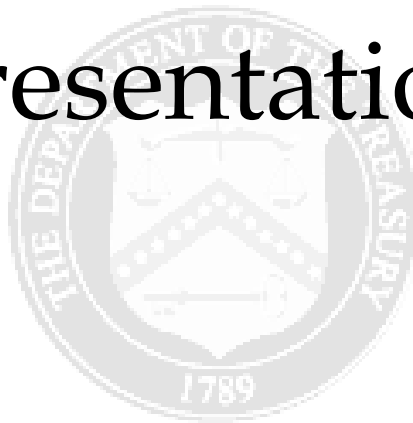


# Treasury Presentation to TBAC



# Office of Debt Management



Fiscal Year 2023 Q3 Report

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\*All sources are from Treasury unless otherwise specified

# Section I: Executive Summary



# Highlights of Treasury's August 2023 Quarterly Refunding Presentation to the Treasury Borrowing Advisory Committee (TBAC)

## Receipts and Outlays through Q3 FY2023

|                               | \$ billions | Change from same period last year (\$ bn) | Change from same period last year (%) | As % of GDP | Change from same period last year (GDP %) |
|-------------------------------|-------------|---|---------------------------------------|-------------|---|
| Total Receipts thru Q3 FY2023 | \$3,413     | -\$423                                    | -11%                                  | 17.1%       | -3.3%                                     |
| Total Outlays thru Q3 FY2023  | \$4,805     | +\$455                                    | +10%                                  | 24.1%       | 0.9%                                      |

## Treasury's Projected Net Privately-held Marketable Borrowing for the Next Two Fiscal Quarters

| Treasury OFF Near Term Fiscal Projections | Net Privately Held Marketable Borrowing (\$ billion) | Assumed End-of-Quarter Cash Balance (\$ billion) |
|---|--|--|
| Q4 FY2023                                 | 1,007  | 650 (Sep)  |
| Q1 FY2024                                 | 852  | 750 (Dec)  |

## Projected Net Privately-held Marketable Borrowing for the Next Three Fiscal Years from Various Sources\*

| Fiscal Year | Primary Dealers Median July 2023 (\$ billion) | OMB budget, March 2023 (\$ billion) | CBO Budget, February 2023 (\$ billion) |
|-------------|---|-------------------------------------|--|
| 2023        | 2,440   | 2,378                               | 2,193                                  |
| 2024        | 2,078   | 2,324                               | 2,105                                  |
| 2025        | 1,750   | 1,809                               | 1,844                                  |

\*All privately-held net marketable borrowing estimates are "normalized" with details from page 18.

Uncertainty regarding funding needs in FY2024 and FY2025 remains relatively high, reflecting a variety of views on the path of monetary policy, the duration of SOMA redemptions, and the outlook for the economy.

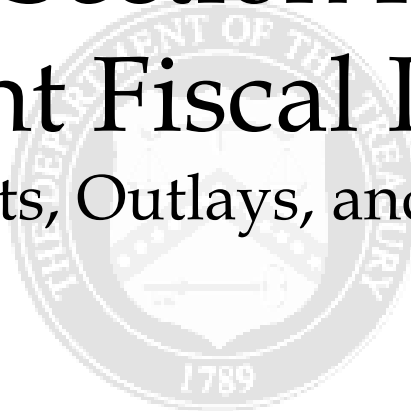
## Latest Market Expectations for Treasury Financing in July 2023:

- Primary dealers generally expected gradual increases to coupon auction sizes, beginning at the August refunding. In July, dealers boosted their aggregate median estimates for privately-held net marketable borrowing by a cumulative \$770 billion for the FY23-FY25 period, relative to their April estimates.
- Given the forecasted financing gap over FY2023 and beyond, all dealers noted that both bill and coupon auction sizes could be increased to address near term financing gaps. Several dealers expect bills share to temporarily exceed TBAC's recommended 15-20% range.
- Most dealers expected Treasury to gradually increase TIPS sizes in the upcoming quarters.

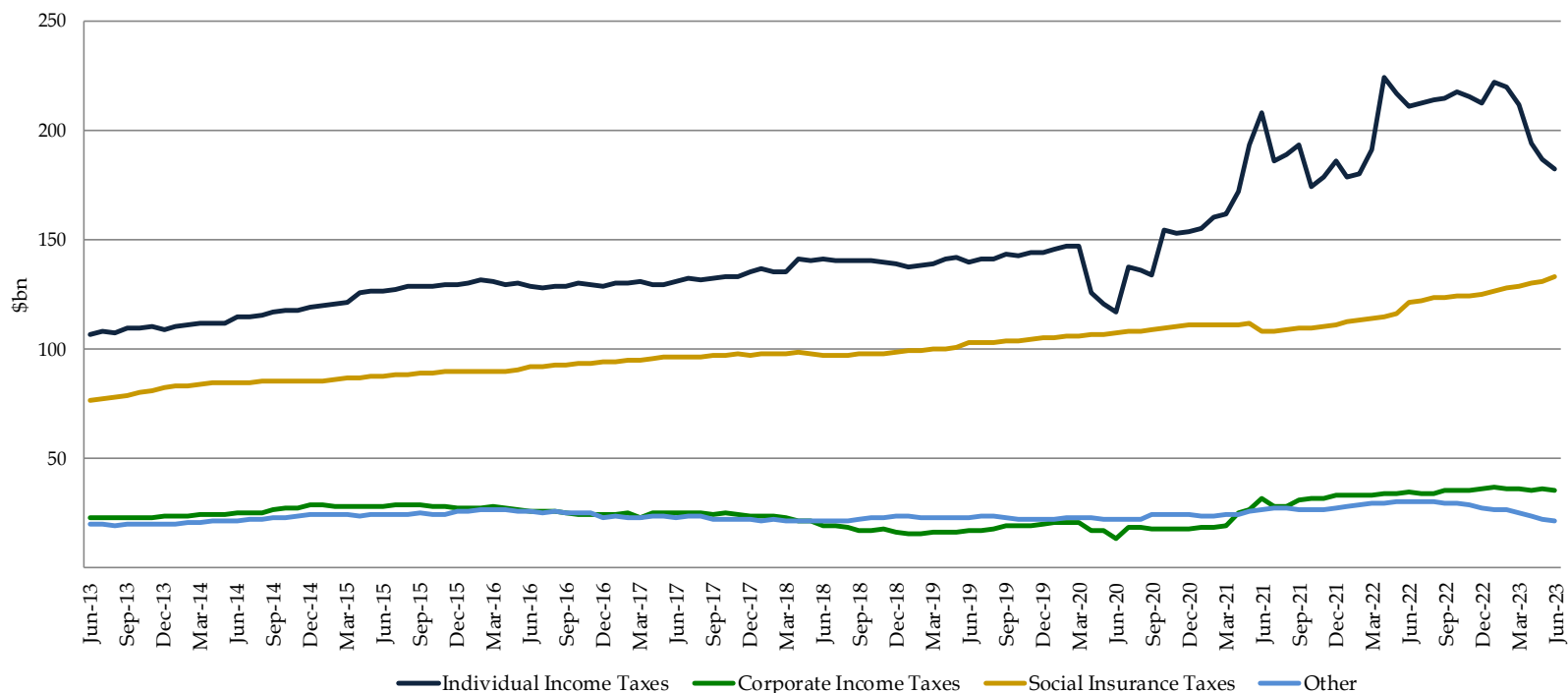
# Section II:

# Recent Fiscal Results

Receipts, Outlays, and Deficits



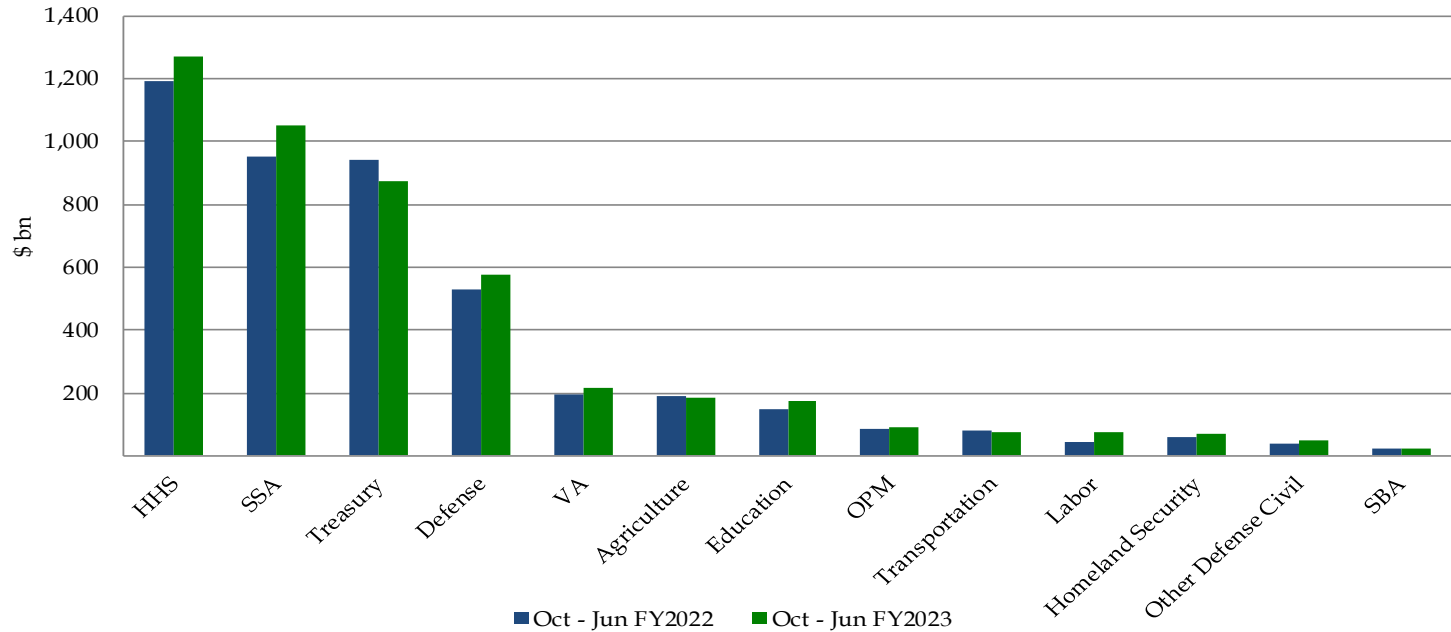
## Monthly Receipt Levels (12-Month Moving Average)



| Notable Receipt Category                  | YoY change thru Q3 FY23 (\$ billion) | YoY change thru Q3 FY23 (%) | Comments  |
|---|--------------------------------------|-----------------------------|---|
| Non-withheld and SECA taxes               | -\$282                               | -27%                        | Due to 40% lower tax receipts in the April-May period than last year's record level.                    |
| Individual refunds                        | -\$116                               | -55%                        | A decrease in cash due to elevated IRS processing of refunds over the fiscal year, including inventory. |
| Federal Reserve earnings                  | -\$93                                | -99%                        | Remittances have decreased year-over-year as administered rates moved higher.                           |
| Withheld & FICA taxes (calendar adjusted) | +\$81                                | +3%                         | Due to higher wages and employment, partially offset by December's lower bonuses.                       |

Tax receipts for Q4 FY2020 reflect the adjustment of April and June 2020 tax deadlines to July 15<sup>th</sup>, 2020. Individual Income Taxes include withheld and non-withheld. Social Insurance Taxes include FICA, SECA, RRTA, UTF deposits, FUTA and RUIA. Other includes excise taxes, estate and gift taxes, customs duties and miscellaneous receipts.

## Largest Outlays

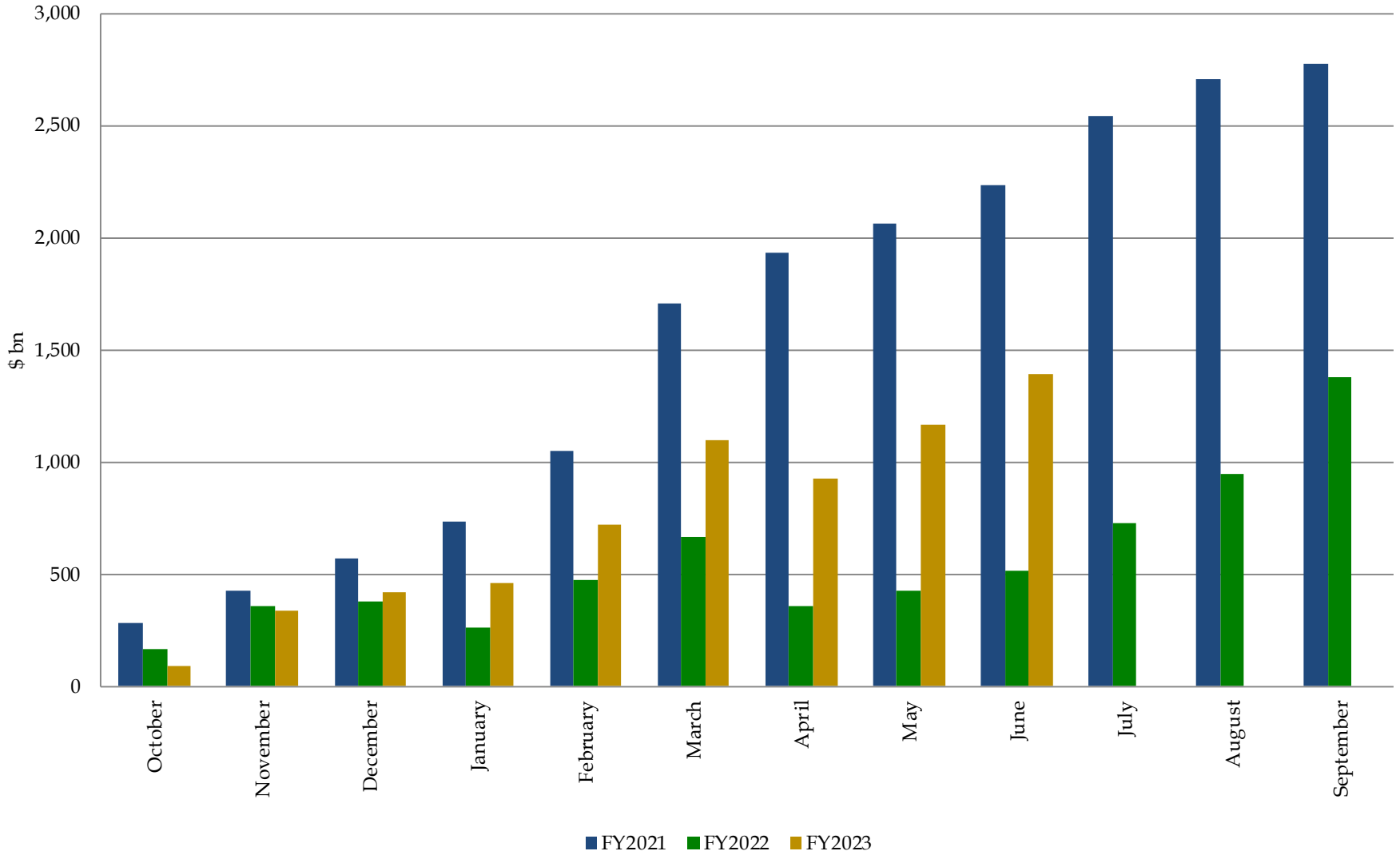


| Notable Outlay Category                            | YoY change thru Q3 FY23 (\$ billion) | YoY change thru Q3 FY23 (%) | Comments   |
|--|--------------------------------------|-----------------------------|--|
| Social Security Administration (calendar adjusted) | +\$101                               | +11%                        | Primarily due to the COLA (8.7% this year compared to 5.7% last year) and increased number of beneficiaries.   |
| Health and Human Services (calendar adjusted)      | +\$80                                | +7%                         | Due to higher Medicare and Medicaid outlays.   |
| Department of Defense (calendar adjusted)          | +\$45                                | +9%                         | Due to increased spending for military personnel, operations, maintenance, and procurement.  |
| Department of Treasury                             | -\$68                                | -7%                         | Interest on the public debt is \$131 billion (25%) higher; while outlays for tax credits are \$93 billion (-30%) lower and Covid-19 relief grants are \$89 billion (-99%) lower compared to last year. |
| Other (not in the chart above)                     | +\$184                               | +133%                       | Federal Deposit Insurance Corporation outlays are \$52 billion higher. FCC spectrum auction receipts (negative outlays) were booked in January 2022 (\$81 billion).                                    |

Outlays in the chart above are on calendar adjusted basis



# Cumulative Budget Deficits by Fiscal Year



# Section III:

# Various Fiscal Forecasts

Primary Dealers, OMB, CBO



# Recent Economic Forecasts

## Primary Dealer Median Estimates July 2023

|                              | <u>CY2023</u>                 | <u>CY2024</u> | <u>CY2025</u> |
|------------------------------|-------------------------------|---------------|---------------|
|                              | <u>% Change from Q4 to Q4</u> |               |               |
| <b>GDP</b>                   |                               |               |               |
| <i>Real</i>                  | 1.1                           | 0.9           | na            |
| <i>Nominal</i>               | 4.3                           | 3.2           | na            |
| <b>Inflation</b>             |                               |               |               |
| <i>CPI Headline</i>          | 3.1                           | 2.5           | na            |
| <i>CPI Core</i>              | 3.9                           | 2.7           | na            |
|                              | <u>Fourth Quarter Levels</u>  |               |               |
| <b>Unemployment Rate (%)</b> | 4.0                           | 4.7           | na            |
|                              | <u>FY2023</u>                 | <u>FY2024</u> | <u>FY2025</u> |
| <b>Deficits (\$bil)</b>      | \$1,550                       | \$1,600       | \$1,688       |

## OMB Estimates March 2023

|                              | <u>CY2023</u>                 | <u>CY2024</u> | <u>CY2025</u> |
|------------------------------|-------------------------------|---------------|---------------|
|                              | <u>% Change from Q4 to Q4</u> |               |               |
| <b>GDP</b>                   |                               |               |               |
| <i>Real</i>                  | 0.4                           | 2.1           | 2.4           |
| <i>Nominal</i>               | 3.2                           | 4.3           | 4.6           |
| <b>Inflation</b>             |                               |               |               |
| <i>CPI Headline</i>          | 3.0                           | 2.3           | 2.3           |
|                              | <u>Fourth Quarter Levels</u>  |               |               |
| <b>Unemployment Rate (%)</b> | 4.6                           | 4.5           | 4.4           |
|                              | <u>FY2023</u>                 | <u>FY2024</u> | <u>FY2025</u> |
| <b>Deficits (\$bil)</b>      | \$1,570                       | \$1,847       | \$1,672       |

## CBO Estimates February 2023

|                              | <u>CY2023</u>                 | <u>CY2024</u> | <u>CY2025</u> |
|------------------------------|-------------------------------|---------------|---------------|
|                              | <u>% Change from Q4 to Q4</u> |               |               |
| <b>GDP</b>                   |                               |               |               |
| <i>Real</i>                  | 0.1                           | 2.5           | 2.6           |
| <i>Nominal</i>               | 3.1                           | 4.9           | 4.8           |
| <b>Inflation</b>             |                               |               |               |
| <i>CPI Headline</i>          | 4.0                           | 2.4           | 2.1           |
|                              | <u>Fourth Quarter Levels</u>  |               |               |
| <b>Unemployment Rate (%)</b> | 5.1                           | 4.8           | 4.6           |
|                              | <u>FY2023</u>                 | <u>FY2024</u> | <u>FY2025</u> |
| <b>Deficits (\$bil)</b>      | \$1,535                       | \$1,501       | \$1,649       |

## CBO Estimates July 2023

|                              | <u>CY2023</u>                 | <u>CY2024</u> | <u>CY2025</u> |
|------------------------------|-------------------------------|---------------|---------------|
|                              | <u>% Change from Q4 to Q4</u> |               |               |
| <b>GDP</b>                   |                               |               |               |
| <i>Real</i>                  | 0.9                           | 1.5           | 2.4           |
| <i>Nominal</i>               | 3.8                           | 3.9           | 4.5           |
| <b>Inflation</b>             |                               |               |               |
| <i>CPI Headline</i>          | 3.3                           | 2.7           | 2.2           |
|                              | <u>Fourth Quarter Levels</u>  |               |               |
| <b>Unemployment Rate (%)</b> | 4.1                           | 4.7           | 4.5           |

Note: Economic assumptions for March 2023 OMB and Feb 2023 CBO forecasts were established in November 2022 and December 2022, respectively.

Economic assumptions from Jul 2023 CBO forecasts were not reflected in the most recent May CBO budget updates. [Budget and Economic Data | Congressional Budget Office \(cbo.gov\)](#)

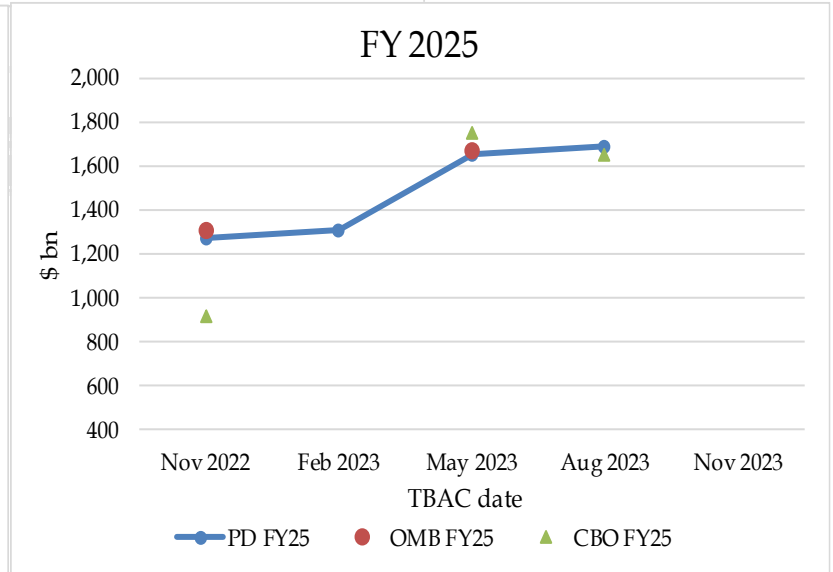
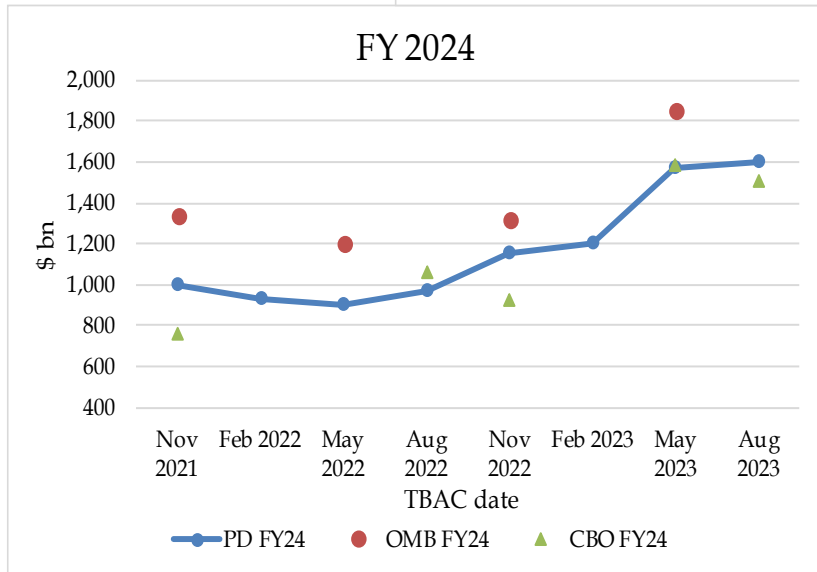
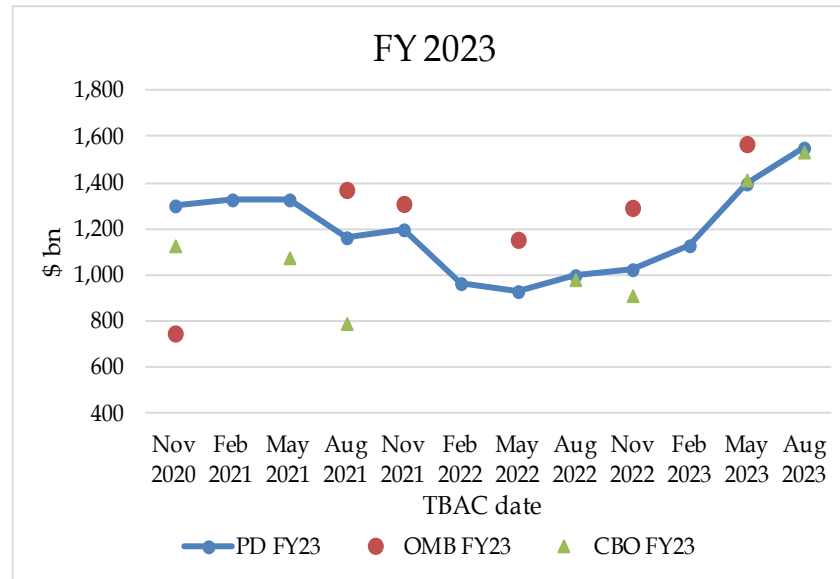
## Recent Deficit Forecasts

- Primary dealers increased their deficit estimates in July relative to estimates they provided in April. Their changes reflected a slower economy, possible recession and higher interest costs.
- Dealers generally suggested that risks were asymmetrical to the upside, i.e. risks for higher deficits, and noted a high degree of uncertainty around their estimates.
- The latest OMB and CBO estimates in the table below are provided for reference.

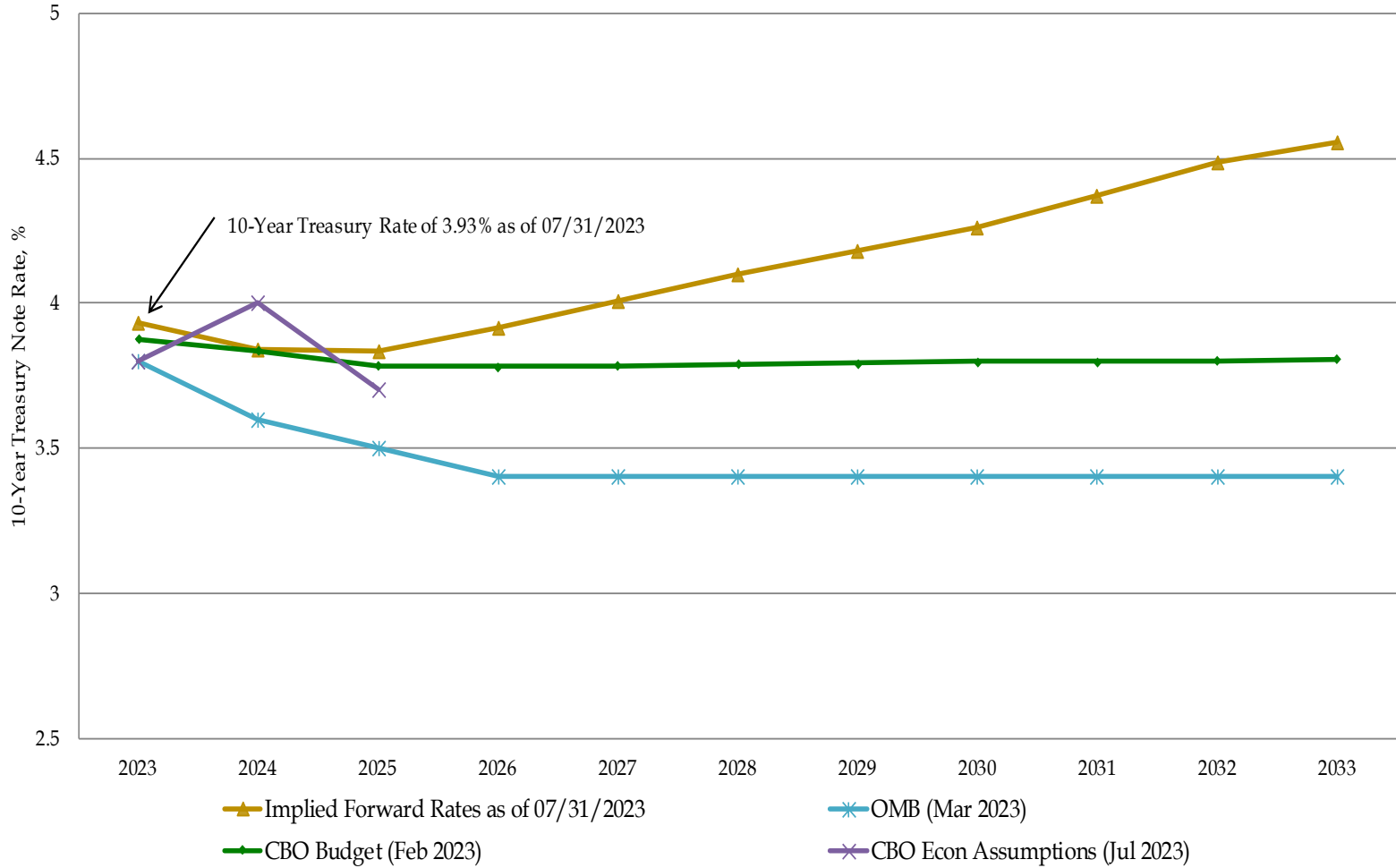
| Deficit Estimates (\$ billion) | PD 25th Percentile | Primary Dealers (Median) | PD 75th Percentile | Change from Prior Quarter (Median) | OMB    | CBO    |
|--------------------------------|--------------------|--------------------------|--------------------|------------------------------------|--------|--------|
| FY2023                         | 1,450              | 1,550                    | 1,625              | 150                                | 1,570  | 1,535  |
| FY2024                         | 1,500              | 1,600                    | 1,699              | 25                                 | 1,847  | 1,501  |
| FY2025                         | 1,650              | 1,688                    | 1,800              | 38                                 | 1,672  | 1,649  |
| As of date                     | Jul-23             | Jul-23                   | Jul-23             |                                    | Mar-23 | Jun-23 |

- OMB projections are using estimates are from Table S-1 of “Budget of The U.S. Government Fiscal Year 2024,” March 2023.
- CBO projections are using estimates are from Table 1 of “How the Fiscal Responsibility Act of 2023 Affects CBO’s Projections of Federal Debt ,” June 2023.


# Evolution of Median Primary Dealer, OMB, and CBO Deficit Estimates



## Interest Rate Assumptions: 10-Year Treasury Note



Section IV:  
Estimated Borrowing Needs and  
Financing Implications

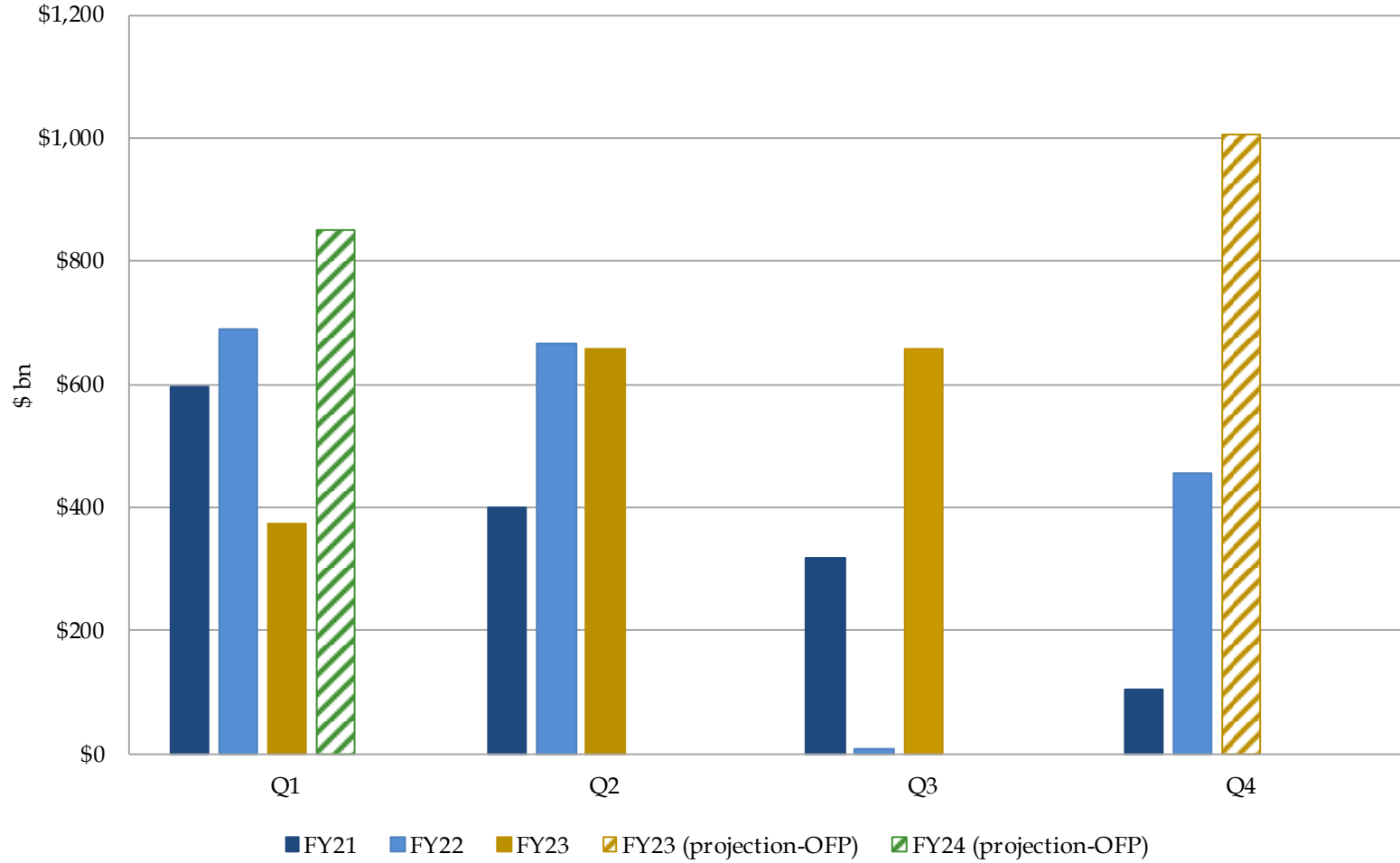


## Assumptions for Financing Section (pages 16 to 20)

- Portfolio and SOMA holdings as of 6/30/2023, unless otherwise noted (see slide 20).
- Estimates assume privately announced issuance sizes and patterns remain constant for nominal coupons, TIPS, and FRNs given the issuance sizes in effect in July 2023, while using total bills outstanding of ~\$4.5 trillion, unless otherwise noted (see slide 20).
- The principal on the TIPS securities was accreted to each projection date based on market ZCIS levels as of 6/30/2023, unless otherwise noted (see slide 20).
- No attempt was made to account for future financing needs.
- **Privately-held marketable borrowing** excludes rollovers (auction “add-ons”) of Treasury securities held in the Federal Reserve System Open Market Account (SOMA) but includes financing required due to SOMA redemptions. Secondary market purchases of Treasury securities by SOMA do not directly change net privately-held marketable borrowing but, all else equal, when the securities mature and assuming the Fed does not redeem any maturing securities, this would increase the amount of cash raised for a given privately-held auction size by increasing the SOMA “add-on” amount. These borrowing estimates are based upon current law and do not include any assumptions for the impact of additional legislation that may be passed.



# Privately-Held Net Marketable Borrowing Outlook



# Implied Bill Funding for Next Two Quarters Based on Recent Borrowing Estimates

## Sources of Privately-Held Financing in FY23 Q4

| July - September 2023                         |       |
|---|-------|
| Assuming Constant Coupon Issuance Sizes*      |       |
| Treasury Announced Net Marketable Borrowing** | 1,007 |
| Net Coupon Issuance                           | 158   |
| Implied Change in Bills                       | 849   |

## Sources of Privately-Held Financing in FY24 Q1

| October - December 2023                       |     |
|---|-----|
| Assuming Constant Coupon Issuance Sizes*      |     |
| Treasury Announced Net Marketable Borrowing** | 852 |
| Net Coupon Issuance                           | 216 |
| Implied Change in Bills                       | 636 |

| Security        | July - September 2023<br>Coupon Issuance |          |      | Fiscal Year-to-Date<br>Coupon Issuance |          |       | Security        | October - December 2023<br>Coupon Issuance |          |      | Fiscal Year-to-Date<br>Coupon Issuance |          |      |
|-----------------|--|----------|------|--|----------|-------|-----------------|--|----------|------|--|----------|------|
|                 | Gross                                    | Maturing | Net  | Gross                                  | Maturing | Net   |                 | Gross                                      | Maturing | Net  | Gross                                  | Maturing | Net  |
| 2-Year FRN      | 68                                       | 80       | (12) | 272                                    | 314      | (42)  | 2-Year FRN      | 68   | 76       | (8)  | 68                                     | 76       | (8)  |
| 2-Year          | 84                                       | 115      | (31) | 462                                    | 566      | (104) | 2-Year          | 126  | 174      | (48) | 126                                    | 174      | (48) |
| 3-Year          | 120                                      | 108      | 12   | 480                                    | 334      | 146   | 3-Year          | 120  | 131      | (11) | 120                                    | 131      | (11) |
| 5-Year          | 86                                       | 43       | 43   | 473                                    | 209      | 264   | 5-Year          | 129  | 73       | 56   | 129                                    | 73       | 56   |
| 7-Year          | 70                                       | 51       | 19   | 385                                    | 297      | 88    | 7-Year          | 105  | 73       | 32   | 105                                    | 73       | 32   |
| 10-Year         | 99                                       | 41       | 58   | 396                                    | 174      | 222   | 10-Year         | 99   | 55       | 44   | 99                                     | 55       | 44   |
| 20-Year         | 27                                       | 0        | 27   | 144                                    | 0        | 144   | 20-Year         | 39   | 0        | 39   | 39                                     | 0        | 39   |
| 30-Year         | 57                                       | 7        | 50   | 228                                    | 14       | 214   | 30-Year         | 57   | 0        | 57   | 57                                     | 0        | 57   |
| 5-Year TIPS     | 0  | 0        | 0    | 80                                     | 43       | 37    | 5-Year TIPS     | 40   | 0        | 40   | 40                                     | 0        | 40   |
| 10-Year TIPS    | 32                                       | 49       | (17) | 94                                     | 98       | (4)   | 10-Year TIPS    | 15   | 0        | 15   | 15                                     | 0        | 15   |
| 30-Year TIPS    | 8  | 0        | 8    | 17                                     | 0        | 17    | 30-Year TIPS    | 0  | 0        | 0    | 0                                      | 0        | 0    |
| Coupon Subtotal | 651                                      | 493      | 158  | 3,031                                  | 2,048    | 982   | Coupon Subtotal | 798  | 582      | 216  | 798                                    | 582      | 216  |

\* Keeping announced issuance sizes and patterns constant for nominal coupons, TIPS, and FRNs.

\*\* Assumes an end-of-September 2023 and end-of-December 2023 cash balances of \$650 billion and \$750 billion respectively versus end-of-June 2023 cash balance of \$402 billion. Financing Estimates released by the Treasury can be found here: <http://www.treasury.gov/resource-center/data-chart-center/quarterly-refunding/Pages/Latest.aspx>

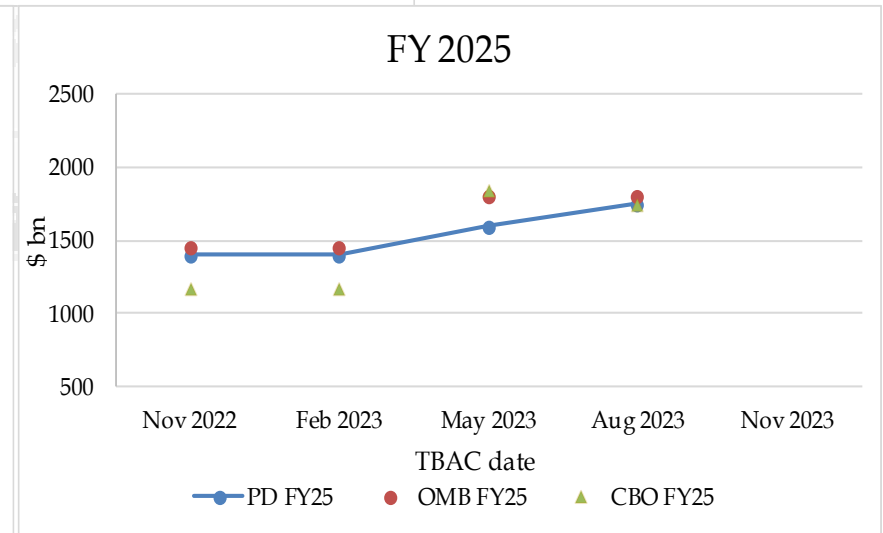
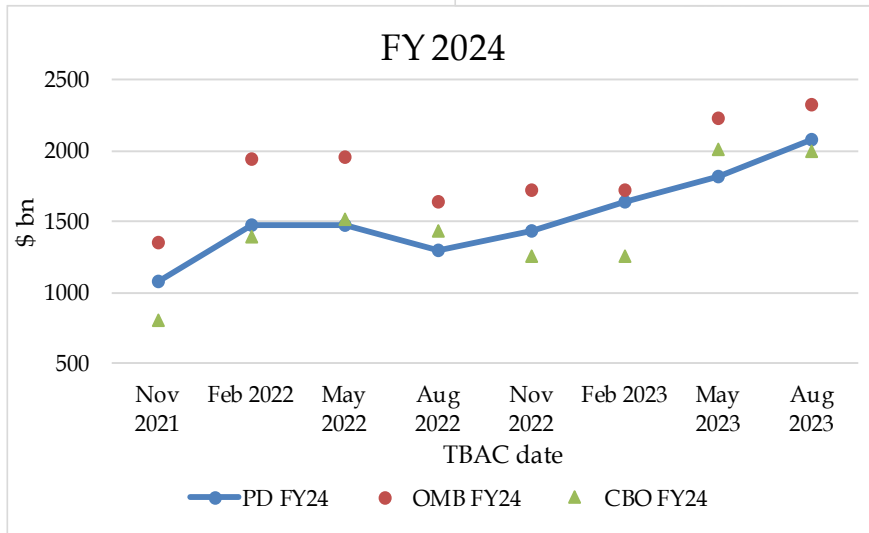
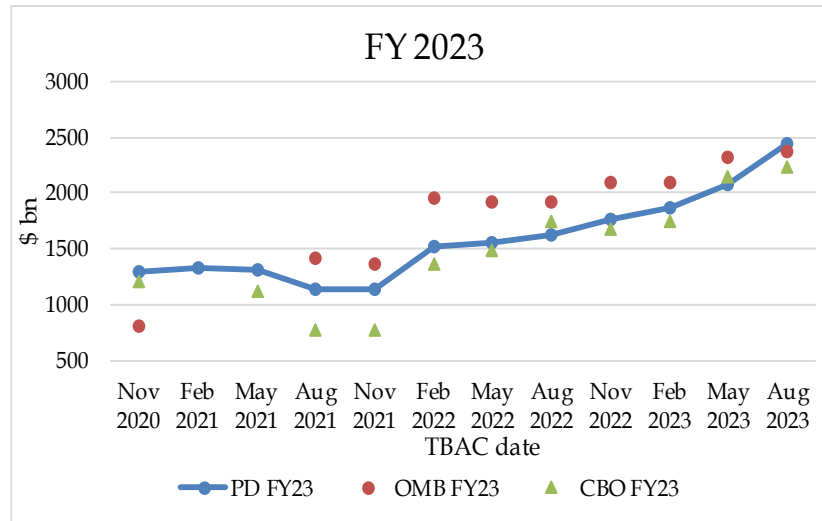
## Longer-Term Privately-Held Net Marketable Borrowing Estimates and SOMA Redemption Assumptions

### FY 2023-2025 Deficits and Privately-Held Net Marketable Borrowing Estimates, in \$ billions

|  | Primary Dealer |        |       | OFP    | OMB    | CBO    |
|--|----------------|--------|-------|--------|--------|--------|
|  | 25th           | Median | 75th  |        |        |        |
| FY 2023 Deficit                                  | 1,450          | 1,550  | 1,625 |        | 1,570  | 1,535  |
| FY 2024 Deficit                                  | 1,500          | 1,600  | 1,699 |        | 1,847  | 1,501  |
| FY 2025 Deficit                                  | 1,650          | 1,688  | 1,800 |        | 1,672  | 1,649  |
| FY 2023 SOMA Redemption                          | 699            | 720    | 720   | 698    |        |        |
| FY 2024 SOMA Redemption                          | 348            | 451    | 563   |        |        |        |
| FY 2025 SOMA Redemption                          | 0              | 0      | 0     |        |        |        |
| FY 2023 Privately-Held Net Marketable Borrowing* | 2,297          | 2,440  | 2,508 | 2,693  | 2,378  | 2,240  |
| FY 2024 Privately-Held Net Marketable Borrowing* | 1,913          | 2,078  | 2,094 |        | 2,324  | 2,002  |
| FY 2025 Privately-Held Net Marketable Borrowing* | 1,613          | 1,750  | 1,831 |        | 1,809  | 1,746  |
| Estimates as of:                                 | Jul-23         |        |       | Jul-23 | Mar-23 | Jun-23 |

- \*All privately-held net marketable borrowing estimates of are “normalized” using:
  - 1) the median Primary Dealer’s estimates for SOMA redemptions, and
  - 2) assuming OFP’s end of fiscal year 2023 cash balance of \$650 billion, held constant in out years.
- OMB projections are using estimates are from Table S-1 of “Budget of The U.S. Government Fiscal Year 2024,” March 2023.
- CBO projections are using estimates are from Table 1 & 2 of “How the Fiscal Responsibility Act of 2023 Affects CBO’s Projections of Federal Debt ,” June 2023.
- OFP’s SOMA redemption estimate excludes securities maturing on 9/30/2023 (Saturday).

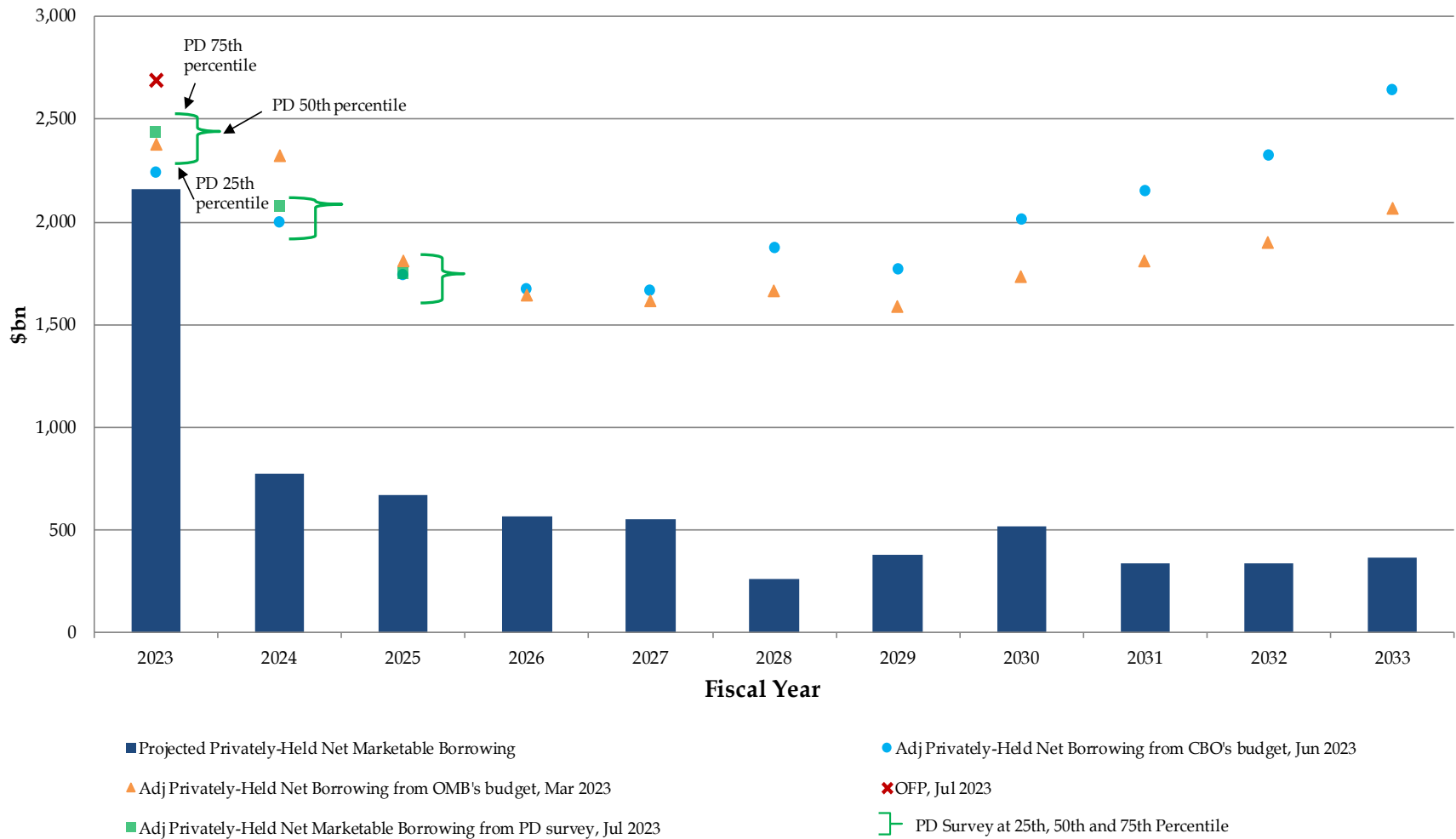
# Evolution of Median Primary Dealer, OMB, and CBO Privately-Held Net Marketable Borrowing Estimates\*



\* Note that both the OMB and CBO privately-held net marketable borrowing estimates are calculated by adjusting their respective deficit estimates using dealer's median SOMA redemption estimates. In addition, all the PD, OMB and CBO privately-held borrowings are normalized with the same cash balance changes.

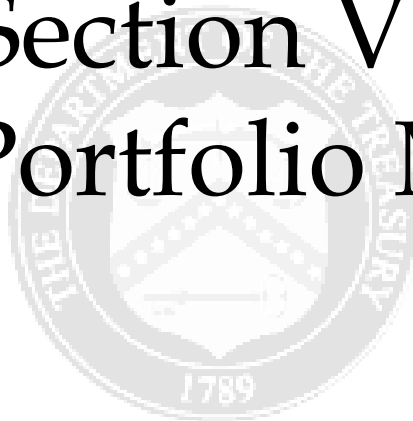
# Projected Privately-Held Net Marketable Borrowing

Assuming Private Coupon Issuance & Total Bills Outstanding Remain Constant as of 07/31/2023\*



\*Treasury's latest primary dealer survey median/interquartile range estimates can be found on page 18. OMB's borrowing projections are from Table S-1 of "Budget of The U.S. Government Fiscal Year 2024," March 2023. CBO's borrowing projections are using estimates from Table 2 of "How the Fiscal Responsibility Act of 2023 Affects CBO's Projections of Federal Debt," June 2023. OMB and CBO borrowing estimates from FY23 to FY25 are normalized to privately-held net borrowing after adding PD survey median SOMA redemption assumptions for FY23/24/25. In addition, all privately-held net borrowing estimates are normalized with OFP FY23 ending cash balance of \$650 billion.

# Section V: Select Portfolio Metrics



Note: Several of the portfolio metric charts that follow include three years of projected metrics.

**These projections are hypothetical and are meant for illustrative purposes only. The projections contained in these charts should not be interpreted as representing any future policy decisions regarding Treasury financing.**

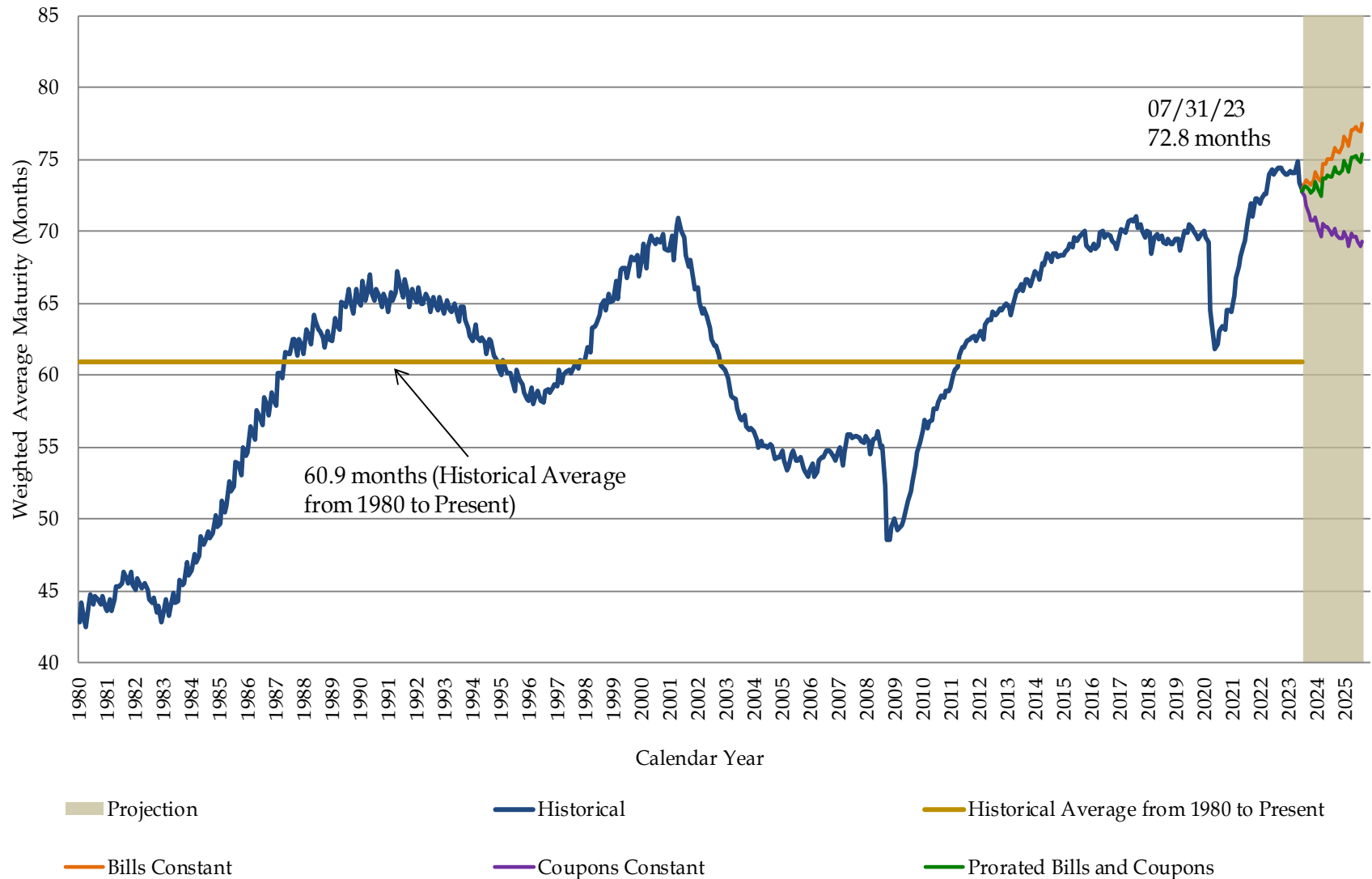
Projections illustrate how various portfolio metrics could evolve under three hypothetical financing scenarios. The scenarios were chosen to illustrate a potential range of portfolio metric outcomes based on hypothetical issuance choices.

The scenarios are:

- 1) ***“Coupons Constant”***: Treasury maintains **coupon, FRN, and TIPS auction sizes constant** starting in August 2023 and addresses any changes in financing needs by only increasing or decreasing T-bill auction sizes;
- 2) ***“Bills Constant”***: Treasury maintains **T-bills aggregate supply constant** at \$4.8 trillion as of 7/31/2023 and increases or decreases coupon, FRN, and TIPS auction sizes in response to financing needs in a manner that maintains current issuance proportions going forward;
- 3) ***“Prorated Bills and Coupons”***: Treasury maintains **T-bills share constant** at 19% as of 7/31/2023 and addresses any changes in financing needs by pro rata increasing or decreasing coupon, FRN, and TIPS auction sizes.

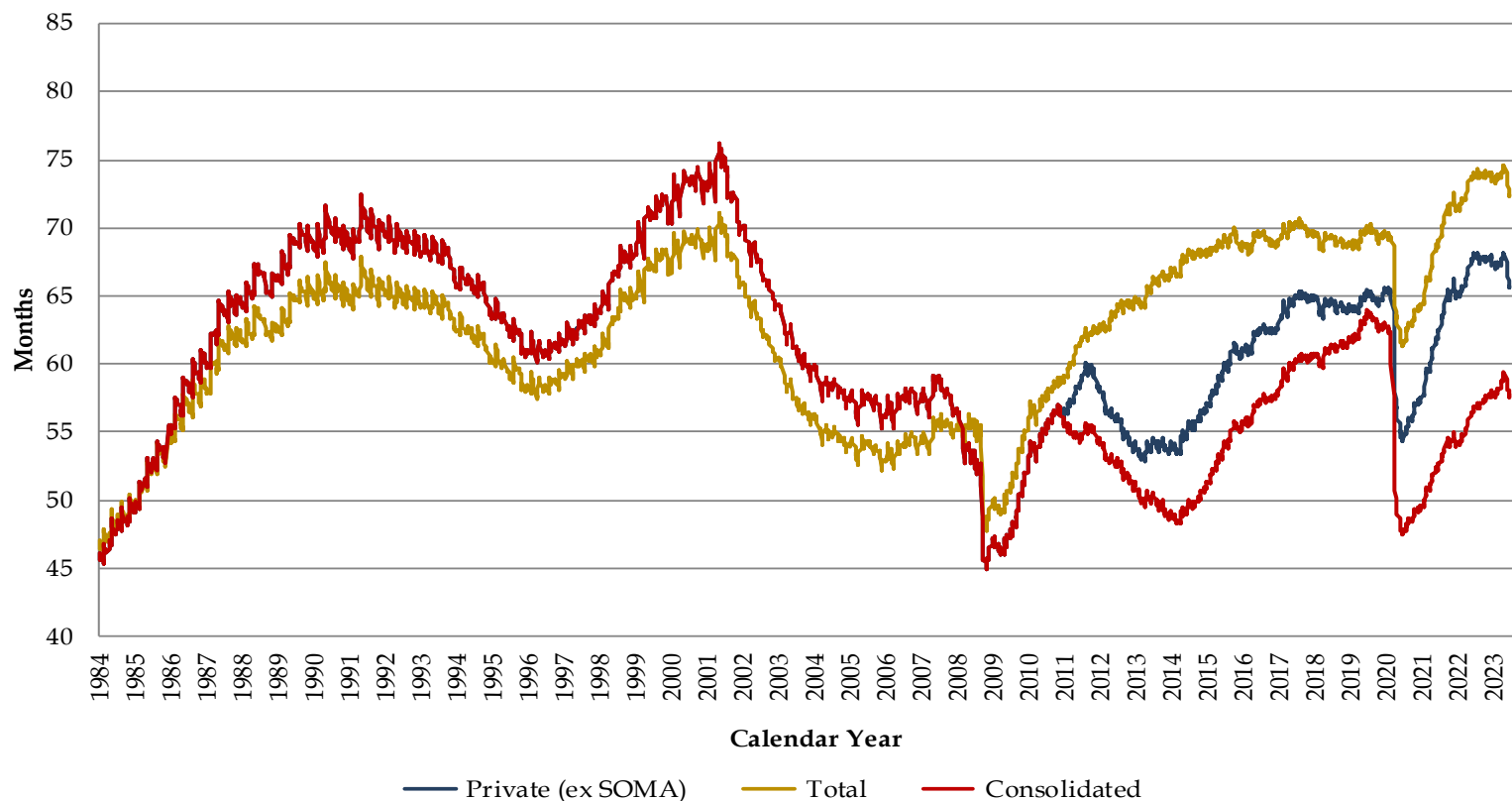
Privately-held net marketable borrowing needs used in the projections section of these charts are proxied using median primary dealer estimates for FY23, FY24, & FY25 (see page 18).

# Weighted Average Maturity of Marketable Debt Outstanding





## Consolidated WANRR Calculation\*

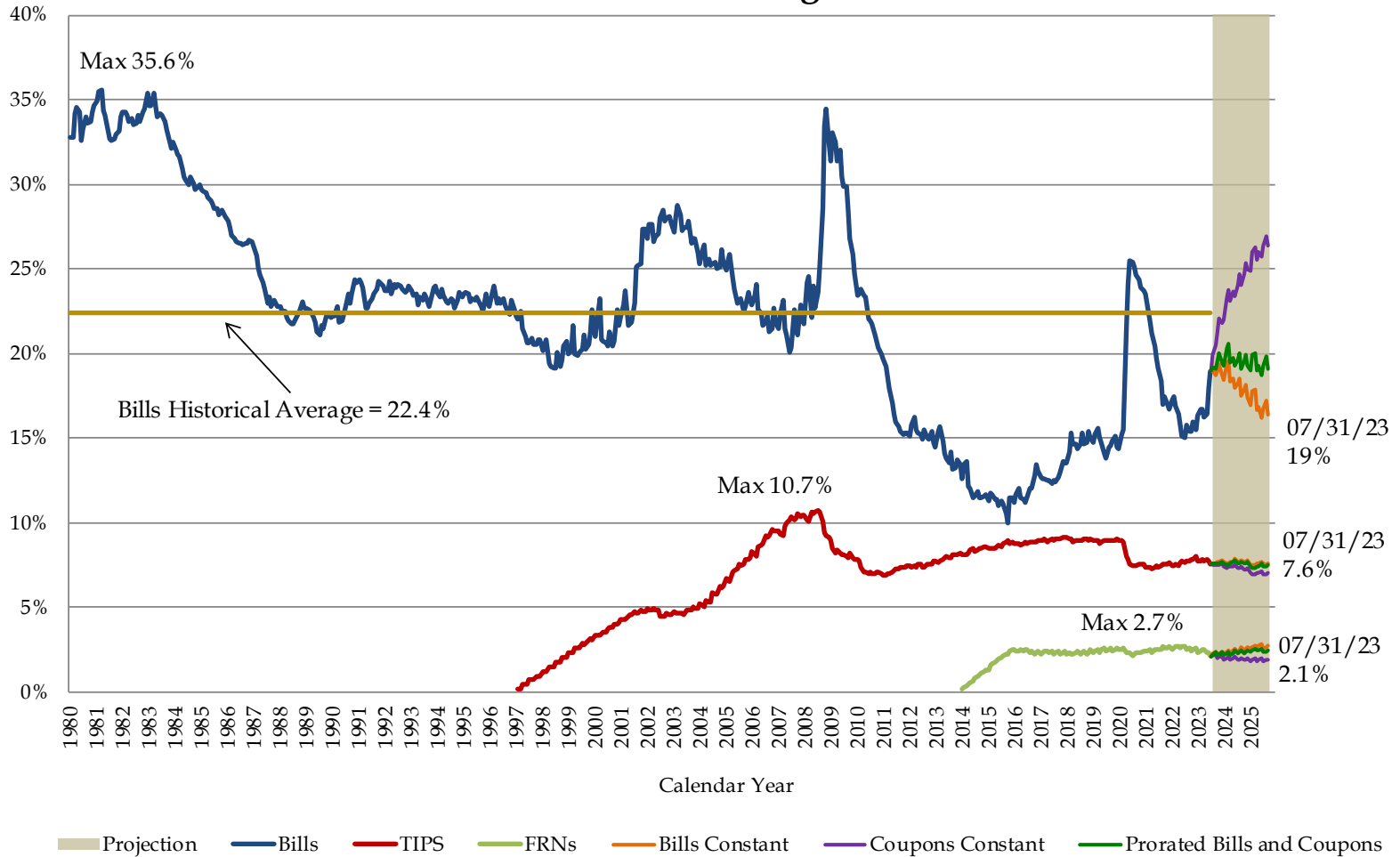


\* Weighted Average Next Rate Reset (WANRR) is a “Weighted Average Maturity” metric that attempts to adjust for the floating rate aspect of some Treasury debt. The WANRR is the average time until the outstanding debt’s interest rate is set to a new interest rate. For bills and fixed rate notes and bonds, the next rate reset is equal to the maturity date.

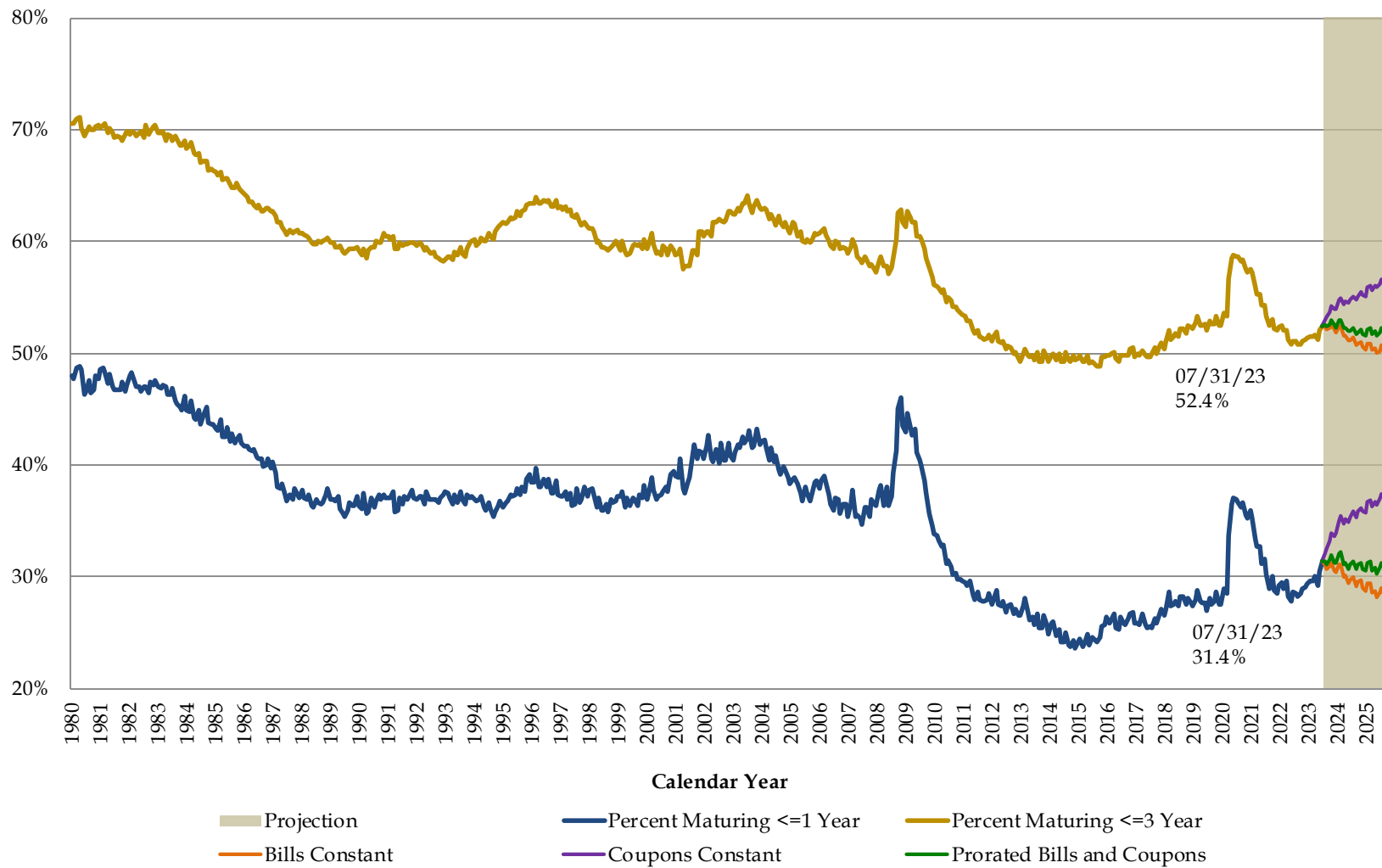
In contrast, for floating rate obligations, the time between the next rate reset date or maturity date is examined and the shorter period is used in the calculation.

The consolidated outstanding debt is defined as the private amount plus SOMA Treasury securities holdings less currency amount. In this calculation, SOMA Treasury holdings greater than the level of currency outstanding is treated as if it is a daily rate reset.

## Bills, TIPS & FRNs Outstanding as a Percent of Marketable Debt Outstanding

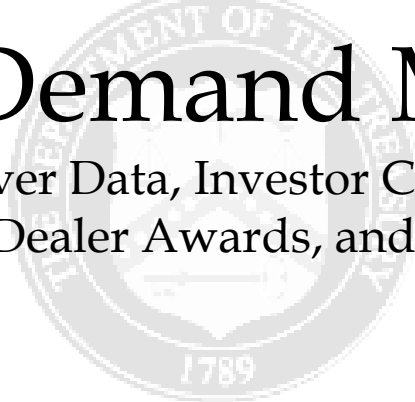


# Treasury Maturity Profile

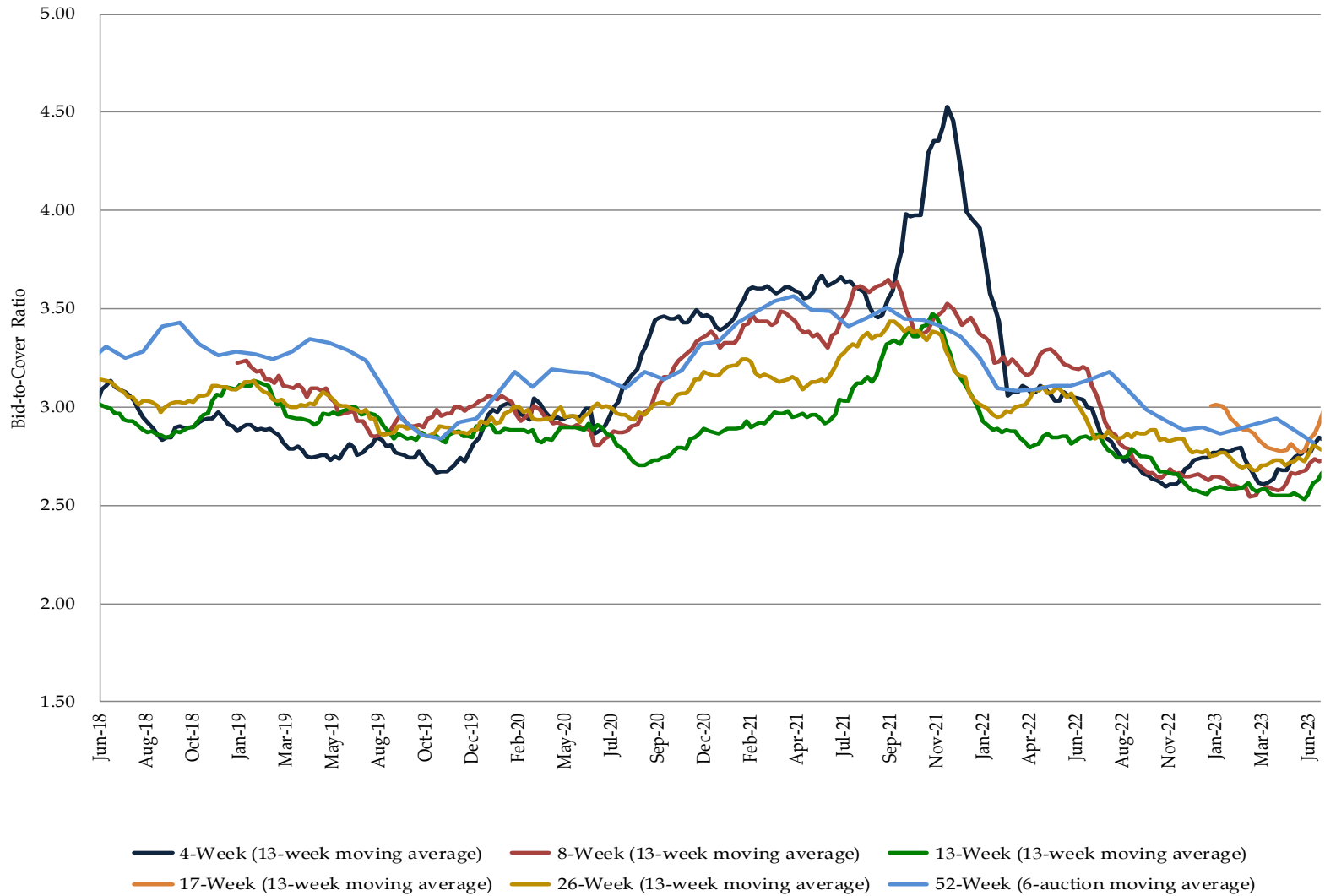


# Section VI: Select Demand Metrics

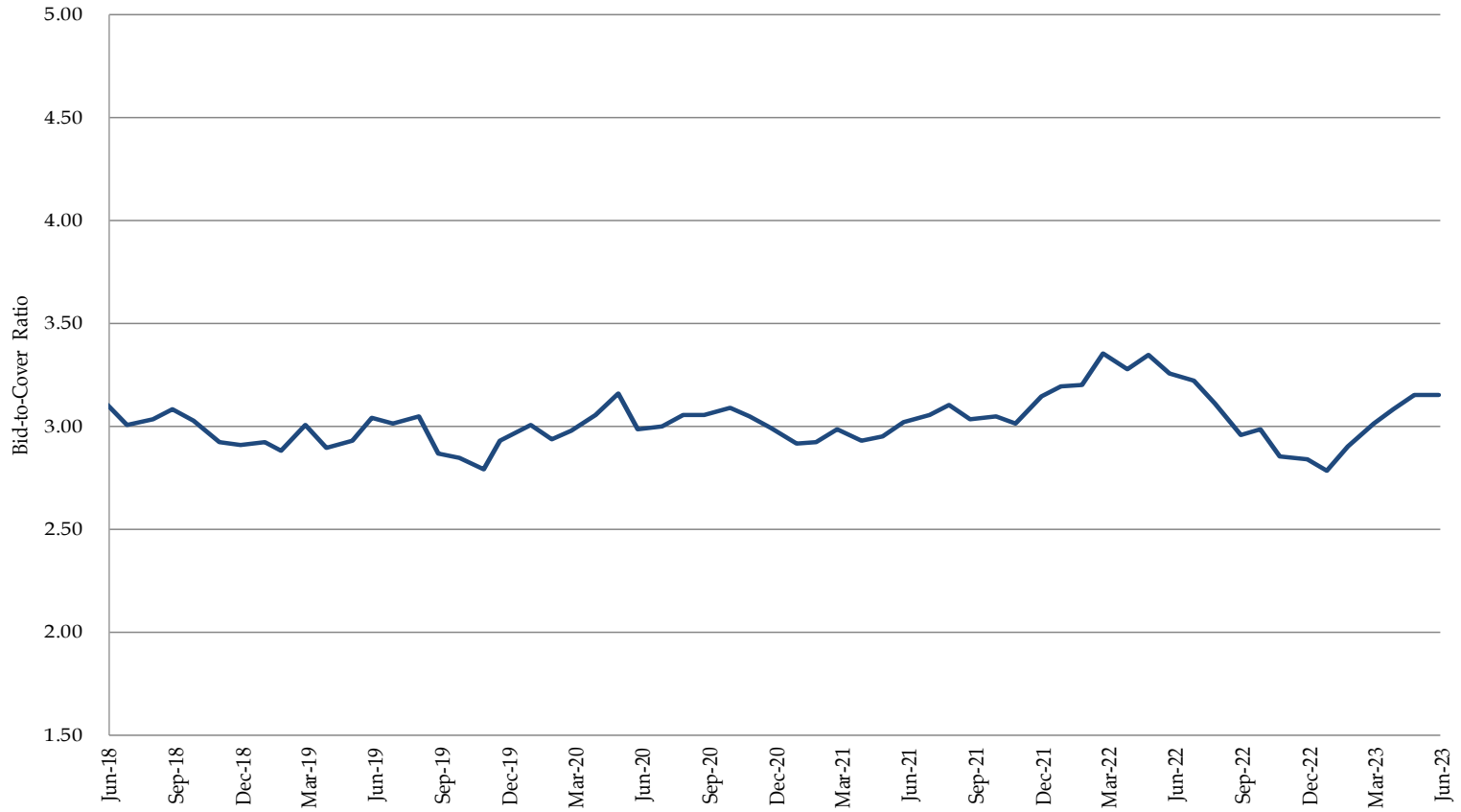
Bid-to-Cover Data, Investor Class Data,  
Direct & Primary Dealer Awards, and Foreign Demand



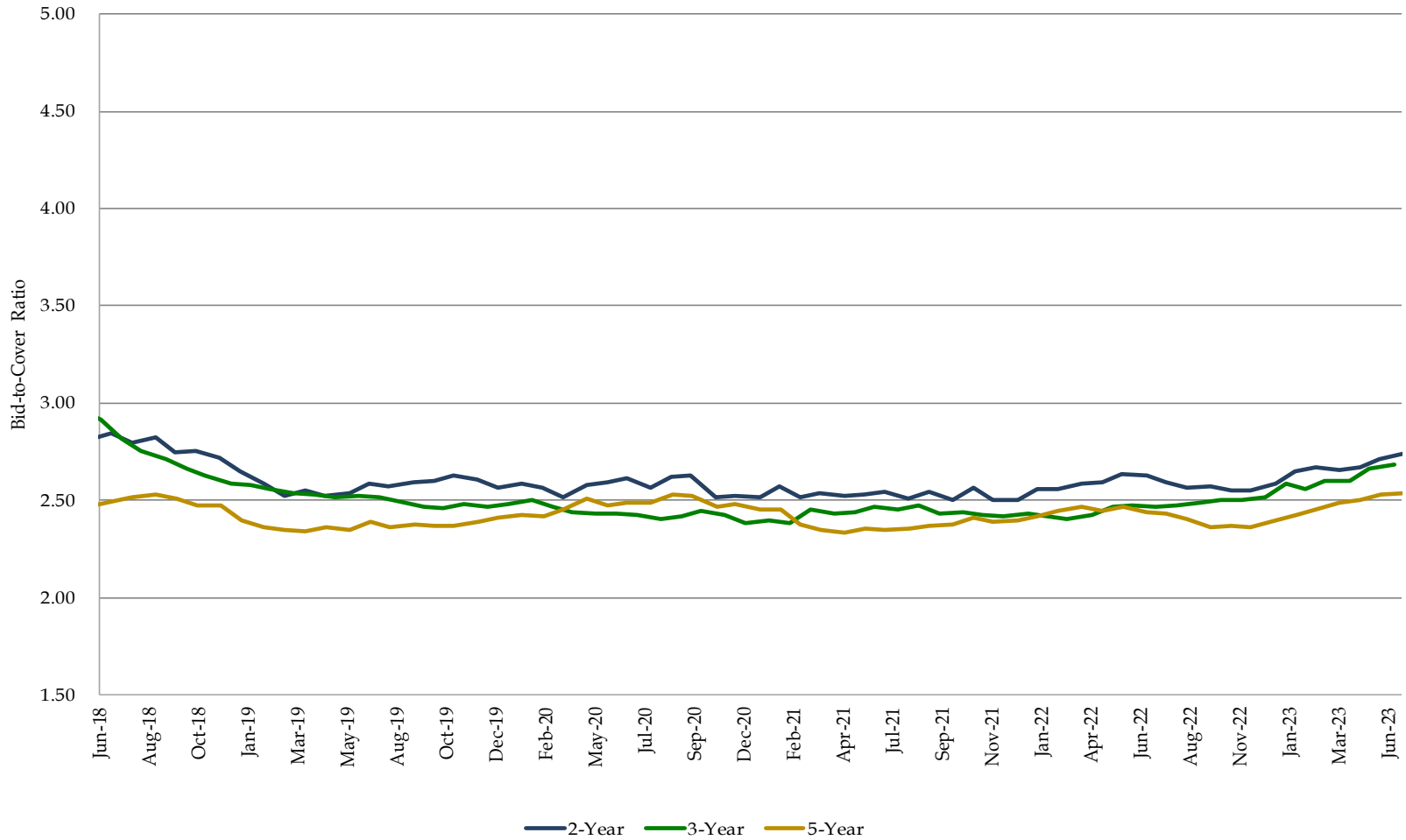
# Bid-to-Cover Ratios for Treasury Bills



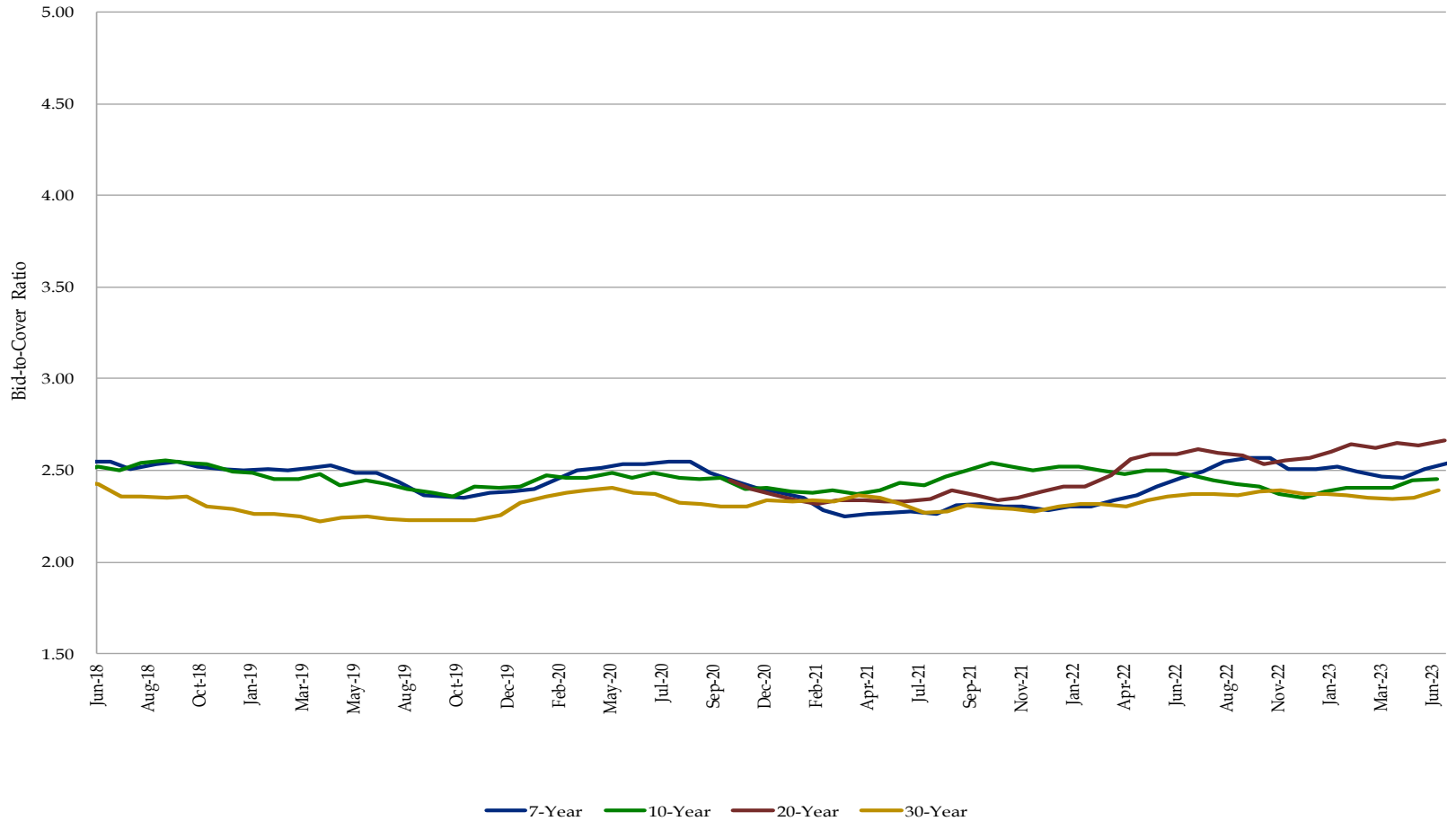
## Bid-to-Cover Ratios for FRNs (6-Month Moving Average)



## Bid-to-Cover Ratios for 2-, 3-, and 5-Year Nominal Securities (6-Month Moving Average)

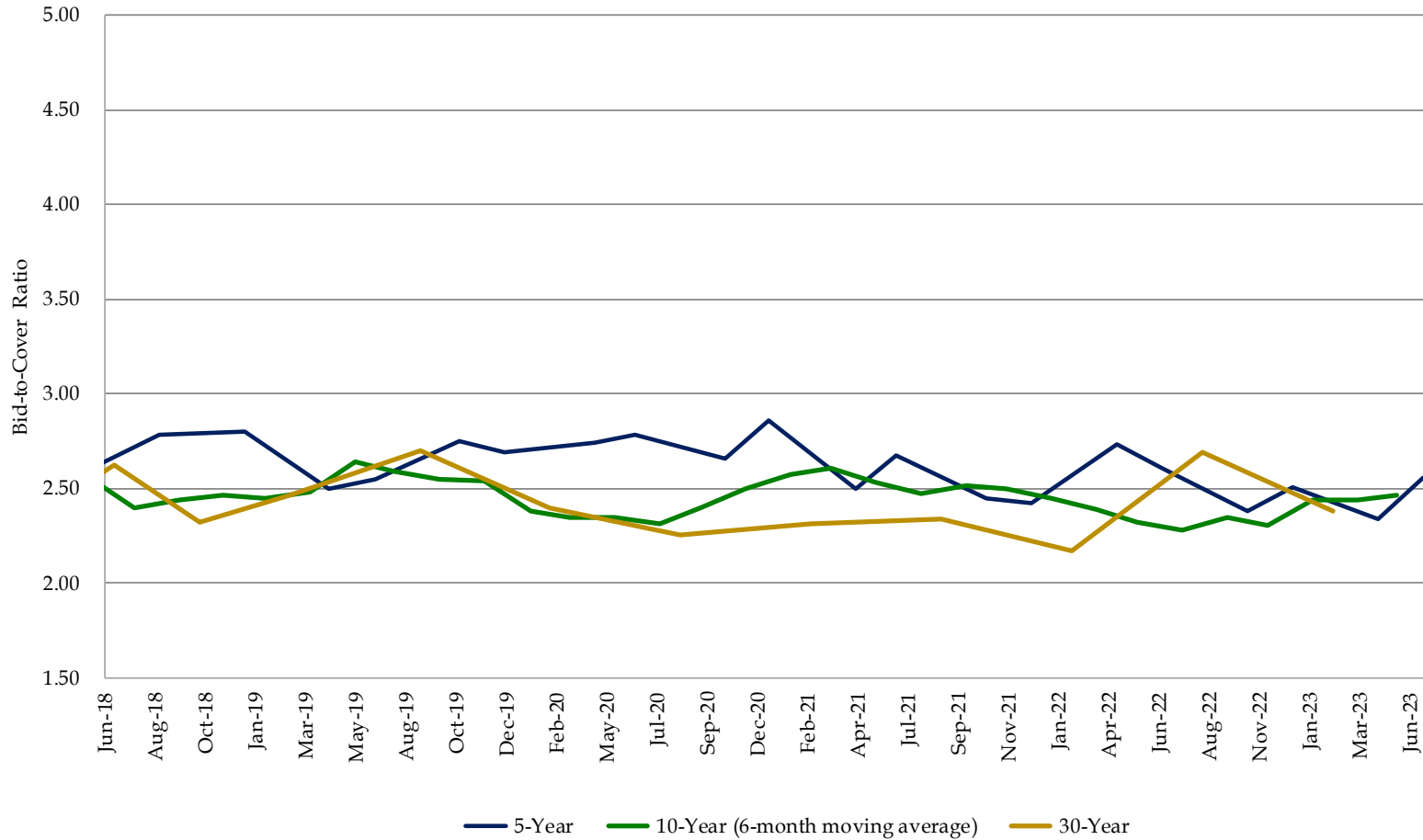


## Bid-to-Cover Ratios for 7-, 10-, 20-, and 30-Year Nominal Securities (6-Month Moving Average)

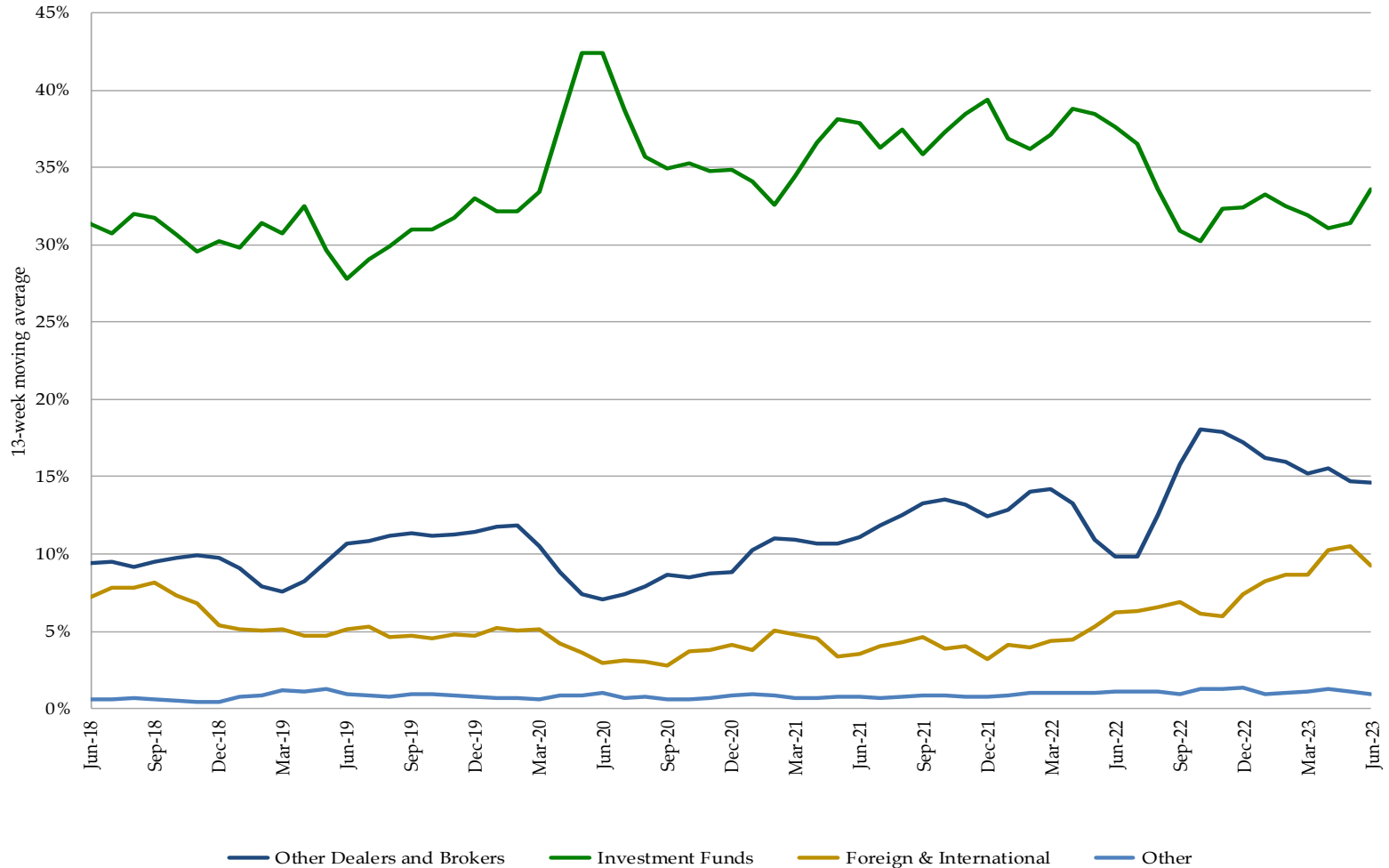




# Bid-to-Cover Ratios for TIPS

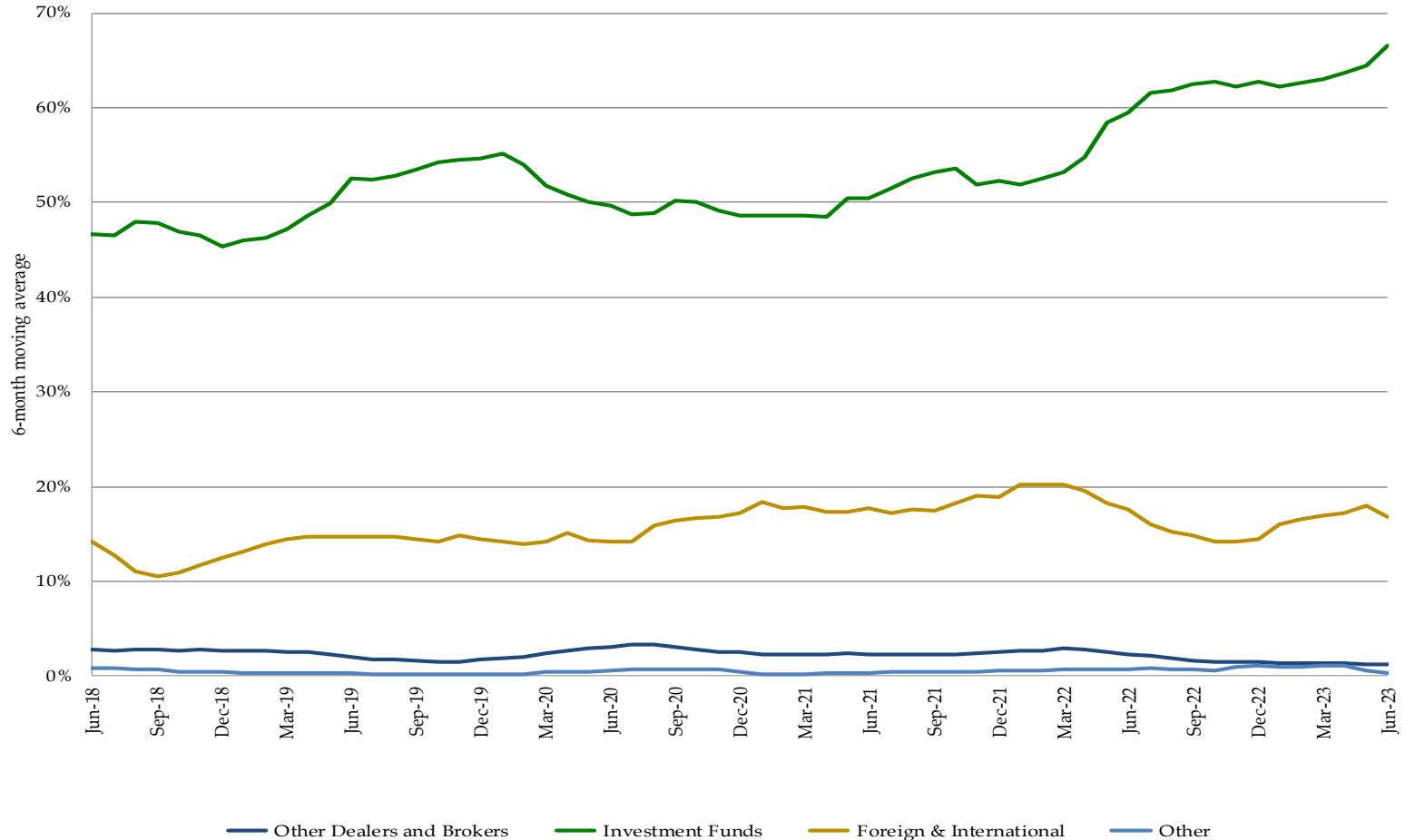


## Percent Awarded in Bill Auctions by Investor Class (13-Week Moving Average)



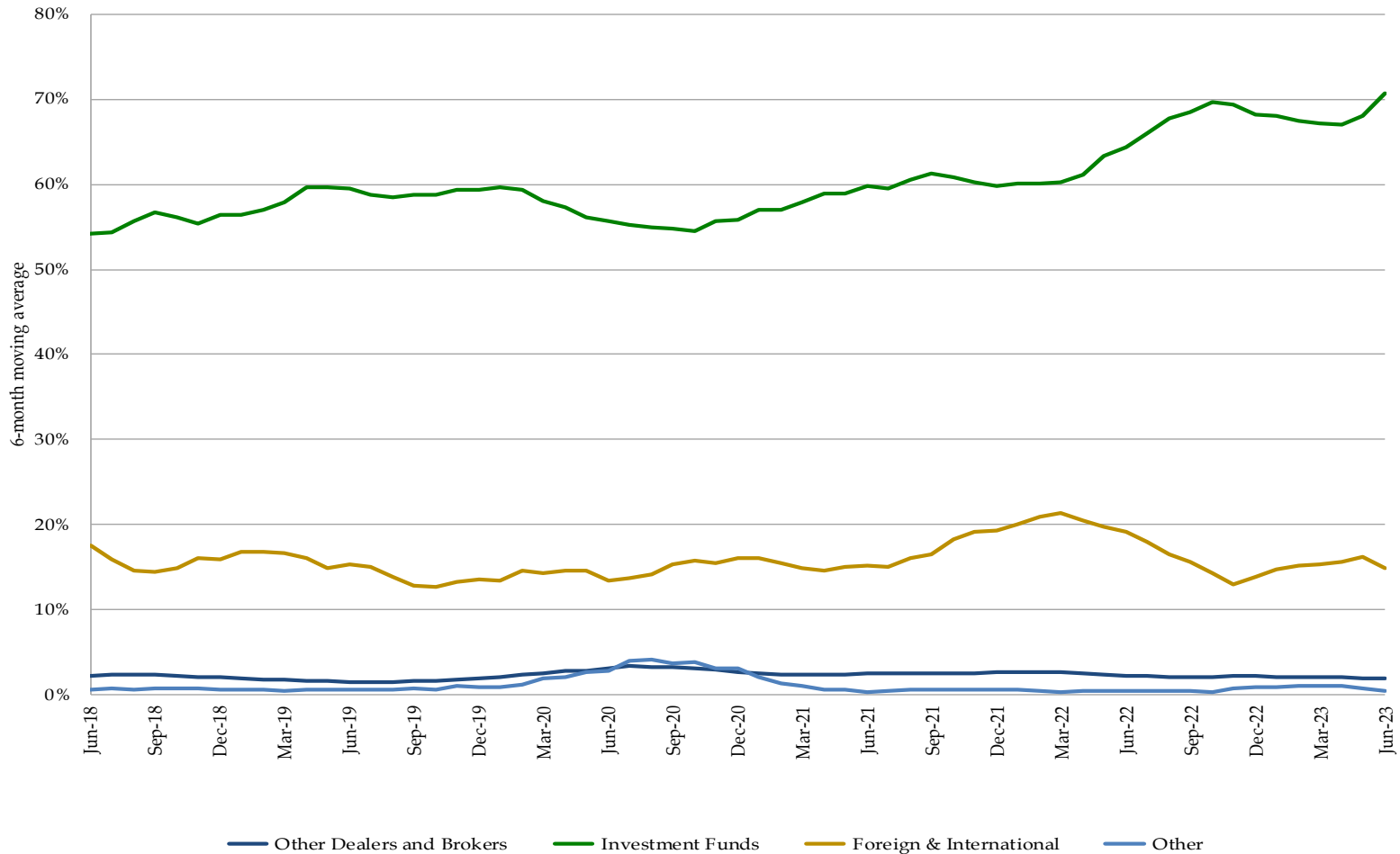
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

## Percent Awarded in 2-, 3-, and 5-Year Nominal Security Auctions by Investor Class (6-Month Moving Average)



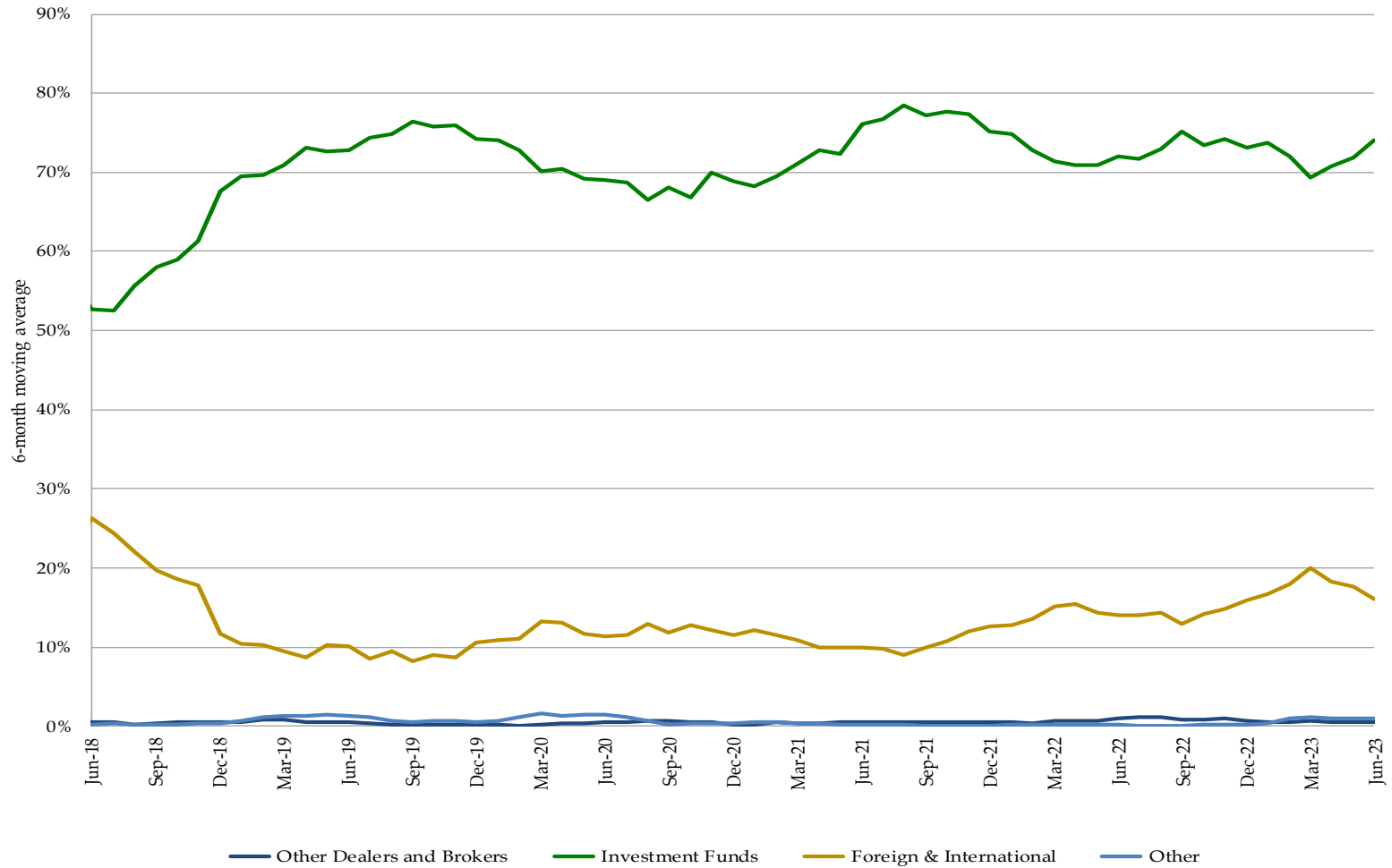
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

## Percent Awarded in 7-, 10-, 20-, 30-Year Nominal Security Auctions by Investor Class (6-Month Moving Average)



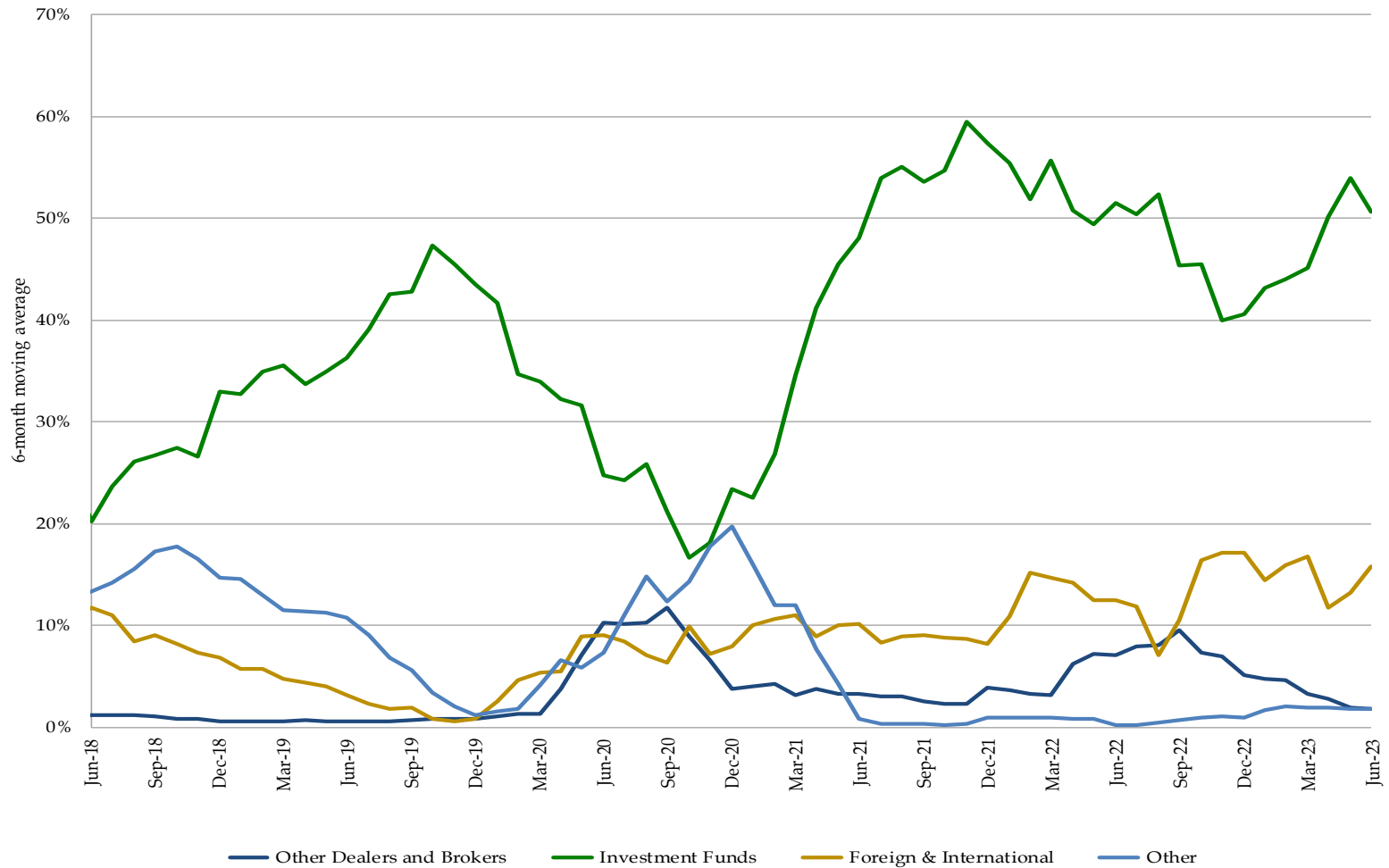
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

## Percent Awarded in TIPS Auctions by Investor Class (6-Month Moving Average)



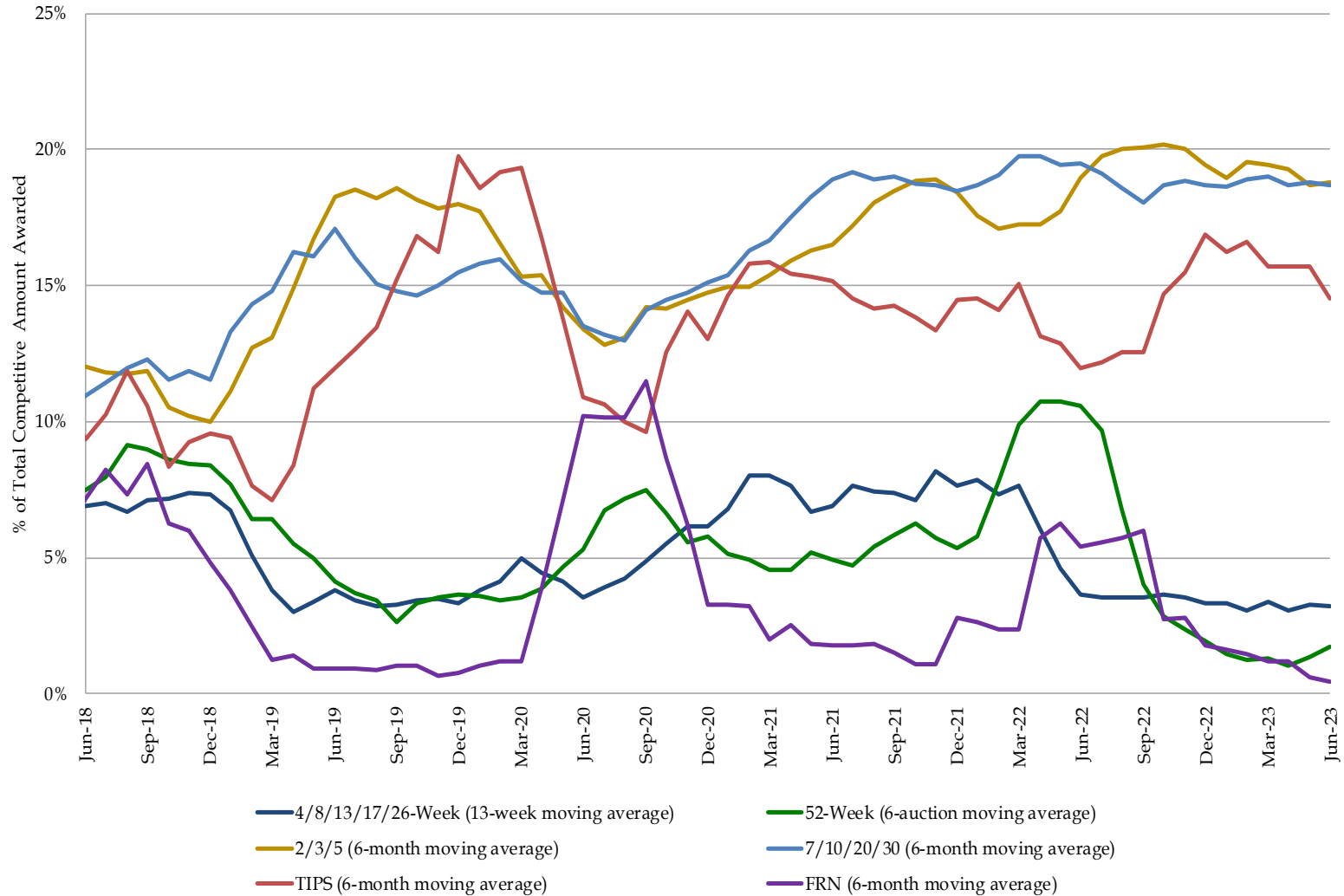
Excludes SOMA add-ons. The "Other" category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

## Percent Awarded in FRN Auctions by Investor Class (6-Month Moving Average)



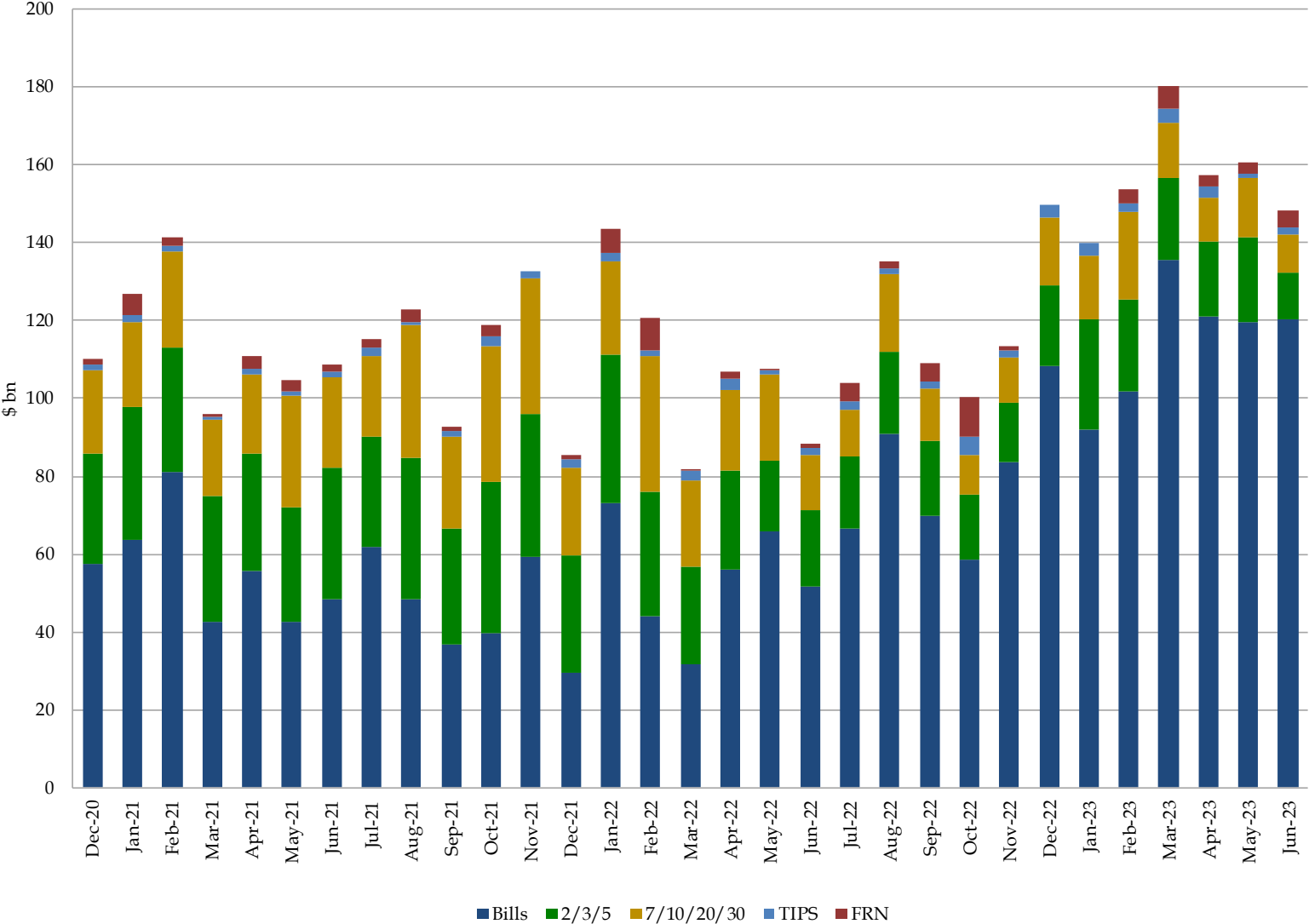
Excludes SOMA add-ons. The "Other" category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

# Direct Bidder Awards at Auction



Competitive Amount Awarded excludes SOMA add-ons.

# Total Foreign Awards of Treasuries at Auction, \$ billions

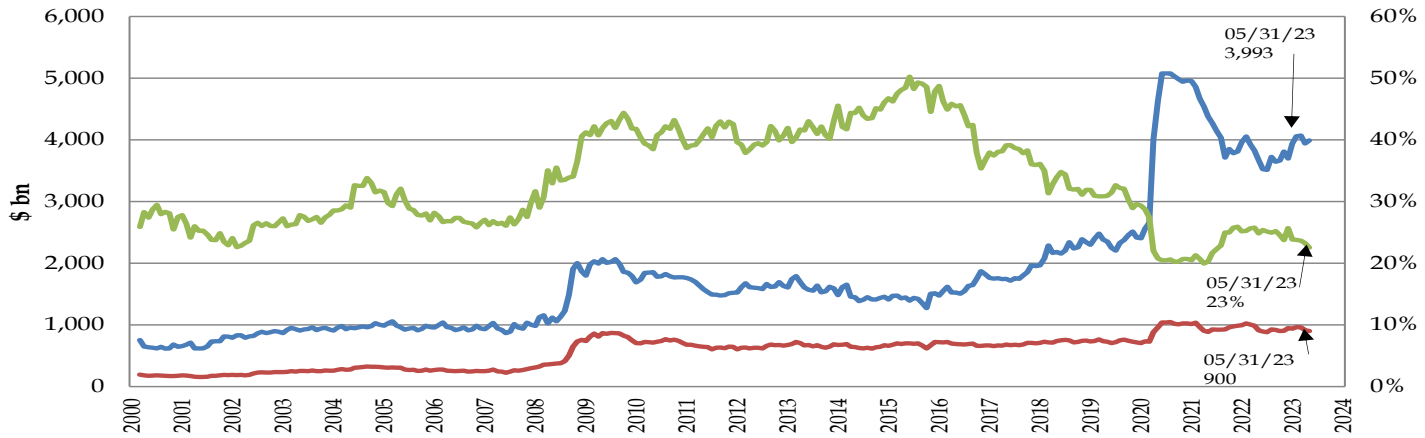


Foreign includes both private sector and official institutions.

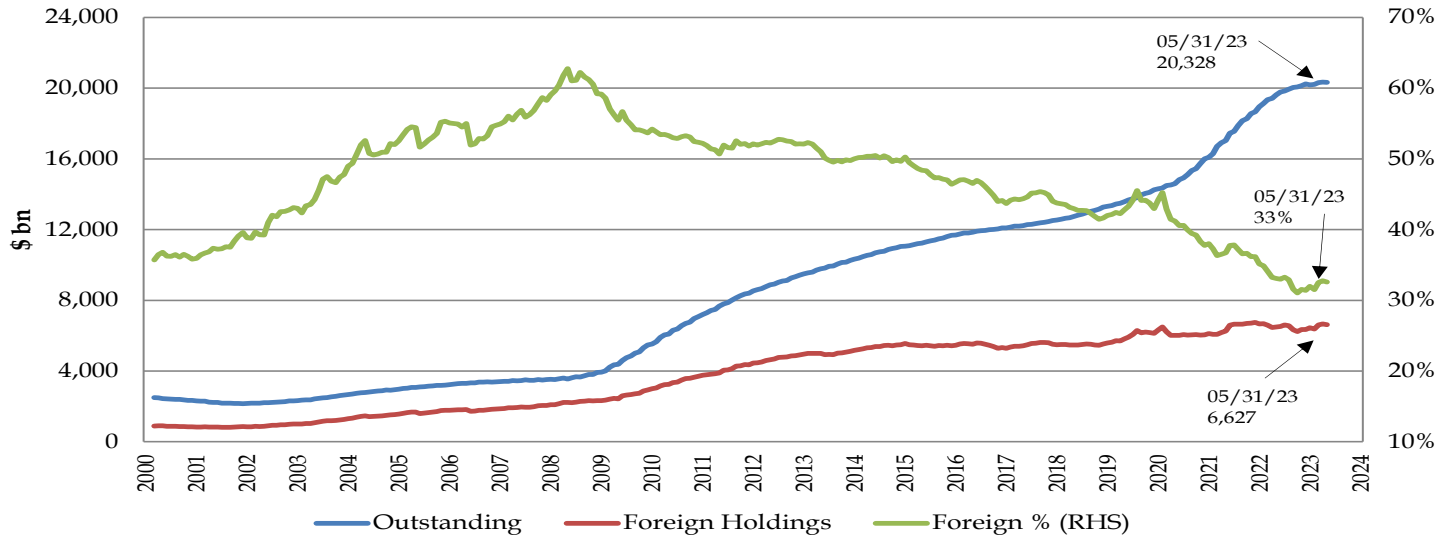


# Total Foreign Holdings

## Bills



## Nominal Coupons, TIPS, and FRNs



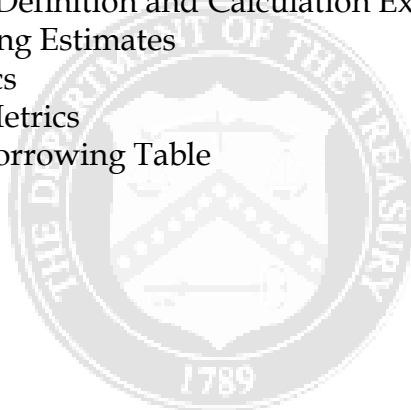
Source: Treasury International Capital (TIC) System as of May 2023.

For more information on foreign participation data, including more details about the TIC data shown here, please refer to Treasury Presentation to TBAC “Brief Overview of Key Data Sources on Foreign Participation in the U.S. Treasury Securities Market” at the Treasury February 2019 Refunding.

# VII. Appendix

## Contents

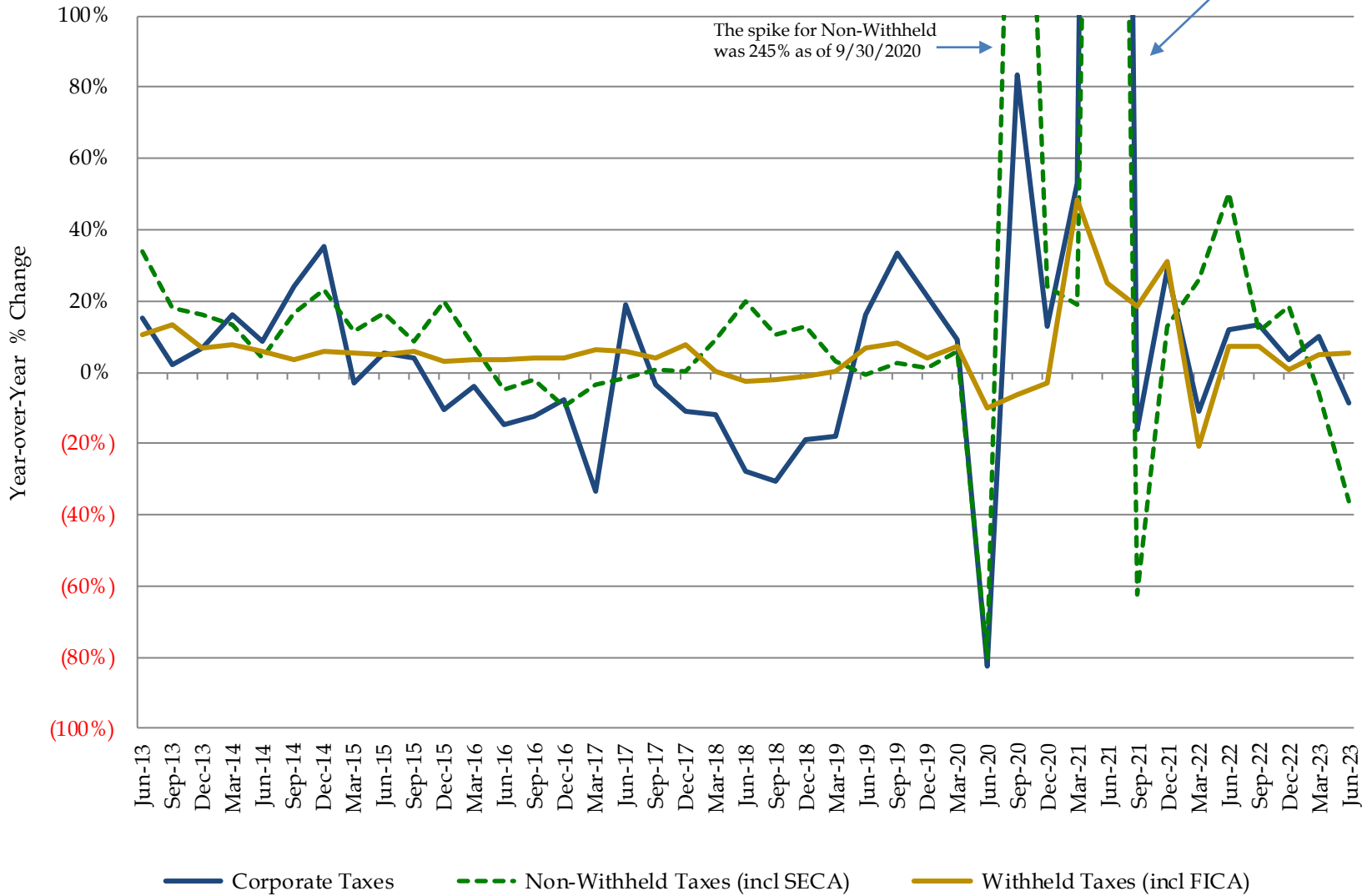
|   |          |
|---|----------|
| A. Quarterly Tax Receipts Chart   | p. 42    |
| B. Treasury Non-Marketable Borrowing  | p. 43    |
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| J. Auction Statistics Tables  | p. 51-54 |



# Quarterly Tax Receipts

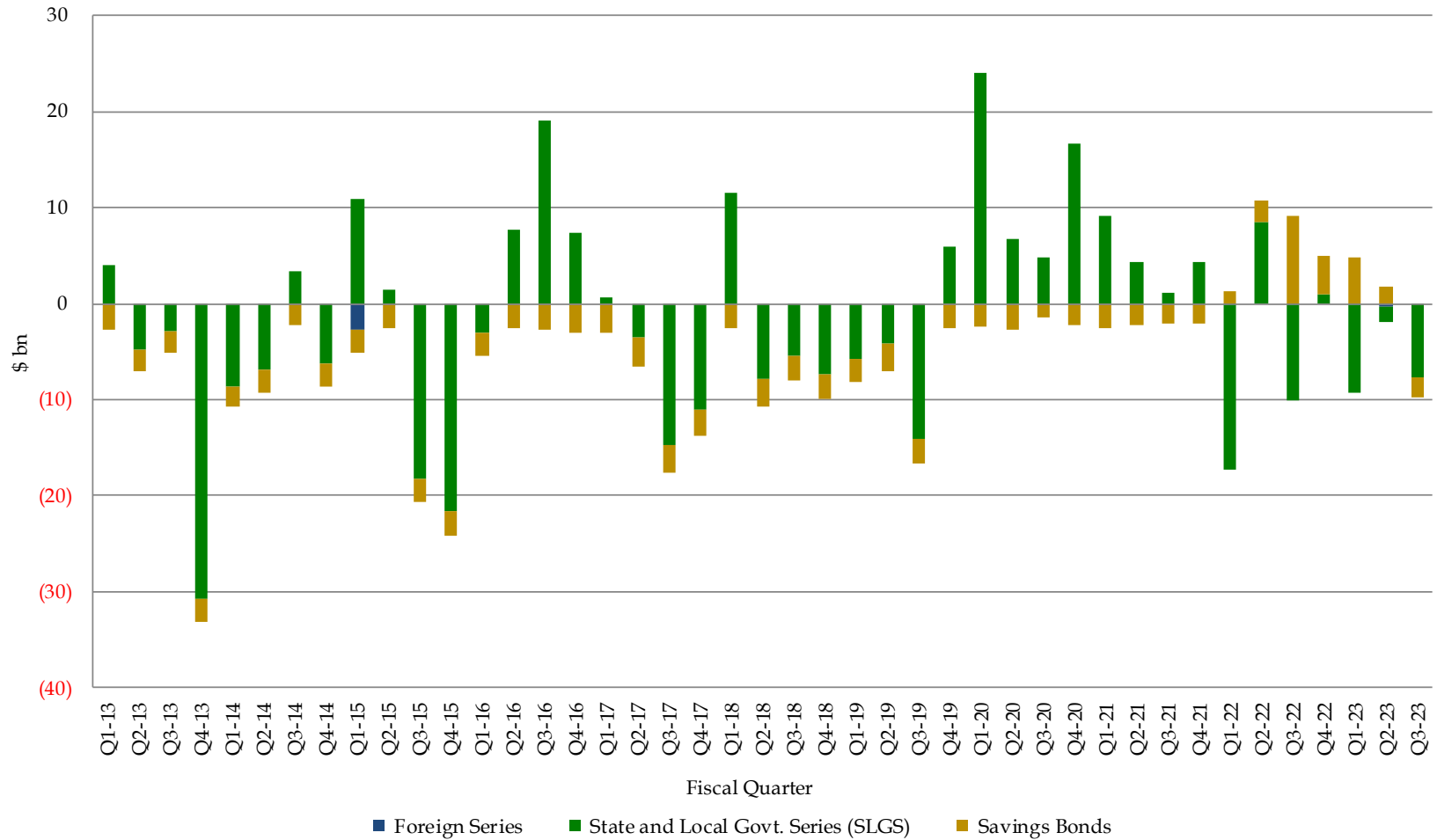
The spike for Corporate Taxes was 781% and the spike for Non-Withheld was 541% as of 6/30/2021

The spike for Non-Withheld was 245% as of 9/30/2020

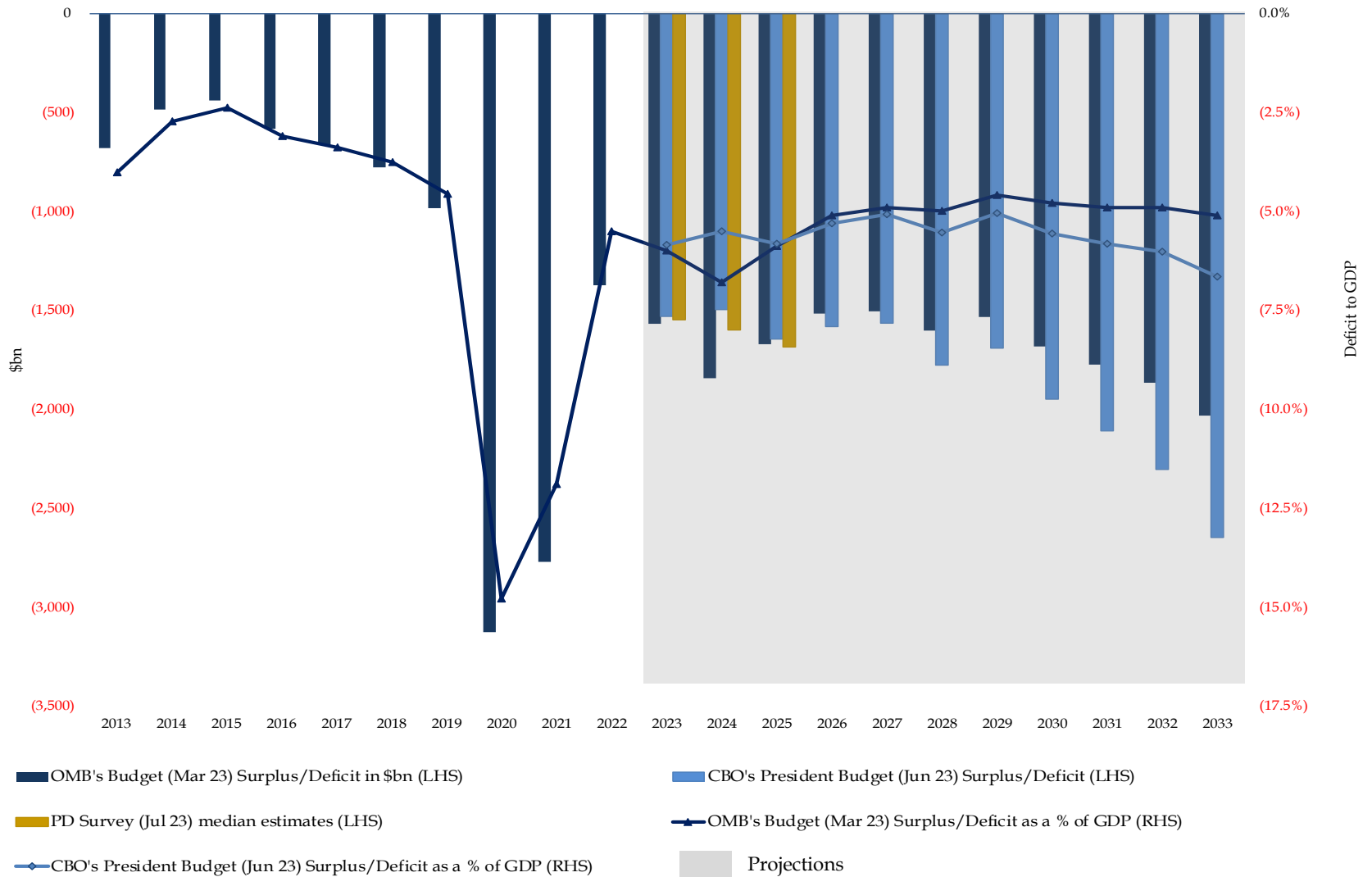


Quarterly tax receipts for Q4 FY2020 reflect the adjustment of April and June 2020 tax deadlines to July 15<sup>th</sup>, 2020.

# Treasury Net Nonmarketable Borrowing



## Budget Surplus/Deficit\*



\*OMB's projections are from OMB's Table S-1 of "Budget of The U.S. Government Fiscal Year 2024," March 2023. CBO's projections are from Table 1 of "How the Fiscal Responsibility Act of 2023 Affects CBO's Projections of Federal Debt," June 2023.

## Sources of Privately-Held Financing in FY23 Q3

| April - June 2023                         |            |
|---|------------|
| Net Bill Issuance                         | 410        |
| Net Coupon Issuance                       | 247        |
| <b>Subtotal: Net Marketable Borrowing</b> | <b>657</b> |
| Ending Cash Balance                       | 402        |
| Beginning Cash Balance                    | 178        |
| <b>Subtotal: Change in Cash Balance</b>   | <b>225</b> |
| <b>Net Implied Funding for FY23 Q3*</b>   | <b>432</b> |

| Security             | April - June 2023<br>Bill Issuance |              |            | Fiscal Year-to-Date<br>Bill Issuance |               |            |
|----------------------|------------------------------------|--------------|------------|--------------------------------------|---------------|------------|
|                      | Gross                              | Maturing     | Net        | Gross                                | Maturing      | Net        |
| 4-Week               | 665                                | 695          | (30)       | 2,240                                | 2,210         | 30         |
| 8-Week               | 590                                | 695          | (105)      | 1,955                                | 1,985         | (30)       |
| 13-Week              | 779                                | 759          | 20         | 2,258                                | 2,169         | 89         |
| 17-Week              | 515                                | 450          | 65         | 1,307                                | 648           | 659        |
| 26-Week              | 681                                | 582          | 99         | 1,884                                | 1,695         | 189        |
| 52-Week              | 108                                | 102          | 6          | 346                                  | 340           | 6          |
| CMBs                 |                                    |              |            |                                      |               |            |
| 6-Week               | 145                                | 0            | 145        | 145                                  | 0             | 145        |
| CMBs                 | 445                                | 235          | 210        | 813                                  | 1,038         | (225)      |
| <b>Bill Subtotal</b> | <b>3,927</b>                       | <b>3,518</b> | <b>410</b> | <b>10,947</b>                        | <b>10,084</b> | <b>863</b> |

| Security               | April - June 2023<br>Coupon Issuance |            |            | Fiscal Year-to-Date<br>Coupon Issuance |              |            |
|------------------------|--------------------------------------|------------|------------|--|--------------|------------|
|                        | Gross                                | Maturing   | Net        | Gross                                  | Maturing     | Net        |
| 2-Year FRN             | 68                                   | 80         | (12)       | 204                                    | 234          | (30)       |
| 2-Year                 | 126                                  | 154        | (28)       | 378                                    | 451          | (74)       |
| 3-Year                 | 120                                  | 97         | 22         | 360                                    | 226          | 134        |
| 5-Year                 | 129                                  | 67         | 62         | 387                                    | 165          | 222        |
| 7-Year                 | 105                                  | 68         | 37         | 315                                    | 246          | 69         |
| 10-Year                | 99                                   | 42         | 57         | 297                                    | 133          | 164        |
| 20-Year                | 39                                   | 0          | 39         | 117                                    | 0            | 117        |
| 30-Year                | 57                                   | 0          | 57         | 171                                    | 7            | 164        |
| 5-Year TIPS            | 40                                   | 43         | (3)        | 80                                     | 43           | 37         |
| 10-Year TIPS           | 15                                   | 0          | 15         | 62                                     | 50           | 12         |
| 30-Year TIPS           | 0                                    | 0          | 0          | 9                                      | 0            | 9          |
| <b>Coupon Subtotal</b> | <b>798</b>                           | <b>551</b> | <b>247</b> | <b>2,380</b>                           | <b>1,555</b> | <b>824</b> |

|              |              |              |            |               |               |              |
|--------------|--------------|--------------|------------|---------------|---------------|--------------|
| <b>Total</b> | <b>4,725</b> | <b>4,068</b> | <b>657</b> | <b>13,326</b> | <b>11,640</b> | <b>1,687</b> |
|--------------|--------------|--------------|------------|---------------|---------------|--------------|

\*By adjusting the change in cash balance, Treasury arrives at the net implied funding number.

## Privately-Held Net Marketable Borrowing Definition and Calculation Example

### FY 2022 Actual Deficits and Privately-Held Net Marketable Borrowing, in \$ billions

|  | FY 2022 Actual |
|--|----------------|
| FY 2022 Deficit  | 1,375          |
| FY 2022 + Change in Cash Balance                         | 421            |
| FY 2022 + Other Means of Financing (e.g. Direct Loans)   | -125           |
| <b>FY 2022 = Total Net Marketable Borrowing</b>          | <b>1,671</b>   |
| FY 2022 + SOMA Redemption                                | 150            |
| <b>FY 2022 = Privately-Held Net Marketable Borrowing</b> | <b>1,821</b>   |

- Actual deficits are sourced from the Monthly Treasury Statement.
- Actual change in cash balance is sourced from the Daily Treasury Statement. Change in cash balance = cash balance of Sept 30, 2022 - cash balance of Sept 30, 2021
- Other Means of Financing include cash flows associated with federal credit programs, such as those related to student loans and loans to small businesses.
- Privately-Held Net Marketable Borrowing = Total Net Marketable Borrowing + SOMA Redemption
- SOMA redemption is the amount that the Federal Reserve redeems securities that Treasury has to replace with privately-held marketable borrowing. Actual SOMA redemptions amounts is from the Sources and Uses Reconciliation Table.
- Actual Privately-Held Net Marketable Borrowing is from the Sources and Uses Reconciliation Table.

## FY 2023-2025 Deficits and Privately-Held Net Marketable Borrowing Estimates, in \$ billions

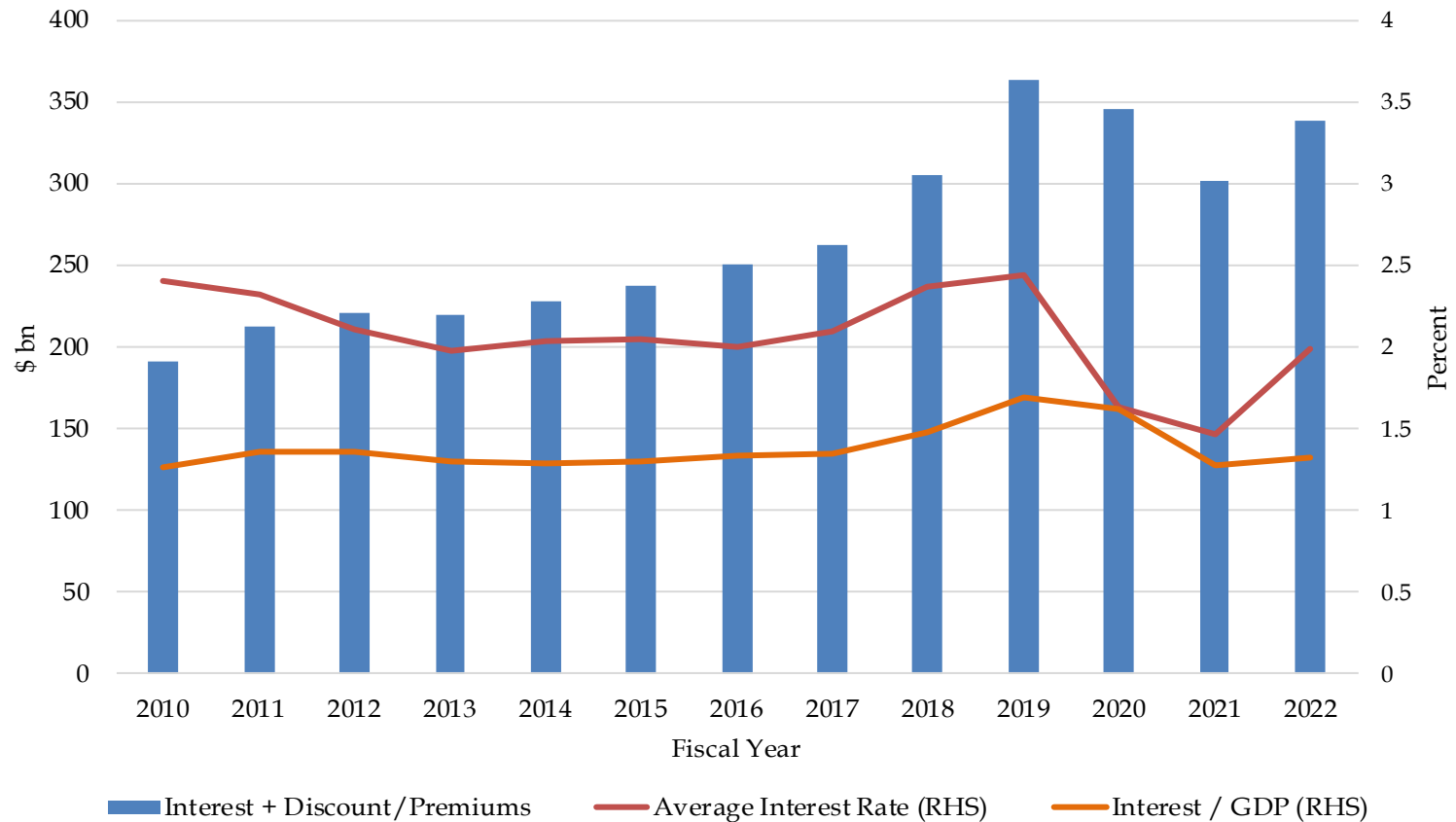
|  | Primary Dealer |        |       | OFF   | OMB   | CBO   |
|--|----------------|--------|-------|-------|-------|-------|
|  | 25th           | Median | 75th  |       |       |       |
| FY 2023 Deficit                                  | 1,450          | 1,550  | 1,625 |       | 1,570 | 1,535 |
| FY 2024 Deficit                                  | 1,500          | 1,600  | 1,699 |       | 1,847 | 1,501 |
| FY 2025 Deficit                                  | 1,650          | 1,688  | 1,800 |       | 1,672 | 1,649 |
| FY 2023 Change in Cash Balance                   | -36            | -36    | -32   | 14    | 14    | 0     |
| FY 2024 Change in Cash Balance                   | 0              | 15     | 89    |       | 0     | 0     |
| FY 2025 Change in Cash Balance                   | 0              | 15     | 7     |       | 0     | 0     |
| FY 2023 Total Net Marketable Borrowing           |                |        |       |       | 1,658 | 1,506 |
| FY 2024 Total Net Marketable Borrowing           |                |        |       |       | 1,873 | 1,551 |
| FY 2025 Total Net Marketable Borrowing           |                |        |       |       | 1,809 | 1,746 |
| FY 2023 SOMA Redemption                          | 699            | 720    | 720   | 698   |       |       |
| FY 2024 SOMA Redemption                          | 348            | 451    | 563   |       |       |       |
| FY 2025 SOMA Redemption                          | 0              | 0      | 0     |       |       |       |
| FY 2023 Privately-Held Net Marketable Borrowing* | 2,297          | 2,440  | 2,508 | 2,693 | 2,378 | 2,240 |
| FY 2024 Privately-Held Net Marketable Borrowing* | 1,913          | 2,078  | 2,094 |       | 2,324 | 2,002 |
| FY 2025 Privately-Held Net Marketable Borrowing* | 1,613          | 1,750  | 1,831 |       | 1,809 | 1,746 |

| Estimates as of: | Jul-23 | Jul-23 | Mar-23 | Jun-23 |
|------------------|--------|--------|--------|--------|
|------------------|--------|--------|--------|--------|

- \*All privately-held net marketable borrowing estimates of are “normalized” using:
  - 1) the median Primary Dealer’s estimates for SOMA redemptions, and
  - 2) assuming OFF’s end of fiscal year 2023 cash balance of \$650 billion, held constant in out years.
- OMB projections are using estimates are from Table S-1 of “Budget of The U.S. Government Fiscal Year 2024,” March 2023.
- CBO projections are using estimates are from Table 1 & 2 of “How the Fiscal Responsibility Act of 2023 Affects CBO’s Projections of Federal Debt ,” June 2023..
- OFF’s SOMA redemption estimate excludes securities maturing on 9/30/2023 (Saturday).



## Historical Marketable Treasury Debt Service Cost

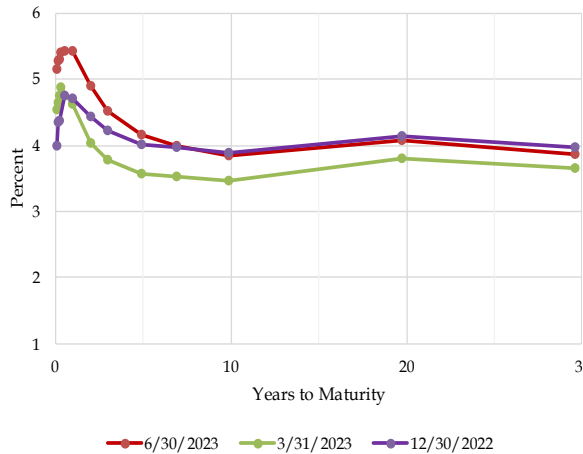


Source: <https://fiscaldata.treasury.gov/datasets>

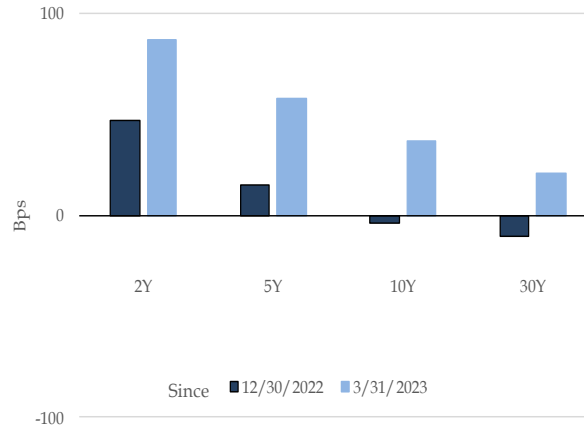
The average interest rates for total marketable debt do not include the Treasury Inflation-Indexed Securities and the Treasury Floating Rate Notes. However, they include securities from Federal Financing Bank. The average interest rates in the chart are as of corresponding fiscal year-end-dates.

# Various Historical Treasury Interest Rate Metrics

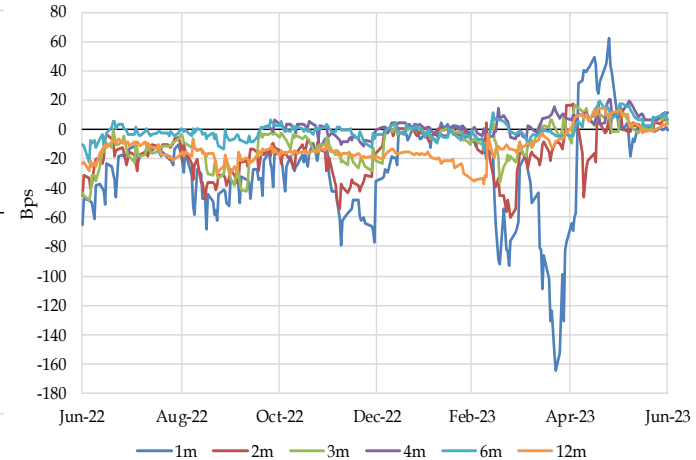
**Treasury Nominal Yield Curve  
as of specified dates**



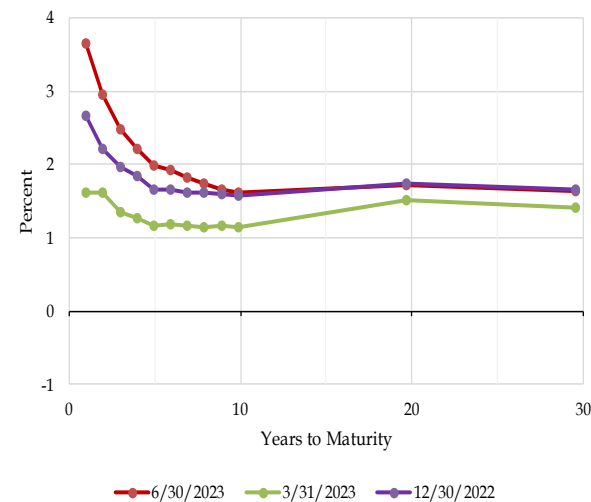
**Nominal Yield Changes in Selected Tenors  
Through the end of 06/30/23**



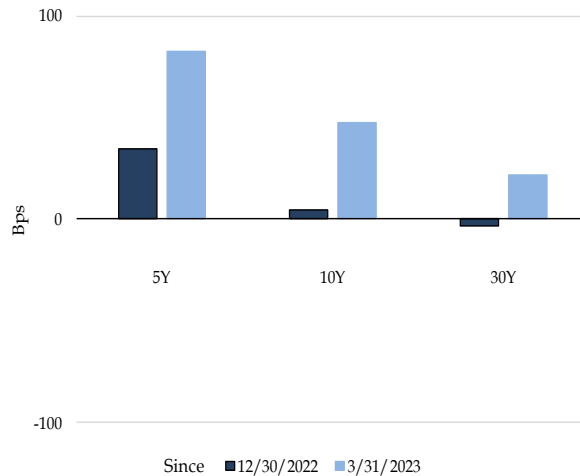
**Bills-SOFR OIS spreads  
Through the end of 06/30/23**



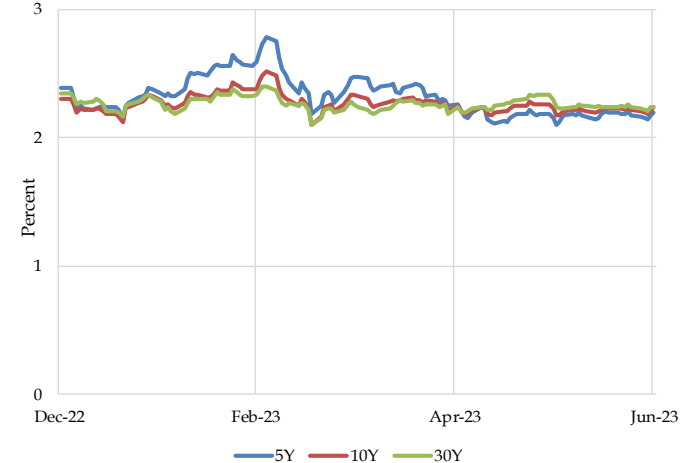
**Treasury Real Yield Curve  
as of specified dates**



**Real Yield Changes in Selected Tenors  
Through the end of 06/30/23**



**Breakevens  
Through the end of 06/30/23**



**Projected Privately-Held Net Marketable Borrowing  
Assuming Private Coupon Issuance & Total Bills Outstanding  
Remain Constant as of 7/31/2023\***

| Fiscal Year | Bills   | 2/3/5 | 7/10/20/30 | TIPS | FRN  | Historical/Projected Net Borrowing Capacity |
|-------------|---------|-------|------------|------|------|---|
| 2018        | 438     | 197   | 493        | 45   | 23   | 1,196                                       |
| 2019        | 137     | 498   | 534        | 51   | 59   | 1,280                                       |
| 2020        | 2,652   | 538   | 724        | 46   | 55   | 4,015                                       |
| 2021        | (1,315) | 1,260 | 1,328      | 55   | 92   | 1,420                                       |
| 2022        | (53)    | 744   | 1,027      | 61   | 42   | 1,821                                       |
| 2023        | 1,178   | 307   | 668        | 50   | (42) | 2,160                                       |
| 2024        | 0       | 28    | 682        | 75   | (10) | 776   |
| 2025        | 0       | (47)  | 704        | 10   | 0    | 666   |
| 2026        | 0       | (160) | 700        | 28   | 0    | 568   |
| 2027        | 0       | (40)  | 583        | 10   | 0    | 553   |
| 2028        | 0       | 0     | 271        | (12) | 0    | 259   |
| 2029        | 0       | 0     | 387        | (6)  | 0    | 381   |
| 2030        | 0       | 0     | 507        | 9    | 0    | 516   |
| 2031        | 0       | 0     | 339        | (3)  | 0    | 337   |
| 2032        | 0       | 0     | 363        | (27) | 0    | 336   |
| 2033        | 0       | 0     | 384        | (20) | 0    | 364   |

\*Projections reflect only SOMA rollovers at auction of principal payments of Treasury securities. No adjustments are made for open-market outright purchases and subsequent rollovers.

| Bills  |             |                   |                    |                           |                  |          |            |                               |                       |                            |
|--------|-------------|-------------------|--------------------|---------------------------|------------------|----------|------------|-------------------------------|-----------------------|----------------------------|
| Issue  | Settle Date | Stop Out Rate (%) | Bid-to-Cover Ratio | Competitive Awards (\$bn) | % Primary Dealer | % Direct | % Indirect | Non-Competitive Awards (\$bn) | SOMA "Add Ons" (\$bn) | 10-Year Equivalent (\$bn)* |
| 4-Week | 4/11/2023   | 4.440             | 2.81               | 56.9                      | 35.7             | 2.2      | 62.1       | 3.1                           | 1.3                   | 0.6                        |
| 4-Week | 4/18/2023   | 4.030             | 3.08               | 56.8                      | 25.2             | 2.5      | 72.3       | 3.3                           | 1.4                   | 0.6                        |
| 4-Week | 4/25/2023   | 3.190             | 3.01               | 47.3                      | 27.2             | 1.6      | 71.2       | 2.7                           | 1.2                   | 0.5                        |
| 4-Week | 5/2/2023    | 3.830             | 2.50               | 47.9                      | 35.8             | 4.8      | 59.4       | 2.1                           | 1.2                   | 0.5                        |
| 4-Week | 5/9/2023    | 5.840             | 2.51               | 47.8                      | 47.9             | 10.0     | 42.1       | 2.2                           | 1.2                   | 0.5                        |
| 4-Week | 5/16/2023   | 5.605             | 3.18               | 30.5                      | 51.5             | 5.2      | 43.3       | 4.5                           | 1.0                   | 0.3                        |
| 4-Week | 5/23/2023   | 5.370             | 3.15               | 30.9                      | 41.3             | 3.2      | 55.5       | 4.1                           | 0.9                   | 0.3                        |
| 4-Week | 5/30/2023   | 5.750             | 2.79               | 31.7                      | 43.4             | 2.6      | 54.0       | 3.3                           | 0.8                   | 0.3                        |
| 4-Week | 6/6/2023    | 5.130             | 2.85               | 32.1                      | 52.8             | 3.2      | 44.0       | 2.9                           | 0.7                   | 0.3                        |
| 4-Week | 6/13/2023   | 5.090             | 2.49               | 55.8                      | 54.7             | 6.3      | 39.0       | 4.2                           | 0.8                   | 0.5                        |
| 4-Week | 6/20/2023   | 5.010             | 3.03               | 61.3                      | 39.6             | 1.8      | 58.6       | 3.7                           | 0.8                   | 0.6                        |
| 4-Week | 6/27/2023   | 5.010             | 2.93               | 66.5                      | 30.4             | 2.2      | 67.4       | 3.5                           | 0.8                   | 0.6                        |
| 4-Week | 7/5/2023    | 5.085             | 2.53               | 66.8                      | 43.2             | 3.0      | 53.9       | 3.2                           | 0.8                   | 0.6                        |
| 8-Week | 4/11/2023   | 4.650             | 2.50               | 48.9                      | 44.7             | 3.1      | 52.1       | 1.1                           | 1.0                   | 0.9                        |
| 8-Week | 4/18/2023   | 4.790             | 2.52               | 48.8                      | 51.9             | 3.4      | 44.8       | 1.2                           | 1.2                   | 0.9                        |
| 8-Week | 4/25/2023   | 4.850             | 2.47               | 43.7                      | 52.4             | 2.0      | 45.6       | 1.3                           | 1.1                   | 0.8                        |
| 8-Week | 5/2/2023    | 4.940             | 2.70               | 43.7                      | 39.6             | 3.1      | 57.4       | 1.3                           | 1.0                   | 0.8                        |
| 8-Week | 5/9/2023    | 5.400             | 2.93               | 43.3                      | 16.2             | 1.0      | 82.7       | 1.7                           | 1.1                   | 0.9                        |
| 8-Week | 5/16/2023   | 4.680             | 3.04               | 33.7                      | 18.7             | 0.0      | 81.3       | 1.3                           | 1.0                   | 0.7                        |
| 8-Week | 5/23/2023   | 5.020             | 2.39               | 34.1                      | 62.3             | 3.4      | 34.3       | 0.9                           | 0.9                   | 0.6                        |
| 8-Week | 5/30/2023   | 5.350             | 2.82               | 34.1                      | 41.1             | 2.9      | 56.0       | 0.9                           | 0.8                   | 0.6                        |
| 8-Week | 6/6/2023    | 5.220             | 2.83               | 34.1                      | 57.7             | 3.0      | 39.2       | 0.9                           | 0.7                   | 0.6                        |
| 8-Week | 6/13/2023   | 5.120             | 2.86               | 46.6                      | 43.5             | 2.7      | 53.8       | 3.4                           | 0.7                   | 0.9                        |
| 8-Week | 6/20/2023   | 5.080             | 3.06               | 51.7                      | 44.2             | 2.5      | 53.3       | 3.3                           | 0.7                   | 1.0                        |
| 8-Week | 6/27/2023   | 5.140             | 2.78               | 56.7                      | 49.3             | 2.7      | 48.0       | 3.3                           | 0.7                   | 1.1                        |
| 8-Week | 7/5/2023    | 5.190             | 2.61               | 57.6                      | 48.5             | 2.4      | 49.0       | 2.4                           | 0.7                   | 1.1                        |

\*Approximated using prices at settlement and includes both competitive and non-competitive awards.

| Bills (cont.) |             |                   |                    |                           |                  |          |            |                               |                       |                            |
|---------------|-------------|-------------------|--------------------|---------------------------|------------------|----------|------------|-------------------------------|-----------------------|----------------------------|
| Issue         | Settle Date | Stop Out Rate (%) | Bid-to-Cover Ratio | Competitive Awards (\$bn) | % Primary Dealer | % Direct | % Indirect | Non-Competitive Awards (\$bn) | SOMA "Add Ons" (\$bn) | 10-Year Equivalent (\$bn)* |
| 13-Week       | 4/6/2023    | 4.780             | 2.49               | 54.7                      | 44.5             | 2.7      | 52.9       | 2.3                           | 6.6                   | 1.9                        |
| 13-Week       | 4/13/2023   | 4.980             | 2.28               | 54.6                      | 55.1             | 4.2      | 40.8       | 2.4                           | 5.7                   | 1.9                        |
| 13-Week       | 4/20/2023   | 5.080             | 2.59               | 54.0                      | 35.5             | 4.2      | 60.3       | 3.0                           | 6.6                   | 1.9                        |
| 13-Week       | 4/27/2023   | 5.065             | 2.74               | 53.8                      | 36.1             | 2.7      | 61.3       | 3.2                           | 6.2                   | 1.9                        |
| 13-Week       | 5/4/2023    | 5.120             | 2.44               | 54.2                      | 44.9             | 6.6      | 48.5       | 2.8                           | 8.4                   | 1.9                        |
| 13-Week       | 5/11/2023   | 5.140             | 2.66               | 53.5                      | 41.2             | 4.1      | 54.7       | 3.5                           | 6.5                   | 1.9                        |
| 13-Week       | 5/18/2023   | 5.060             | 2.79               | 54.7                      | 29.2             | 3.9      | 66.9       | 2.3                           | 7.5                   | 1.9                        |
| 13-Week       | 5/25/2023   | 5.250             | 2.56               | 55.0                      | 32.8             | 3.0      | 64.2       | 2.0                           | 5.8                   | 1.8                        |
| 13-Week       | 6/1/2023    | 5.300             | 2.38               | 61.3                      | 54.9             | 3.0      | 42.1       | 1.7                           | 5.0                   | 2.0                        |
| 13-Week       | 6/8/2023    | 5.220             | 3.15               | 61.0                      | 27.8             | 5.0      | 67.3       | 4.0                           | 3.3                   | 2.0                        |
| 13-Week       | 6/15/2023   | 5.150             | 2.99               | 60.6                      | 31.9             | 4.2      | 63.9       | 4.4                           | 3.9                   | 2.0                        |
| 13-Week       | 6/22/2023   | 5.130             | 2.58               | 61.7                      | 44.7             | 3.4      | 51.9       | 3.3                           | 1.4                   | 1.9                        |
| 13-Week       | 6/29/2023   | 5.180             | 2.99               | 62.7                      | 47.3             | 4.4      | 48.3       | 2.3                           | 5.2                   | 2.1                        |
| 17-Week       | 4/11/2023   | 4.750             | 2.81               | 35.2                      | 43.6             | 5.7      | 50.7       | 0.8                           | 0.8                   | 1.4                        |
| 17-Week       | 4/18/2023   | 4.980             | 2.70               | 35.1                      | 42.3             | 4.2      | 53.5       | 0.9                           | 0.8                   | 1.4                        |
| 17-Week       | 4/25/2023   | 5.060             | 2.91               | 35.1                      | 44.3             | 2.9      | 52.8       | 0.9                           | 0.9                   | 1.4                        |
| 17-Week       | 5/2/2023    | 4.975             | 2.85               | 35.2                      | 39.9             | 3.1      | 57.0       | 0.8                           | 0.8                   | 1.4                        |
| 17-Week       | 5/9/2023    | 4.980             | 2.95               | 35.4                      | 30.6             | 2.9      | 66.5       | 0.6                           | 0.9                   | 1.4                        |
| 17-Week       | 5/16/2023   | 5.000             | 2.98               | 35.6                      | 41.5             | 2.3      | 56.2       | 0.4                           | 1.1                   | 1.4                        |
| 17-Week       | 5/23/2023   | 5.100             | 2.57               | 38.7                      | 55.4             | 3.6      | 41.0       | 0.3                           | 1.0                   | 1.5                        |
| 17-Week       | 5/30/2023   | 5.260             | 2.73               | 41.6                      | 54.2             | 5.8      | 40.0       | 0.4                           | 1.0                   | 1.6                        |
| 17-Week       | 6/6/2023    | 5.325             | 2.97               | 43.6                      | 38.3             | 2.8      | 58.9       | 0.4                           | 0.9                   | 1.7                        |
| 17-Week       | 6/13/2023   | 5.200             | 3.36               | 43.3                      | 33.4             | 3.6      | 63.0       | 2.7                           | 0.6                   | 1.8                        |
| 17-Week       | 6/20/2023   | 5.150             | 3.18               | 43.6                      | 39.7             | 2.9      | 57.4       | 2.4                           | 0.6                   | 1.8                        |
| 17-Week       | 6/27/2023   | 5.220             | 3.27               | 45.2                      | 42.9             | 3.5      | 53.7       | 0.8                           | 0.5                   | 1.8                        |
| 17-Week       | 7/5/2023    | 5.225             | 3.44               | 45.3                      | 43.2             | 3.3      | 53.5       | 0.7                           | 0.5                   | 1.8                        |

\*Approximated using prices at settlement and includes both competitive and non-competitive awards.

| Bills (cont.) |             |                   |                    |                           |                  |          |            |                               |                       |                            |
|---------------|-------------|-------------------|--------------------|---------------------------|------------------|----------|------------|-------------------------------|-----------------------|----------------------------|
| Issue         | Settle Date | Stop Out Rate (%) | Bid-to-Cover Ratio | Competitive Awards (\$bn) | % Primary Dealer | % Direct | % Indirect | Non-Competitive Awards (\$bn) | SOMA "Add Ons" (\$bn) | 10-Year Equivalent (\$bn)* |
| 26-Week       | 4/6/2023    | 4.705             | 2.79               | 45.5                      | 36.7             | 2.2      | 61.1       | 2.5                           | 5.6                   | 3.2                        |
| 26-Week       | 4/13/2023   | 4.795             | 2.70               | 46.0                      | 44.7             | 3.0      | 52.3       | 2.0                           | 4.8                   | 3.1                        |
| 26-Week       | 4/20/2023   | 4.870             | 2.78               | 45.9                      | 30.5             | 2.6      | 67.0       | 2.1                           | 5.5                   | 3.2                        |
| 26-Week       | 4/27/2023   | 4.840             | 2.77               | 45.9                      | 33.6             | 2.9      | 63.5       | 2.1                           | 5.2                   | 3.2                        |
| 26-Week       | 5/4/2023    | 4.900             | 2.60               | 46.3                      | 42.9             | 1.9      | 55.1       | 1.7                           | 7.1                   | 3.3                        |
| 26-Week       | 5/11/2023   | 4.890             | 2.83               | 46.0                      | 37.7             | 1.8      | 60.5       | 2.0                           | 5.5                   | 3.2                        |
| 26-Week       | 5/18/2023   | 4.980             | 2.61               | 49.1                      | 44.6             | 3.1      | 52.3       | 1.9                           | 6.7                   | 3.4                        |
| 26-Week       | 5/25/2023   | 5.170             | 2.96               | 52.2                      | 32.1             | 3.3      | 64.7       | 1.8                           | 5.5                   | 3.5                        |
| 26-Week       | 6/1/2023    | 5.290             | 2.58               | 54.3                      | 47.9             | 2.1      | 50.0       | 1.7                           | 4.5                   | 3.5                        |
| 26-Week       | 6/8/2023    | 5.250             | 3.14               | 54.0                      | 35.2             | 3.1      | 61.7       | 4.0                           | 3.0                   | 3.6                        |
| 26-Week       | 6/15/2023   | 5.155             | 3.02               | 53.7                      | 32.4             | 2.4      | 65.2       | 4.3                           | 3.4                   | 3.6                        |
| 26-Week       | 6/22/2023   | 5.170             | 2.65               | 55.8                      | 40.8             | 4.2      | 55.0       | 2.2                           | 1.2                   | 3.5                        |
| 26-Week       | 6/29/2023   | 5.215             | 2.73               | 55.9                      | 38.2             | 2.4      | 59.4       | 2.1                           | 4.6                   | 3.7                        |
| 52-Week       | 4/20/2023   | 4.530             | 2.97               | 32.8                      | 28.2             | 1.9      | 69.9       | 1.2                           | 3.9                   | 4.5                        |
| 52-Week       | 5/18/2023   | 4.645             | 2.49               | 35.0                      | 46.3             | 2.3      | 51.4       | 1.0                           | 4.7                   | 4.7                        |
| 52-Week       | 6/15/2023   | 4.930             | 2.83               | 36.6                      | 36.2             | 2.4      | 61.4       | 1.4                           | 2.3                   | 4.7                        |
| 6-Week CMB    | 6/15/2023   | 5.020             | 3.38               | 44.9                      | 53.2             | 4.9      | 42.0       | 0.1                           | 0.0                   | 0.6                        |
| 6-Week CMB    | 6/22/2023   | 5.070             | 2.77               | 49.9                      | 53.0             | 2.0      | 44.9       | 0.1                           | 0.0                   | 0.7                        |
| 6-Week CMB    | 6/29/2023   | 5.105             | 2.79               | 49.9                      | 45.5             | 2.7      | 51.8       | 0.1                           | 0.0                   | 0.7                        |
| CMB           | 5/1/2023    | 4.350             | 2.44               | 45.0                      | 44.2             | 2.3      | 53.5       | 0.0                           | 0.0                   | 0.2                        |
| CMB           | 5/4/2023    | 4.490             | 2.59               | 40.0                      | 41.2             | 4.2      | 54.6       | 0.0                           | 0.0                   | 0.3                        |
| CMB           | 5/16/2023   | 5.040             | 2.33               | 44.9                      | 55.5             | 2.1      | 42.4       | 0.1                           | 0.0                   | 2.2                        |
| CMB           | 5/18/2023   | 5.075             | 2.68               | 44.9                      | 49.1             | 1.3      | 49.7       | 0.1                           | 0.0                   | 2.2                        |
| CMB           | 5/23/2023   | 5.230             | 2.40               | 44.9                      | 56.7             | 2.9      | 40.4       | 0.1                           | 0.0                   | 2.2                        |
| CMB           | 5/25/2023   | 6.200             | 2.21               | 34.8                      | 77.7             | 3.4      | 18.9       | 0.2                           | 0.0                   | 0.2                        |
| CMB           | 6/1/2023    | 5.340             | 2.89               | 49.9                      | 32.1             | 2.4      | 65.5       | 0.1                           | 0.0                   | 2.6                        |
| CMB           | 6/2/2023    | 6.150             | 2.38               | 25.0                      | 71.4             | 3.0      | 25.6       | 0.0                           | 0.0                   | 0.0                        |
| CMB           | 6/5/2023    | 5.250             | 3.40               | 50.0                      | 37.3             | 2.9      | 59.8       | 0.0                           | 0.0                   | 0.6                        |
| CMB           | 6/5/2023    | 5.060             | 4.11               | 15.0                      | 43.1             | 6.0      | 50.9       | 0.0                           | 0.0                   | 0.0                        |
| CMB           | 6/6/2023    | 5.150             | 3.19               | 49.9                      | 33.3             | 0.2      | 66.5       | 0.1                           | 0.0                   | 0.7                        |

\*Approximated using prices at settlement and includes both competitive and non-competitive awards.

| Nominal Coupons & FRNs |             |                    |                    |                           |                  |          |            |                               |                       |                             |
|------------------------|-------------|--------------------|--------------------|---------------------------|------------------|----------|------------|-------------------------------|-----------------------|-----------------------------|
| Issue                  | Settle Date | Stop Out Rate (%)* | Bid-to-Cover Ratio | Competitive Awards (\$bn) | % Primary Dealer | % Direct | % Indirect | Non-Competitive Awards (\$bn) | SOMA "Add Ons" (\$bn) | 10-Year Equivalent (\$bn)** |
| 2-Year                 | 5/1/2023    | 3.969              | 2.68               | 41.6                      | 18.9             | 19.9     | 61.2       | 0.4                           | 4.1                   | 10.7                        |
| 2-Year                 | 5/31/2023   | 4.300              | 2.90               | 41.7                      | 16.2             | 15.6     | 68.2       | 0.3                           | 7.9                   | 11.3                        |
| 2-Year                 | 6/30/2023   | 4.670              | 2.86               | 41.5                      | 13.3             | 18.2     | 68.5       | 0.5                           | 0.0                   | 9.6                         |
| 3-Year                 | 4/17/2023   | 3.810              | 2.59               | 39.8                      | 17.7             | 21.0     | 61.3       | 0.2                           | 2.6                   | 14.4                        |
| 3-Year                 | 5/15/2023   | 3.695              | 2.93               | 39.9                      | 13.0             | 13.7     | 73.3       | 0.1                           | 10.9                  | 17.5                        |
| 3-Year                 | 6/15/2023   | 4.202              | 2.70               | 39.9                      | 16.7             | 21.7     | 61.5       | 0.1                           | 0.0                   | 13.4                        |
| 5-Year                 | 5/1/2023    | 3.500              | 2.54               | 42.9                      | 13.6             | 17.3     | 69.1       | 0.1                           | 4.2                   | 26.0                        |
| 5-Year                 | 5/31/2023   | 3.749              | 2.58               | 42.9                      | 9.3              | 18.0     | 72.7       | 0.1                           | 8.1                   | 27.7                        |
| 5-Year                 | 6/30/2023   | 4.019              | 2.52               | 42.9                      | 12.2             | 19.7     | 68.1       | 0.1                           | 0.0                   | 23.3                        |
| 7-Year                 | 5/1/2023    | 3.563              | 2.41               | 35.0                      | 14.8             | 21.1     | 64.1       | 0.0                           | 3.4                   | 28.7                        |
| 7-Year                 | 5/31/2023   | 3.827              | 2.61               | 35.0                      | 10.4             | 17.3     | 72.3       | 0.0                           | 6.6                   | 30.4                        |
| 7-Year                 | 6/30/2023   | 3.839              | 2.65               | 35.0                      | 8.1              | 16.6     | 75.3       | 0.0                           | 0.0                   | 25.7                        |
| 10-Year                | 4/17/2023   | 3.455              | 2.36               | 31.9                      | 17.1             | 19.9     | 63.0       | 0.1                           | 2.0                   | 34.0                        |
| 10-Year                | 5/15/2023   | 3.448              | 2.45               | 35.0                      | 13.0             | 19.5     | 67.5       | 0.0                           | 9.5                   | 45.6                        |
| 10-Year                | 6/15/2023   | 3.791              | 2.36               | 32.0                      | 17.8             | 19.9     | 62.3       | 0.0                           | 0.0                   | 32.0                        |
| 20-Year                | 5/1/2023    | 3.920              | 2.66               | 12.0                      | 12.0             | 19.2     | 68.7       | 0.0                           | 1.2                   | 21.8                        |
| 20-Year                | 5/31/2023   | 3.954              | 2.56               | 14.9                      | 11.3             | 18.1     | 70.6       | 0.1                           | 2.8                   | 29.0                        |
| 20-Year                | 6/30/2023   | 4.010              | 2.87               | 12.0                      | 7.8              | 17.6     | 74.6       | 0.0                           | 0.0                   | 19.7                        |
| 30-Year                | 4/17/2023   | 3.661              | 2.36               | 18.0                      | 11.1             | 19.8     | 69.1       | 0.0                           | 1.2                   | 41.5                        |
| 30-Year                | 5/15/2023   | 3.741              | 2.43               | 21.0                      | 10.2             | 17.4     | 72.4       | 0.0                           | 5.7                   | 58.0                        |
| 30-Year                | 6/15/2023   | 3.908              | 2.52               | 18.0                      | 9.0              | 18.1     | 72.9       | 0.0                           | 0.0                   | 38.8                        |
| 2-Year FRN             | 5/1/2023    | 0.169              | 3.04               | 23.9                      | 29.2             | 1.5      | 69.4       | 0.1                           | 2.3                   | 0.0                         |
| 2-Year FRN             | 5/26/2023   | 0.170              | 2.88               | 22.0                      | 27.1             | 1.0      | 71.9       | 0.0                           | 0.0                   | 0.0                         |
| 2-Year FRN             | 6/30/2023   | 0.134              | 3.39               | 22.0                      | 38.9             | 0.0      | 61.1       | 0.0                           | 0.0                   | 0.0                         |

| TIPS         |             |                   |                    |                           |                  |          |            |                               |                       |                             |
|--------------|-------------|-------------------|--------------------|---------------------------|------------------|----------|------------|-------------------------------|-----------------------|-----------------------------|
| Issue        | Settle Date | Stop Out Rate (%) | Bid-to-Cover Ratio | Competitive Awards (\$bn) | % Primary Dealer | % Direct | % Indirect | Non-Competitive Awards (\$bn) | SOMA "Add Ons" (\$bn) | 10-Year Equivalent (\$bn)** |
| 5-Year TIPS  | 4/28/2023   | 1.320             | 2.34               | 20.8                      | 10.2             | 17.2     | 72.6       | 0.2                           | 0.0                   | 12.1                        |
| 5-Year TIPS  | 6/30/2023   | 1.832             | 2.56               | 18.9                      | 3.9              | 11.0     | 85.1       | 0.1                           | 0.0                   | 10.5                        |
| 10-Year TIPS | 5/31/2023   | 1.395             | 2.31               | 15.0                      | 7.7              | 15.9     | 76.4       | 0.0                           | 2.8                   | 19.1                        |

\*FRNs are reported on discount margin basis.

\*\*Approximated using prices at settlement and includes both competitive and non-competitive awards.

For TIPS 10-Year equivalent, a constant auction BEI is used as the inflation assumption.