in supply and demand on both sides of the Treasury market.

Recent data on U.S. Treasury issuances suggests that any increase in basis trade activity is consistent with the increase in cash Treasury supply from the U.S. government. As illustrated above in **Figure 1**, total U.S. Treasury debt increased from \$16.9 trillion in February 2020 to \$25.5 trillion in September 2023, an increase of \$8.6 trillion or 50.6%. If demand for cash Treasuries, as opposed to Treasury futures, were not to rise concurrently to meet the additional supply, then the supply-demand imbalance would lead to greater basis trade activity. Therefore, any increased basis trade activity from hedge funds would be expected given the recent Treasury supply increase. In addition, the most recent Financial Stability Report from the Federal Reserve notes an increase in demand for Treasury futures from assets managers, including mutual funds and pensions funds, which also contributes to increased basis trade activity.<sup>13</sup>

<sup>12</sup> Agha Mirza, *Navigating Higher Yields: The Role of Treasury Futures in Today's Market*, CME GRP. (Sept. 29, 2023), <https://www.cmegroup.com/articles/2023/navigating-higher-yields-the-role-of-treasury-futures-in-todays-market.html> (table copied from source).

<sup>13</sup> See *Financial Stability Report*, BD. GOVERNORS FED. RESERVE SYS. 33 (Oct. 2023), <https://www.federalreserve.gov/publications/files/financial-stability-report-20231020.pdf> [hereinafter *2023 Financial*

## 2. Current Treasury futures leverage has trended downward recently and is close to a five-year low.

The BIS report highlights concern about the leverage associated with basis trades, specifically with respect to the short Treasury futures positions. As noted above, Treasury futures contracts require initial margin to be posted to establish either a long or short position. The initial margin represents a percentage of the contract's notional value and is conservatively designed by the clearinghouse to ensure that it can liquidate a defaulting market participant's portfolio without incurring any losses. Margin requirements are established by futures clearinghouses, subject to extensive oversight by the Commodity Futures Trading Commission ("CFTC") that considers the risk models and default management practices which help ensure adequate margin levels.

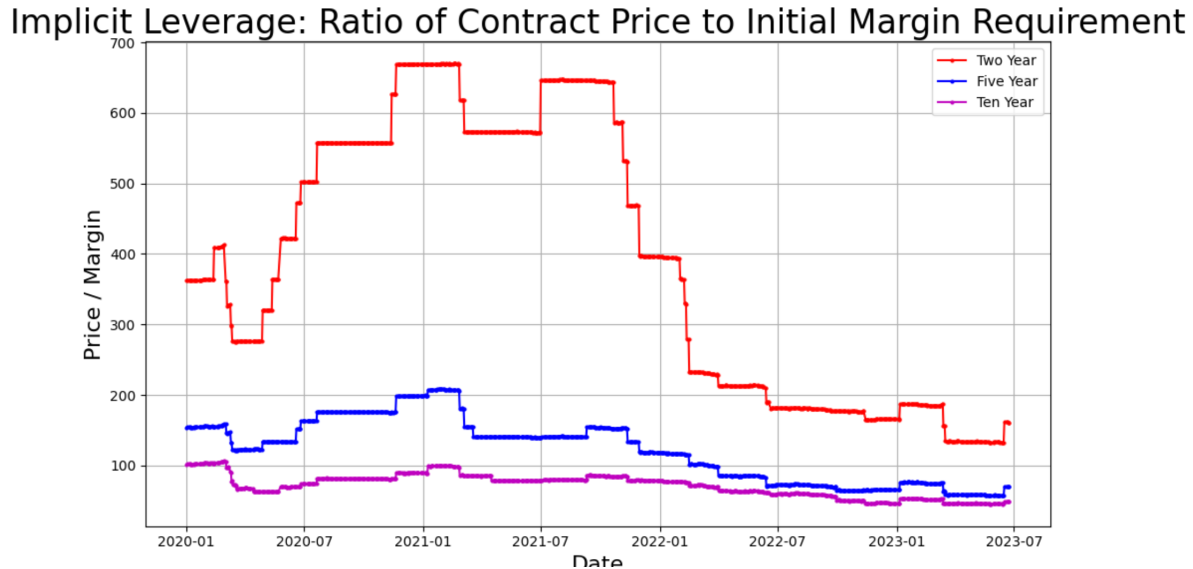
Futures contracts are considered a leveraged position given that they provide exposure to the full notional amount of a contract but require only a percentage of the contract's notional value to be posted as initial margin. A crude measure of leverage in the case of the Treasury futures contract can be represented by the ratio of the total futures contract value to the value of initial margin posted. Based on this metric, the BIS notes that leverage of futures positions in September 2023 was approximately 70x for five-year notes and 50x for 10-year notes.<sup>14</sup>

However, **Figure 2** illustrates that these current leverage levels are close to five-year lows, suggesting that futures leverage is low in historical context. Moreover, the trend in futures leverage has been declining over the past 18 months with no signs of increasing. In particular, the CME's initial margin requirements have increased in recent years as a prudential response to higher Treasury market volatility.

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*Stability Report*] (noting "[t]he data from the CFTC Traders in Financial Futures report suggest that the recent growth of the [basis] trade could be, in part, attributed to increased demand from asset managers—including mutual funds, pension funds, and other investor types—for exposure to interest rates in the futures market.")

<sup>14</sup> Avalos & Sushko, *supra* note 4, at 5.

Figure 2<sup>15</sup>

Importantly, the measure of leverage in **Figure 2** represents the maximum theoretical leverage associated with futures positions. In practice, participants in the Treasury futures market also hold cash in reserve to weather unanticipated price movements as part of their internal risk management procedures. Therefore, actual leverage is more appropriately measured as the ratio of contract price to initial margin *plus* cash reserves, which would further lower the implicit leverage illustrated in **Figure 2**. Moreover, the Federal Reserve’s recent Financial Stability Report notes that any risks to Treasury market liquidity or functioning associated with basis trade leverage are “likely mitigated by tighter financing terms applied to hedge funds by dealer counterparties over the past several quarters.”<sup>16</sup>

### 3. Basis trading helps lower borrowing costs for the U.S. government and increases returns for pension funds.

At its core, the U.S. Treasury basis trade plays an important role in U.S. Treasury markets, simultaneously helping meet the need of the U.S. government by providing an additional source of demand for U.S. Treasuries, while also helping absorb demands from institutional investors wishing to purchase Treasury futures. By purchasing U.S. Treasuries in one leg of the basis trade, hedge funds fill gaps in demand in the market for Treasuries, thus buoying the price, and, by extension, reducing the interest rate paid by the U.S. government and the attendant burden on U.S. taxpayers (as price and interest rates are inversely related).

Indeed, empirical research shows that hedge fund participation in the Treasury market leads to lower Treasury yields. Using the non-public data aggregated from Form PF filings, researchers from the Office of Financial Research (“**OFR**”) found that a \$41 billion increase in hedge fund

<sup>15</sup> Implicit leverage is calculated as the initial margin requirement divided by daily trading price. Initial margin data is sourced from [CME Group](#) and daily futures prices are sourced from FactSet.

<sup>16</sup> 2023 Financial Stability Report, *supra* note 13, at 33.

Treasury exposure is associated with a 6.2 basis point decline in five-year note yields.<sup>17</sup> Therefore, the \$600 billion of hedge fund Treasury exposure (as proxied by the short futures interest noted above) lowers interest rates paid by the U.S. government. Indeed, the U.S. Treasury itself appears to agree. A recent report by the Treasury Borrowing Advisory Committee concludes that “[w]ith hedge funds willingly providing liquidity to the buyers of futures, the functioning of the basis market may have helped counteract some of the cheapening pressure on Treasuries.”<sup>18</sup>

On the other side of the Treasury market, the basis trade also benefits institutional investors by allowing them to efficiently gain Treasury exposure through futures rather than cash purchases. As explained above, futures require less initial cash outlay than outright cash purchases, so the additional cash retained by institutional investors can alternatively be invested in higher yielding securities, including stocks and corporate bonds, thus boosting returns and providing U.S. companies with access to capital that promotes economic growth and job creation.

#### **4. Analysis of the March 2020 Treasury market turmoil does not support a conclusion that basis trading exacerbated the disruption.**

The turmoil in the Treasury markets in March 2020 was characterized by substantial selloffs of Treasuries due to a high degree of market fear and uncertainty related to the Covid-19 pandemic (aka a “global dash for cash”).<sup>19</sup> Over a nine-day period in mid-March, the large-scale selling put significant downward pressure on Treasury prices and corresponding upward pressure on yields (as price and yield are inversely related). For example, yields on the 10-year note spiked from less than 0.60% on March 9 to nearly 1.20% on March 18.<sup>20</sup> Treasury market liquidity was also strained as evidenced by the spike in the bid-ask spread in the interdealer market in the same week.<sup>21</sup> Since U.S. Treasuries play a vital role both in financial markets and the U.S. economy generally, volatile and illiquid Treasury markets can cause significant harm. Financial institutions rely on liquid Treasury markets to manage interest rate risk and set prices for several other financial instruments.<sup>22</sup> Moreover, the U.S. Treasury Department relies on stable and liquid Treasury markets to fund the budget of the U.S. government,<sup>23</sup> as higher yields represent increased borrowing costs.

<sup>17</sup> Ron Alquist & Ram Yamarthy, *Hedge Funds and Treasury Market Impact: Evidence from Direct Exposures* 3 (Office of Fin. Research, Working Paper No. 22-05, 2022), available at <https://www.financialresearch.gov/working-papers/files/OFRwp-22-05-hedge-funds-and-treasury-market-price-impact.pdf>.

<sup>18</sup> Treasury Borrowing Advisory Comm., *Explaining the Recent Market Moves Across the Treasury Yield Curve*, U.S. DEPARTMENT TREASURY 30 (Oct. 31, 2023), <https://home.treasury.gov/system/files/221/TBACCharge1Q42023.pdf>.

<sup>19</sup> See Jordan Barone et al., *The Global Dash for Cash in March 2020*, LIBERTY STREET ECON., FED. RES. BANK N.Y. (July 12, 2022, 9:08 PM), <https://libertystreeteconomics.newyorkfed.org/2022/07/the-global-dash-for-cash-in-march-2020/>.

<sup>20</sup> Bd. of Governors of the Fed. Reserve Sys., *Market Yield on U.S. Treasury Securities at 10-Year Constant Maturity, Quoted on an Investment Basis (DGS10)*, FRED FED. RES. BANK ST. LOUIS, <https://fred.stlouisfed.org/series/DGS10> (last visited Dec. 14, 2023).

<sup>21</sup> See *The U.S. Treasury Market During the COVID-19 Crisis*, COMMITTEE ON CAPITAL MARKETS REG. 3 (Mar. 2021), <https://capmktreg.org/wp-content/uploads/2022/12/NBTF-US-Treasury-Markets-During-Covid-2.pdf>.

<sup>22</sup> See Michael Fleming, *How Has Treasury Market Liquidity Evolved in 2023?*, LIBERTY STREET ECON., FED. RES. BANK N.Y. (Oct. 17, 2023), <https://libertystreeteconomics.newyorkfed.org/2023/10/how-has-treasury-market-liquidity-evolved-in-2023/>.

<sup>23</sup> *Id.*

The March 2020 Treasury market disruption placed stress on basis trade positions, leading to an unwinding of certain basis trade positions. Increased Treasury market volatility led to an increase in margin requirements, both initial and maintenance margin, on short Treasury futures positions. Maintenance margin requirements increased more than 30% on Treasury note futures contracts and more than doubled for Treasury bond futures.<sup>24</sup> These higher margin requirements on Treasury futures positions required basis traders, including hedge funds, to post more cash collateral against their short futures positions. Some hedge funds chose to unwind their basis trades as a result, rather than posting the additional margin.

As we have explained, the unwind of the trade is effectively a reverse basis trade, i.e., selling cash Treasuries and buying Treasury futures, to exit each leg of the trade. However, in the case of unwinds, the increased demand for futures caused Treasury futures to become more expensive relative to cash Treasuries, meaning those hedge funds were losing money as they unwound their trade (i.e., buying the more expensive futures while selling the less expensive cash Treasuries). Importantly, hedge funds who alternatively chose to hold their basis trade positions did not face similar losses as the basis trade would remain profitable as cash and futures prices subsequently converge as expiration of the futures contract nears.

Disruption in Treasury repo rates also contributed to stress on basis trade positions.<sup>25</sup> Treasury repo rates spiked in March 2020, thus increasing the cost of financing the cash Treasury leg of the basis trade. The increased refinancing costs on the long leg of the basis trade imposed losses on certain hedge funds and led to further unwinding of basis trade positions.<sup>26</sup> Overall, the combination of increased margin obligations and higher repo borrowing costs contributed to an unwinding of certain basis trade positions and a sell off of cash Treasuries.

Given the losses and stresses imposed on a subset of basis traders in March 2020, a key empirical question is the extent to which the basis trade contributed to the Treasury market turmoil. While no conclusive answer to this question has emerged from the subsequent analysis of the March 2020 event, several datapoints provide useful perspectives on the relative role of hedge fund basis traders.

First, given that the turmoil was precipitated by widespread Treasury sell-offs, the degree to which hedge funds contributed to the net sales of Treasuries is a relevant factor. The largest seller of Treasuries by group were likely foreign investors. In its November 2020 Financial Stability Report, the Federal Reserve notes that foreign investors are estimated to have liquidated more than \$400 billion of U.S. Treasury securities in March 2020.<sup>27</sup> As for hedge funds, the Federal Reserve notes that a lack of comprehensive hedge fund data prevents a clear understanding of how large a role hedge funds played in the sell off. However, the Financial Stability Report does offer proxies for the relative role of hedge funds. In the first quarter of 2020, hedge funds reduced cash Treasury

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<sup>24</sup> Daniel Barth & Jay Kahn, *Basis Trades and Treasury Market Illiquidity* 12 (Office of Fin. Research, Brief Series No. 20-01, 2020), available at [https://www.financialresearch.gov/briefs/files/OFRBr\\_2020\\_01\\_Basis-Trades.pdf](https://www.financialresearch.gov/briefs/files/OFRBr_2020_01_Basis-Trades.pdf).

<sup>25</sup> See *id.* at 14, Figure 17.

<sup>26</sup> *Id.* at 13-14.

<sup>27</sup> *Financial Stability Report*, BD. GOVERNORS FED. RESERVE SYS. 34 (Nov. 2020), <https://www.federalreserve.gov/publications/files/financial-stability-report-20201109.pdf> [hereinafter *2020 Financial Stability Report*].

positions by \$35 billion.<sup>28</sup> Comparatively, mutual funds reduced cash Treasury positions by \$236 billion over the same time period.<sup>29</sup> Moreover, the Federal Reserve notes that leveraged funds reduced net short Treasury futures positions by \$80 billion in March 2020.<sup>30</sup> Overall, the Federal Reserve concludes that “so far, the evidence that large-scale deleveraging of hedge fund Treasury positions was the primary driver of the turmoil remains weak.”<sup>31</sup>

Second, while the relative contribution of hedge funds to the overall volume of Treasury selling remains uncertain, the role of basis trading more generally in the March 2020 turmoil has been examined. A study released by the U.S. Treasury’s OFR concludes that while “Treasury illiquidity in March [2020] placed stress on Treasury basis trades, *the evidence casts doubt on the theory that stress in these trades amplified Treasury market illiquidity.*”<sup>32</sup> To the contrary, the OFR study finds that the “basis trade appears to have continued to provide net liquidity to underlying Treasuries.”<sup>33</sup> The study found that the cash Treasuries that were components of basis trades actually traded at higher prices than other comparable Treasuries not included in basis trades, which runs counter to any claims that basis trading harmed Treasury liquidity during the March 2020 turmoil. Despite the unwinding of basis trades by some hedge funds, there was still relatively higher liquidity for the class of Treasuries utilized in basis trades (i.e., those in the deliverable basket of a futures contract) over other Treasuries, possibly due to a degree of new basis trade activity conducted by hedge funds not initially impacted by the turmoil. Overall, the OFR study finds that “[w]hile many of the risks of this trade seem to have materialized, evidence of spillovers into Treasury liquidity and short-term funding disruptions are limited.”<sup>34</sup>

Notably, the authors of the OFR study also posit that Federal Reserve action “may have been crucial for limiting the extent of hedge fund losses...and in preventing broader spillovers.”<sup>35</sup> In particular, the study argues that the Federal Reserve’s expansion of Treasury security purchases and expansion of the Fed’s repo facility may have eased pressure on hedge funds.<sup>36</sup> The generally positive impact of the Federal Reserve’s Treasury purchases on stabilizing the market is documented empirically in another study, Vissing-Jorgensen (2021), which shows that Fed purchases of Treasury securities helped lower Treasury yields.<sup>37</sup> However, with respect to the class of Treasuries utilized in basis trades, the Fed purchases of such Treasuries were negligible in March 2020.<sup>38</sup> The OFR study concludes that “[t]his is consistent with the basis trade still providing

<sup>28</sup> *Id.* at 35.

<sup>29</sup> Yiming Ma et al., *Mutual Fund Liquidity Transformation and Reverse Flight to Liquidity* (Jacobs Levy Equity Mgmt. Ctr. for Quantitative Fin. Research Paper, 2020), available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3640861](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3640861).

<sup>30</sup> 2020 *Financial Stability Report*, *supra* note 27, at 35.

<sup>31</sup> *Id.*

<sup>32</sup> Barth & Kahn, *supra* note 24, at 1 (emphasis added).

<sup>33</sup> *Id.* at 11.

<sup>34</sup> *Id.* at 15.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.* at 15-16.

<sup>37</sup> Annette Vissing-Jorgensen, *The Treasury Market in Spring 2020 and the Response of the Federal Reserve*, (Nat’l Bureau of Econ. Research, Working Paper 29128, © 2021), available at <https://www.nber.org/papers/w29128>.

<sup>38</sup> Barth & Kahn, *supra* note 24, at 16.

liquidity to the market [in these securities], as dealers may have been more comfortable holding Treasuries for which they had a natural source of demand from basis traders.”<sup>39</sup>

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<sup>39</sup> *Id.* at 16.



#### **IV. Conclusion**

Despite the recent attention surrounding the basis trade, the concerns that have been articulated are arguably exaggerated. Current basis trade activity is not at record highs, but rather well below the peaks in 2019 and 2020 when measured relative to total Treasury debt outstanding. Moreover, hedge funds do not drive basis trade activity, but instead react and respond in an economically rational way to price inefficiencies that arise in the Treasury market between cash and futures. Leverage associated with basis trades has also trended lower recently and currently sits near five-year lows. Importantly, the participation by hedge funds in Treasury markets, including through the basis trade, provides several benefits to a wide array of financial market participants. Not only does the U.S. government benefit with lower borrowing costs, but pension funds also achieve higher returns on their investment portfolios and capital formation is enhanced through more economically productive uses of investment capital. Finally, while the March 2020 Treasury market turmoil is frequently referenced as exemplifying the risks posed by basis trades, evidence to this effect is generally inconclusive.