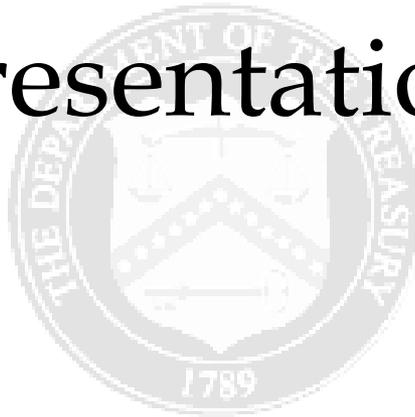


# Treasury Presentation to TBAC



# Office of Debt Management



Fiscal Year 2024 Q3 Report

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\*All sources are from Treasury unless otherwise specified

# Section I: Executive Summary



# Highlights of Treasury's August 2024 Quarterly Refunding Presentation to the Treasury Borrowing Advisory Committee (TBAC)

## Receipts and Outlays through Q3 FY2024

	\$ billion	Change from same period last year (\$ billion)	Change from same period last year (%)	As % of GDP	Change from same period last year (% GDP)
Total Receipts thru Q3 FY2024	\$3,754	\$342	10%	17.7%	0.7%
Total Outlays thru Q3 FY2024	\$5,022	\$217	5%	23.7%	-0.2%

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

Treasury OFP Near Term Fiscal Projections	Privately Held Net Marketable Borrowing (\$ billion)	Assumed End-of-Quarter Cash Balance (\$ billion)
Q4 FY2024	740	850 (Sep)
Q1 FY2025	565	700 (Dec)

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

Fiscal Year	Primary Dealers, Median July 2024 (\$ billion)	OMB Budget, July 2024 (\$ billion)	CBO Budget, June 2024 (\$ billion)
2024	2,600	2,545	2,522
2025	2,098	2,051	2,160
2026	1,943	1,695	1,930

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

Uncertainty regarding funding needs in FY2025 and FY2026 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.

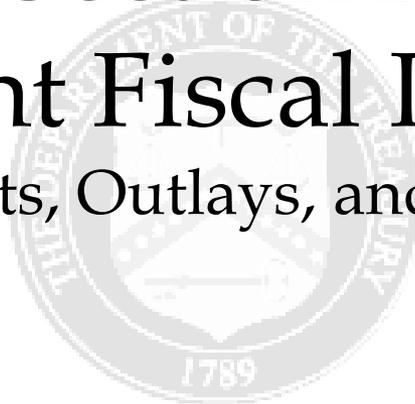
## Latest Market Expectations for Treasury Financing in July 2024:

- Primary dealers expected no changes to nominal coupon issuance sizes at the August refunding.
- With respect to TIPS, a slight majority of dealers expect a \$1 billion increase (to \$24 billion) to the 5-year new issue in October 2024.

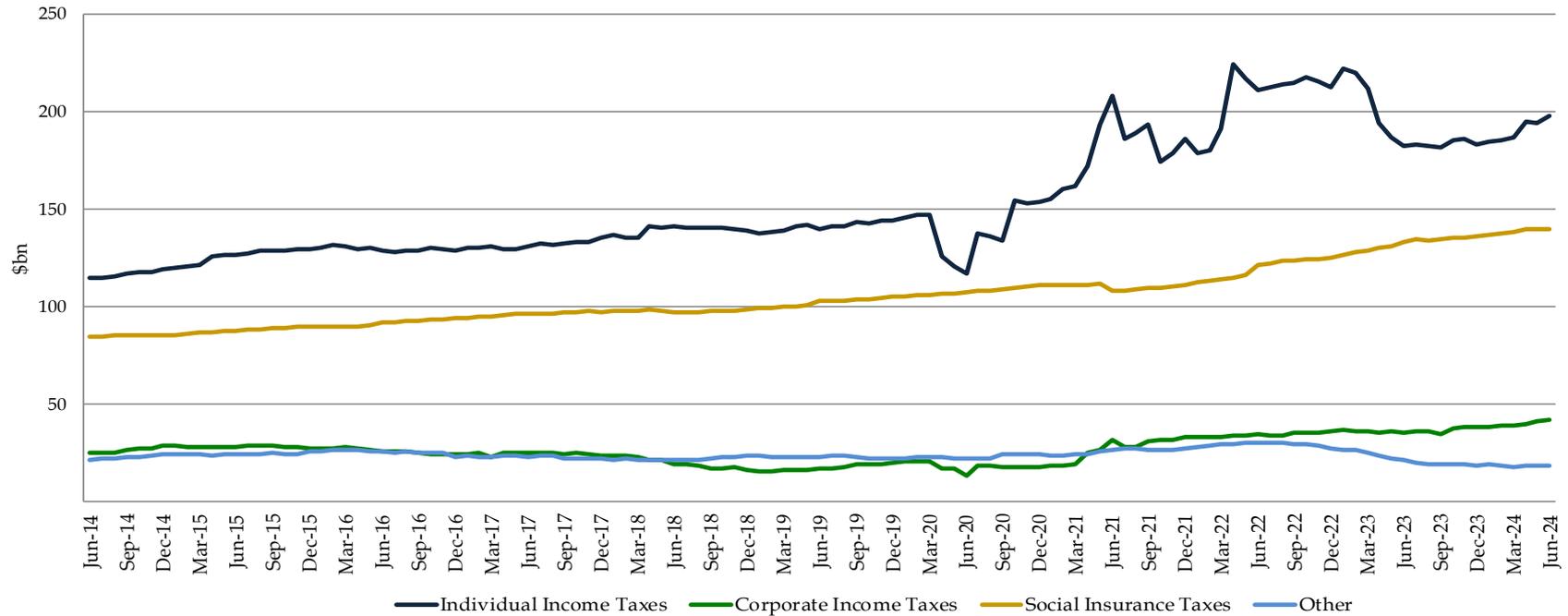
# Section II:

# Recent Fiscal Results

Receipts, Outlays, and Deficits



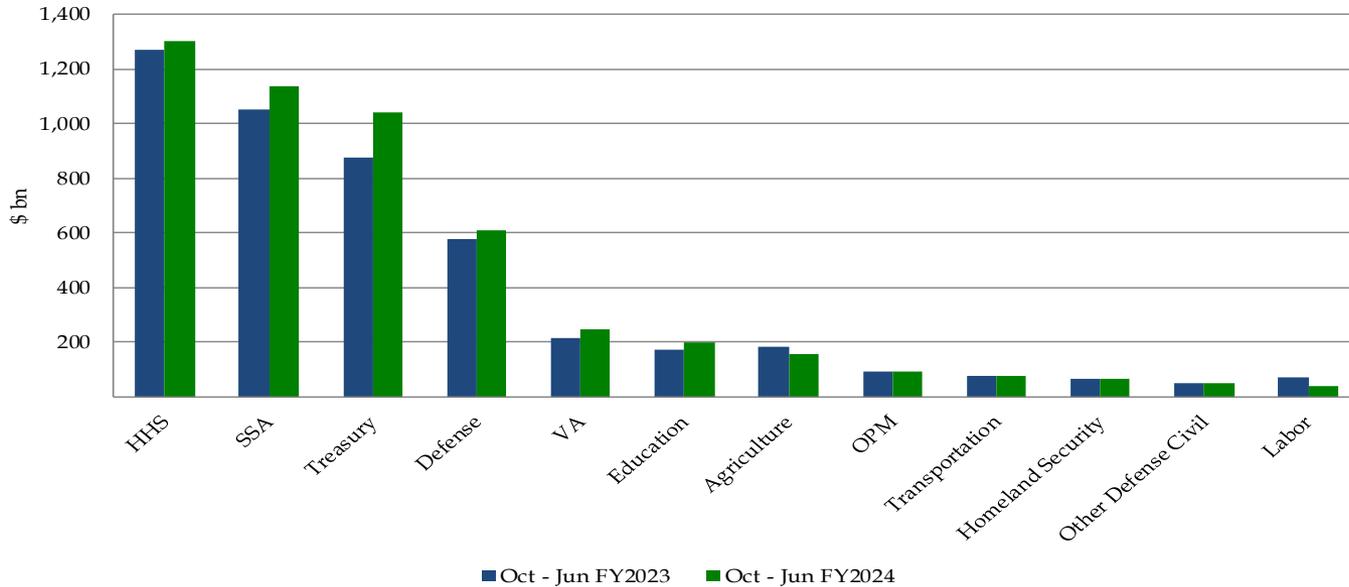
## Monthly Receipt Levels (12-Month Moving Average)



Notable Receipt Category	YoY change thru Q3 FY24 (\$ billion)	YoY change thru Q3 FY24 (%)	Comments
Non-withheld and SECA taxes	+\$120	+15%	IRS extended several major deadlines for some taxpayers, including those in California, from FY 2023 into FY 2024.
Gross Corporate Taxes	+\$86	+25%	IRS extended several major deadlines for some taxpayers, including those in California, from FY 2023 into FY 2024.
Withheld & FICA taxes	+\$87	+4%	Increased due to wage and employment growth, partially offset by the non-recurrence of the CARES deferral repayment.
Individual Refunds	-\$52	-16%	IRS pared backlog in January 2023 at a non-recurring rate. Also, the refund season in 2024 started later than 2023.

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.

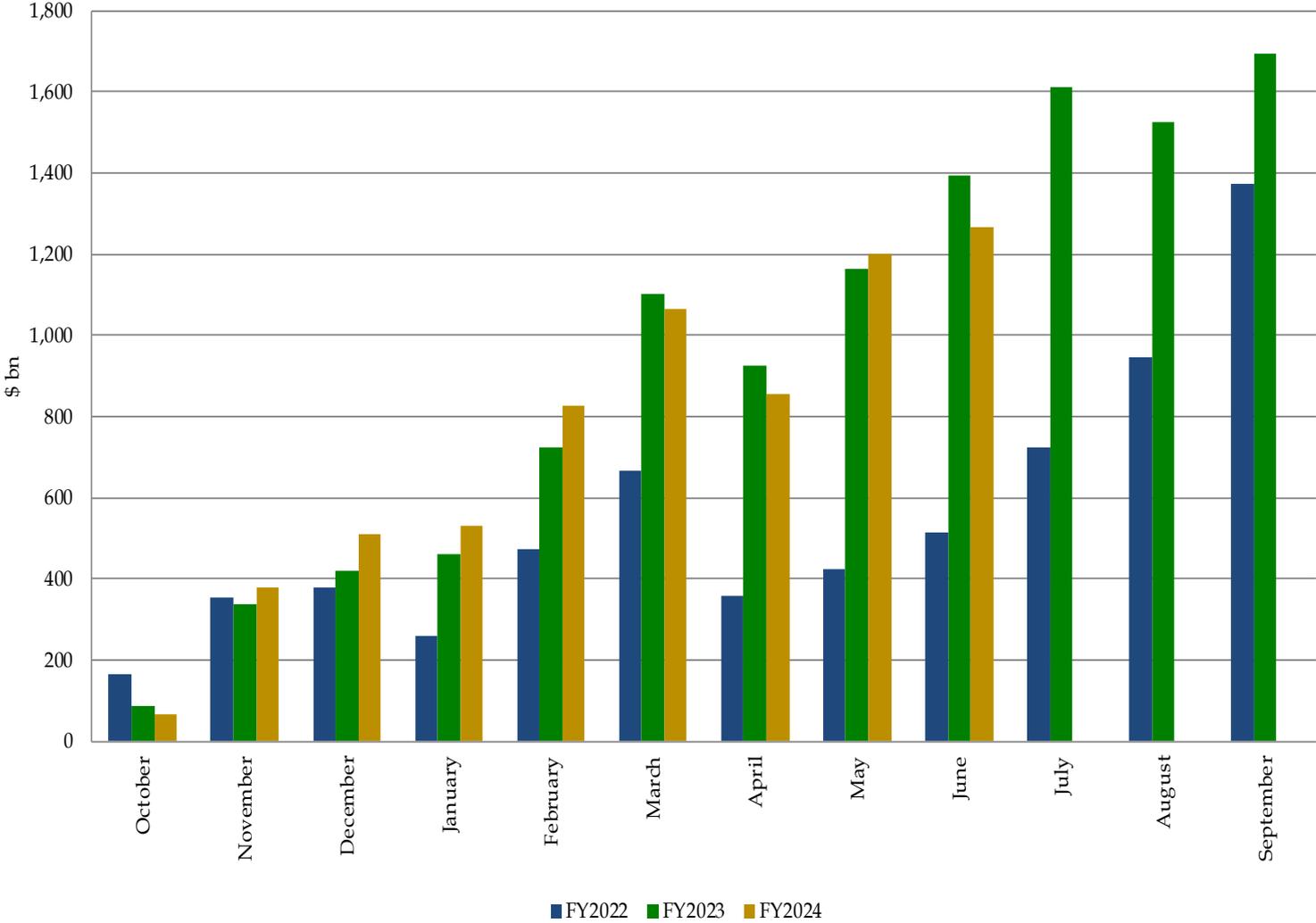
## Largest Outlays



Notable Outlay Category	YoY change thru Q3 FY24 (\$ billion)	YoY change thru Q3 FY24 (%)	Comments
Social Security Administration (calendar adjusted)	+\$84	+8%	Due to benefit increases from cost-of-living adjustments (COLA). The rate of growth will continue to decrease over the remainder of the fiscal year as the COLA decreased from 8.7% in calendar year 2023 to 3.2% in calendar year 2024.
Health and Human Services (calendar adjusted)	+\$31	+2%	Due to increases in Medicare spending, offset by lower Medicaid.
Department of Defense (calendar adjusted)	+\$37	+6%	Due to higher outlays for operation, maintenance, procurement, research, development, test, and evaluation.
Department of Treasury	+\$164	+19%	Primarily due to a \$215 billion (33%) increase in gross interest on the public debt, offset by lower tax credits (-\$32 billion).
Department of Veterans Affairs (calendar adjusted)	+\$30	+14%	Due to increased spending per person and veterans' increased use of health care facilities. The Promise to Address Comprehensive Toxics Act of 2022 and the Fiscal Responsibility Act of 2023 are contributing to the increase in outlays.
Department of Education	+\$30	+18%	Driven by the \$82 billion upward modifications booked in June 2024 for education loans. FY 2024 has a greater number of upward modifications booked than FY 2023.
Department of Labor	-\$34	-46%	Due to a \$36 billion Special Financial Assistance payment in January 2023 to shore up troubled multi-employer pension plans as part of the American Rescue Plan Act.

Outlays in the chart above are on a 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 2024

	<u>CY2024</u>	<u>CY2025</u>	<u>CY2026</u>
	<u>% Change from Q4 to Q4</u>		
<b>GDP</b>			
<i>Real</i>	1.8	2.0	1.9
<i>Nominal</i>	4.4	4.2	4.1
<b>Inflation</b>			
<i>CPI Headline</i>	2.8	2.3	2.3
<i>CPI Core</i>	3.1	2.5	2.3
	<u>Fourth Quarter Levels</u>		
<b>Unemployment Rate (%)</b>	4.1	4.1	4.1
	<u>FY2024</u>	<u>FY2025</u>	<u>FY2026</u>
<b>Deficits (\$bil)</b>	\$1,895	\$1,942	\$1,900

## CBO Estimates June 2024

## OMB Estimates July 2024

	<u>CY2024</u>	<u>CY2025</u>	<u>CY2026</u>
	<u>% Change from Q4 to Q4</u>		
<b>GDP</b>			
<i>Real</i>	2.0	2.0	1.8
<i>Nominal</i>	4.6	4.1	3.6
<b>Inflation</b>			
<i>CPI Headline</i>	3.0	2.3	2.2
	<u>Fourth Quarter Levels</u>		
<b>Unemployment Rate (%)</b>	3.9	4.0	4.2
	<u>FY2024</u>	<u>FY2025</u>	<u>FY2026</u>
<b>Deficits (\$bil)</b>	\$1,990	\$1,938	\$1,851

	<u>CY2024</u>	<u>CY2025</u>	<u>CY2026</u>
	<u>% Change from Q4 to Q4</u>		
<b>GDP</b>			
<i>Real</i>	1.9	2.1	2.0
<i>Nominal</i>	4.6	4.4	4.1
<b>Inflation</b>			
<i>CPI Headline</i>	3.1	2.3	2.3
	<u>Fourth Quarter Levels</u>		
<b>Unemployment Rate (%)</b>	3.8	3.8	3.8
	<u>FY2024</u>	<u>FY2025</u>	<u>FY2026</u>
<b>Deficits (\$bil)</b>	\$1,874	\$1,878	\$1,601

Note: OMB's Economic assumptions are from "Mid-Session Review Budget of The U.S. Government, Fiscal Year 2025," July 2024. Their forecast is based on information available as of May 28, 2024.

CBO's economic assumptions are from "An Update to the Budget and Economic Outlook: 2024 to 2034," June 2024. They reflect developments in the economy as of May 2, 2024.

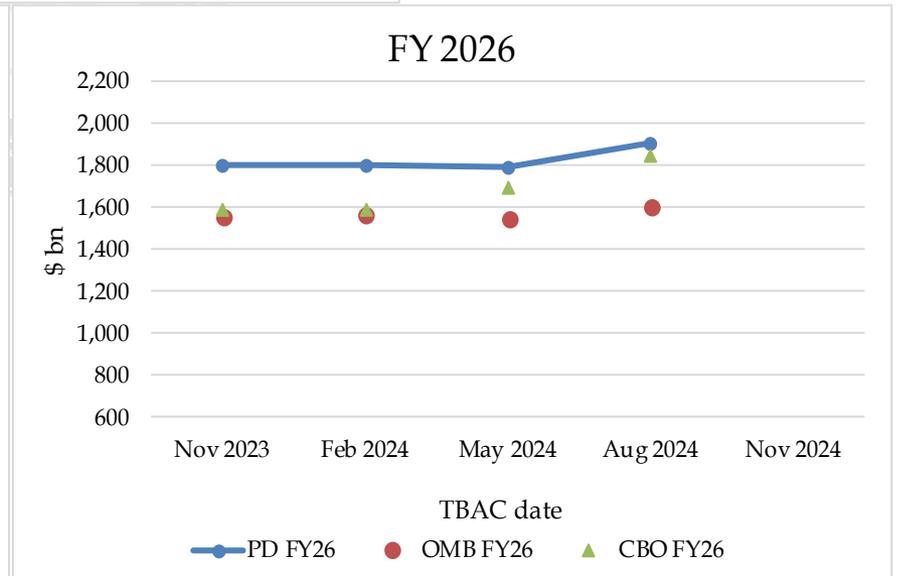
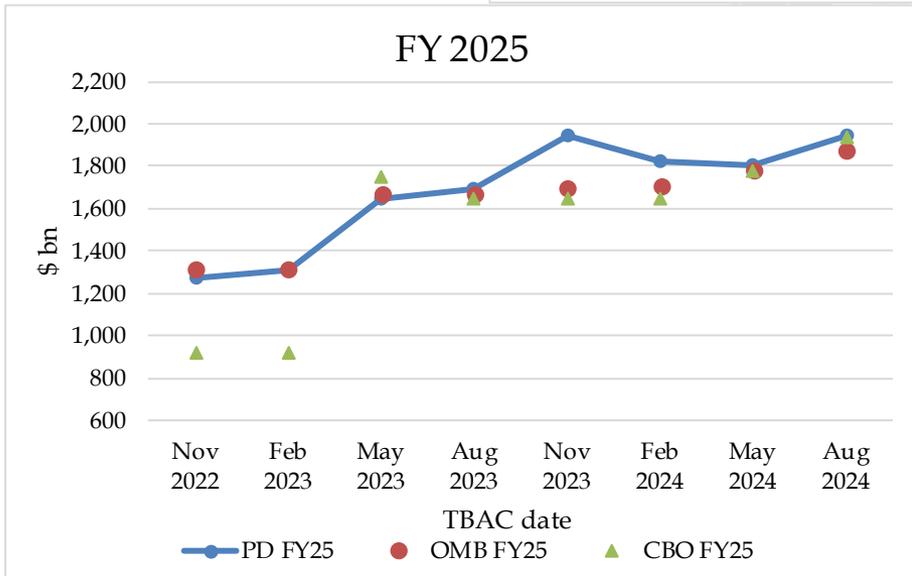
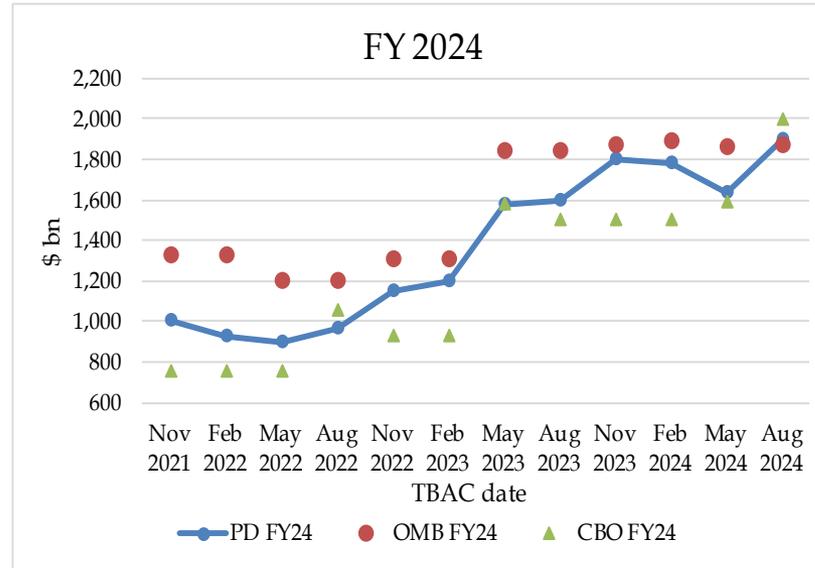
## Recent Deficit Forecasts

- Primary dealers increased their median deficit estimates in July 2024 relative to estimates they provided in April 2024; in aggregate over FY24-FY26, dealers increased their estimates by about \$510 billion.
- The latest OMB and CBO estimates in the table below are provided for reference.

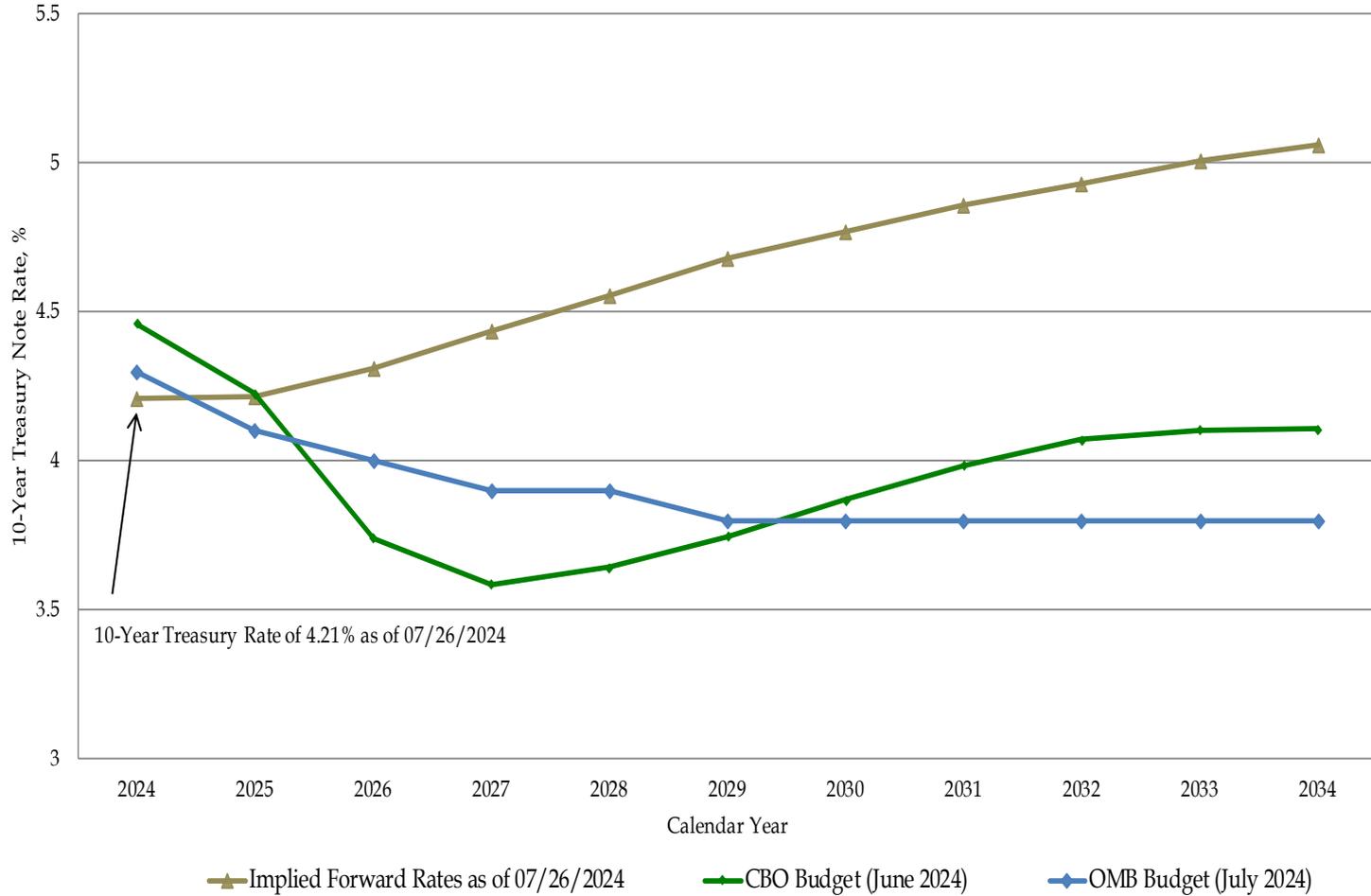
Deficit Estimates (\$ billion)	PD 25th Percentile	Primary Dealers (Median)	PD 75th Percentile	Change from Prior Quarter (Median)	OMB	CBO
FY2024	1,845	1,895	1,915	260	1,874	1,990
FY2025	1,871	1,942	1,960	142	1,878	1,938
FY2026	1,800	1,900	2,017	108	1,601	1,851
As of date	Jul-24	Jul-24	Jul-24		Jul-24	Jun-24

- OMB projections are using estimates are from Table S-3 of “Mid-Session Review Budget of The U.S. Government, Fiscal Year 2025,” July 2024. CBO projections are using estimates are from “An Update to the Budget and Economic Outlook: 2024 to 2034,” June 2024.

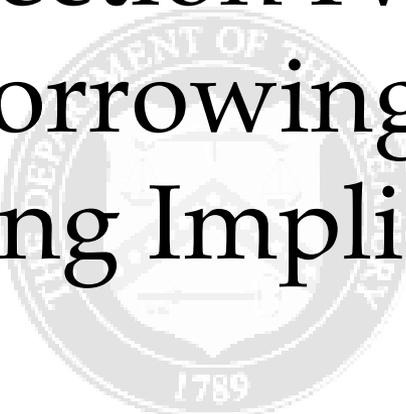
# Evolution of Median Primary Dealer, OMB, and CBO Deficit Estimates



## Interest Rate Assumptions: 10-Year Treasury Note



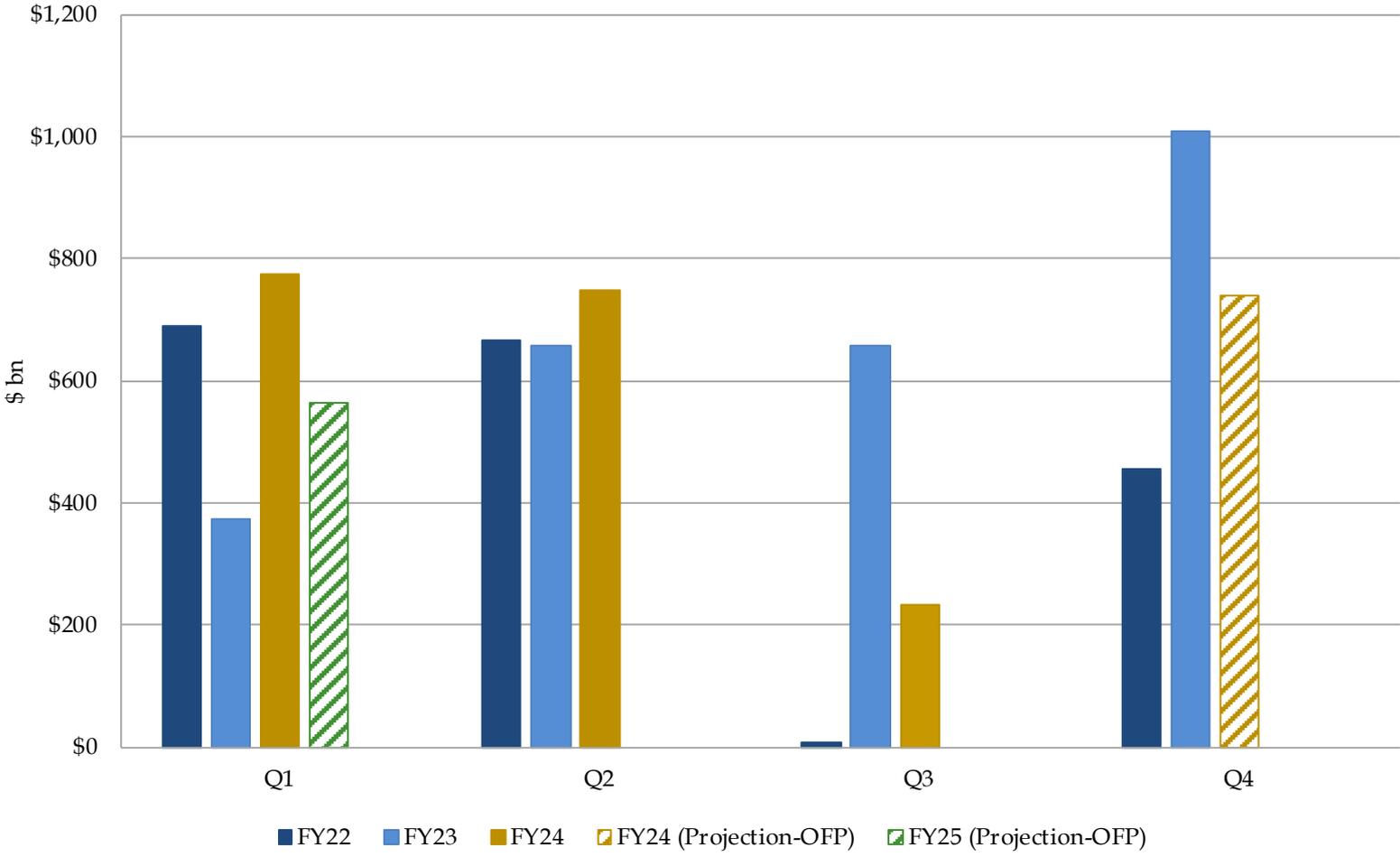
Section IV:  
Estimated Borrowing Needs and  
Financing Implications



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

- Portfolio and SOMA holdings as of 06/30/2024, 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 2024, while using total bills outstanding of ~\$5.8 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 06/30/2024, 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 privately-held net 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. Additionally, buybacks are not expected to significantly affect privately-held net marketable borrowing as new issuance replaces securities that are bought back.

# Privately-Held Net Marketable Borrowing Outlook



# Implied Bill Funding for the Current and Next Quarters Based on Recent Borrowing Estimates

## Sources of Privately-Held Financing in FY24 Q4

July - September 2024	
Assuming Constant Coupon Issuance Sizes*	
Treasury Announced Net Marketable Borrowing**	740
Net Coupon Issuance	559
Implied Change in Bills***	181

## Sources of Privately-Held Financing in FY25 Q1

October - December 2024	
Assuming Constant Coupon Issuance Sizes*	
Treasury Announced Net Marketable Borrowing**	565
Net Coupon Issuance	475
Implied Change in Bills***	90

Security	July - September 2024 Coupon Issuance			Fiscal Year-to-Date Coupon Issuance			Security	October - December 2024 Coupon Issuance			Fiscal Year-to-Date Coupon Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net		Gross	Maturing	Net	Gross	Maturing	Net
2-Year FRN	86	68	18	334	282	52	2-Year FRN	86	68	18	86	68	18
2-Year	276	178	98	813	659	154	2-Year	207	126	81	207	126	81
3-Year	174	153	21	654	584	70	3-Year	174	166	8	174	166	8
5-Year	280	127	153	826	314	512	5-Year	210	96	114	210	96	114
7-Year	176	92	84	544	344	200	7-Year	132	70	62	132	70	62
10-Year	120	60	60	470	221	249	10-Year	120	59	61	120	59	61
20-Year	55	0	55	181	0	181	20-Year	42	0	42	42	0	42
30-Year	69	0	69	271	0	271	30-Year	69	3	66	69	3	66
5-Year TIPS	0	0	0	86	27	59	5-Year TIPS	44	39	5	44	39	5
10-Year TIPS	36	43	(7)	101	90	11	10-Year TIPS	17	0	17	17	0	17
30-Year TIPS	8	0	8	17	0	17	30-Year TIPS	0	0	0	0	0	0
Coupon Subtotal	1,280	721	559	4,297	2,520	1,777	Coupon Subtotal	1,101	626	475	1,101	626	475

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

\*\* Assumes end-of-September 2024 and end-of-December 2024 and cash balances of \$850 billion and \$700 billion respectively versus end-of-June 2024 cash balance of \$778 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>

\*\*\* Implied change in bills doesn't incorporate the effects of any buyback operations conducted during the specified periods.

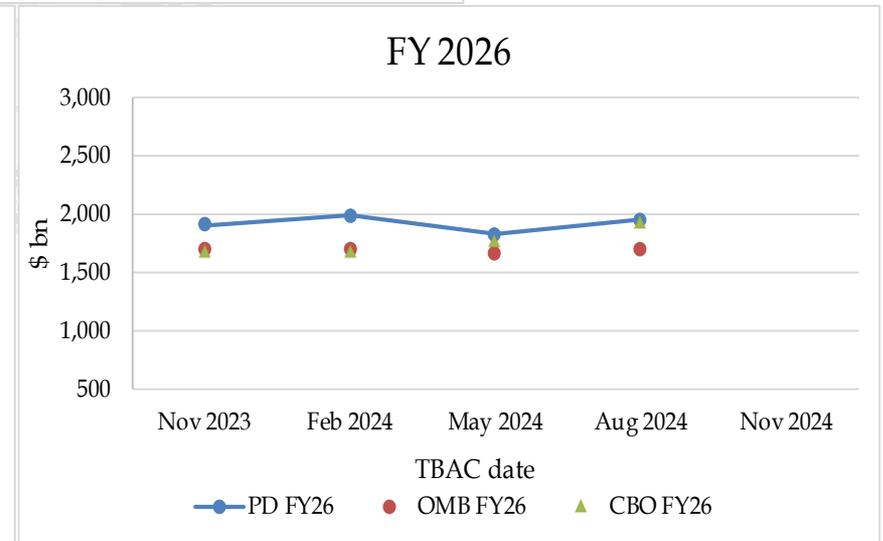
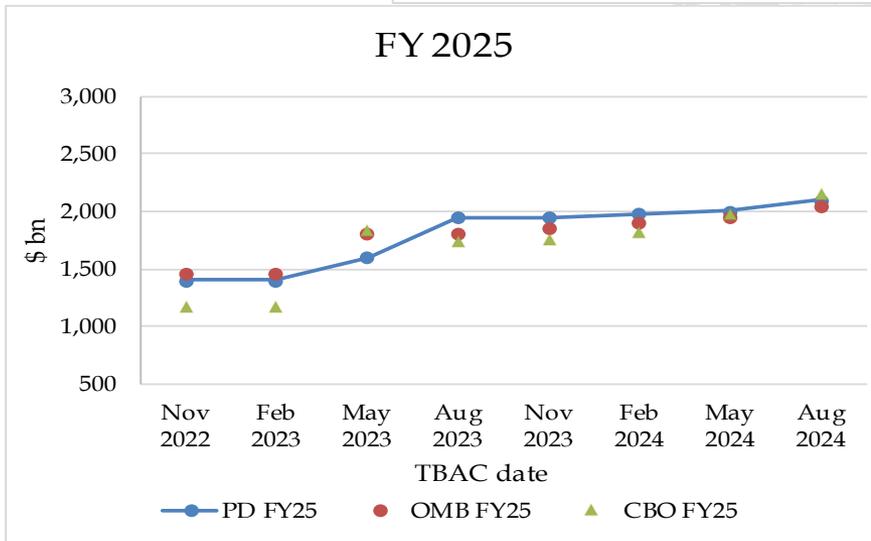
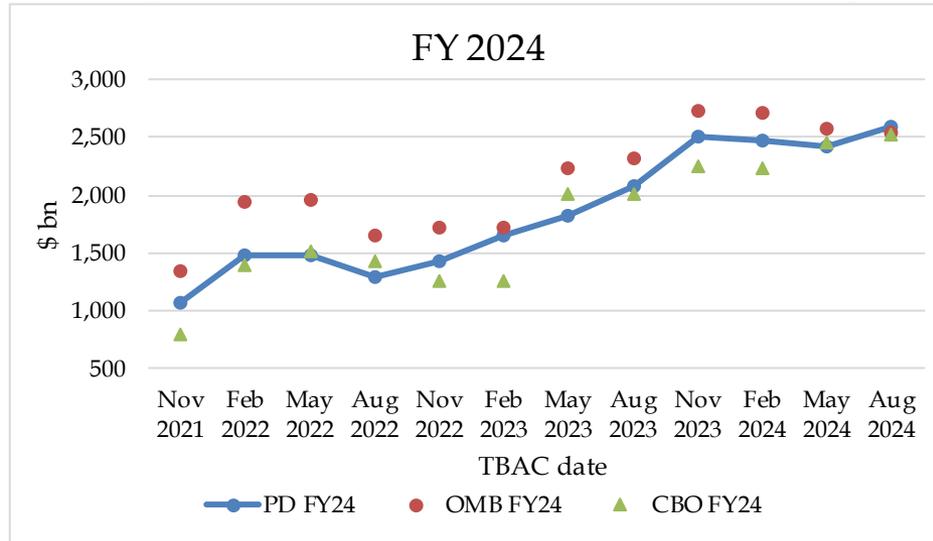
## Longer-Term Privately-Held Net Marketable Borrowing Estimates and SOMA Redemption Assumptions

### FY 2024-2026 Deficits and Privately-Held Net Marketable Borrowing Estimates, in \$ billions

	Primary Dealer			OFP	OMB	CBO
	25th	Median	75th			
FY 2024 Deficit	1,845	1,895	1,915		1,874	1,990
FY 2025 Deficit	1,871	1,942	1,960		1,878	1,938
FY 2026 Deficit	1,800	1,900	2,017		1,601	1,851
FY 2024 SOMA Redemption	580	580	602	603		
FY 2025 SOMA Redemption	75	150	229			
FY 2026 SOMA Redemption	0	0	0			
FY 2024 Privately-Held Net Marketable Borrowing*	2,500	2,600	2,655	2,498	2,545	2,522
FY 2025 Privately-Held Net Marketable Borrowing*	1,999	2,098	2,213		2,051	2,160
FY 2026 Privately-Held Net Marketable Borrowing*	1,811	1,943	2,121		1,695	1,930
Estimates as of:		Jul-24		Jul-24	Jul-24	Jun-24

- All privately-held net marketable borrowing estimates (excluding OFP) of are “normalized” using:
  - 1) the median Primary Dealer’s estimates for SOMA redemptions, and
  - 2) OFP’s fiscal year 2024 cash balance of \$850 billion, held constant in out years.
- OMB projections are using estimates are from Table S-3 of “Mid-Session Review Budget of The U.S. Government, Fiscal Year 2025,” July 2024.
- CBO projections are using estimates are from “An Update to the Budget and Economic Outlook: 2024 to 2034,” June 2024.

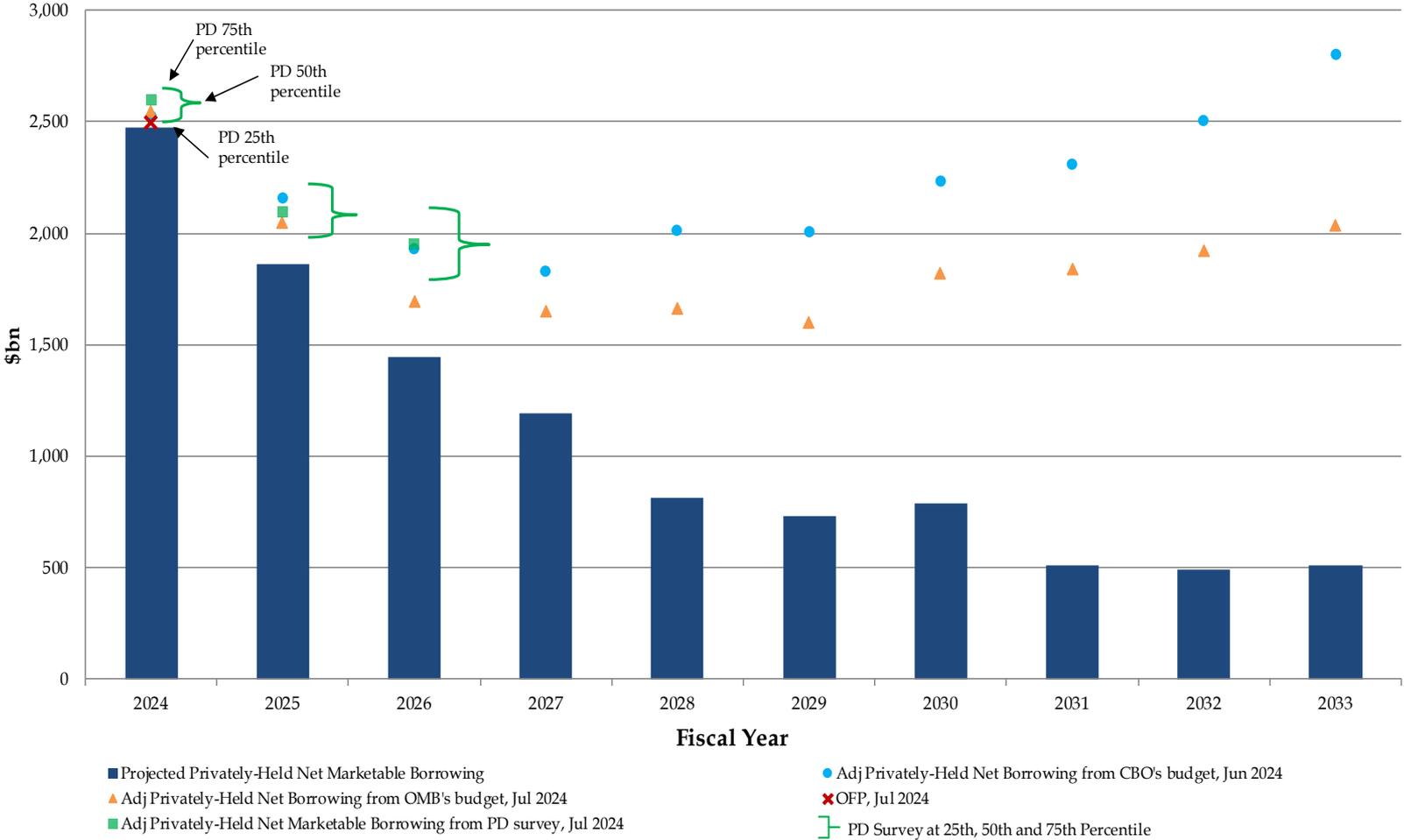
# Evolution of Median Primary Dealer, OMB, and CBO Privately-Held Net Marketable Borrowing Estimates\*



\* 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 borrowing estimates are normalized with the same cash balance changes. See slide 18 for details.

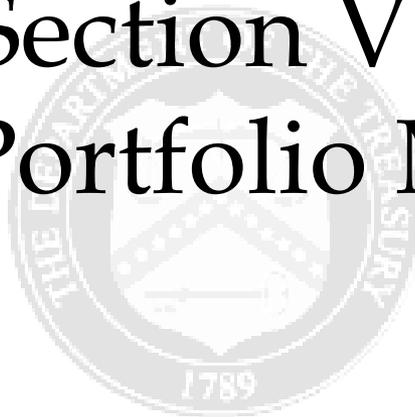
# Projected Privately-Held Net Marketable Borrowing

Assuming Private Coupon Issuance & Total Bills Outstanding Remain Constant as of 07/31/2024\*



\*Treasury's latest primary dealer survey median/interquartile range estimates can be found on page 18. OMB projections are using estimates are from Table S-3 of "Mid-Session Review Budget of The U.S. Government, Fiscal Year 2025," July 2024. CBO projections are using estimates are from "An Update to the Budget and Economic Outlook: 2024 to 2034," June 2024. OMB and CBO borrowing estimates from FY24 to FY26 are normalized to privately-held net marketable borrowing after adding PD survey median SOMA redemption assumptions for FY24/25/26. In addition, all privately-held net marketable borrowing estimates are normalized with OFP's FY24 ending cash balance assumption of \$850 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.**

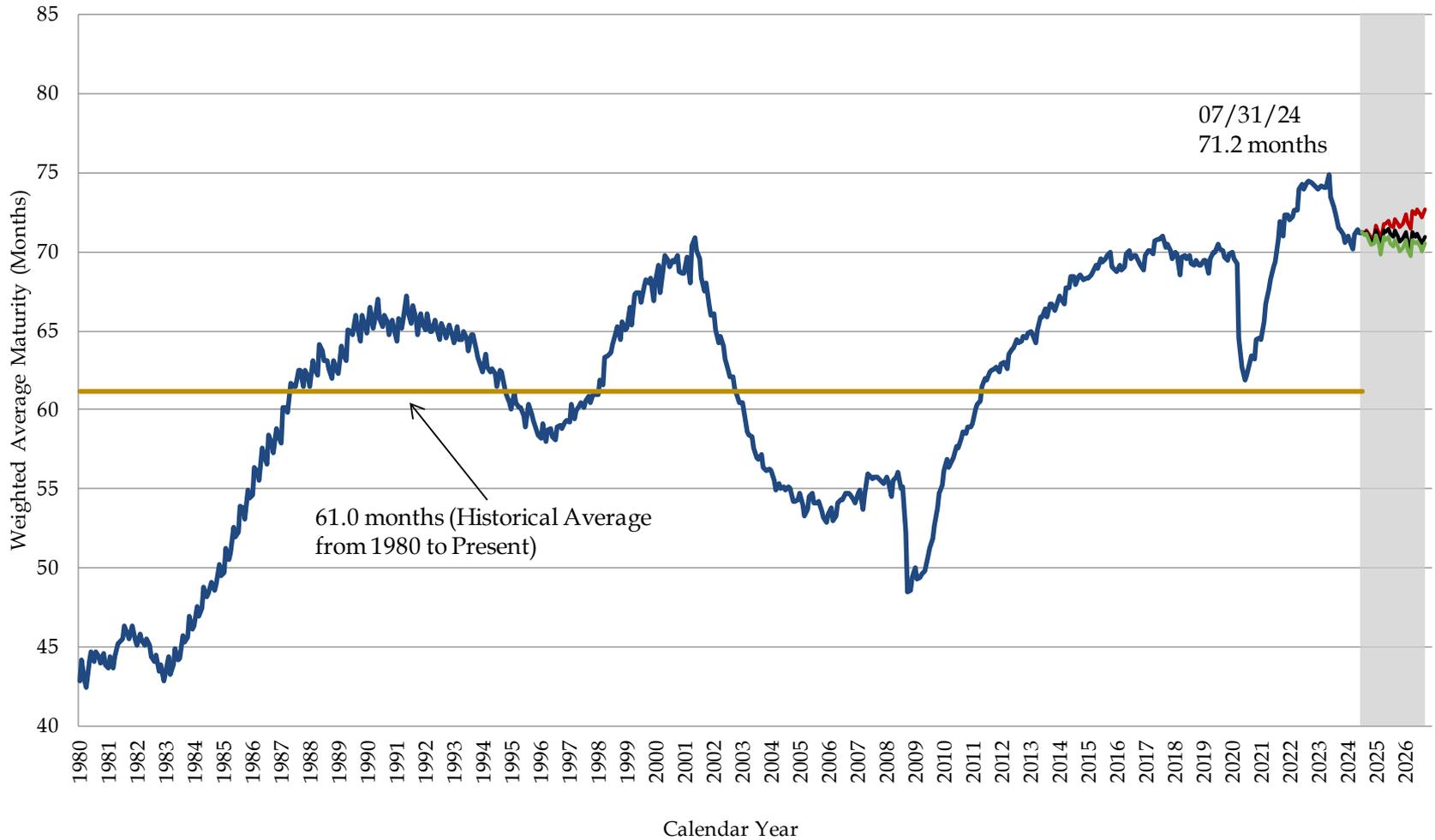
Projections illustrate how various portfolio metrics could evolve under three hypothetical financing scenarios. The scenarios were chosen to illustrate a potential range of portfolio metric outcomes based on hypothetical issuance choices.

The scenarios are:

- 1) ***“Coupons Constant”***: Treasury maintains **coupon, FRN, and TIPS auction sizes constant** as of July 2024 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 \$5.9 trillion as of 7/31/2024 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 21.6% as of 7/31/2024 and addresses any changes in financing needs by pro rata increasing or decreasing coupon, FRN, and TIPS auction sizes.

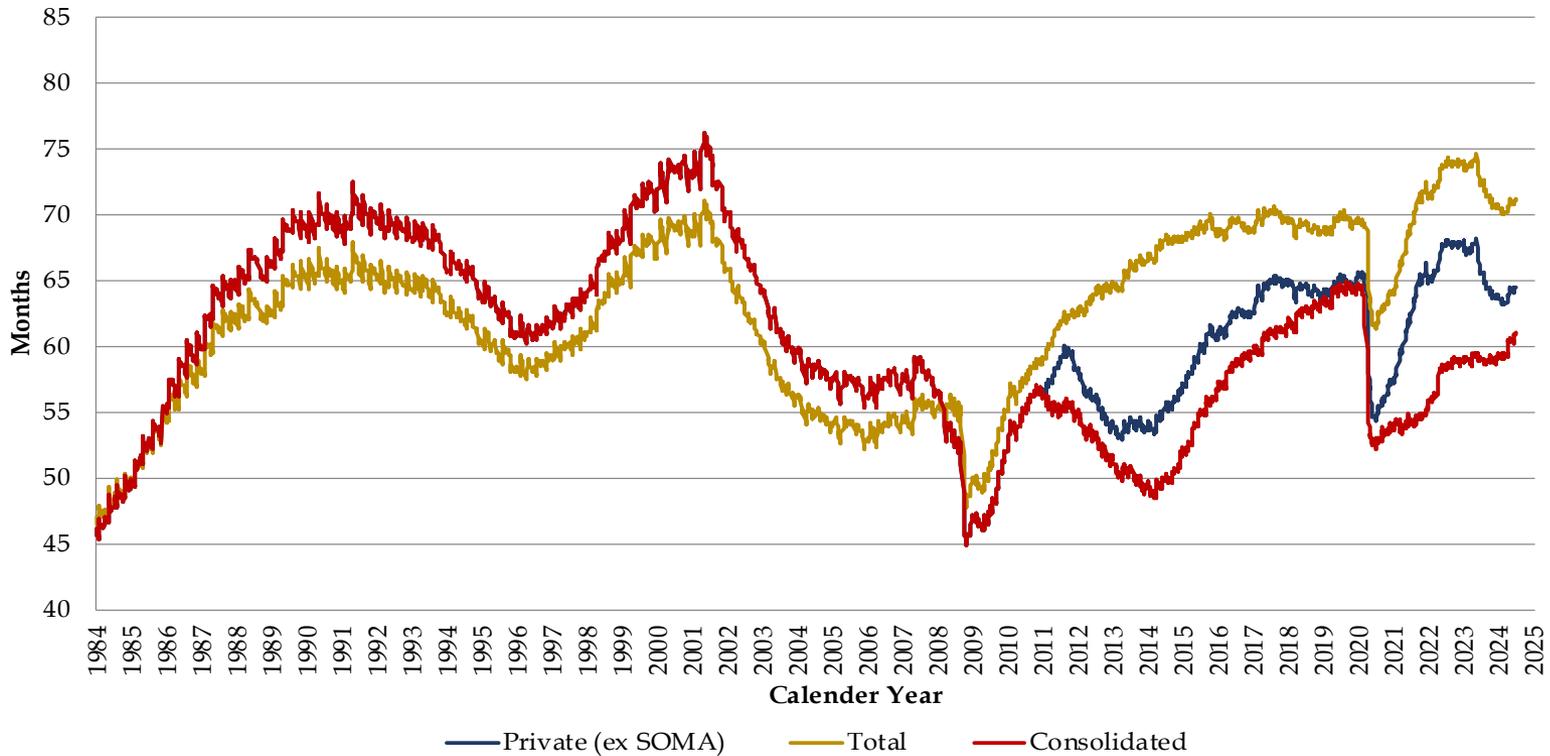
Privately-held net marketable borrowing needs used in the projections section of these charts are proxied using median primary dealer estimates for FY24, FY25 & FY26 (see page 18).

# Weighted Average Maturity of Marketable Debt Outstanding



- Projection
- Historical
- Historical Average from 1980 to Present
- Bills Constant
- Coupons Constant
- Prorated Bills and Coupons

## Consolidated WANRR Calculation\*

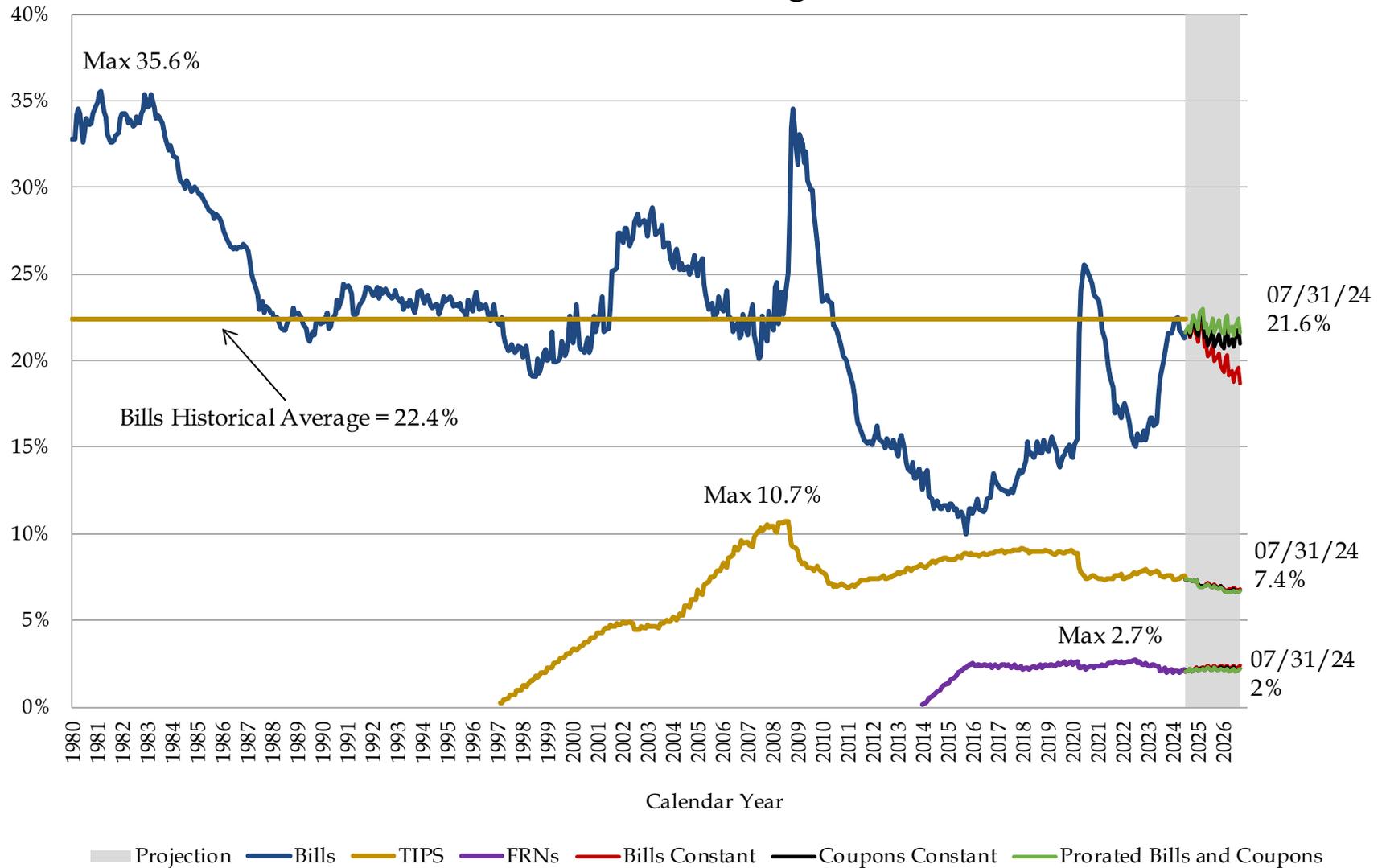


\* Weighted Average Next Rate Reset (WANRR) is a “Weighted Average Maturity” metric that attempts to adjust for the floating rate aspect of some Treasury debt. The WANRR is the average time until the outstanding debt’s interest rate is set to a new interest rate. For bills and fixed rate notes and bonds,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

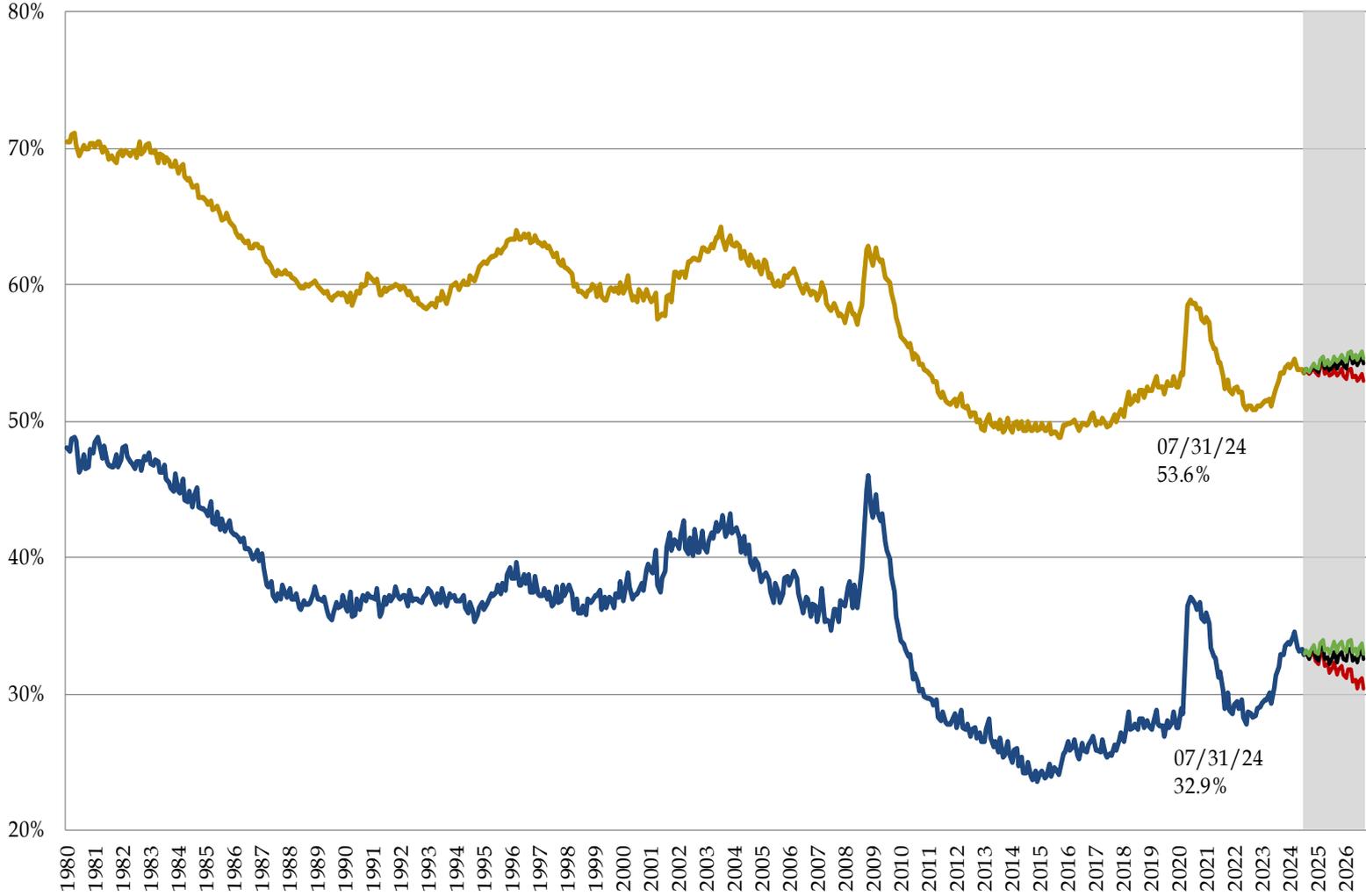
In contrast, for floating rate obligations, the time between the next rate reset date or maturity date is examined and the shorter period is used in the calculation.

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

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



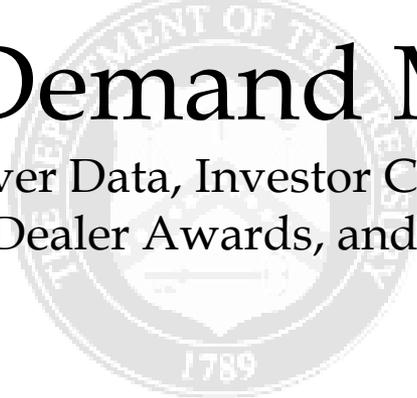
# Treasury Maturity Profile



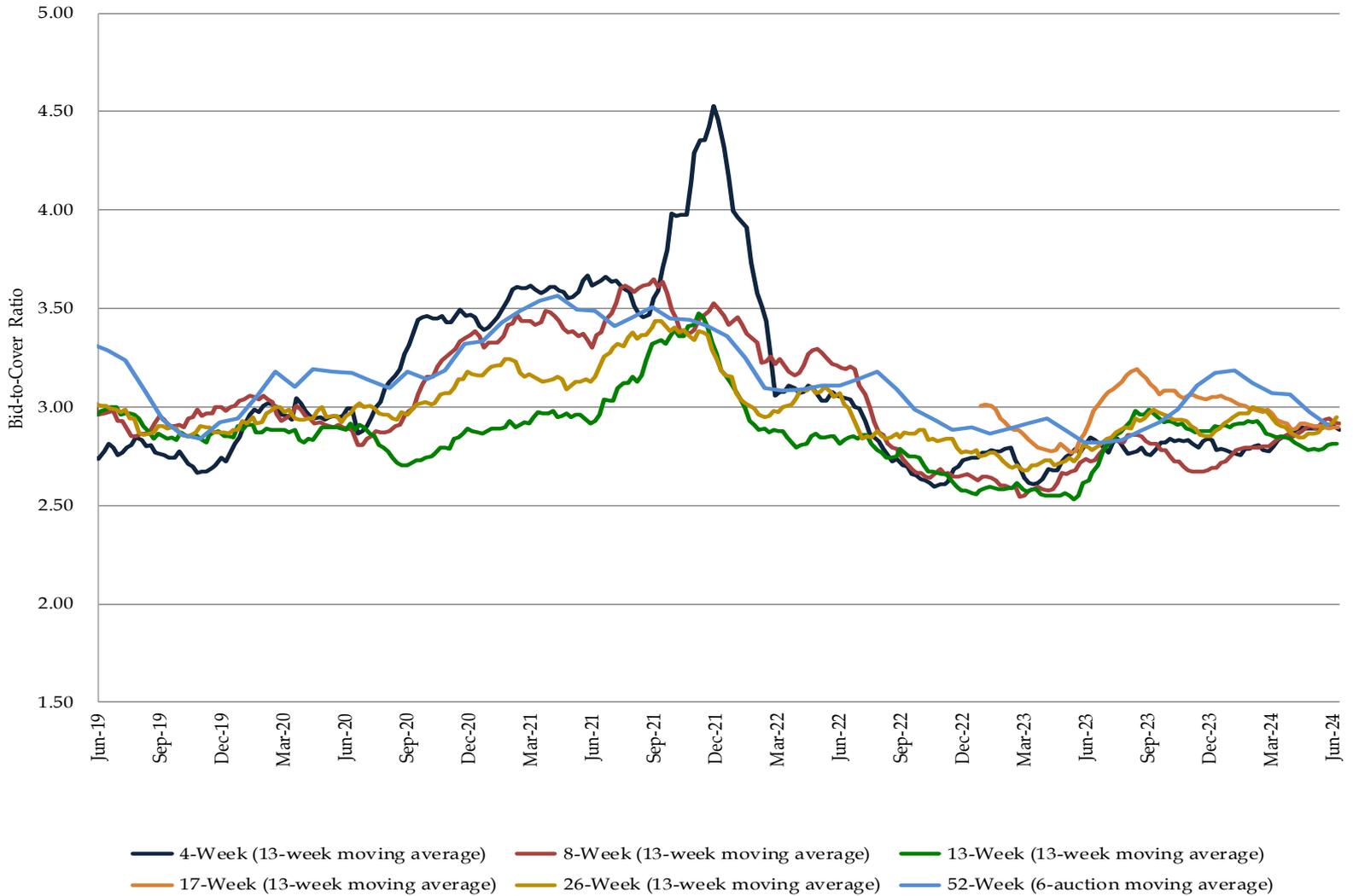
Projection  
 Percent Maturing <=1 Year  
 Percent Maturing <=3 Year  
 Bills Constant  
 Coupons Constant  
 Prorated Bills and Coupons

# Section VI: Select Demand Metrics

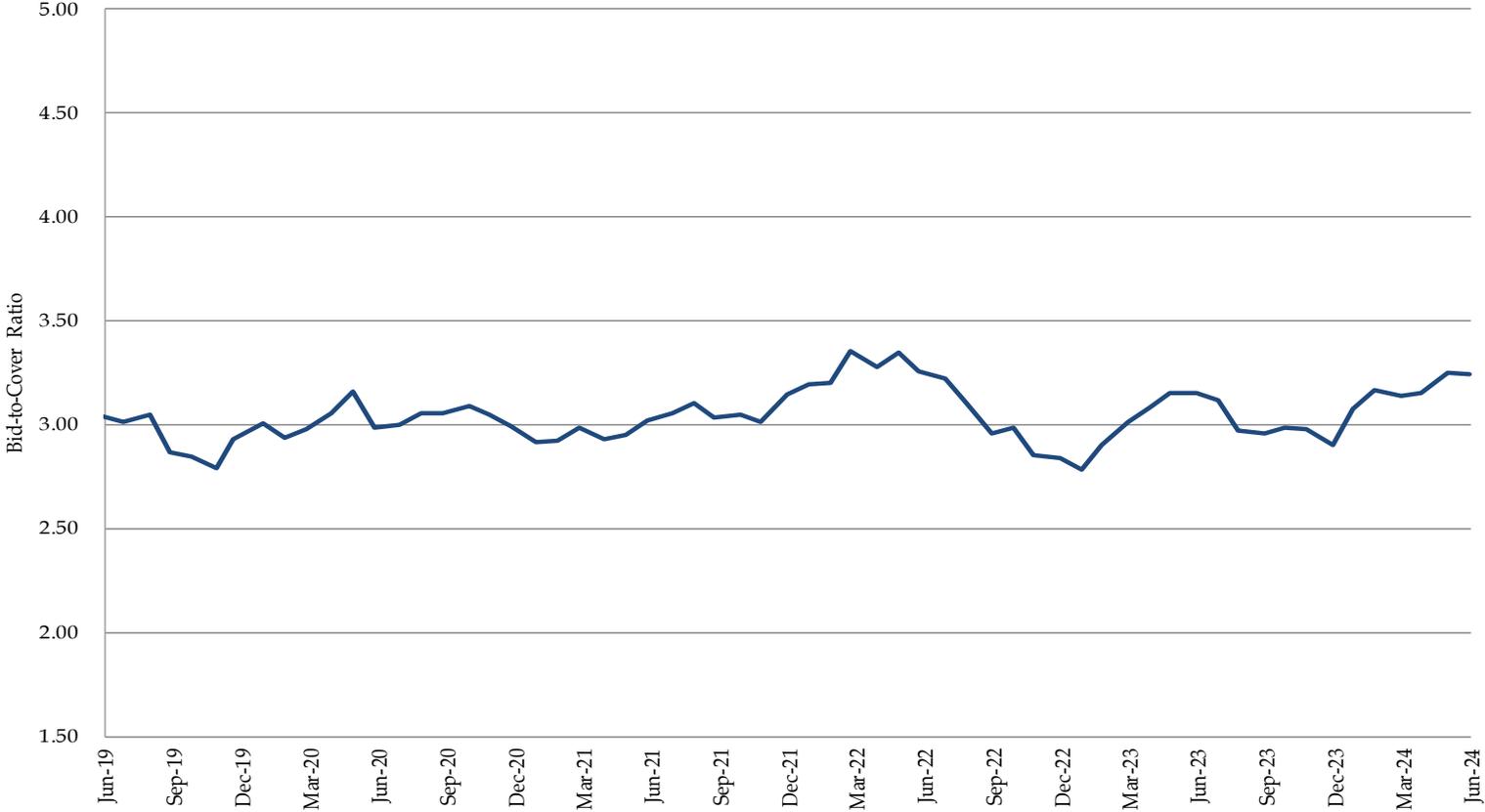
Bid-to-Cover Data, Investor Class Data,  
Direct & Primary Dealer Awards, and Foreign Demand



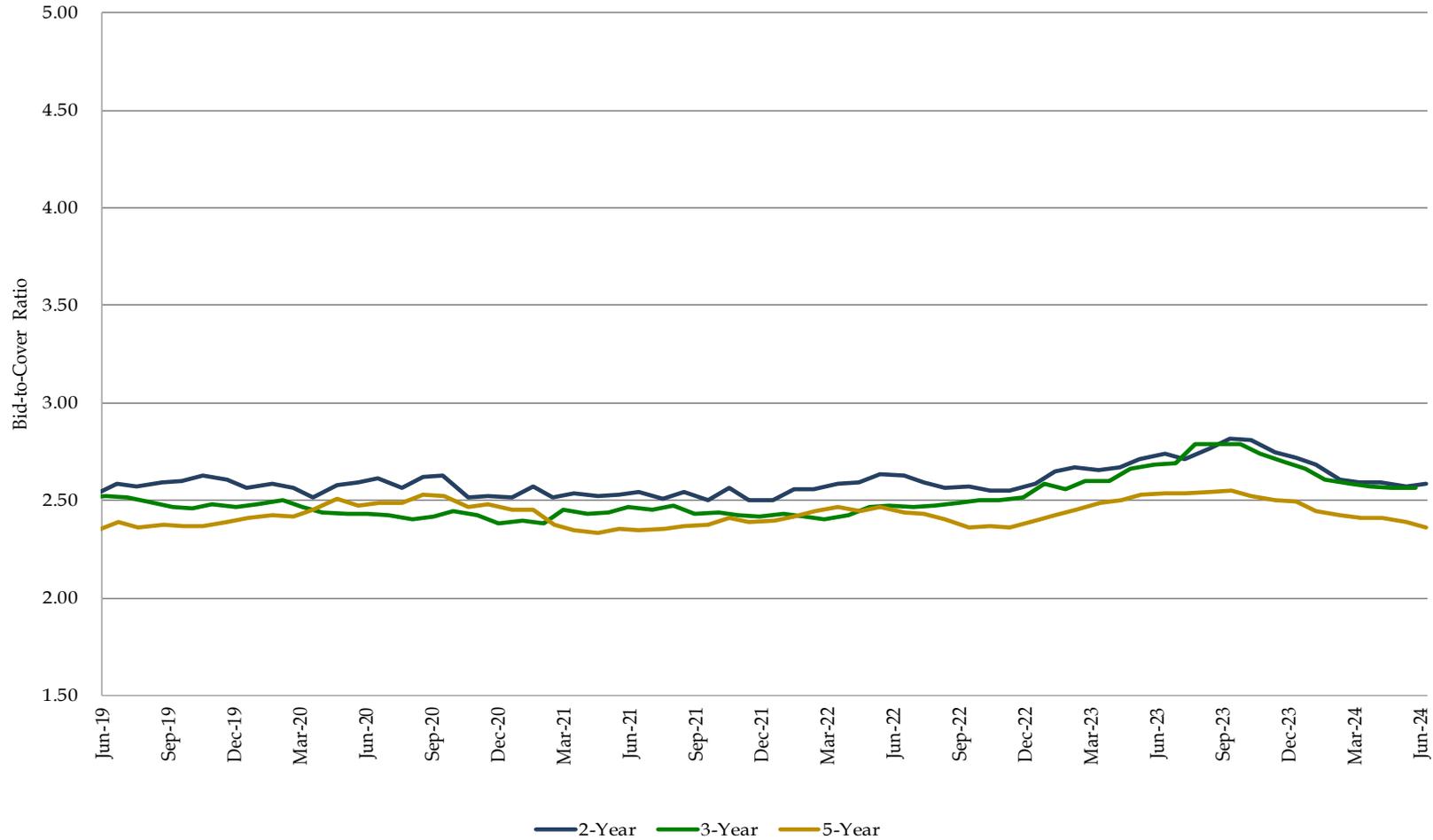
## Bid-to-Cover Ratios for Treasury Bills



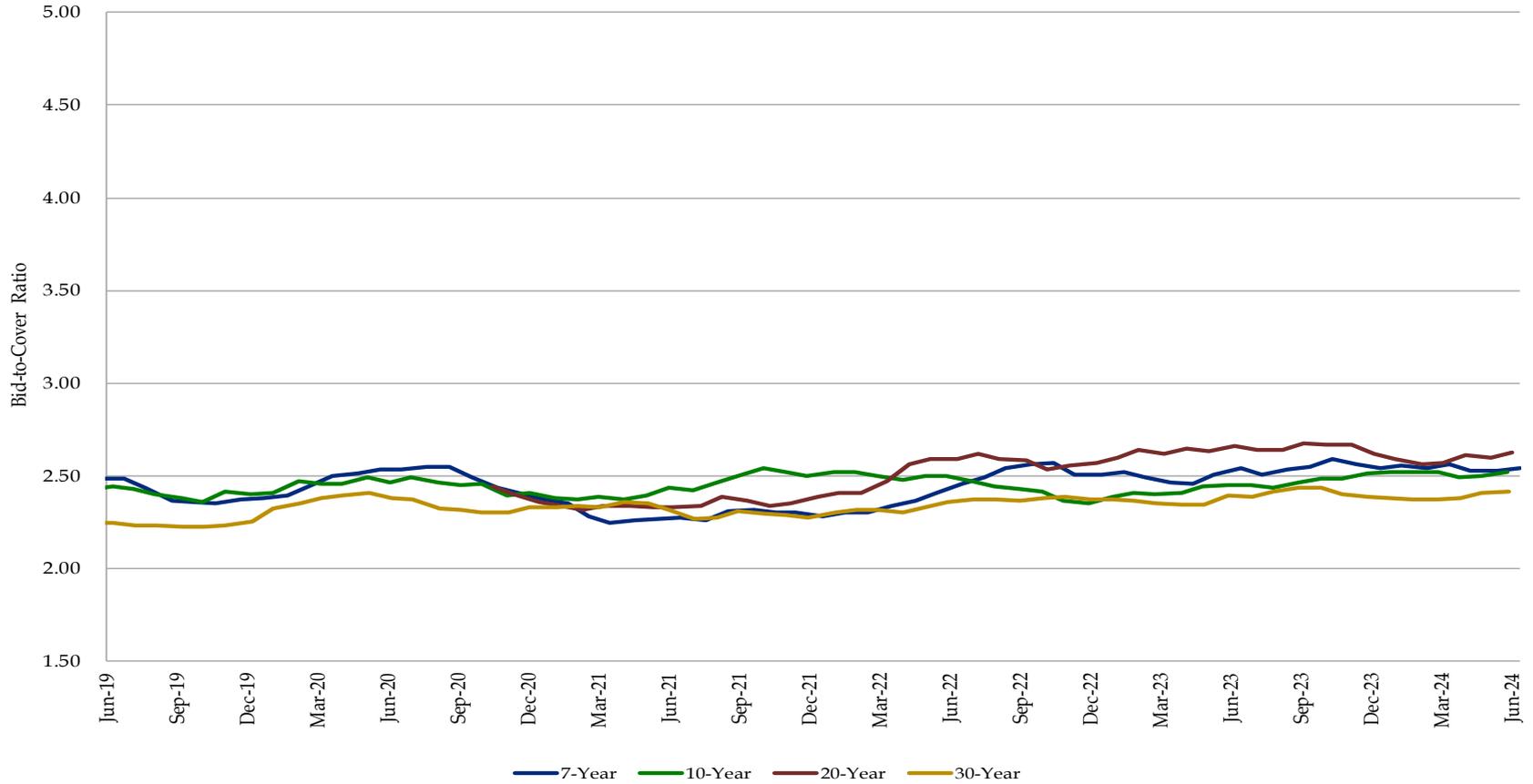
# Bid-to-Cover Ratios for FRNs (6-Month Moving Average)



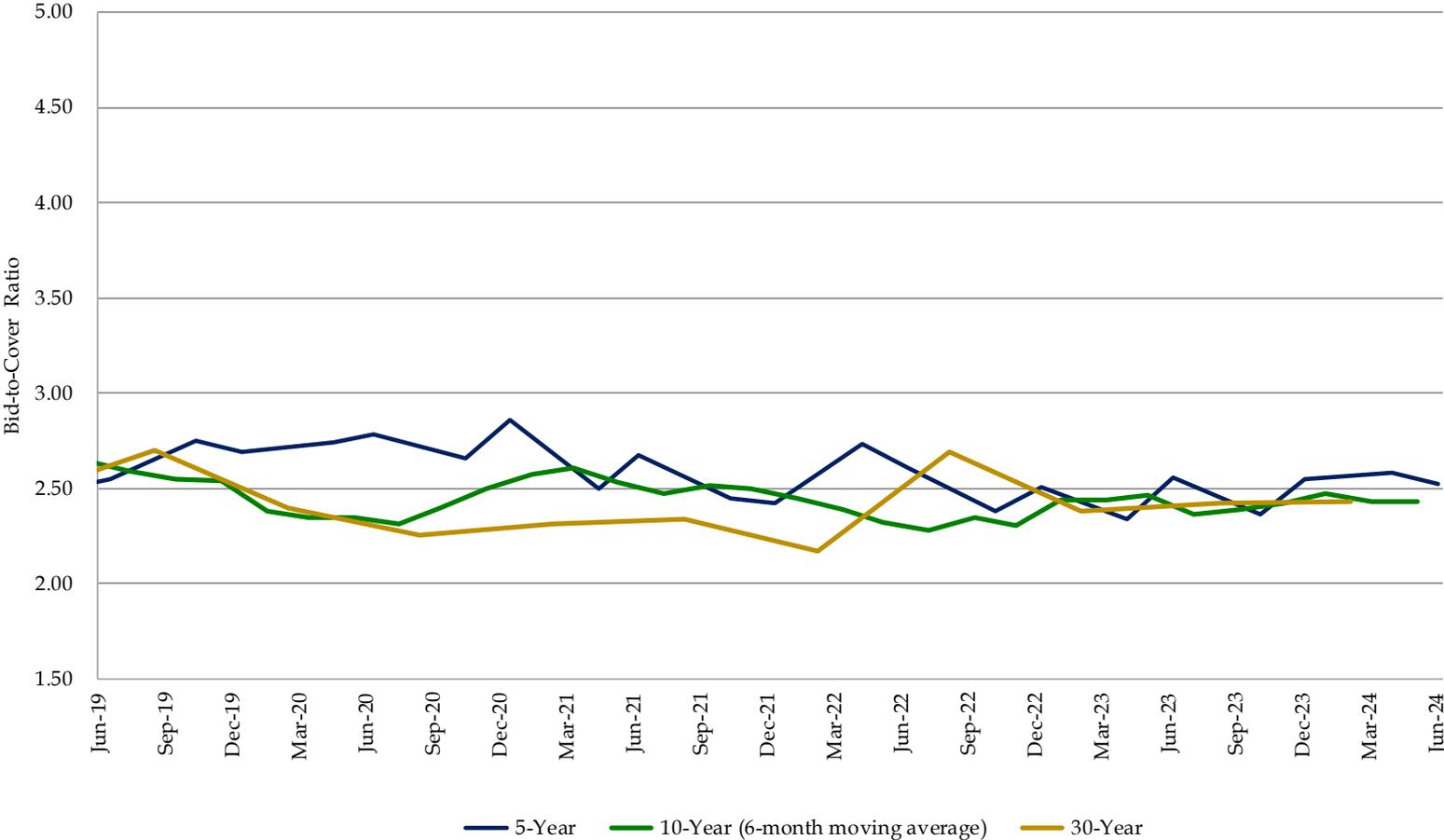
## Bid-to-Cover Ratios for 2-, 3-, and 5-Year Nominal Securities (6-Month Moving Average)



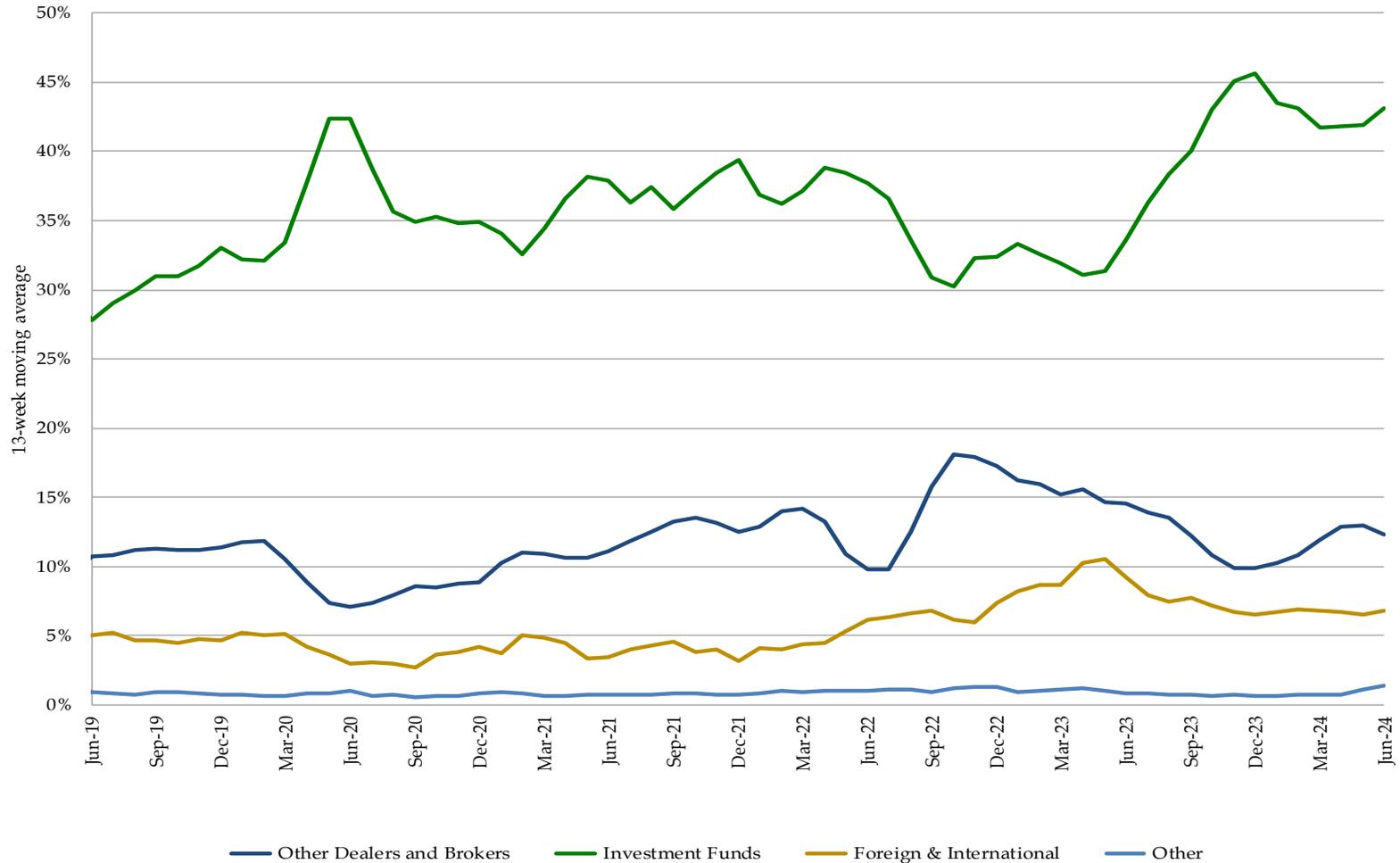
## Bid-to-Cover Ratios for 7-, 10-, 20-, and 30-Year Nominal Securities (6-Month Moving Average)



# Bid-to-Cover Ratios for TIPS

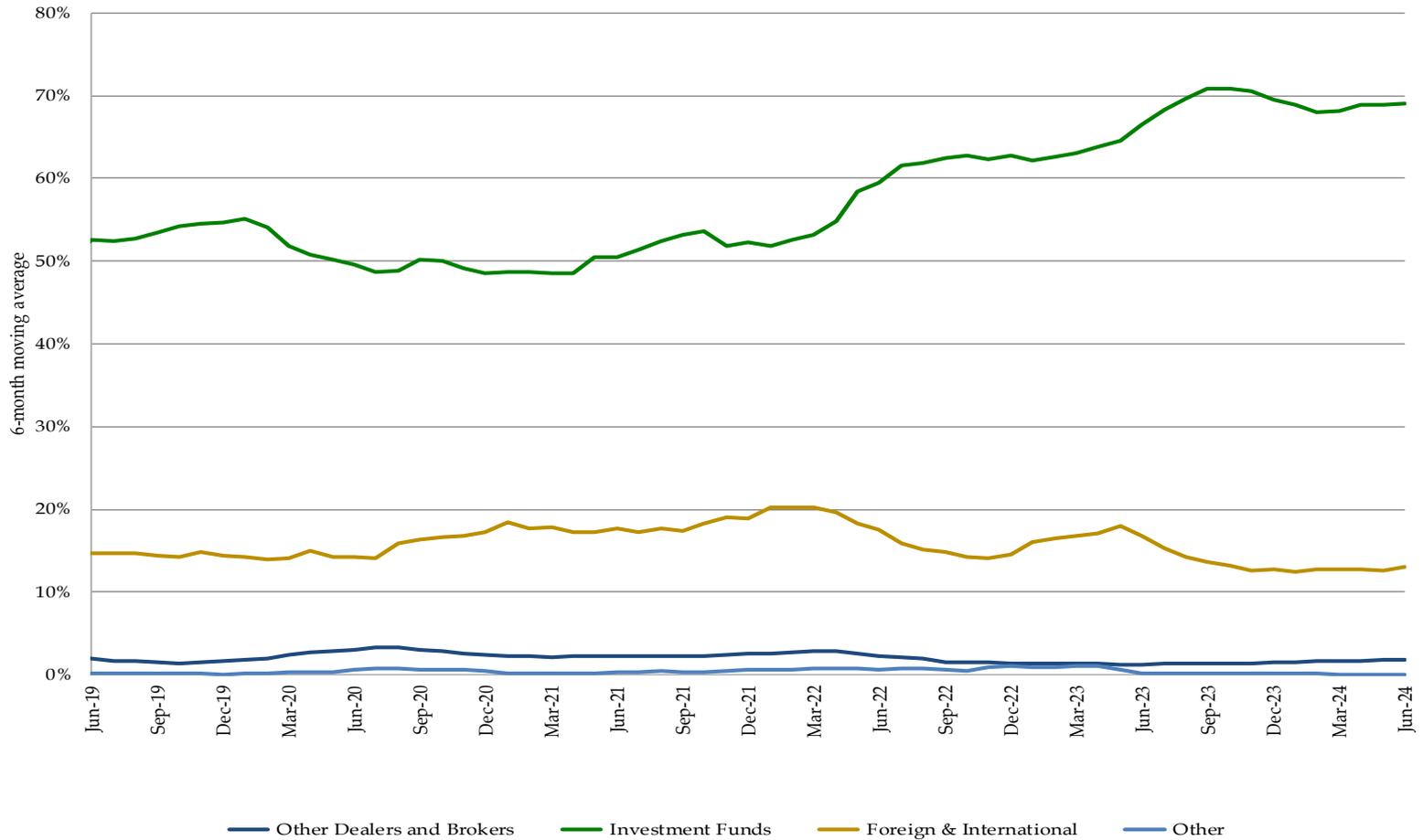


## Percent Awarded in Bill Auctions by Investor Class (13-Week Moving Average)



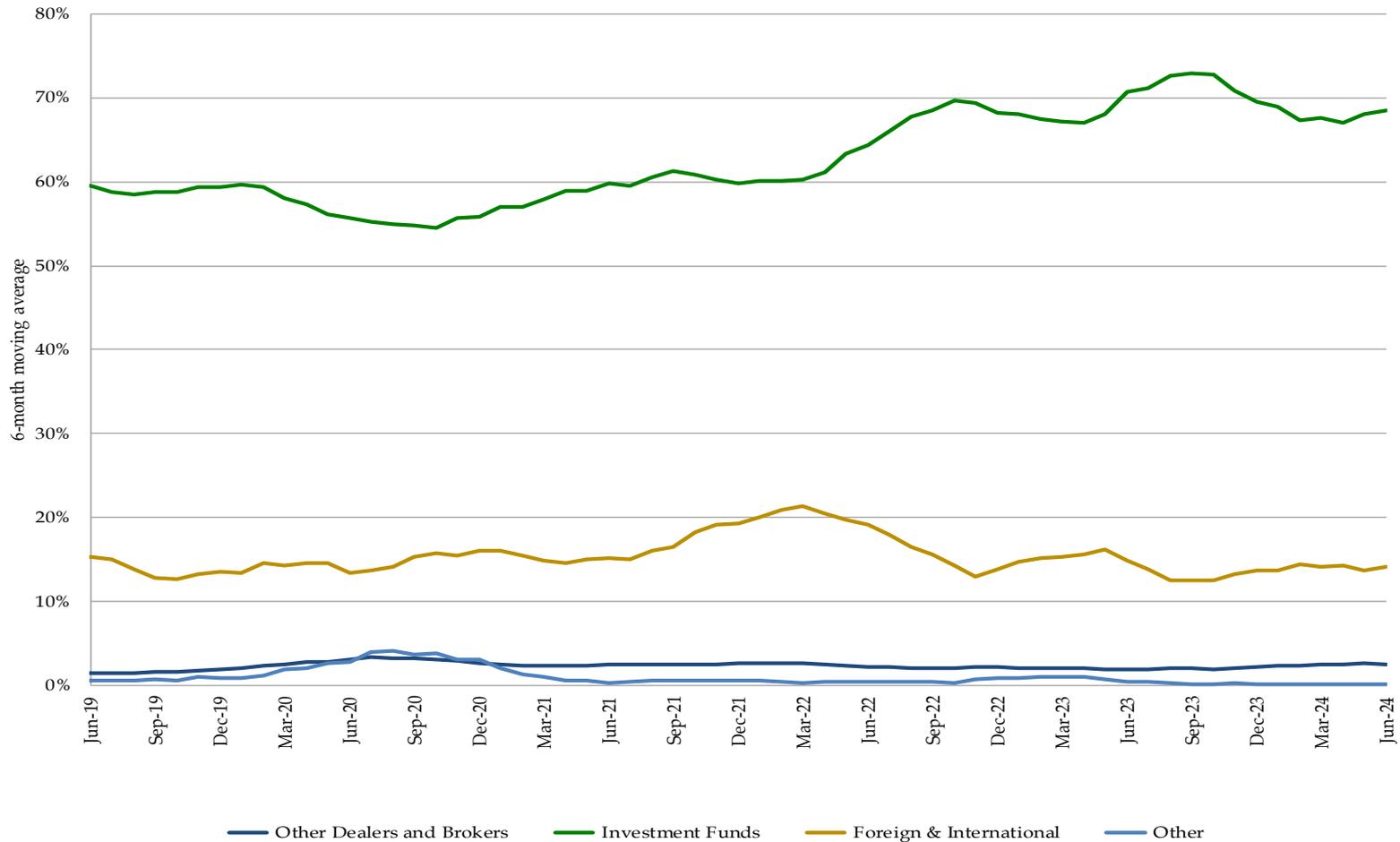
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



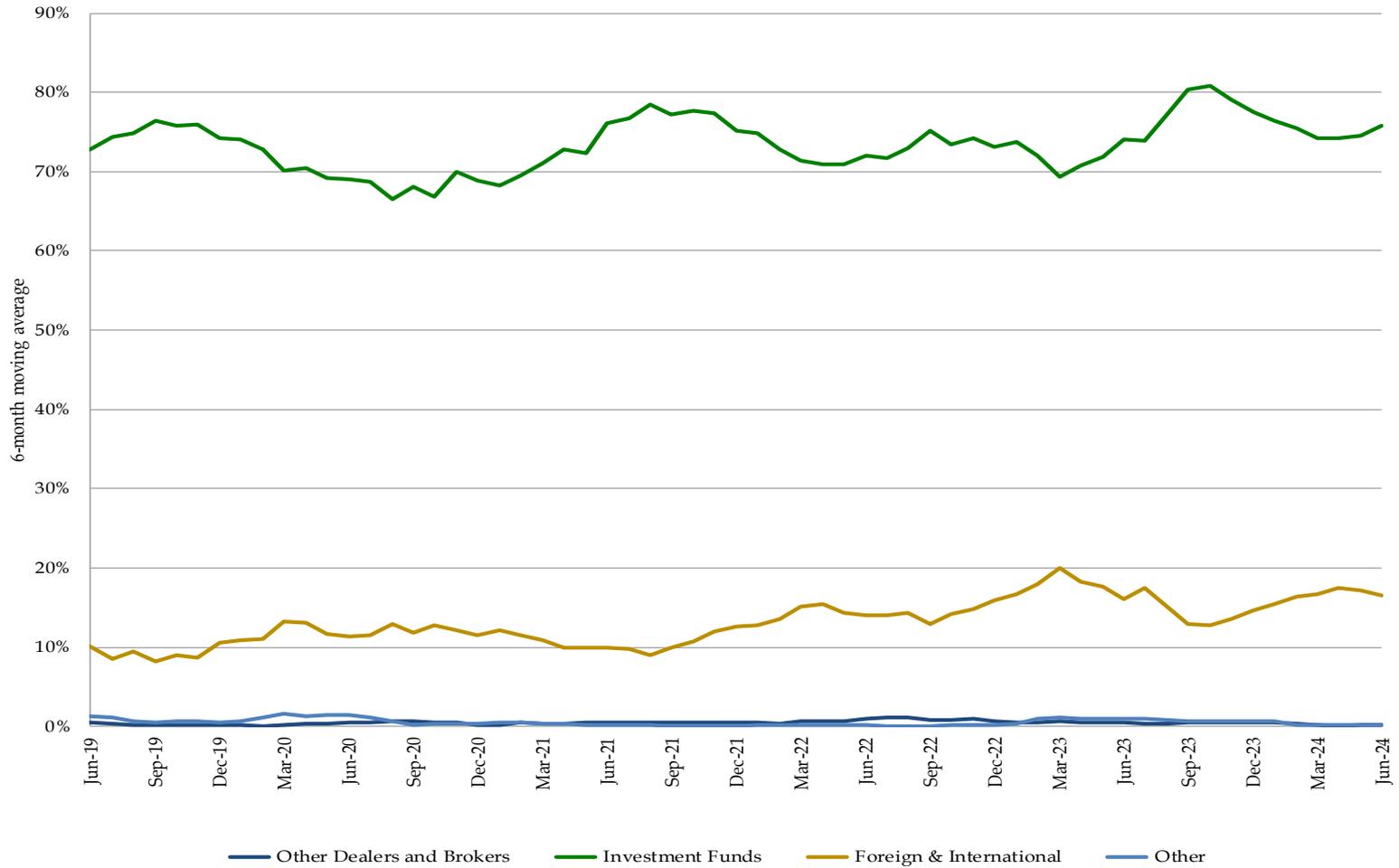
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



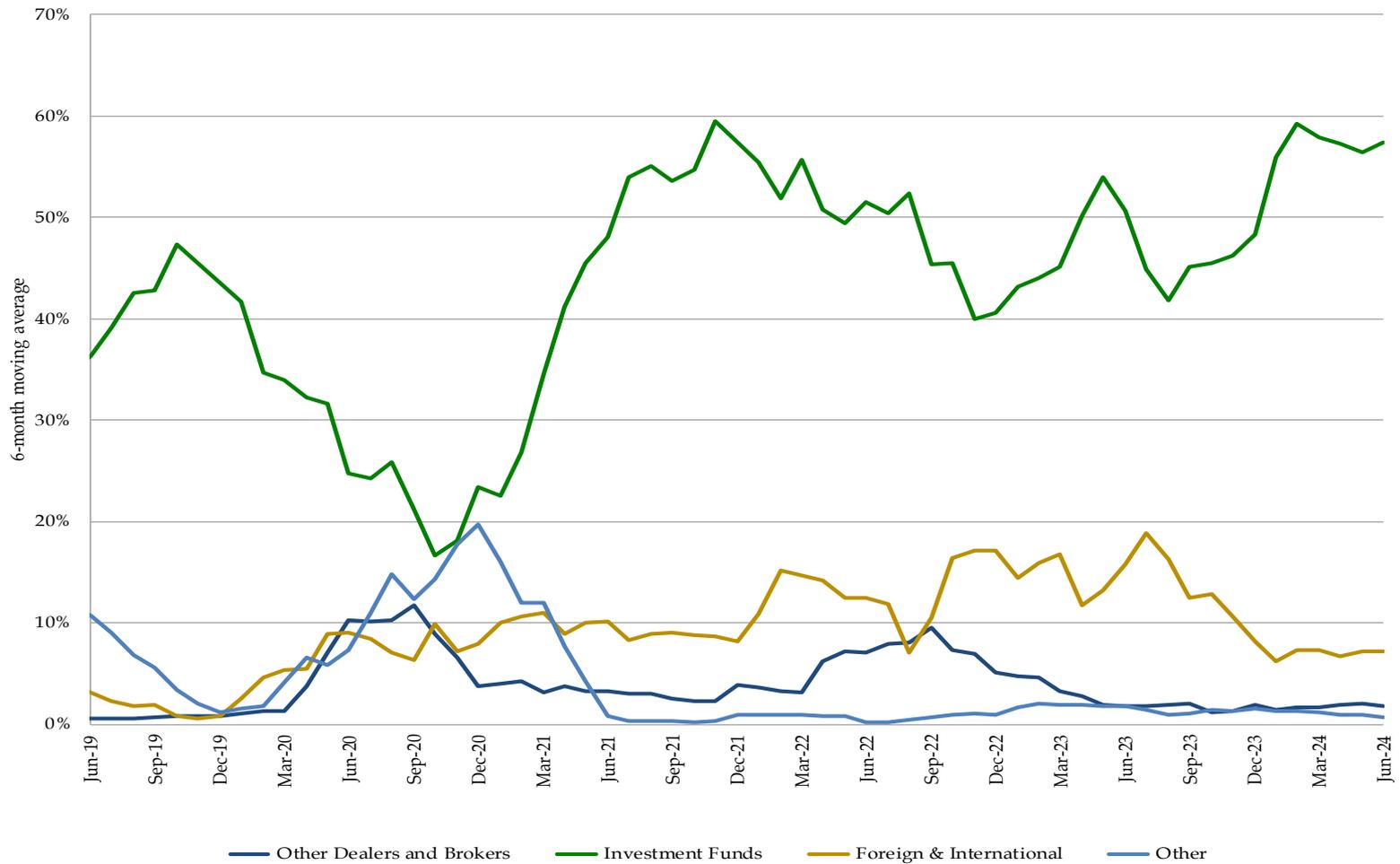
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



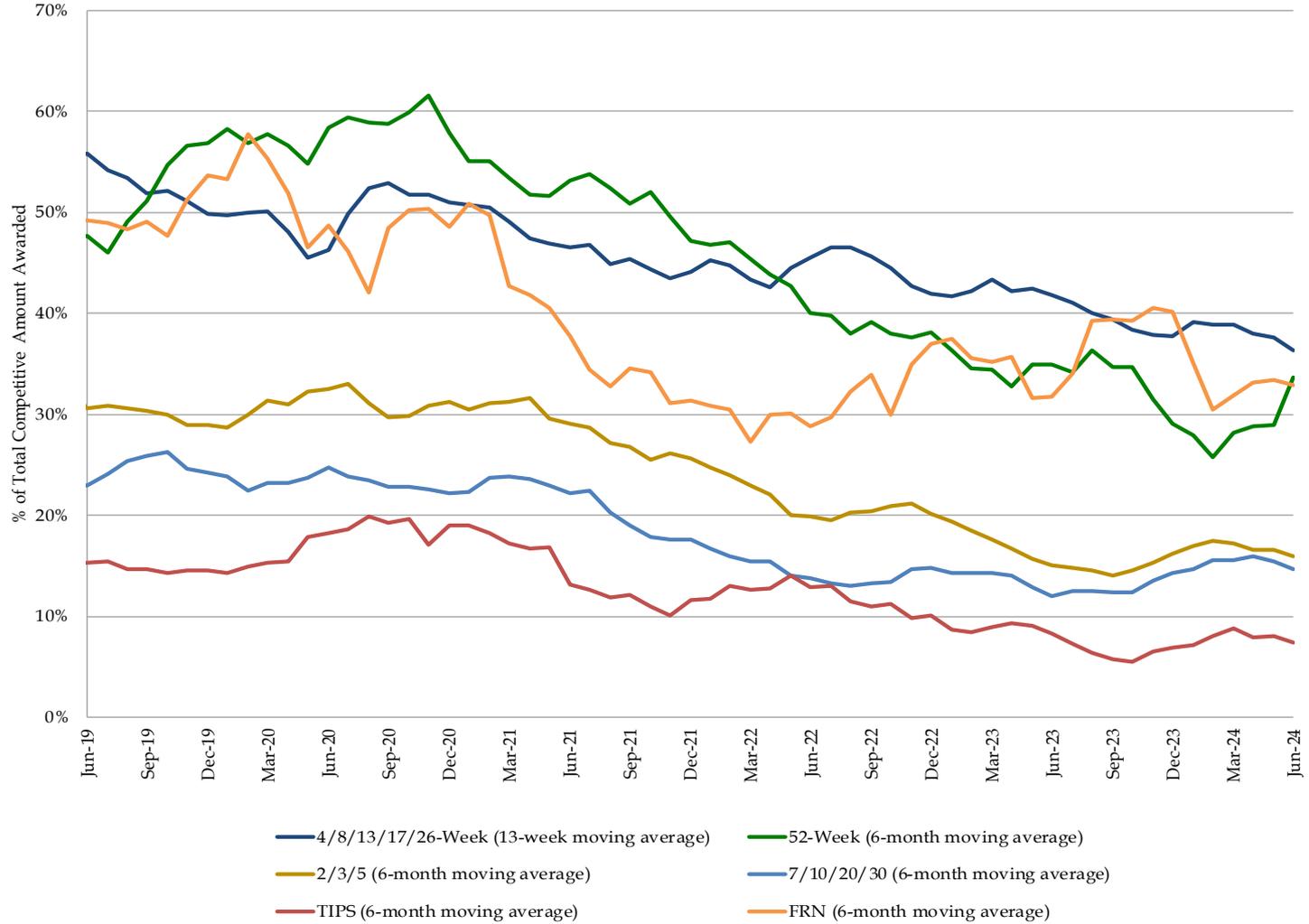
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



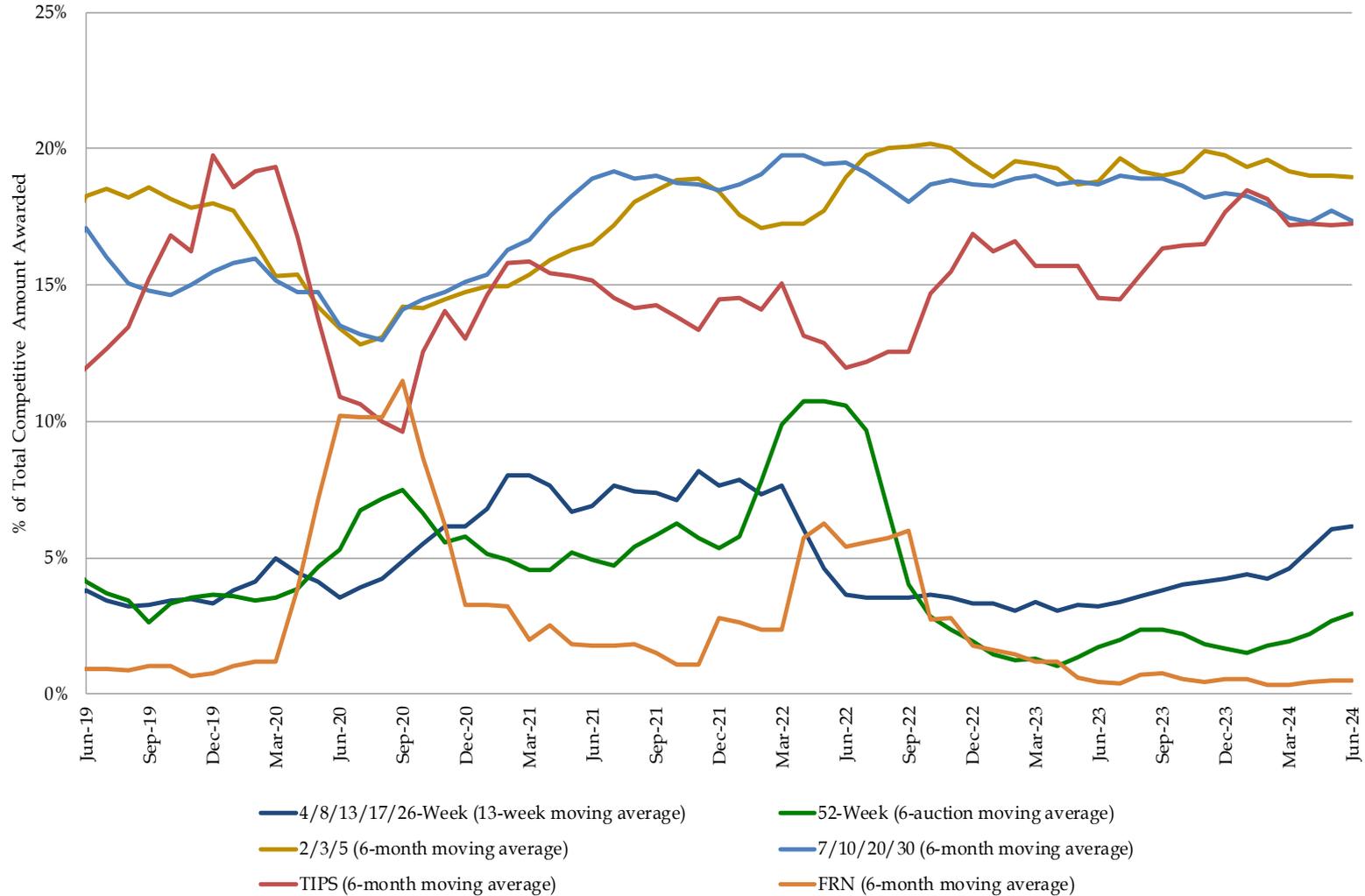
Excludes SOMA add-ons. The "Other" category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

## Primary Dealer Awards at Auction



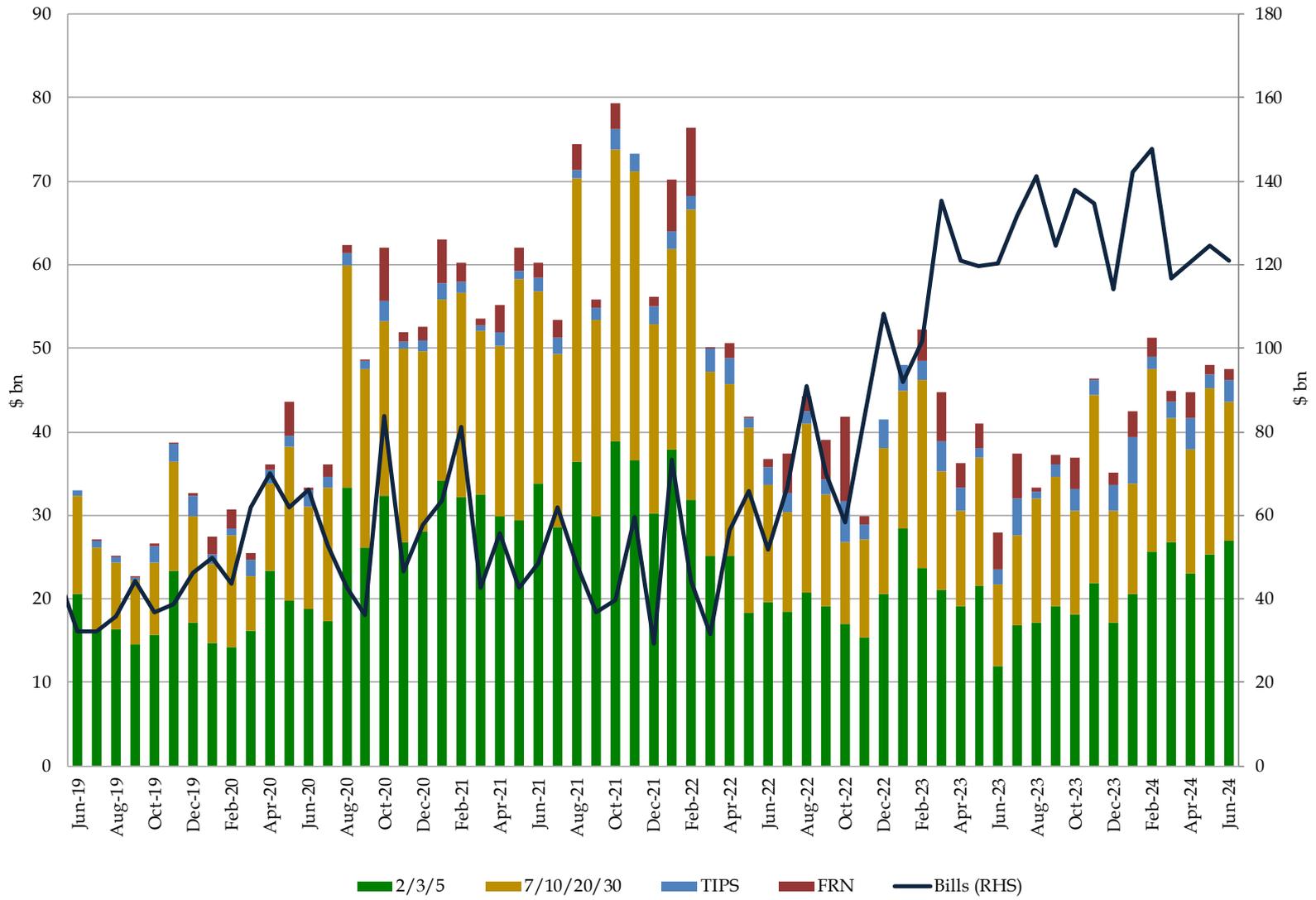
Competitive Amount Awarded excludes SOMA add-ons.

## Direct Bidder Awards at Auction



Competitive Amount Awarded excludes SOMA add-ons.

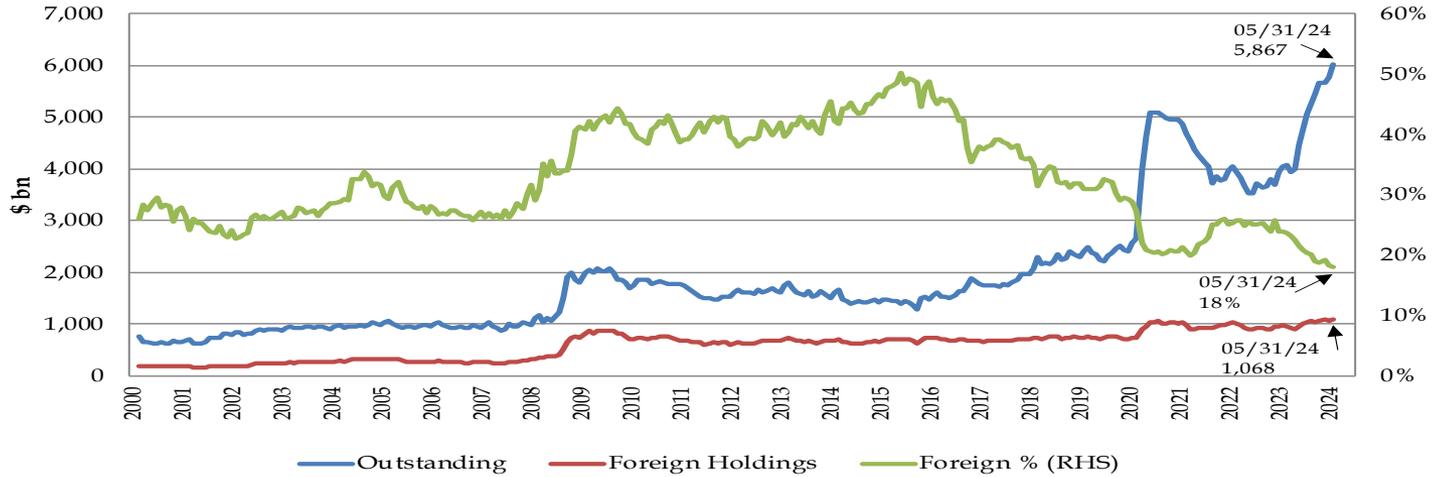
## Total Foreign Awards of Treasuries at Auction, \$ billions



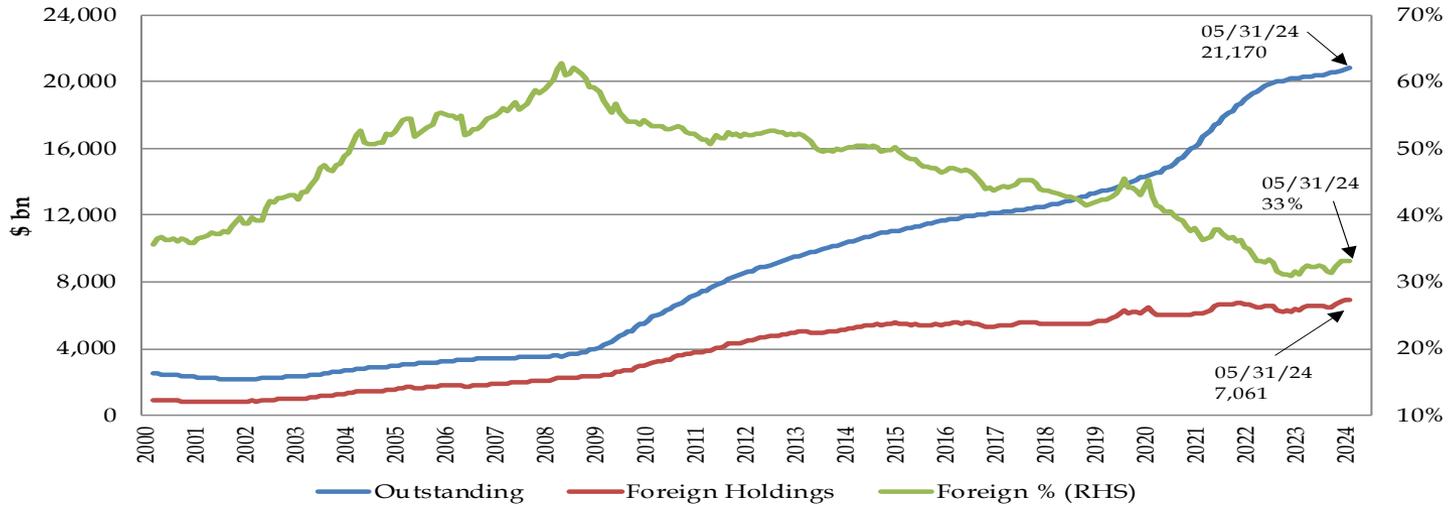
Foreign includes both private sector and official institutions.

# Total Foreign Holdings

## Bills



## Nominal Coupons, TIPS, and FRNs



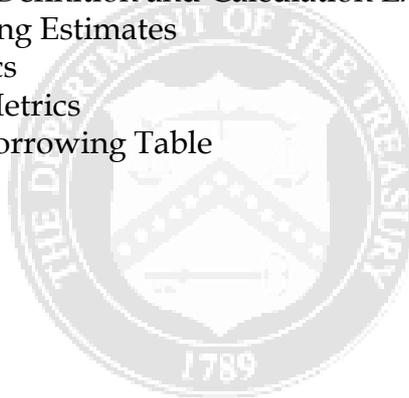
Source: Treasury International Capital (TIC) System as of May 2024.

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

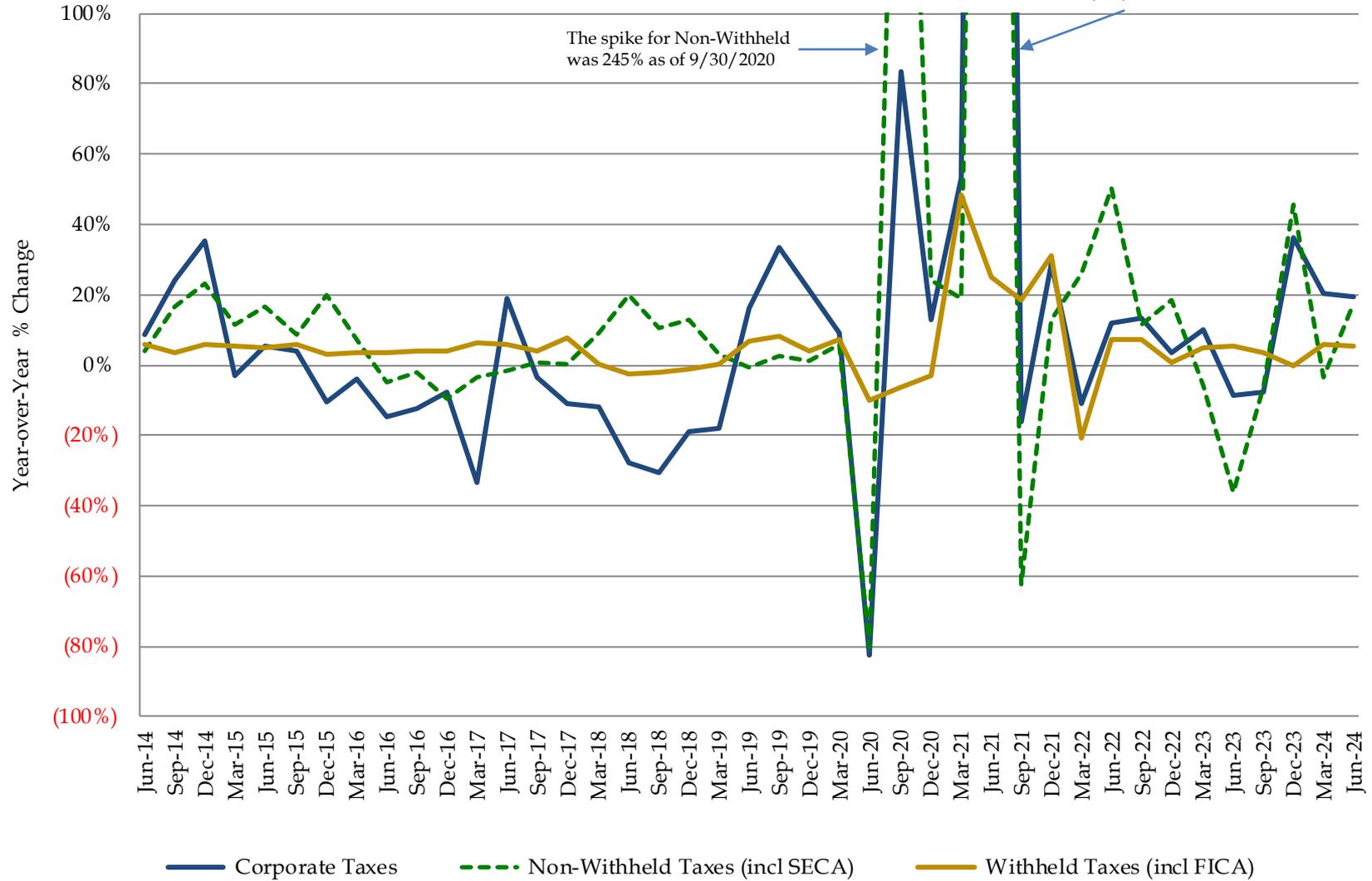
## Contents

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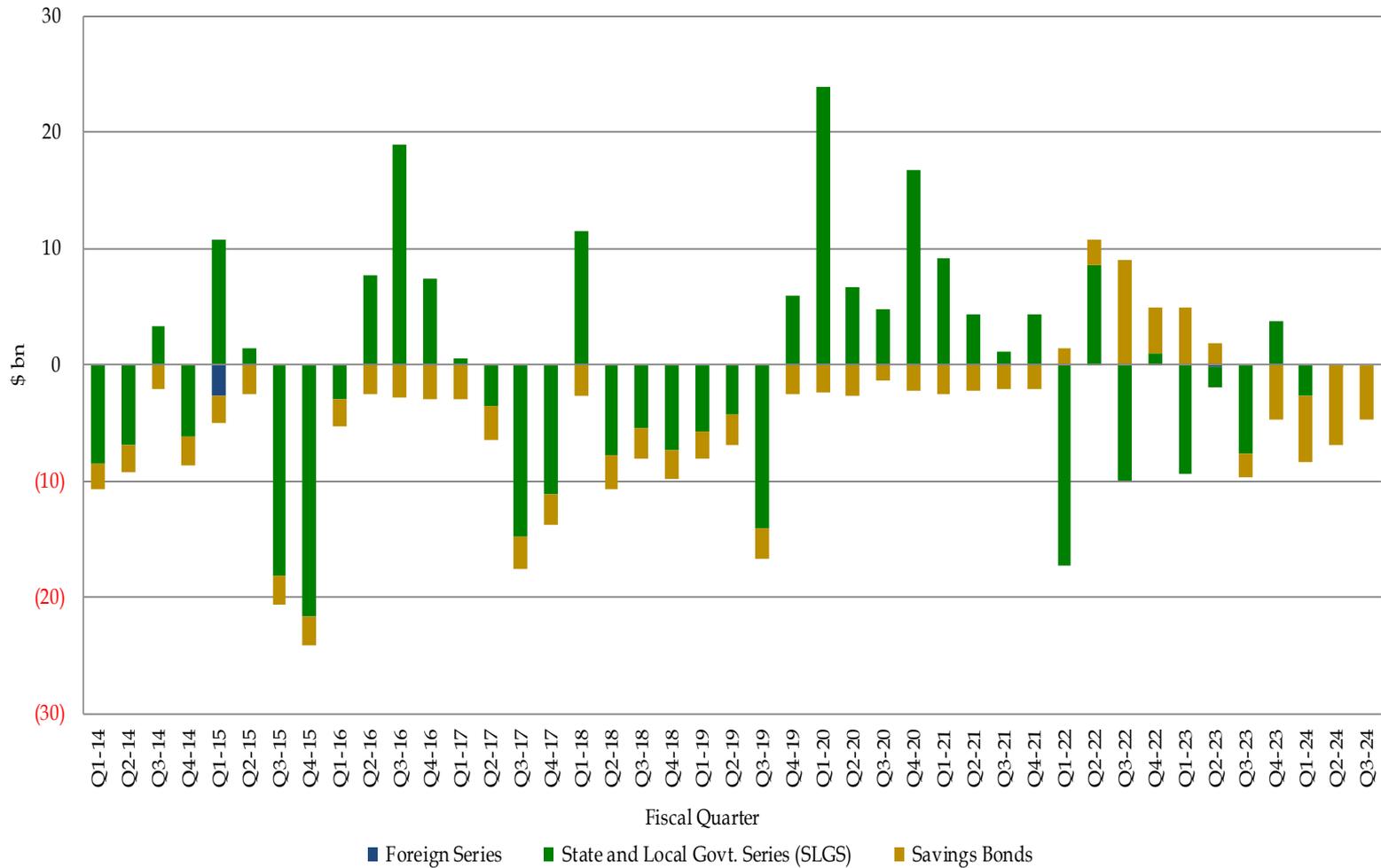
# Quarterly Tax Receipts

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

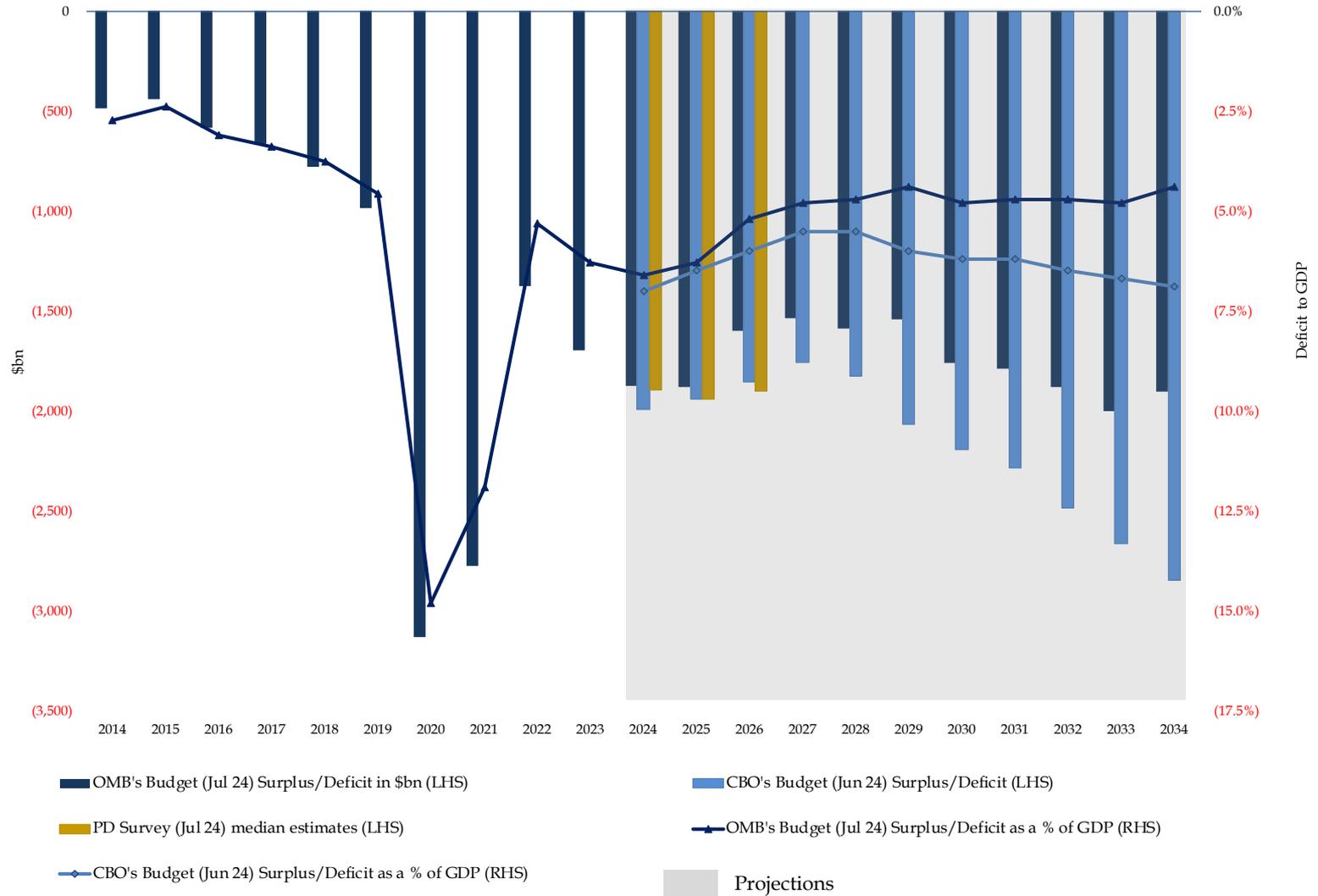


Quarterly tax receipts for Q4 FY2020 reflect the adjustment of April and June 2020 tax deadlines to July 15<sup>th</sup>, 2020.

# Treasury Net Nonmarketable Borrowing



## Budget Surplus/Deficit\*



\* OMB projections are using estimates are from Table S-3 of "Mid-Session Review Budget of The U.S. Government, Fiscal Year 2025," July 2024. CBO projections are using estimates are from "An Update to the Budget and Economic Outlook: 2024 to 2034," June 2024.

## Sources of Privately-Held Financing in FY24 Q3

April - June 2024	
Net Bill Issuance	(297)
Net Coupon Issuance	540
Subtotal: Net Marketable Borrowing	243
Buyback	9
Ending Cash Balance	778
Beginning Cash Balance	775
Subtotal: Change in Cash Balance	3
Net Implied Funding for FY24 Q3*	232

Security	April - June 2024 Bill Issuance			Fiscal Year-to-Date Bill Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
4-Week	945	1,035	(90)	3,259	3,299	(40)
8-Week	975	1,095	(120)	3,170	3,120	50
13-Week	910	1,004	(94)	2,883	2,848	35
17-Week	780	750	30	2,268	2,054	214
26-Week	910	878	32	2,692	2,343	349
52-Week	138	108	30	452	346	106
CMBs						
6-Week	855	940	(85)	2,780	2,760	20
CMBs	0	0	0	0	185	(185)
Bill Subtotal	5,512	5,810	(297)	17,504	16,955	549

Security	April - June 2024 Coupon Issuance			Fiscal Year-to-Date Coupon Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
2-Year FRN	114	68	46	248	214	34
2-Year	204	145	59	537	481	56
3-Year	174	140	34	480	431	49
5-Year	207	35	172	546	187	359
7-Year	131	107	24	368	252	116
10-Year	120	59	61	350	160	190
20-Year	42	0	42	126	0	126
30-Year	69	0	69	202	0	202
5-Year TIPS	44	27	17	86	27	59
10-Year TIPS	16	0	16	65	47	18
30-Year TIPS	0	0	0	9	0	9
Coupon Subtotal	1,121	581	540	3,017	1,799	1,218

Buyback	9	9
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Total	6,633	6,399	234	20,521	18,763	1,758
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\*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.

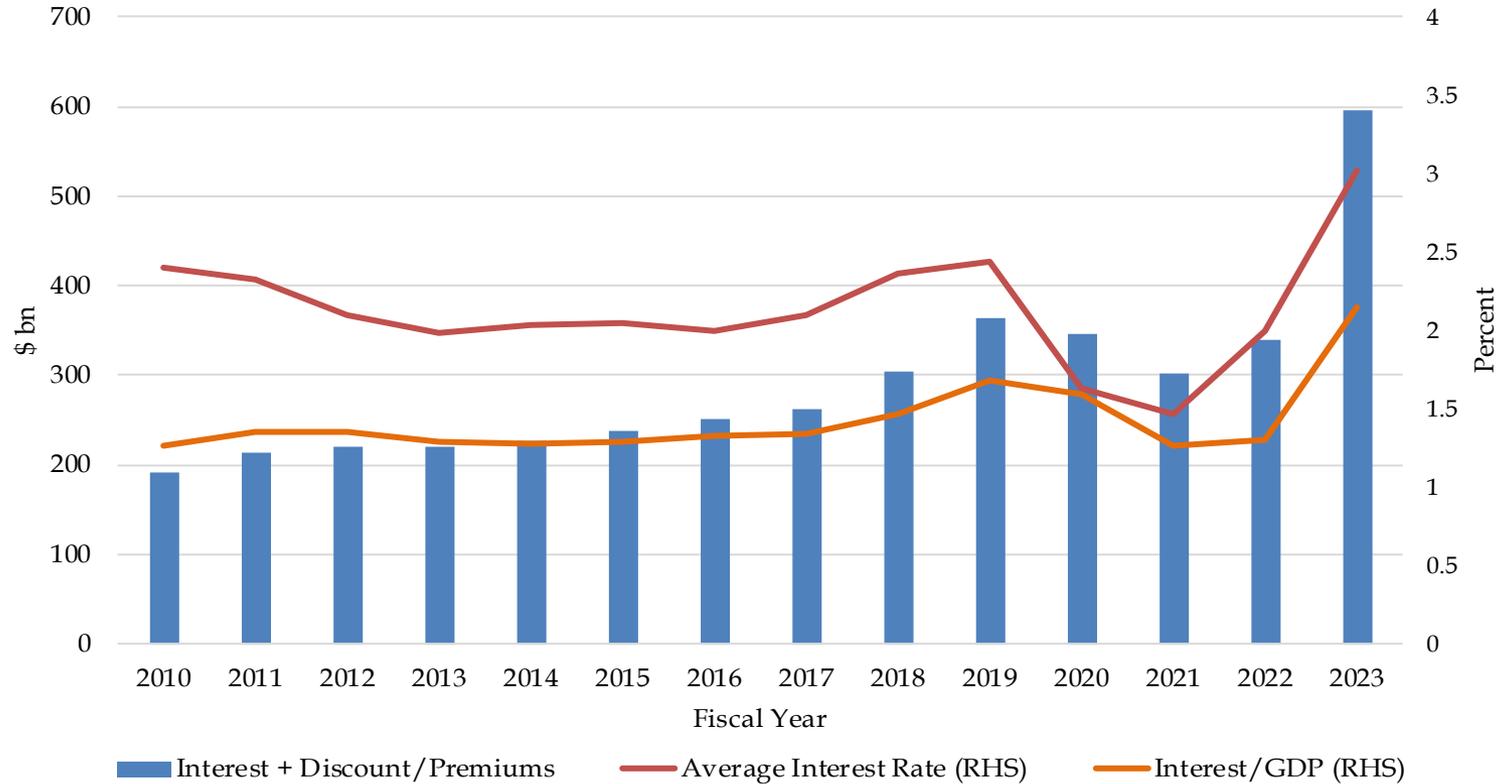
## FY 2024-2026 Deficits and Privately-Held Net Marketable Borrowing Estimates, in \$ billions

	Primary Dealer			OFFP	OMB	CBO
	25th	Median	75th			
FY 2024 Deficit	1,845	1,895	1,915		1,874	1,990
FY 2025 Deficit	1,871	1,942	1,960		1,878	1,938
FY 2026 Deficit	1,800	1,900	2,017		1,601	1,851
FY 2024 Change in Cash Balance	151	193	193	193	193	193
FY 2025 Change in Cash Balance	-58	-50	0		0	0
FY 2026 Change in Cash Balance	0	0	0		0	0
FY 2024 Total Net Marketable Borrowing					1,965	1,942
FY 2025 Total Net Marketable Borrowing					1,901	2,010
FY 2026 Total Net Marketable Borrowing					1,695	1,930
FY 2024 SOMA Redemption	580	580	602	603		
FY 2025 SOMA Redemption	75	150	229			
FY 2026 SOMA Redemption	0	0	0			
FY 2024 Privately-Held Net Marketable Borrowing*	2,500	2,600	2,655	2,498	2,545	2,522
FY 2025 Privately-Held Net Marketable Borrowing*	1,999	2,098	2,213		2,051	2,160
FY 2026 Privately-Held Net Marketable Borrowing*	1,811	1,943	2,121		1,695	1,930

Estimates as of:	Jul-24	Jul-24	Jul-24	Jun-24
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- All privately-held net marketable borrowing estimates (excluding OFFP) of are “normalized” using:
  - 1) the median Primary Dealer’s estimates for SOMA redemptions, and
  - 2) OFFP’s fiscal year 2024 cash balance of \$850 billion, held constant in out years.
- OMB projections are using estimates are from Table S-3 of “Mid-Session Review Budget of The U.S. Government, Fiscal Year 2025,” July 2024.
- CBO projections are using estimates are from “An Update to the Budget and Economic Outlook: 2024 to 2034,” June 2024.

## Historical Marketable Treasury Debt Service Cost

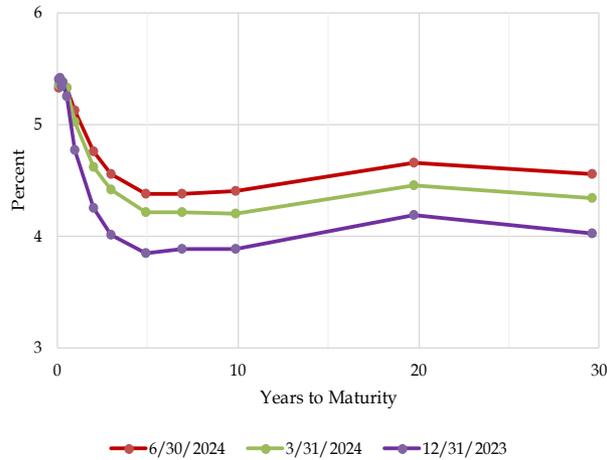


Source: <https://fiscaldata.treasury.gov/datasets>

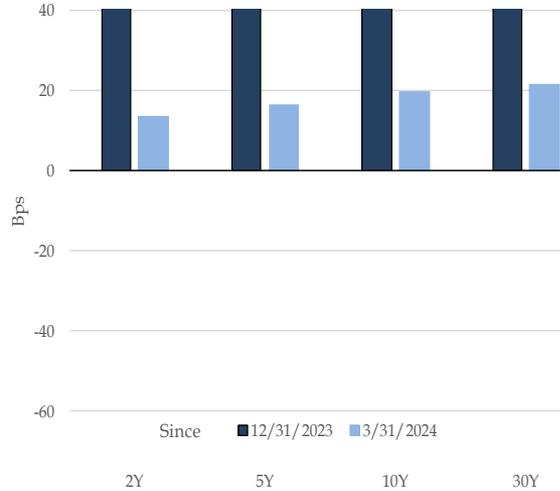
The average interest rates for total marketable debt do not include the Treasury Inflation-Indexed Securities and the Treasury Floating Rate Notes. However, they include securities from Federal Financing Bank. The average interest rates in the chart are as of corresponding fiscal year-end-dates.

# Various Historical Treasury Interest Rate Metrics

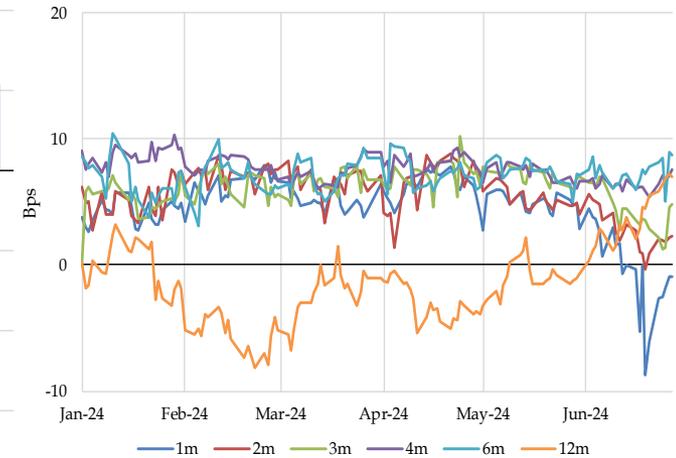
**Treasury Nominal Yield Curve  
as of specified dates**



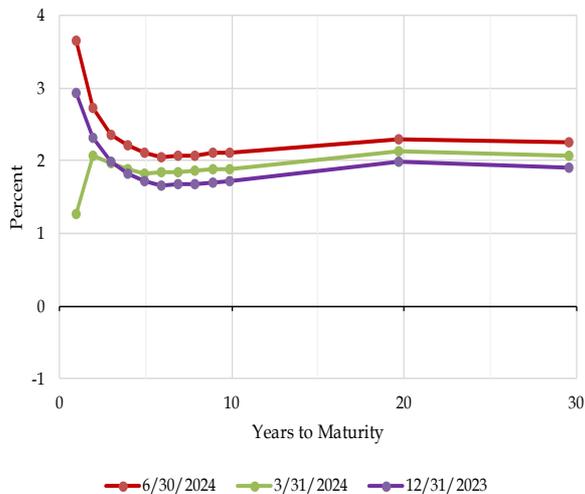
**Nominal Yield Changes in Selected Tenors  
Through the end of 06/30/24**



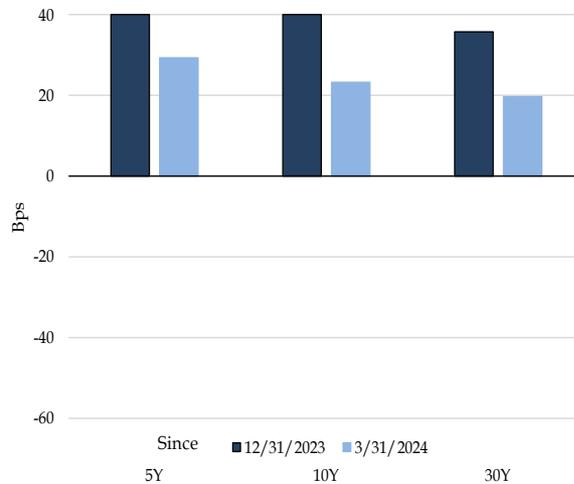
**Bills-SOFR OIS spreads  
Through the end of 06/30/24**



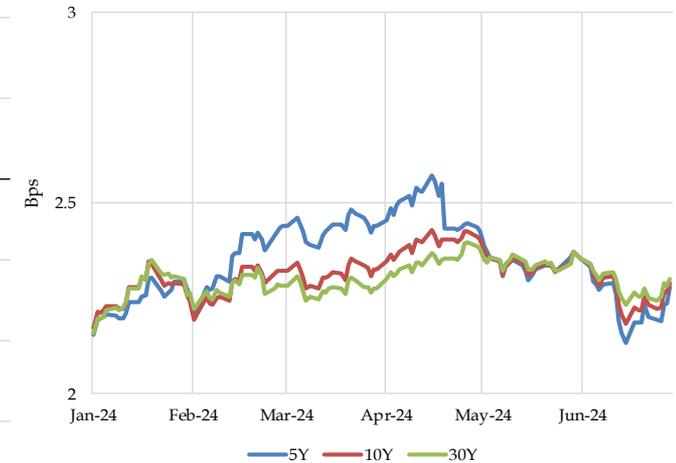
**Treasury Real Yield Curve  
as of specified dates**



**Real Yield Changes in Selected Tenors  
Through the end of 06/30/24**



**Breakevens  
Through the end of 06/30/24**



**Projected Privately-Held Net Marketable Borrowing  
Assuming Private Coupon Issuance & Total Bills Outstanding  
Remain Constant as of 07/31/2024\***

Fiscal Year	Bills	2/3/5	7/10/20/30	TIPS	FRN	Historical/Projected Net Borrowing Capacity
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	1,689	319	680	50	(38)	2,699
2024	700	736	902	87	52	2,477
2025	0	810	955	29	68	1,863
2026	0	438	953	48	10	1,448
2027	0	326	836	30	0	1,192
2028	0	294	513	7	0	815
2029	0	84	639	7	0	730
2030	0	0	767	20	0	787
2031	0	0	505	8	0	513
2032	0	0	507	(16)	0	491
2033	0	0	519	(9)	0	510
2034	0	0	437	(20)	0	417

\*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	4/9/2024	5.265	3.13	64.3	31.9	8.7	59.4	5.7	0.3	0.7
4-Week	4/16/2024	5.270	2.95	64.2	27.4	6.1	66.5	5.8	0.3	0.7
4-Week	4/23/2024	5.280	2.90	64.0	28.8	6.0	65.2	6.0	0.3	0.7
4-Week	4/30/2024	5.275	3.14	64.2	23.4	6.0	70.6	5.8	0.2	0.7
4-Week	5/7/2024	5.275	2.91	64.2	34.4	5.6	60.0	5.8	0.2	0.7
4-Week	5/14/2024	5.270	2.93	73.9	27.9	4.9	67.1	6.1	0.2	0.8
4-Week	5/21/2024	5.270	2.73	74.1	35.5	4.2	60.3	5.9	0.2	0.7
4-Week	5/28/2024	5.270	2.77	74.2	30.2	3.5	66.3	5.8	0.3	0.8
4-Week	6/4/2024	5.270	2.83	64.2	34.8	6.2	58.9	5.8	0.3	0.7
4-Week	6/11/2024	5.270	2.81	63.8	36.9	3.9	59.1	6.2	0.3	0.7
4-Week	6/18/2024	5.260	2.95	63.9	29.8	2.8	67.4	6.1	0.3	0.7
4-Week	6/25/2024	5.230	2.93	64.3	27.0	3.9	69.1	5.7	0.3	0.7
4-Week	7/2/2024	5.270	2.55	74.0	34.6	5.7	59.7	6.0	0.2	0.8
8-Week	4/9/2024	5.260	2.87	73.2	43.8	5.4	50.8	1.8	0.3	1.4
8-Week	4/16/2024	5.270	3.14	73.3	32.7	6.1	61.2	1.7	0.3	1.4
8-Week	4/23/2024	5.275	2.90	73.3	35.5	5.6	58.9	1.7	0.3	1.4
8-Week	4/30/2024	5.275	3.02	73.2	28.6	4.9	66.5	1.8	0.2	1.4
8-Week	5/7/2024	5.270	2.99	73.1	32.4	5.1	62.4	1.9	0.2	1.4
8-Week	5/14/2024	5.275	2.98	78.4	32.5	7.7	59.7	1.6	0.2	1.5
8-Week	5/21/2024	5.270	2.74	78.0	37.0	8.3	54.6	2.0	0.2	1.5
8-Week	5/28/2024	5.275	2.63	78.3	43.3	6.6	50.2	1.7	0.3	1.5
8-Week	6/4/2024	5.275	2.94	68.2	30.5	4.1	65.3	1.8	0.3	1.3
8-Week	6/11/2024	5.265	3.23	68.0	36.7	2.9	60.3	2.0	0.3	1.3
8-Week	6/18/2024	5.265	2.98	68.3	34.7	2.6	62.8	1.7	0.3	1.3
8-Week	6/25/2024	5.260	2.65	68.5	37.9	4.0	58.1	1.5	0.3	1.3
8-Week	7/2/2024	5.260	2.84	73.2	28.2	5.0	66.8	1.8	0.2	1.4

\*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	4/4/2024	5.230	2.83	67.9	36.0	4.9	59.1	2.1	4.7	2.3
13-Week	4/11/2024	5.225	2.79	67.6	45.7	5.2	49.1	2.4	4.1	2.2
13-Week	4/18/2024	5.250	2.95	67.3	36.6	7.3	56.2	2.7	4.7	2.3
13-Week	4/25/2024	5.255	2.78	67.4	36.7	6.6	56.6	2.6	4.3	2.3
13-Week	5/2/2024	5.250	2.67	67.4	44.1	8.0	47.9	2.6	7.8	2.4
13-Week	5/9/2024	5.250	2.72	67.4	39.0	7.7	53.3	2.6	6.0	2.3
13-Week	5/16/2024	5.250	2.77	67.5	35.6	6.1	58.3	2.5	7.0	2.4
13-Week	5/23/2024	5.245	2.89	67.5	36.4	6.1	57.5	2.5	5.6	2.3
13-Week	5/30/2024	5.255	2.87	67.9	39.9	7.7	52.3	2.2	5.3	2.3
13-Week	6/6/2024	5.250	2.74	67.6	39.9	7.3	52.9	2.4	0.8	2.2
13-Week	6/13/2024	5.250	2.75	67.5	48.3	7.7	44.0	2.5	1.5	2.2
13-Week	6/20/2024	5.250	2.93	67.3	41.9	4.6	53.5	2.7	0.3	2.1
13-Week	6/27/2024	5.235	2.85	67.4	32.9	9.8	57.3	2.6	1.4	2.2
17-Week	4/9/2024	5.200	2.91	59.4	46.0	5.9	48.1	0.6	0.2	2.4
17-Week	4/16/2024	5.230	3.12	59.4	42.1	7.4	50.5	0.6	0.2	2.4
17-Week	4/23/2024	5.240	2.81	59.0	52.3	9.0	38.7	1.0	0.2	2.4
17-Week	4/30/2024	5.240	2.80	59.3	40.8	6.5	52.7	0.7	0.2	2.4
17-Week	5/7/2024	5.245	3.02	59.3	40.4	5.1	54.5	0.7	0.2	2.4
17-Week	5/14/2024	5.240	3.04	59.2	45.9	5.4	48.7	0.8	0.2	2.4
17-Week	5/21/2024	5.235	2.98	59.2	47.0	6.7	46.3	0.8	0.2	2.4
17-Week	5/28/2024	5.235	2.89	59.2	50.6	8.7	40.7	0.8	0.2	2.4
17-Week	6/4/2024	5.240	2.80	59.3	47.3	5.3	47.4	0.7	0.2	2.4
17-Week	6/11/2024	5.225	2.79	59.2	43.5	5.0	51.4	0.8	0.2	2.4
17-Week	6/18/2024	5.220	2.94	59.3	43.2	5.5	51.3	0.7	0.3	2.4
17-Week	6/25/2024	5.220	2.81	59.1	43.5	2.8	53.7	0.9	0.2	2.4
17-Week	7/2/2024	5.220	2.75	59.3	44.8	4.1	51.0	0.7	0.2	2.4

\*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	4/4/2024	5.125	2.85	67.9	27.2	5.5	67.2	2.1	4.7	4.5
26-Week	4/11/2024	5.120	3.00	67.7	27.2	7.4	65.4	2.3	4.1	4.5
26-Week	4/18/2024	5.155	2.79	67.7	28.8	10.2	61.0	2.3	4.7	4.6
26-Week	4/25/2024	5.160	2.80	67.6	26.8	9.6	63.6	2.4	4.3	4.5
26-Week	5/2/2024	5.165	2.98	67.9	28.0	9.4	62.6	2.1	7.8	4.8
26-Week	5/9/2024	5.155	2.91	67.6	23.7	8.6	67.7	2.4	6.0	4.6
26-Week	5/16/2024	5.165	3.02	67.7	31.5	7.3	61.2	2.3	7.0	4.7
26-Week	5/23/2024	5.160	2.92	67.9	32.1	5.0	62.9	2.1	5.6	4.6
26-Week	5/30/2024	5.170	3.06	68.0	29.5	8.5	62.0	2.0	5.3	4.6
26-Week	6/6/2024	5.155	2.95	67.9	31.8	9.1	59.2	2.1	0.8	4.3
26-Week	6/13/2024	5.165	3.09	67.9	32.5	9.1	58.4	2.1	1.5	4.4
26-Week	6/20/2024	5.150	2.82	67.6	32.2	6.3	61.5	2.4	0.3	4.3
26-Week	6/27/2024	5.140	3.16	67.9	29.5	4.3	66.2	2.1	1.4	4.4
52-Week	4/18/2024	4.915	2.88	44.3	31.8	2.4	65.8	1.7	3.1	6.0
52-Week	5/16/2024	4.895	3.00	44.5	28.8	3.1	68.1	1.5	4.6	6.2
52-Week	6/13/2024	4.915	2.87	44.5	48.6	3.1	48.3	1.5	1.0	5.7
6-Week CMB	4/4/2024	5.280	3.12	64.7	49.6	5.2	45.2	0.3	0.0	0.9
6-Week CMB	4/11/2024	5.275	2.93	64.7	44.2	5.3	50.6	0.3	0.0	0.9
6-Week CMB	4/18/2024	5.285	2.79	64.7	38.1	6.2	55.6	0.3	0.0	0.9
6-Week CMB	4/25/2024	5.285	2.83	64.7	42.2	5.7	52.1	0.3	0.0	0.9
6-Week CMB	5/2/2024	5.285	3.06	64.7	37.0	6.4	56.6	0.3	0.0	0.9
6-Week CMB	5/9/2024	5.280	2.91	74.7	37.8	5.7	56.5	0.3	0.0	1.1
6-Week CMB	5/16/2024	5.280	2.81	74.7	44.6	7.4	47.9	0.3	0.0	1.1
6-Week CMB	5/23/2024	5.270	3.04	74.6	33.5	5.3	61.2	0.4	0.0	1.1
6-Week CMB	5/30/2024	5.275	3.07	64.8	33.0	6.3	60.7	0.2	0.0	0.9
6-Week CMB	6/6/2024	5.275	3.08	59.7	36.9	5.3	57.8	0.3	0.0	0.8
6-Week CMB	6/13/2024	5.270	3.12	59.7	42.9	7.3	49.7	0.3	0.0	0.8
6-Week CMB	6/20/2024	5.270	3.18	59.8	34.9	5.3	59.8	0.2	0.0	0.8
6-Week CMB	6/27/2024	5.250	2.87	59.8	32.2	6.9	60.9	0.2	0.0	0.8

\*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	4/30/2024	4.898	2.66	68.0	15.1	18.7	66.2	1.0	0.3	16.4
2-Year	5/31/2024	4.917	2.41	68.3	16.6	25.5	57.9	0.7	4.1	17.3
2-Year	7/1/2024	4.706	2.75	68.1	13.5	20.9	65.6	0.9	2.4	16.9
3-Year	4/15/2024	4.548	2.50	57.7	19.3	20.4	60.3	0.3	1.0	20.4
3-Year	5/15/2024	4.605	2.63	57.7	14.9	19.6	65.5	0.3	7.3	22.7
3-Year	6/17/2024	4.659	2.43	57.6	20.0	15.9	64.1	0.4	1.9	20.8
5-Year	4/30/2024	4.659	2.39	69.8	15.0	19.2	65.7	0.2	0.3	39.0
5-Year	5/31/2024	4.553	2.30	69.8	19.5	15.4	65.0	0.2	4.2	41.1
5-Year	7/1/2024	4.331	2.35	69.7	13.4	17.7	68.9	0.3	2.4	40.5
7-Year	4/30/2024	4.716	2.48	43.9	13.9	21.0	65.1	0.1	0.2	32.8
7-Year	5/31/2024	4.650	2.43	43.9	17.0	16.1	66.9	0.1	2.6	34.6
7-Year	7/1/2024	4.276	2.58	43.9	11.9	18.5	69.7	0.1	1.5	34.2
10-Year	4/15/2024	4.560	2.34	38.9	24.0	14.2	61.8	0.1	0.6	39.6
10-Year	5/15/2024	4.483	2.49	41.8	15.7	18.7	65.5	0.2	5.3	47.6
10-Year	6/17/2024	4.438	2.67	38.9	11.6	13.8	74.6	0.1	1.3	40.3
20-Year	4/30/2024	4.818	2.82	12.9	9.1	16.2	74.7	0.1	0.1	20.8
20-Year	5/31/2024	4.635	2.51	15.9	10.1	19.2	70.8	0.1	0.9	27.2
20-Year	7/1/2024	4.452	2.74	13.0	5.8	16.3	77.9	0.0	0.5	21.5
30-Year	4/15/2024	4.671	2.37	22.0	17.3	18.3	64.4	0.0	0.4	45.4
30-Year	5/15/2024	4.635	2.41	25.0	15.4	19.8	64.9	0.0	3.1	57.3
30-Year	6/17/2024	4.403	2.49	22.0	13.7	17.8	68.5	0.0	0.7	46.5
2-Year FRN	4/30/2024	0.150	3.33	29.9	36.3	1.0	62.7	0.1	0.1	0.1
2-Year FRN	5/31/2024	0.139	3.40	28.0	35.6	0.9	63.5	0.0	1.7	0.1
2-Year FRN	6/28/2024	0.155	2.92	28.0	34.0	0.5	65.5	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	4/30/2024	2.242	2.58	22.8	3.9	17.8	78.3	0.2	0.1	13.4
5-Year TIPS	6/28/2024	2.050	2.52	20.9	2.3	18.5	79.1	0.1	0.0	11.8
10-Year TIPS	5/31/2024	2.184	2.33	16.0	14.0	16.1	69.8	0.0	0.9	18.4

\*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.

# Office of Debt Management



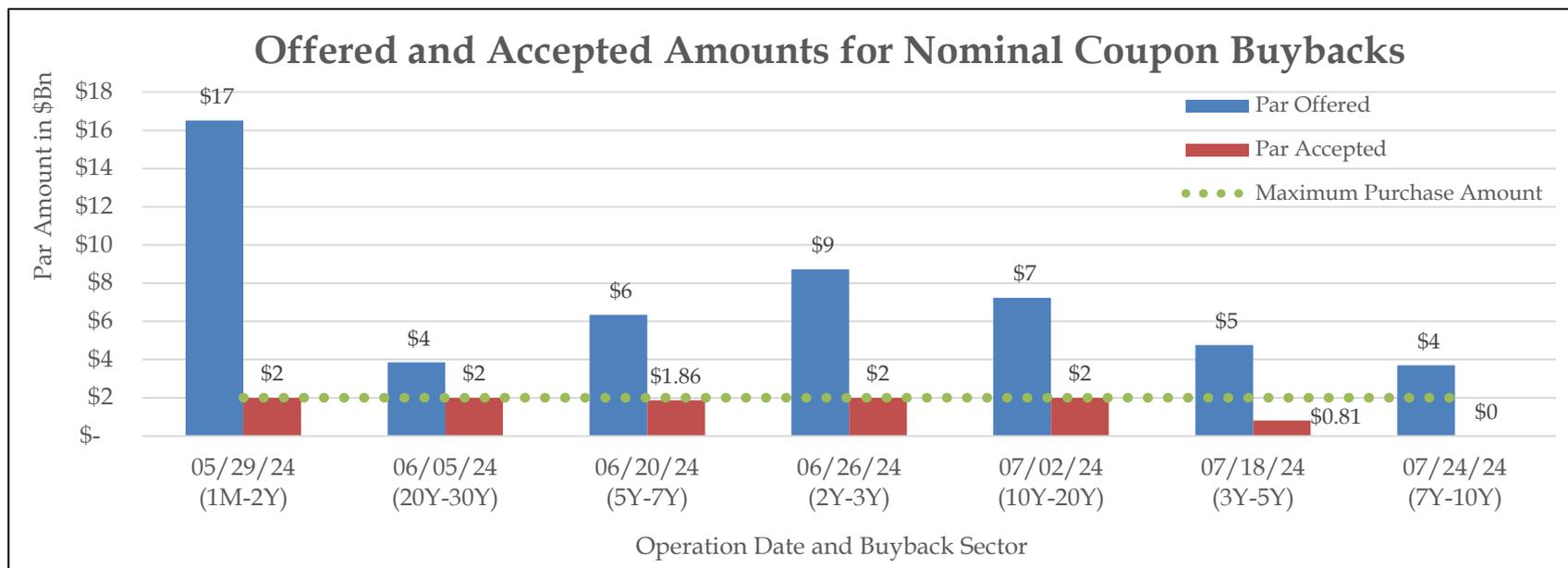
Liquidity Support Buyback Results: 5/29/24 to 7/24/24

# Liquidity Support Buyback Overview and Dealer Feedback

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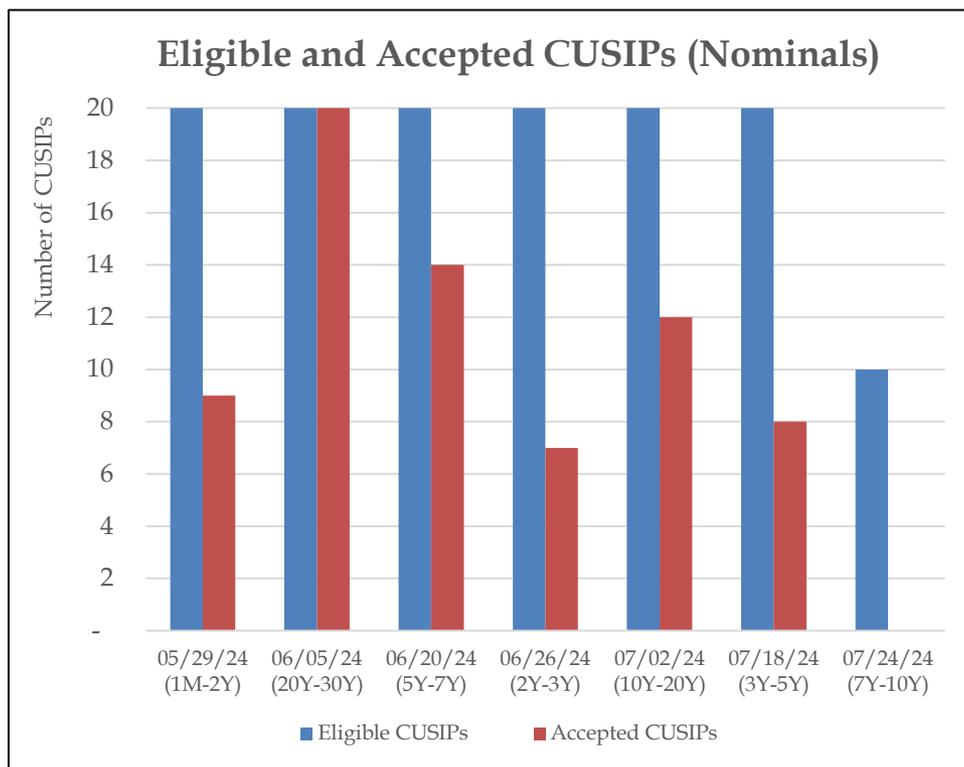
- In May of 2024, Treasury [announced](#) the launch of its buyback program and its plan to conduct weekly liquidity support buybacks of up to \$2 billion per operation in nominal coupon securities and up to \$500 million per operation in TIPS.
- Between May and July 2024, Treasury purchased \$11.23 billion par amount through nine buyback operations. The results of each buyback were posted to [TreasuryDirect.gov](https://www.treasurydirect.gov).
- In each operation, Treasury offered to purchase no more than 20 CUSIPs due to temporary settlement process limitations.
- Treasury bought back the maximum par amount in five of the nine buyback operations.
- As part of the August 2024 Quarterly Refunding, Treasury [surveyed](#) primary dealers on the liquidity support buybacks that have taken place so far. Dealers observed that:
  - While buybacks were moderately supportive of liquidity and market-making in specific sectors, it was difficult to ascertain the size of the impact because of recent robust liquidity conditions and the relatively small size of buybacks to date.
  - They commonly viewed buybacks as a tool to exit less-liquid positions, enabling them to redeploy balance sheet for new client activity.
  - The effect of liquidity support buybacks would likely be enhanced once Treasury removes CUSIP limits and increases the size of liquidity support buybacks to its previously announced \$30 billion per quarter cadence.
  - Buybacks have been well-received by the market and are working as intended.

# Nominal Coupon Liquidity Support Buyback Results



- Treasury conducted one liquidity support buyback operation in each of seven nominal coupon sectors between 5/29 and 7/24.
- Treasury bought back the maximum \$2 BN purchase amount four times: in the 1M to 2Y sector, the 20Y to 30Y sector, the 2Y to 3Y sector, and the 10Y to 20Y sector.
- Treasury’s price sensitive approach evaluates offers based on their proximity to prevailing market prices at the close of the operation and measures of relative value. As such, Treasury may buy back less than the maximum par amount. More details are available in Treasury’s buyback [FAQs](#).
- Consistent with its price sensitive approach for evaluating offers, Treasury purchased less than the maximum \$2 BN par amount three times:
  - Purchased \$1.86 BN of the \$2 BN maximum in the 5Y to 7Y sector.
  - Purchased \$809 MM of the \$2 BN maximum in the 3Y to 5Y sector.
  - Accepted zero offers on 7/24 in the 7Y to 10Y sector.

# Security Level Nominal Coupon Buyback Results

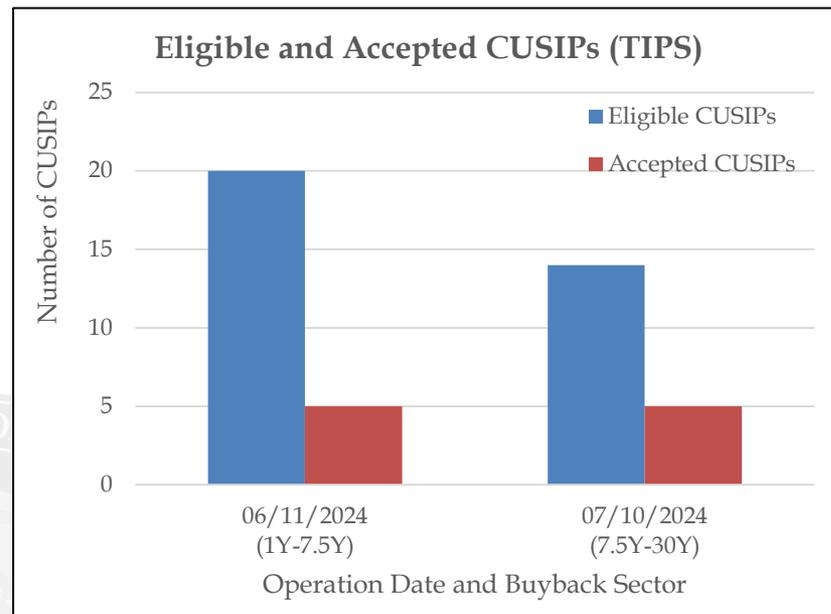
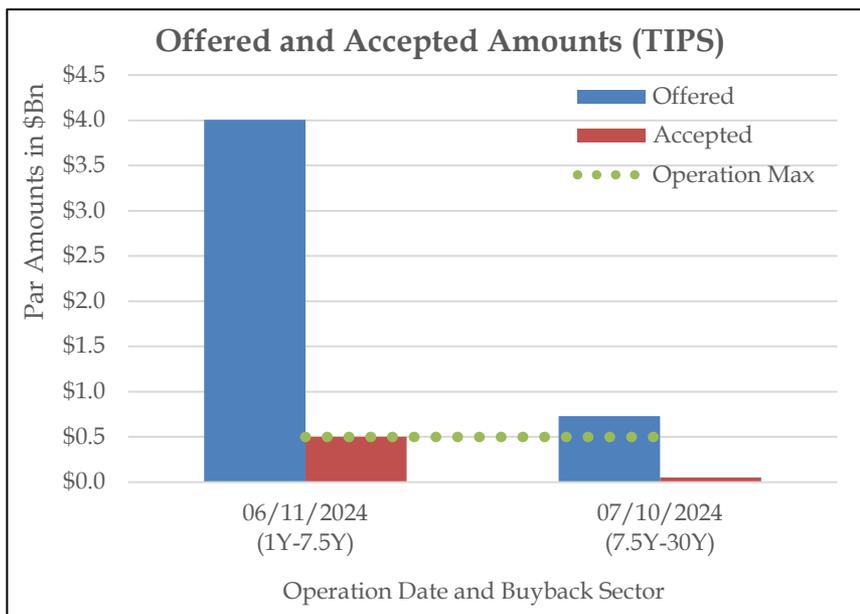


## Top Security Purchased in Each Operation

Buyback Date	Ticker	Par Accepted	Percent of Total Accepted
5/29/24 (1M-2Y)	T 0 ¼ 07/31/25	\$1.97 BN	98.3%
6/5/24 (20Y-30Y)	T 3 ⅝ 02/15/53	\$363 MM	18.2%
6/20/24 (5Y-7Y)	T 1 ⅝ 05/15/31	\$476 MM	25.5%
6/26/24 (2Y-3Y)	T 1 ⅞ 07/31/26	\$672 MM	33.6%
	T 2 ⅜ 05/15/27	(tie)	(tie)
7/2/24 (10Y-20Y)	T 3 ¼ 05/15/42	\$511 MM	25.6%
7/18/24 (3Y-5Y)	T 2 ¾ 02/15/28	\$327 MM	40.4%
7/24/24 (7Y-10Y)	N/A	N/A	N/A

- At most 20 CUSIPs were eligible for each buyback operation due to temporary settlement process limitations. Apart from from the 7Y to 10Y sector, which has only 10 eligible securities in total, all nominal coupon buybacks had 20 eligible CUSIPs.
- Treasury's purchases in the 1M to 2Y and 2Y to 3Y sectors were concentrated among a small number of CUSIPs.
- Treasury's purchases in the 20Y to 30Y operation on 6/5 were much less concentrated; Treasury purchased some amount of all 20 eligible CUSIPs.

# TIPS Liquidity Support Buyback Results



- Treasury completed two liquidity support TIPS buybacks for up to \$500 MM each on 6/11 and 7/10.
- Treasury bought back the maximum amount in the 1Y to 7.5Y operation on 6/11.
- Treasury bought back \$53 MM of the \$500 MM maximum in the 7.5Y to 30Y operation on 7/10.
- 20 CUSIPs were eligible for the 6/11 operation in 1Y to 7.5Y TIPS, while only 14 CUSIPs were eligible for the 7/10 operation in 7.5Y to 30Y TIPS due to security exclusions related to coupon payment dates that are discussed in the buyback [FAQs](#).
- Treasury's top purchase in the 6/11 operation was \$255 MM of TII 0 5/8 01/15/26.
- Treasury's top purchase in the 7/10 operation was \$20 MM of TII 1 02/15/49.

# Primary Dealer Feedback on Initial Liquidity Support Buybacks

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- While dealers observed marginal increases in trading volume and market intermediation around buyback operations, most dealers suggested that the cumulative impact of buybacks on overall Treasury market liquidity has been limited so far. Dealers noted:
  - Liquidity conditions in the Treasury market are currently robust.
  - Treasury's purchases, especially given initial size and CUSIP count restrictions, were not sufficiently large relative to daily off-the-run trading volume to materially affect broad liquidity conditions.
  - The most salient liquidity improvement occurred in the 10Y to 20Y sector with Treasury's purchase of several off-the-run 20-year bonds on July 2<sup>nd</sup>.
- Dealers found success using buyback operations as a tool to liquidate positions in off-the-run Treasuries held "on balance sheet."
- Some dealers expressed moderately increased confidence making markets in Treasury off-the-runs prior to a buyback operation and characterized buybacks as an "outlet" that reduces the risk of holding an illiquid position.
- Several dealers submitted offers on behalf of clients during buyback operations and others indicated client interest in buyback participation.
- Primary dealers are generally satisfied with the buyback program's structure and did not express concerns with the buyback schedule, the timing of operations, or the composition of Treasury's [buyback buckets](#).
- Dealers concluded that buybacks are moderately supportive of off-the-run Treasury market liquidity and functioning.

# Considerations for T-bill Issuance

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Treasury Borrowing Advisory Committee

July 2024

*“In November 2020, following the surge in Treasury bill issuance to finance the pandemic response, “the Committee recommended allowing the share of T-bills to decline gradually to a range of 15% to 20% of outstanding debt.”*

*In November 2021, when T-bills represented 17% of outstanding debt, the Committee recommended gradual reductions in coupon auction sizes to avoid the T-bill share falling considerably below 15% but highlighted the flexibility to fall below 15% or rise modestly above 20% to help maintain regular and predictable coupon issuance.*

*Please discuss factors relevant to bill supply in markets, regulations, and Treasury issuance.*

*In light of these factors, what considerations should inform Treasury bill issuance going forward?*

*Could additional metrics enhance the Committee’s recommendations for Treasury bill issuance? Please elaborate.”*

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## Considerations for T-bill Issuance

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2. Background & Context From Prior Charges
3. Factors and Considerations for Treasury Bill Issuance
  - i. Financing Cost Over Time
  - ii. Regular & Predictable Issuance
  - iii. Market Structure & Investor Demand
  - iv. Debt Maturity Distribution
4. Conclusions, Observations & Future Considerations
5. Appendix

# Executive Summary

# Executive Summary (1/2)

Treasury bills are a useful tool to achieve Treasury's goal of funding the government at the lowest cost to the taxpayer over time

Four key factors with which to consider Treasury bills (T-bills) issuance include:

## 1) Financing Costs Over Time

- While TBAC's Optimal Debt Model (the 'Model') suggests that larger T-bill issuances may reduce average funding costs over the long term, benefits are dependent on the size of the unobservable and volatile term premia in interest rates
- The Model suggests that overall deficit volatility is reasonably contained for lower T-bill shares and begins increasing with larger T-bill shares. Although, as with any simulation model limitations could exist, thus an appropriate overlay from Treasury over the course of a cycle is appropriate

## 2) Regular & Predictable Issuance:

- T-bills are critical shock absorbers allowing Treasury to adjust issuance for short-term funding surprises, thereby avoiding rapid and costly fluctuations in Coupon auction sizes
- Shock absorbers have and will continue to be critical due to elevated volatility in funding needs due to factors such as high debt stock, interest rates, legislative changes, and the debt ceiling

## 3) Market Structure & Investor Demand:

- In the recent past, T-bill markets appear to be functioning well. Increases in T-bill issuance have been met with robust demand from investors including money funds, households, and businesses. This demand is likely due to a combination of structural factors such as evolving money market fund regulations, and cyclical factors such as elevated levels of current interest rates
- A meaningful stock of T-bills outstanding supports a broad and diverse investor base and market functioning; changes in the structure and investor base should be closely monitored over time

## 4) Debt Maturity Distribution:

- Increased reliance on T-bills creates a shorter debt maturity profile and increases share of debt that rolls over each year
- Increases could result in the need for a larger Treasury General Account (TGA) to maintain the cash buffer that is currently maintained to guard against a potential loss in market access

# Executive Summary (2/2)

T-bills are a useful tool to achieve Treasury's goal of funding the government at the lowest cost to the taxpayer over time

**Given these factors and considerations, TBAC has the following observations:**

- T-bill issuance should continue to serve as an optimal shock absorber to allow Treasury to issue Coupons in a Regular & Predictable manner, supporting lower funding costs, lower term premia, distribution to a broad and diverse set of investors, and an overall deep & liquid market
  - Factors to consider when evaluating short- and medium-term T-bill shares should include balance being Regular & Predictable, changes in the structural demand for T-bills, funding costs, deficit volatility, and market functioning
  - Currently, we estimate 15% as a lower bound that supports healthy market functioning, but that may evolve over time as a function of the size of Money Markets and other structural demand factors
  - Substantially increasing the share of T-bills outstanding increases the volatility of deficit financing. A T-bill share averaging around 20% over time appears to provide a good trade-off between cost and volatility
  - The appropriate amounts of T-bills should be monitored and updated in the context of structural market and regulatory developments. Helpful metrics include measures of market conditions (e.g., swap spreads) and the structural demand for short-end risk free assets (e.g., the size and nature of the money fund universe)
- However, it is important to retain flexibility for moves away from these levels based on the need to absorb shocks in the financing outlook, to support Regular & Predictable Coupon issuance, to account for changes in market structure and investor demand, and to effectively manage TGA levels

# Background & Context

2015, 2020, 2021 & 2024 Charges

# Background & Summaries

## 2015, 2020, 2021 & 2024 TBAC Charges

**May 2015 Charge:** Treasury Bill supply as a percentage of the total Treasury debt outstanding is currently about 11%, a multi-decade low. At the same time, with \$1.4 trillion in Treasury bills outstanding, the total volume of Treasury Bills outstanding remains near historically high levels. What are the drivers of potential demand for high-quality, short-dated securities? [...]

- Prior Treasury observations from the 2015 Q2 Quarterly Refunding statement; [...] “The supply of Bills outstanding as a percentage of the total Treasury portfolio is at a multidecade low of approximately 11 percent... Treasury believes that it is prudent to increase the level of Treasury Bills outstanding... should not be interpreted as changing Treasury’s debt issuance strategy of extending the weighted average maturity of the debt.”

**November 2020 Charge:** In light of unprecedented borrowing needs, Treasury has more than doubled the supply of T-Bills over the past year amid a surge in demand for high-quality, short-term assets. T-Bills currently represent approximately 25% of total Treasury debt outstanding, exceeding the historical average of 23%, and are at the highest proportion since 2009. [...] As outlined in the last two quarterly refunding announcements, Treasury has been gradually shifting its financing from Bills to longer dated tenors as a prudent means of managing its maturity profile. Please discuss considerations for Treasury as it evaluates the appropriate level of Treasury bills issuance for the medium- and long-term.

- [...] Maintaining the share of T-Bills in outstanding debt at levels modestly above its historical average may be appropriate for a time, as T-Bills can continue to act as an important channel for meeting unexpected funding needs, and adjustments to coupon issuance only gradually raise their net supply
- [...] Over the longer term, T-Bills outstanding can be lowered as a percentage of marketable debt, as Treasury moves to a more optimal debt profile [...] Lower T-Bills share of outstanding would give Treasury ‘space’ in the event of future crises. [...] T-Bills outstanding averaged ~15% of marketable debt in several years leading up to Covid-19; while there is room to comfortably run T-Bills at a higher percentage share of outstanding marketable debt, a return to 15-20% would allow T-Bills to retain their efficacy as a shock absorber.”

**November 2021 Charge:** In November 2020, the Committee recommended that Treasury, over the medium to longer term, strive to maintain T-Bills in a range of 15 to 20 percent of outstanding debt. How should Treasury consider this recommended range within the context of future adjustments to coupon auction sizes and the evolving fiscal outlook, including in the short-term? What other metrics could complement Treasury’s understanding of the appropriate size of the bill market?

- [...] “There is flexibility in the TBAC’s recommended range for T-Bills to either fall below 15% of outstanding stock (in which case excess cash will likely get absorbed by the RRP facility) or for T-Bills to rise modestly above 20% while still maintaining financing flexibility for Treasury”
- [...] “Given there is (1) an increasing amount of demand for T-Bills coming from MMFs coupled with (2) an excess amount of cash sitting in the RRP waiting to earn yields greater than 5bp and (3) lack of other front-end assets, the share of T-Bills in outstanding debt could likely increase above 20% without dislocating the T-Bill market.”

**April 2024 Charge:** Treasury has regularly been issuing the 6-week cash management bill since June 2023 and last refunding stated it would announce a decision on whether to change the 6-week to benchmark status at an upcoming refunding. Based on your recommendations for the appropriate level of Bills outstanding in the medium to long term, should Treasury change the 6-week to benchmark status? [...]

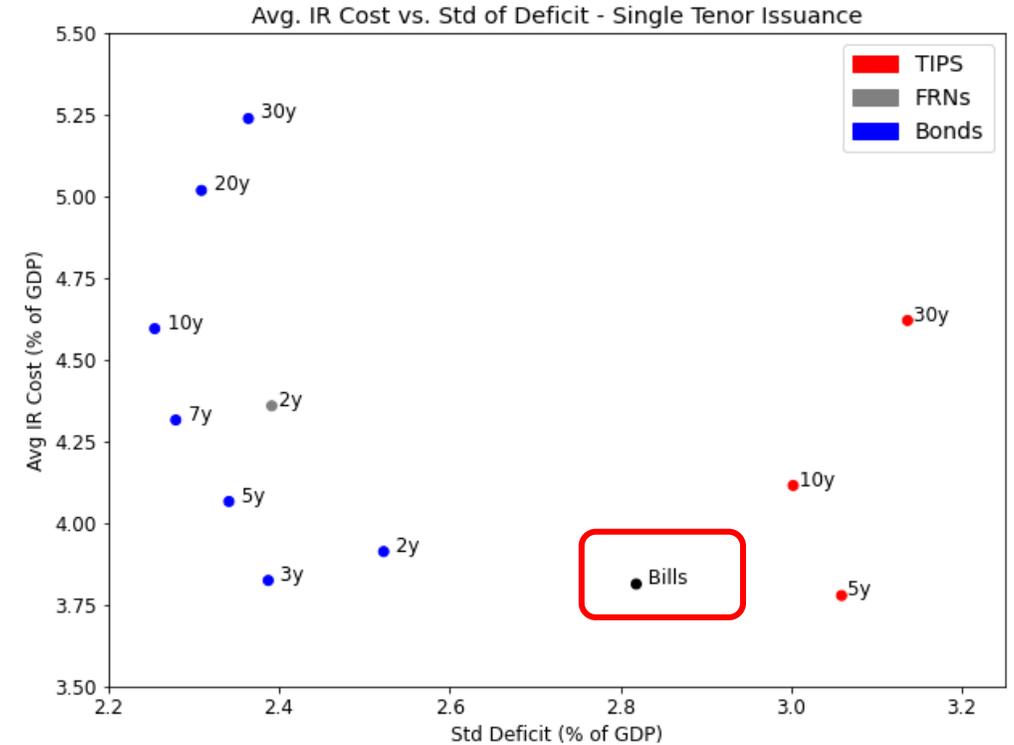
- [...] “Treasury’s Bill issuance is anticipated to grow in accordance with the deficit trajectory” [...]
- [...] “6-Week Treasury Bill size has been consistent with other benchmark Bills, and investor demand of this product remains strong, with Money Market Funds being a primary buyer” [...]

# Financing Cost Over Time

# Financing Cost Over Time

## T-bill issuance in the Optimal Debt Model

- Over short time periods, T-bills are optimally used as a shock absorber for deficit volatility management, which could create fluctuations in the T-bill share
- Over longer time periods, T-bill issuance is part of the equation in achieving Treasury's desired debt service cost profile
- TBAC has leveraged the Model as a framework to determine and assess different issuance strategies. The Model expresses Treasury's decision function as a tradeoff between average interest costs and volatility of interest cost
- Within the context of the Model, T-bills provide:
  - Lower average costs than other securities, though the benefit varies significantly based on the level of term premia, which can be volatile and difficult to observe
  - Higher volatility of debt service costs and higher contribution to overall deficit volatility given short duration and frequent rate resets



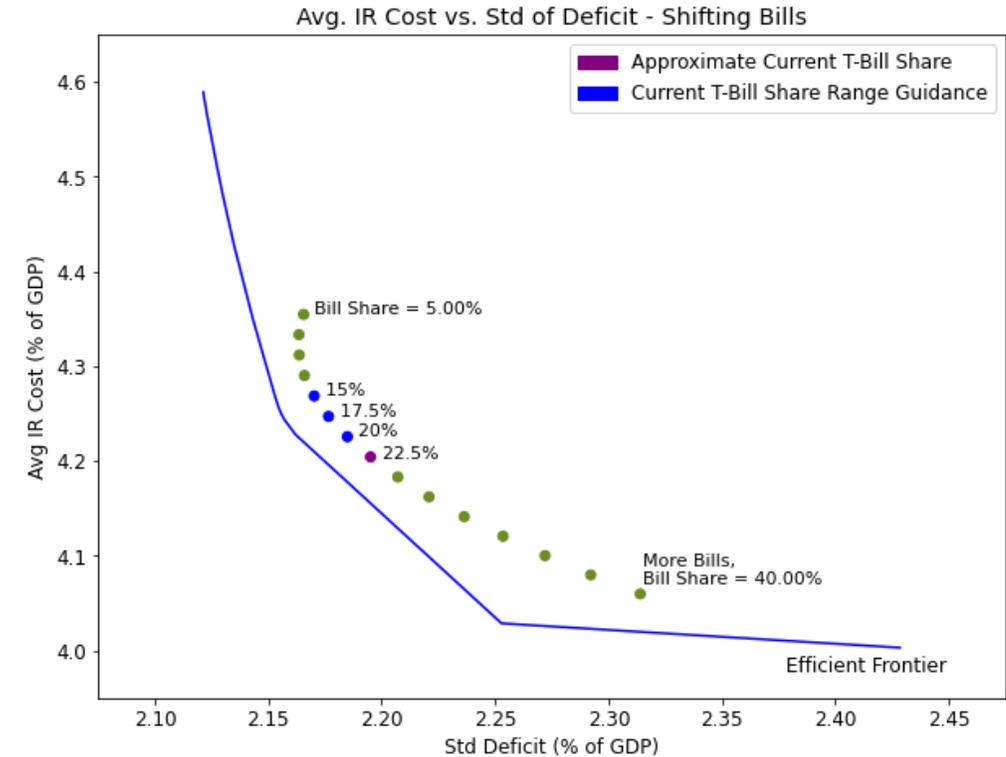
Analysis in this section uses the Optimal Debt Model referenced in various recent TBAC Charges and the most recent data inputs as of July 2024

For more information on the model, please see <https://www.brookings.edu/articles/optimizing-the-maturity-structure-of-u-s-treasury-debt/>

# Financing Cost Over Time

Impact of changes in T-bill issuance on the profile of financing costs

- Multiple Model simulations with varying degrees of T-bill usage (and other factors remaining constant) demonstrate the trade-off with higher amounts of T-bills
- The results show,
  - Costs reducing with more T-bill usage, but are sensitive to term premia assumptions therefore should be interpreted and discounted accordingly (see discussion on next slide)
  - Volatility around funding costs and overall deficits remain generally within a tight range when shares are at or below 20%, above which the Model expresses more rapid increases with higher shares
    - > Whilst there is limited precision to the 20% threshold, this analysis is an important consideration when calibrating the appropriate long-run T-bill share
- As discussed in prior TBAC presentations, the Model tends to prefer issuance in the belly of the curve (e.g., 3yr and 5yr notes) over both T-bills and longer-maturity securities, with the caveat that this framework underrepresents the value of meeting the need for a diverse investor base and market functioning considerations

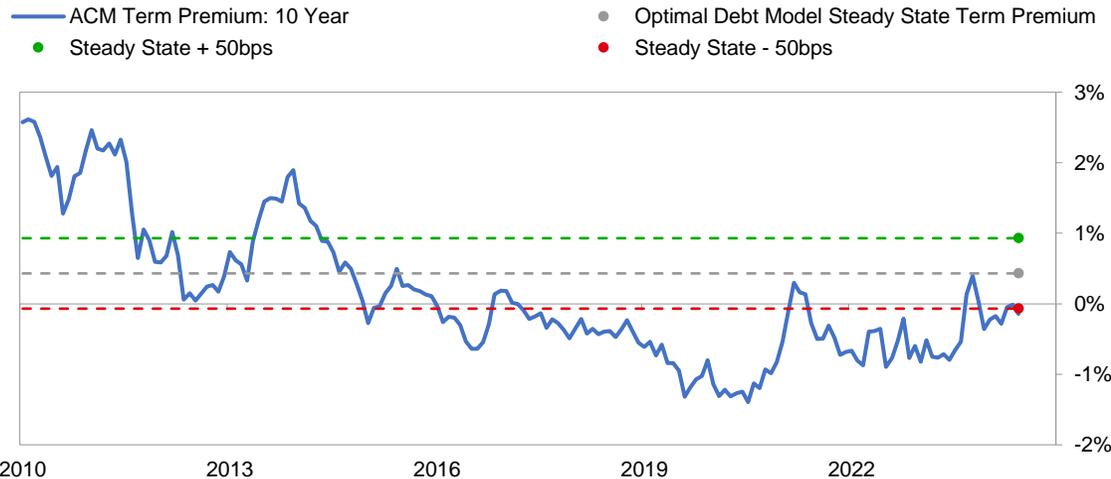


Calculations used the Model described and referenced on page 9, using the latest inputs available for the Model as of July 2024

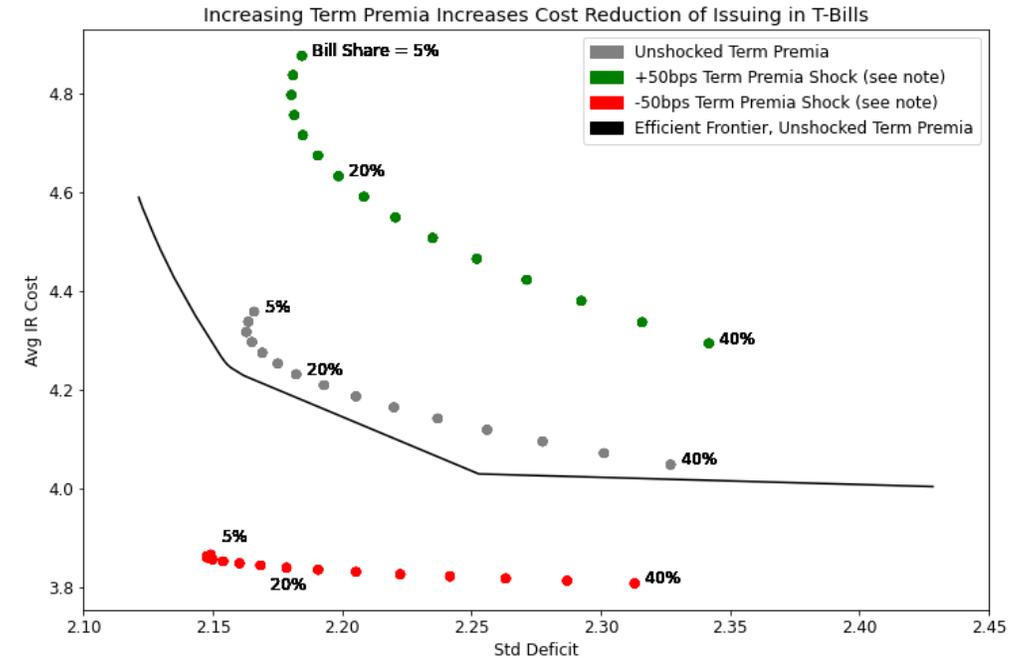
# Financing Cost Over Time

Cost savings from using more T-bills are meaningfully reliant on term premia assumptions (and should be interpreted with care)

- Savings from T-bills suggested by the Model are assumption dependent based on the levels of term premia.
  - Term premia are difficult to observe and volatile, as shown below and discussed in a 2023 TBAC charge<sup>1</sup>
- The chart on the right repeats the prior analysis with varying term premia (e.g., increased and decreased by 50 basis points), showing that the cost savings from higher T-bill share become negligible with a downward shock
- Evidence of a structural and persistent increase in the term premia could increase the appropriate range for T-bill usage (and vice-versa). Treasury should prioritize being Regular & Predictable rather than timing shorter-term moves in term premia



Sources: <sup>1</sup>TBAC Charge ([4Q'2023](#)); Federal Reserve Bank of New York



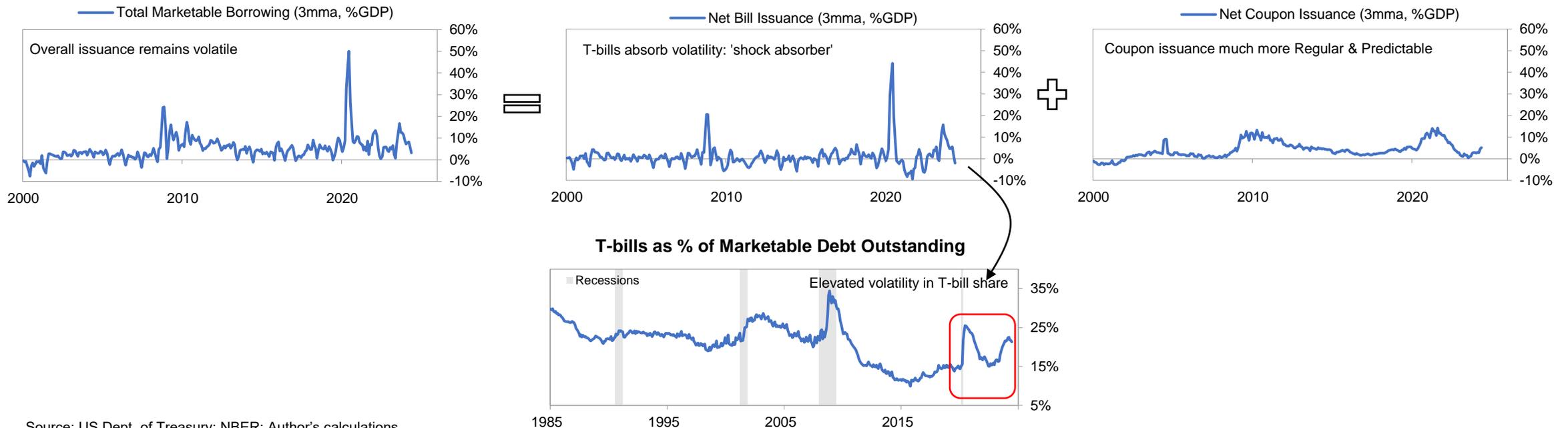
Note: Term premia are linearly interpolated from 0bps at maturities less than or equal to 2 years, to (+/-) 50bps at maturities greater than or equal to 10 years

# Regular & Predictable Issuance

# Regular & Predictable Issuance

T-bills aid with being Regular & Predictable and are an optimal shock-absorber in times of uncertainty

- Treasury's funding needs can be inherently volatile and unpredictable due to factors such as the economic cycle, passage of new legislation, unexpected events like wars or natural disasters, and/ or through the calendar year due to seasonality (e.g., tax collection dates)
- Due to their low duration and fungibility with other cash-like assets, T-bills are the most optimal 'shock-absorbing' tool at Treasury's disposal, i.e., the best way to meet unexpected short-term fluctuations in financing needs, while minimizing market impact
- Investors view T-bills as a prudent investment instrument; there is generally robust demand, including during recessions and in times of stress, given its 'safe-haven' stature
- By leveraging T-bills as a 'shock absorber', Treasury has managed to contain a relatively volatile funding backdrop over the past five years, enabling Regular & Predictable Coupon issuance



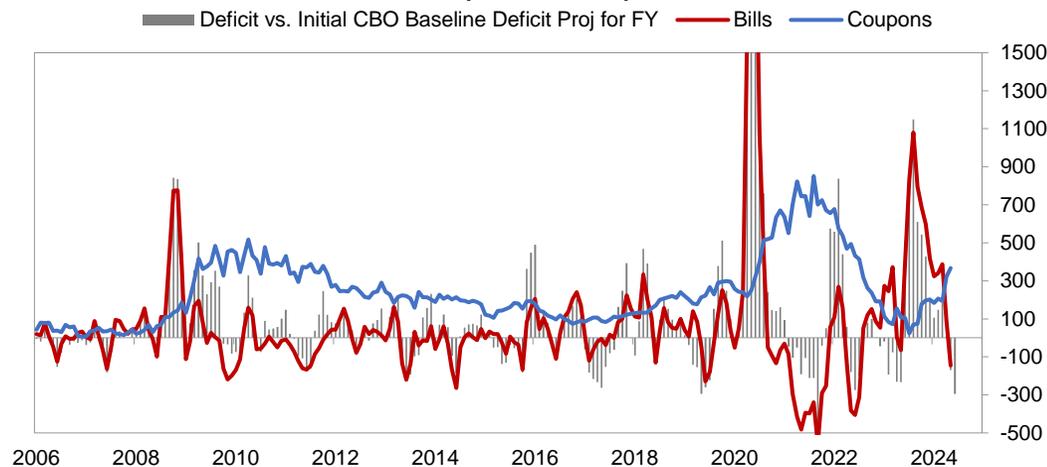
Source: US Dept. of Treasury; NBER; Author's calculations

# Regular & Predictable Issuance

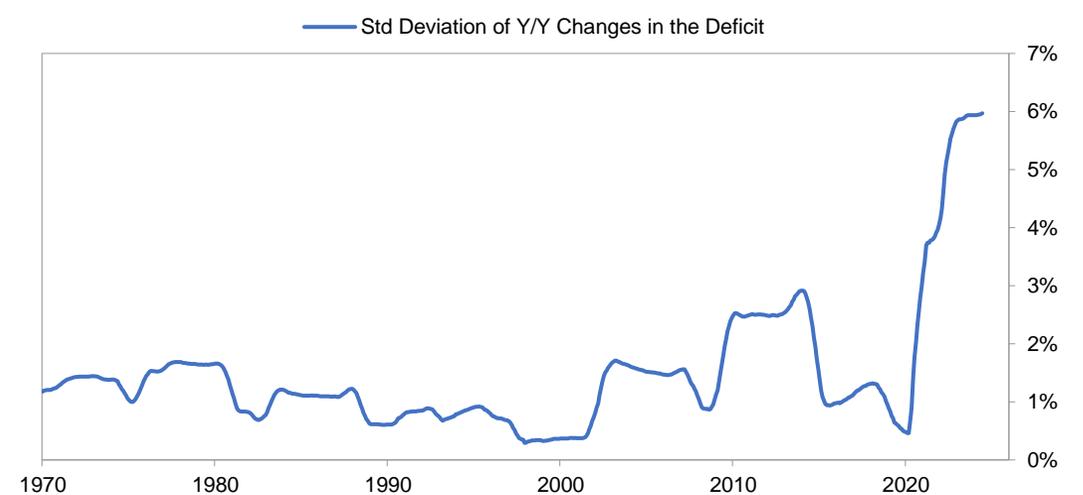
Government financing needs to likely remain volatile

- Treasury's financing needs have been more volatile over the past five years than in recent decades
- Recent drivers of volatility include COVID's impact on economic conditions (and corresponding stimulus), elevated inflation, volatile interest rates, and instances where the Government reached statutory debt limits, and fluctuations in the Fed's SOMA balances
- The gap between initial deficit projections (e.g., from CBO; from Treasury) and actual deficit results have been notably divergent and large
  - Deficit 'surprises' have been absorbed by rapid fluctuations in T-bill issuance; in 2008 and during COVID these 'surprises' were correlated to increases in investor appetite for safe-haven assets supplementing T-bill demand
  - Adjustments in T-bill issuance have enabled Treasury to gradually alter Coupon auction sizes rather than making rapid adjustments to manage deficit surprises

**Surprises in Financing Needs vs. T-bill & Coupon Issuance**  
(\$bn, 3mma)



**Volatility in Federal Financing Needs**

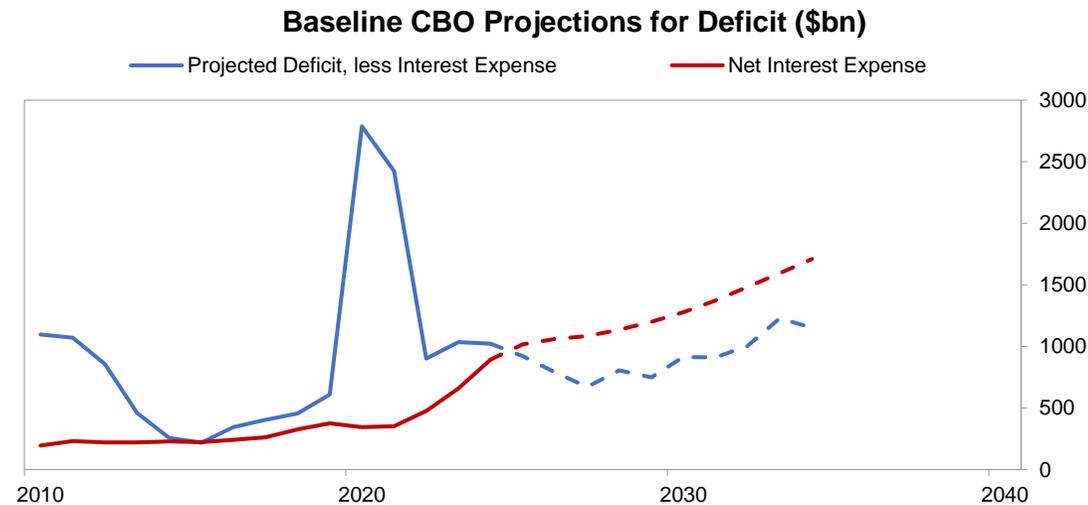


Source: US Dept. of Treasury; CBO; Author's calculations

# Regular & Predictable Issuance

T-bills will remain a critical financing management tool given the expectation for continued volatility in financing needs

- Treasury should prepare for sustained volatility in its financing needs given foreseeable market conditions:
  - CBO projects sustained high deficits for the foreseeable future
  - Volatility in financing needs from legislative and executive actions is likely to persist
  - Interest costs have risen, both outright and as a portion of the deficit
  - Interest rate volatility remains elevated and is forecasted to remain elevated
  - COVID and elevated inflation contributed to deficit volatility over the past five years but appear to be subsiding
- TBAC continues to believe that T-bills are an optimal shock absorber to respond to unexpected financing shocks while preserving Regular & Predictable Coupon issuance



Source: CBO

# Market Structure & Investor Demand

# Market Structure & Investor Demand

Investor demand & market functioning is important factor for Treasury to consider

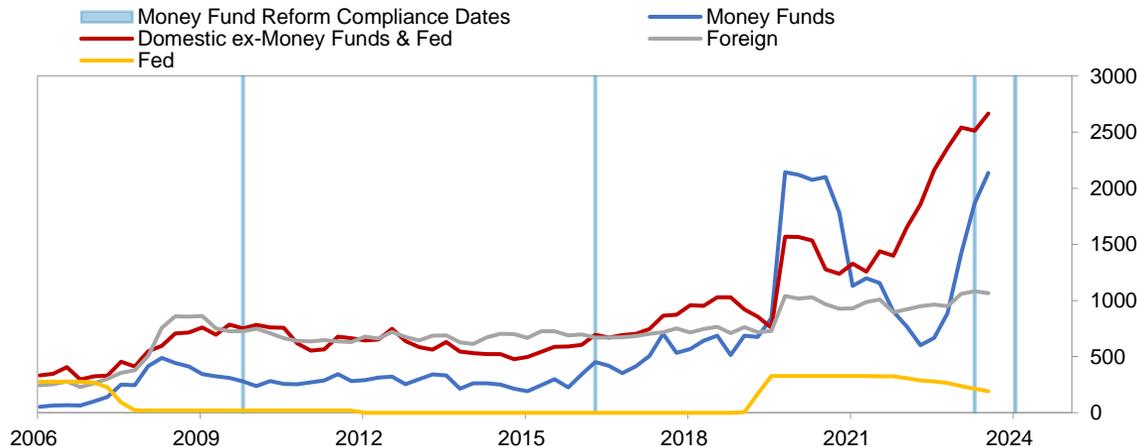
- T-bill demand has considerably increased in recent years
  - A portion of the strong demand is likely structural (e.g., Money Fund reform & transition away from Prime Funds; lower availability from other forms of short-term debt instruments such as Federal agency paper or private commercial paper), but some is likely cyclical (e.g., strong retail interest in holding short-term instruments due to high short-term interest rates and an inverted yield curve)
  - While it is always in Treasury's interest to issue products consistent with market demand, there are particular consequences to market functioning from issuing too few T-bills;
    - > Issuing too few T-bills may shift government Money Funds into the Fed's ON RRP facility (and vice-versa). During periods of abundant bank reserves, this rotation has been seamless. In periods where bank reserves are less abundant, this could have unintended consequences for market functioning
    - > Large ON RRP balances could indicate unmet demand for T-bills. Over 2023-24, ON RRP drained as Money Funds shifted nearly one-for-one into T-bills. This rotation facilitated seamless digestion of record T-bill issuance
  - Some studies<sup>1</sup> have suggested that increasing the supply of public short-term safe instruments could reduce the need for privately issued short-term instruments and help improve the stability of the financial system

# Market Structure & Investor Demand

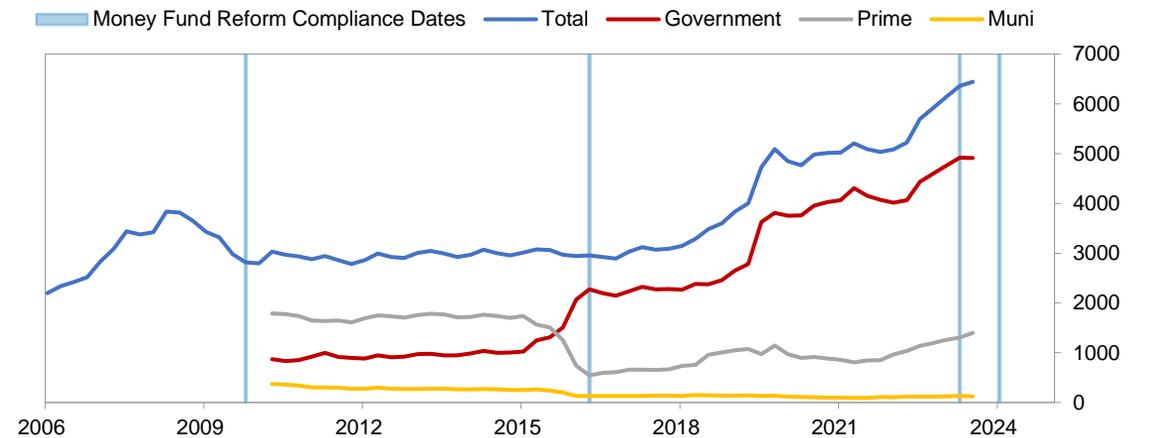
Robust money supply growth has been a support to T-bill demand

- Since the 2015 Q4 TBAC Charge, T-bill supply has quadrupled, with \$3.6 trillion of the increases occurring since 2019
  - Money Funds have absorbed ~\$2 trillion of T-bills over the past two years, and non-money fund domestic holders (e.g., households, businesses, etc.) have absorbed another ~\$2 trillion
- Absorption of large T-bill issuances have been assisted by a meaningful expansions in the deposit base, which provides a stock of (low-yielding) money which might translate into T-bill demand either directly, or via inflows into MMFs
- MMF Reform has enabled a transition in the composition of the industry towards government funds, increasing structural demand from MMFs for T-bills
  - For these funds, T-bills are one of the few types of eligible collateral and are particularly important as a way of terming out their holdings, given the shrinking sizes of GSE balance sheets and the reduced size of the agency paper market

**Major Holders of T-bills (\$bn)**



**Money Funds by Type (\$bn)**

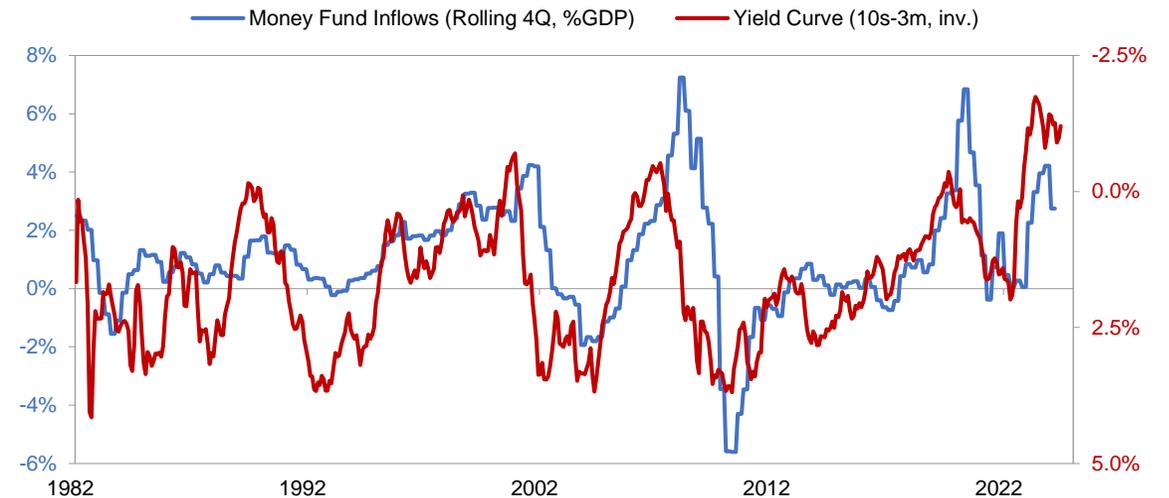
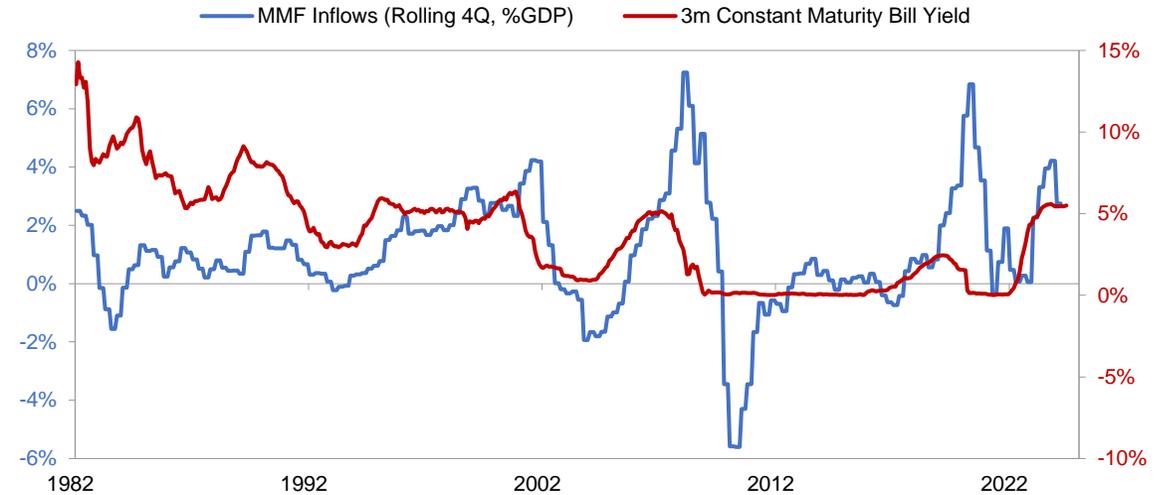


Sources: Federal Reserve Z.1; SEC; Federal Register

# Market Structure & Investor Demand

## Cyclical factors affecting T-bill demand

- Cyclical factors are also likely to affect T-bill demand
- Money Fund inflows are responsive to short rates and the shape of the curve
- The recent rate hiking cycle has elevated short-term rates, inverted the curve, and created a wedge between deposit rates and other cash rates. All these factors have pulled cash into money market funds and thus far have been supportive to T-bill demand
- If/ when the Fed eases, the curve normalizes, or banks continue competing for deposits/ increase deposit remuneration, MMF inflows may reduce from where they are today

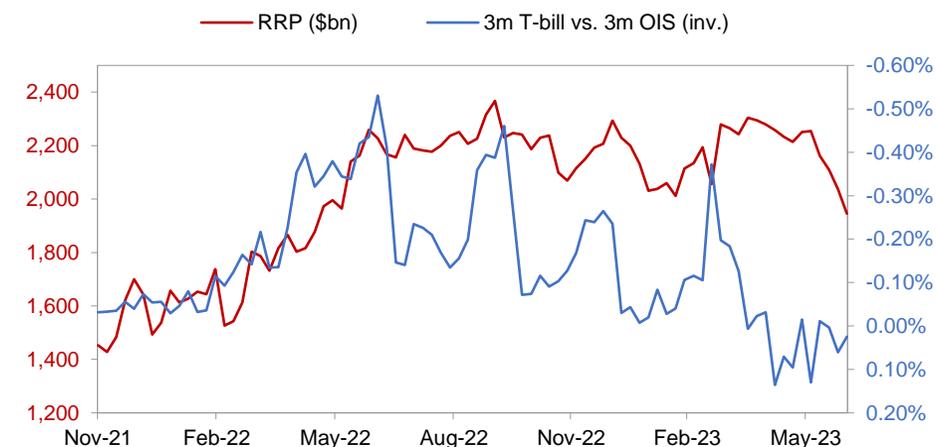
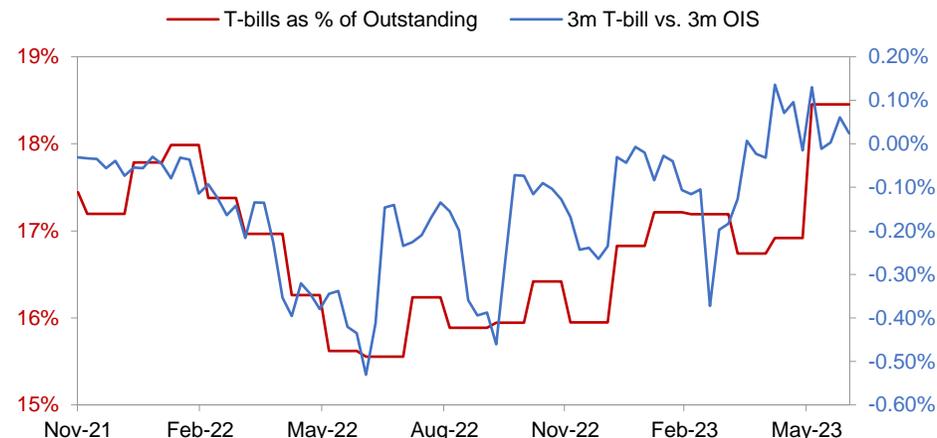


Sources: Federal Reserve Z.1, H.15, Author's calculations

# Market Structure & Investor Demand

Retaining a minimum amount of T-bills is important to market functioning

- As the Q4 2021 TBAC Charge noted, relatively low T-bill supply could have negative consequences for market functioning. Including price dislocations in T-bills and a recalibration of money flows that may have knock-on effects
  - Circumstances where Money Funds may not get adequate T-bill allocations (and T-bill prices trade rich) could transition their resources into the RRP
    - > Treasury should particularly be conscious of this relationship when the banking system is close to the Lowest Comfortable Level of Reserves
    - > E.g. when T-bill supply contracted in 2022 to ~15% of outstanding debt, T-bills traded as rich as ~60bps to swaps, drawing money flows into the RRP
- Additionally, an issuance mix that is too bond-heavy could incrementally cause pressures in funding markets, particularly as an increasing portion of the cash bondholder base relies on repo markets for funding
- Debt ceiling/ limit related events could have consequences, in relation to the amounts of T-bills issued, although “*failing to increase the debt limit would have catastrophic economic consequences.*”<sup>1</sup>
  - T-bills are a nimble funding mechanism, enabling Treasury to adjust issuances during/ after such events, rather than altering Coupon issuance schedules, thereby adhering to their Regular & Predictable practices
  - In the recent past, TBAC has expressed<sup>2</sup> deep concerns around the lack of resolution of the statutory debt limit



Note: Charts zoomed in on a historical period from December 2021 through June 2023 and do not reflect latest data points

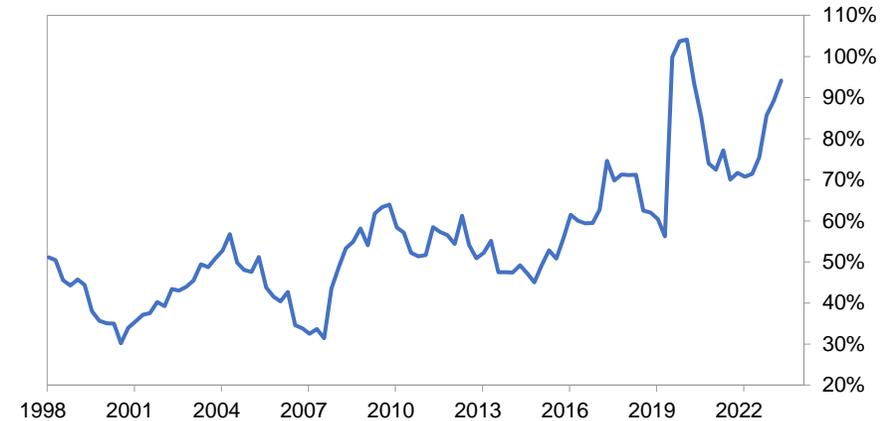
Sources: <sup>1</sup>US Treasury ([link](#)); <sup>2</sup>TBAC Letter to the Treasury Secretary ([link](#)), Federal Reserve; US Dept. of Treasury; Bloomberg

# Market Structure & Investor Demand

Indicators and factors for consideration when determining cyclical and structural appetite for T-bills

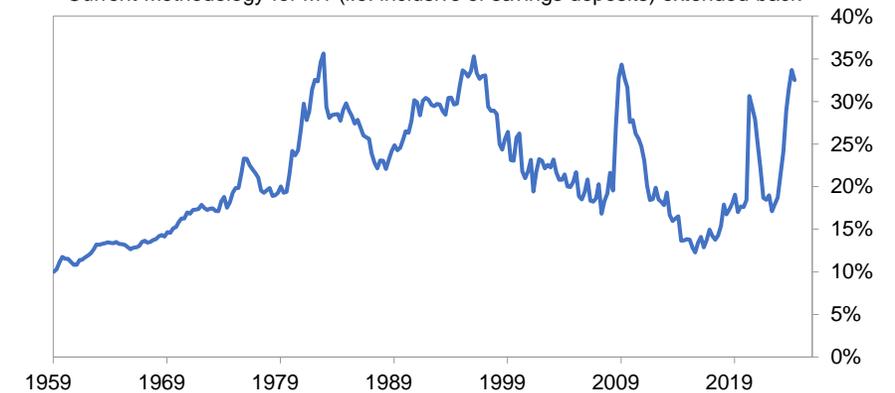
- Minimum amounts of T-bills needed for stable market functioning could fluctuate as a function of market structure, and TBAC encourages Treasury to monitor indicators of market functioning and potential demand to determine whether appropriate levels remain adequate
- Market based measures like spreads between T-bills and equivalent swaps could provide evidence of T-bill supply being too accommodative/ restrictive
- Comparisons between T-bill supply and the size of Money Fund industry could be helpful in calibrating whether adequate supply exists for investors that are required to hold 2(a)7 compliant securities
  - Caution should be exercised when accounting for Money Fund regulations changing the structural nature of their demand. Today's elevated readings may be appropriate given added incentives for Money Funds to hold government securities
- Comparing T-bills to the size of the money supply (e.g., the M1 monetary aggregate) calibrates T-bills to the pool of short-term assets in the economy
- The size of the ON RRP and velocity of flows could provide a barometer of unmet T-bill demand

**T-Bills Outstanding (% of MMF Shares Outstanding)**

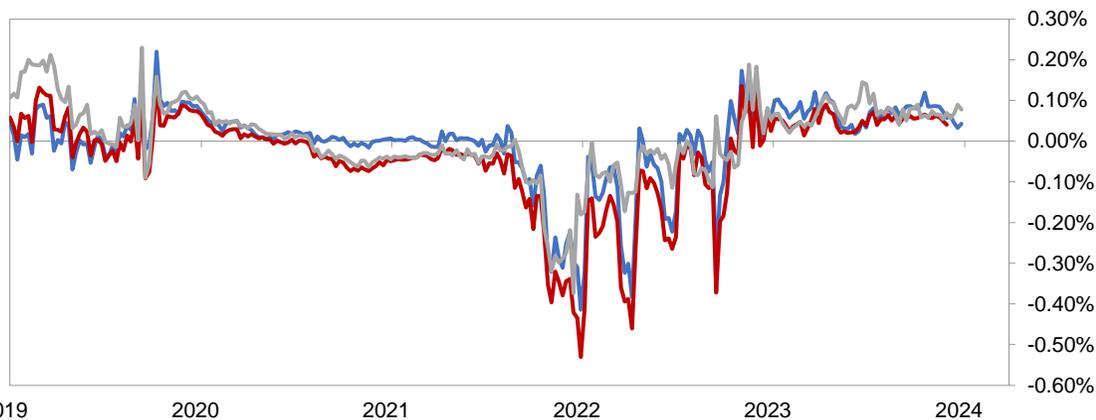


**T-Bills Outstanding (% of M1)**

Current Methodology for M1 (i.e. inclusive of savings deposits) extended back



— 3m T-bill vs. 3M SOFR Swap — 3m T-bill vs. OIS — 6m T-bill vs. OIS



Sources: Bloomberg; US Dept. of Treasury; Federal Reserve Z.1 & H.6

# Debt Maturity Distribution

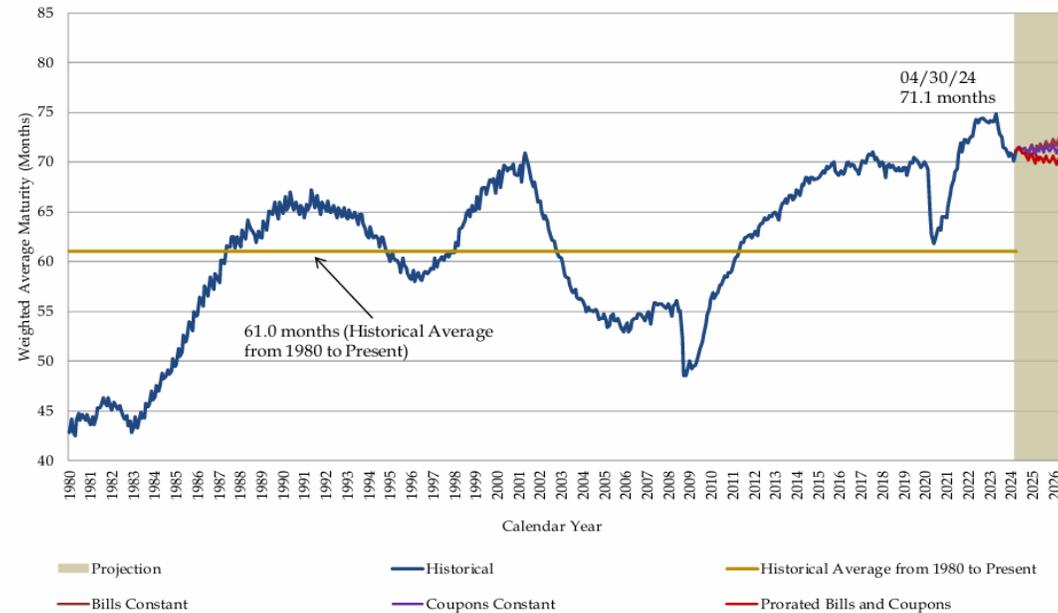
Roll Over Risks

# Debt Maturity Distribution

Impacts of T-bill shares on TGA balances & measures to effectively monitor the debt stack

- All else equal, increasing the share of T-bill issuance would increase the total amount of debt maturing in a given period, resulting in the need to hold a higher TGA
- Under Treasury's cash balance policy<sup>1</sup>, the TGA maintains sufficient cash to cover one week of outflows, including the gross volume of maturing debt
- Weighted average maturity (WAM) is one way to measure the duration of outstanding US Treasury securities; WAM is only one measure and should be considered along with a range of other measures
- Despite recently elevated T-bill issuance, WAM has remained near multi-decade highs, suggesting there may be room for additional flexibility in T-bill issuance

**Weighted Average Maturity of Marketable Debt Outstanding**



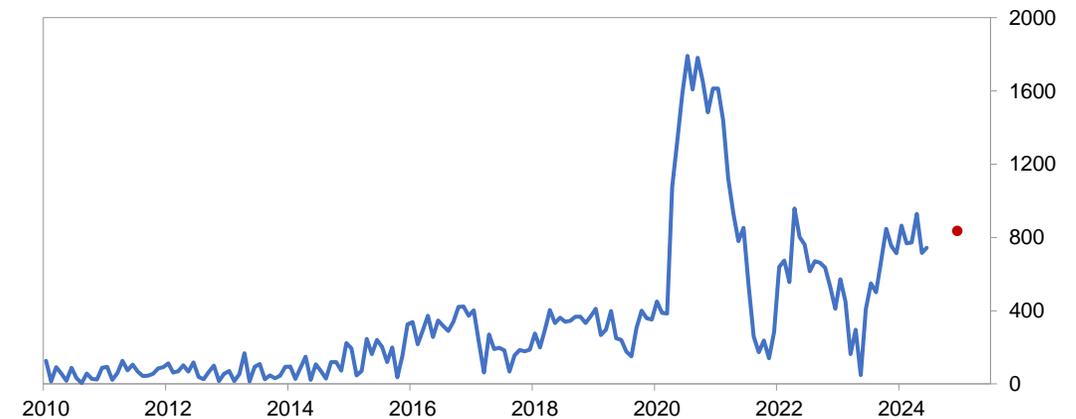
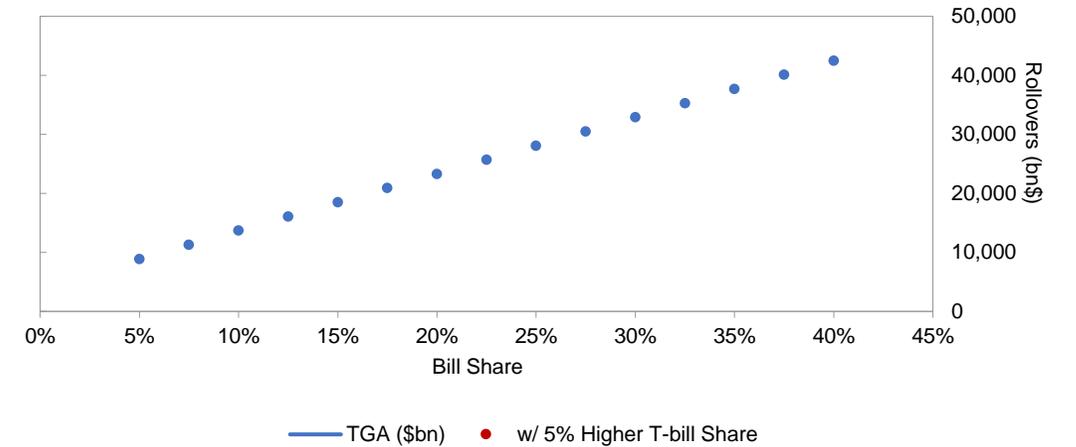
Source: <sup>1</sup>Quarterly Refunding Statement ([link](#))

# Debt Maturity Distribution

Larger reliance on T-bills creates more substantial debt rollovers

- Increased use of T-bills creates larger and more frequent debt rollovers, but there is minimal evidence suggesting larger rollovers solely are inherently unstable, risky, or more expensive for Treasury
- All else equal, increasing T-bill share by 5% increases annual debt rollovers by around \$5 trillion at the current debt levels
  - This calculation assumes that the different tenors of T-bills outstanding increase proportionately as the overall T-bill share increases
- Higher T-bills share does require a larger TGA balance given Treasury's current practice of calibrating TGA size to cover one week of outflows. This is a small consideration in the context of T-bills that is worth weighing appropriately
  - Given above considerations, 5% higher T-bill share would suggest a TGA size that on average is \$90 billion larger, which may have to be funded with higher debt levels and accompanying interest costs (though interest costs of a higher TGA may be offset by increased Fed remittances)

**Relationship Between T-bill Share and Annual Rollovers at Current Debt Level**



Sources: US Dept. of Treasury; Federal Reserve H.4.1; Author's calculations

# Conclusions, Observations & Future Considerations

# Conclusions, Observations & Future Considerations

- **Conclusions & Observations:**

- T-bill issuance should continue to serve as an optimal shock absorber to allow Treasury to issue Coupons in a Regular & Predictable manner, supporting lower funding costs, lower term premia, distribution to a broad and diverse set of investors, and an overall deep & liquid market
- T-bills facilitate an important role for many market participants, and maintaining adequate amounts of T-bills is important for market functioning. That share could evolve over time as structural supply & demand for money market investments, and the total amount of outstanding debt evolves
- Factors to consider when evaluating short- and medium-term T-bill shares should include balance being Regular & Predictable, changes in the structural demand for T-bills, funding costs, deficit volatility, and market functioning
  - > Currently, we estimate 15% as a lower bound that supports healthy market functioning, but that may evolve over time as a function of the size of Money Markets and other structural demand factors
  - > Substantially increasing the share of T-bills outstanding increases the volatility of deficit financing. A T-bill share averaging around 20% over time appears to provide a good trade-off between cost and volatility
  - > The appropriate amounts of T-bills should be monitored and updated in the context of structural market and regulatory developments. Helpful metrics include measures of market conditions (e.g., swap spreads) and the structural demand for short-end risk free assets (e.g., the size and nature of the money fund universe)
- However, it is important to retain flexibility for moves away from these levels based on the need to absorb shocks in the financing outlook, to support Regular & Predictable Coupon issuance, to account for changes in market structure and investor demand, and to effectively manage TGA levels

- **Looking ahead, numerous factors may warrant further study in considering the share of future T-bill issuance:**

- Evolution and continued evaluation of the banking regulatory landscape (spanning liquidity & capital reforms, among others), and implications for banks and dealers to meaningfully participate in primary Treasury markets to intermediate and warehouse (anticipated) future US Treasury duration & supply
- Market structure evolutions and their impacts on Treasury market's resiliency initiatives including,
  - > SEC's central clearing rule, which will require significant increases in margin to be posted to covered clearing agencies
  - > Future (anticipated) US Treasury auction sizes and predictability across cash management and Benchmark T-bill issuances
  - > Future Money Fund reform and potential incremental structural demand for T-bills

# Developments in demand for US Treasuries

July 2024

***Investor Base:*** Please discuss recent developments in demand for Treasury securities and any changes in the investor base. What factors are affecting domestic and foreign demand, and how does the Committee anticipate investor demand may evolve over the next several years?

# Executive Summary

1. Please discuss recent developments in demand for Treasury securities and any changes in the investor base
  - The demand base for U.S. Treasuries has continued to shift toward more price sensitive investors (demand from these investors displays a degree of sensitivity to yield levels).
    - Hedge funds, included in the household category, will consider relative value, carry, roll, and volatility measures as a part of their decision process to put on a trade.
    - Money market funds, included in the mutual fund category, will consider bill spreads vs. SOFR as well as bill spreads vs. agency discount notes or commercial paper in their investment allocation process.
  - Demand from foreign investors and banks has been muted over the past two years.
  
2. What factors are affecting domestic and foreign demand, and how does the Committee anticipate investor demand may evolve over the next several years?
  - Regulatory developments have the potential to impact demand from banks (capital requirements) and money market funds (SEC mandatory liquidity fee requirement).
  - Asynchronous global monetary policy has the potential to impact foreign demand.
  - Developments in the global macro economic outlook will impact asset allocation decisions for asset managers, such as mutual funds and households.

**How has demand evolved for major Treasury investor types?**

# Recent developments in demand for U.S. Treasuries by investor type

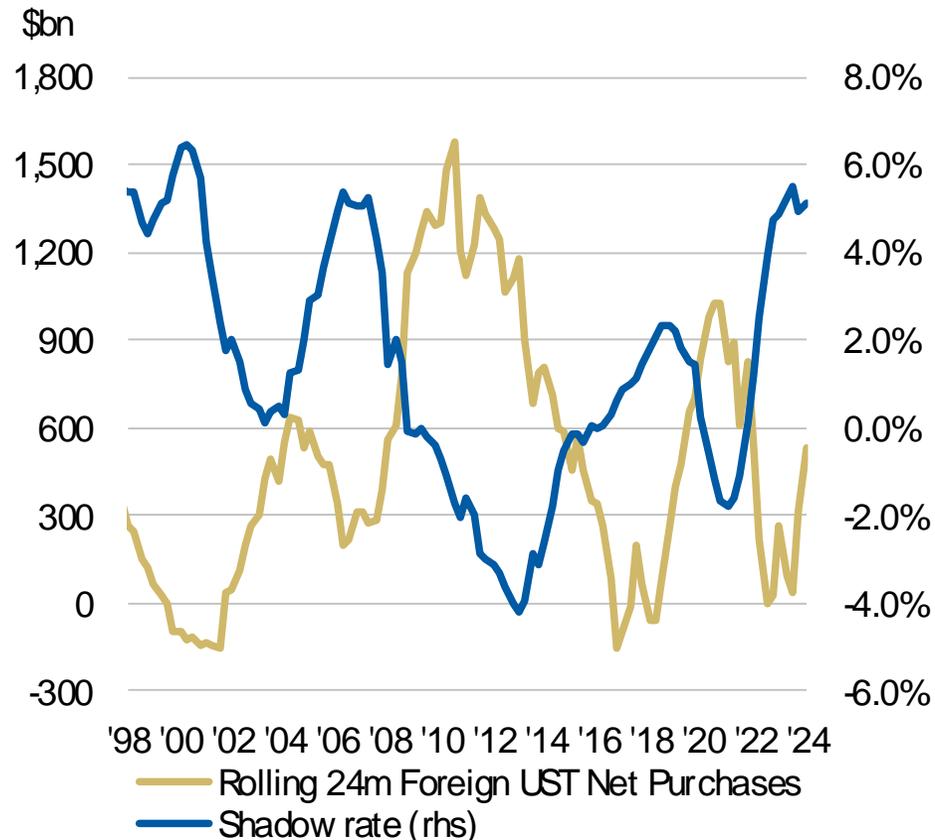
Treasury Securities (Z.1) as of 1Q24

Type	Amount (\$bn)	%	1Y CAGR	2Y CAGR	5Y CAGR
Foreign	8,136	33%	8%	3%	5%
Fed	4,176	17%	-16%	-16%	12%
Mutual Funds	3,951	16%	64%	10%	13%
Households	2,416	10%	26%	90%	12%
Banks	1,615	7%	8%	-1%	17%
State/Local Govt	1,572	6%	-5%	5%	16%
Pension Funds	1,062	4%	12%	10%	7%
ETFs	505	2%	12%	22%	22%
Insurance	470	2%	15%	11%	5%
Other	395	2%	45%	39%	19%
BDs	304	1%	14%	91%	5%
GSEs	159	1%	6%	-13%	4%
<b>Total</b>	<b>24,761</b>		<b>10%</b>	<b>5%</b>	<b>10%</b>

Source: Federal Reserve

- Ongoing Quantitative Tightening (QT) has continued to passively reduce Fed holdings of Treasury securities. The recent taper of asset run-off will make the pace of reductions slower going forward.
- Growth in Treasury securities among money market funds and households has outpaced growth of the market. In response to a higher rate environment, pension funds increased their share in the Treasury market.
- Declines in deposits, which coincided with unrealized losses on securities, positive loan growth, and regulatory developments have reduced bank demand for securities over a two-year period. While bank demand waned in 2023, it has rebounded somewhat amid expectations of a lower Fed rate path in 4Q23-1Q24, but the sustainability of this trend is uncertain at this point.
- Foreign demand for U.S. Treasuries has been tepid, with US policy rates sustained at elevated levels.
- Over recent years, more price sensitive buyers have accounted for a larger share of Treasury ownership (demand from these investors displays a greater degree of sensitivity to yield levels).
  - Hedge funds will consider relative value, carry, roll, and volatility measures as a part of their decision process to put on a trade.
  - Money market funds will consider bill spreads vs. SOFR and bill spreads vs. agency discount notes or commercial paper in their process.

# Recent Trends and Developments: Foreign

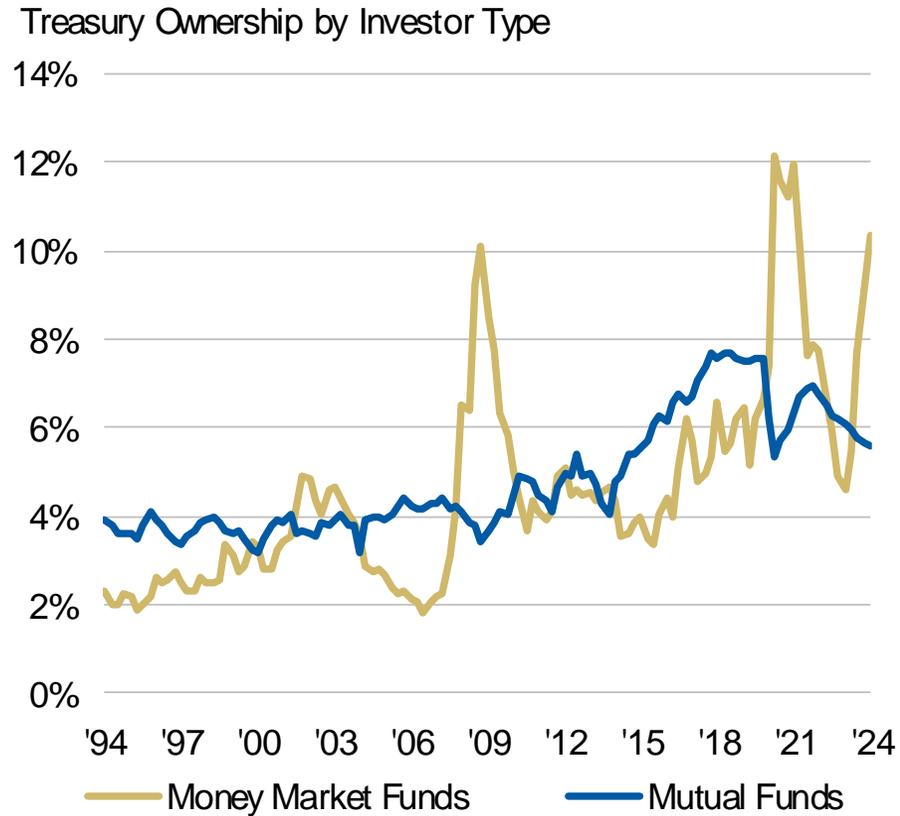


Source: Federal Reserve, Presenter's calculations

- Foreign demand is a key pillar of support for U.S. Treasuries, but historically it has shown signs of being cyclical in nature.
- Foreign demand has historically been inversely linked to the level of US policy rates, due to implications of a stronger USD and higher yields.
  - This introduces considerations for foreign private holders who may need to hedge their FX exposure; a stronger USD and higher yields creates higher FX-hedging costs.
- A shadow rate\* can be used as a proxy to capture the Fed's monetary policy accommodation while at the zero lower bound.
- Consistent with the rise in rates over the last decade, foreign ownership of U.S. Treasuries has declined from 50% in 2013 to 33%, currently.
- Although, despite a lower share of the Treasury market, overall foreign holdings have increased by \$5.6T since 2008, with the growth in the size of the overall market.

\*based on Krippner's two-factor arbitrage-free Nelson and Siegel model where Yield constrained - option = Yield unconstrained

# Recent Trends and Developments: Money Market Funds

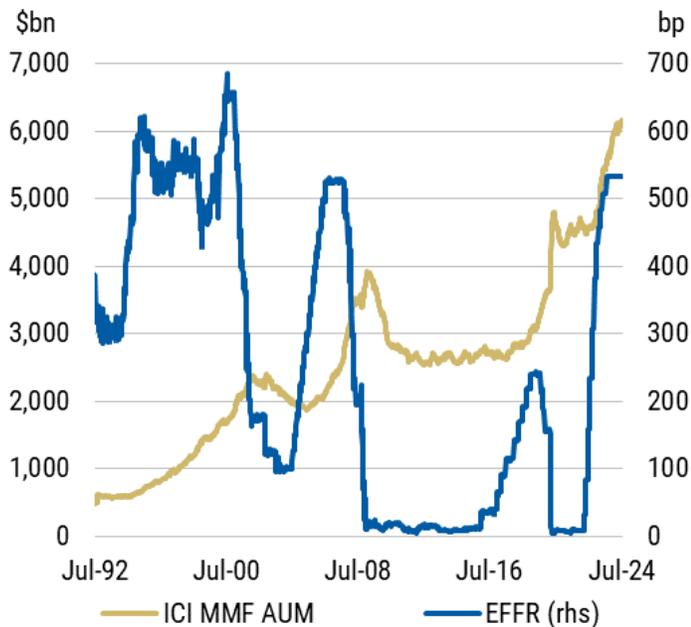


- Classified within the mutual fund category, money market funds have increased their holdings of U.S. Treasuries since the June 2023 debt-limit resolution.
- Total money market fund assets under management have increased ~\$600B since June 2023 while holdings of Treasury securities have increased \$1.3T.
- The US Treasury allocation of assets under management for money market funds is currently 38%, below a recent peak of over 50% in 2021.

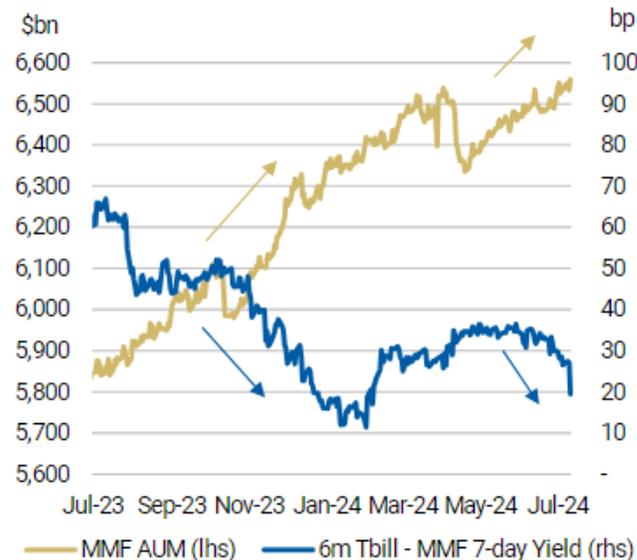
Source: Federal Reserve

# Recent Trends and Developments: Money Market Funds

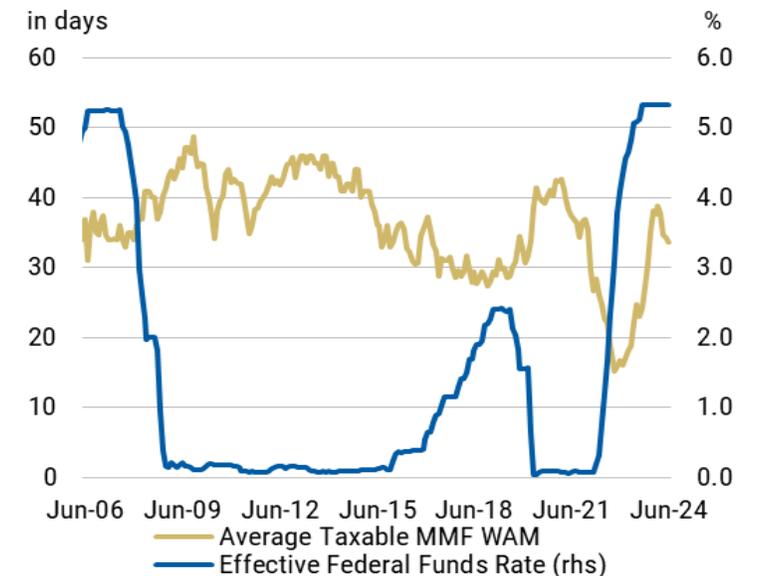
- Money market fund assets under management increase during Fed hiking cycles, as they can transmit higher policy rates to investors in the form of higher yields.
- Yet, money market funds also take in inflows in the immediate lead up to rate cuts because they can delay how fast yields decline by extending the weighted average maturity (WAM) of their portfolios. This allows money market funds to be viewed as more attractive compared to other cash alternatives (i.e., short-term bank certificates of deposits).
- Implications of a delay in how fast money market fund yields decline after rate cuts means there is a lag, between 12 and 24 months, with which assets under management tracks a rate-cutting cycle.



Source: Crane Data

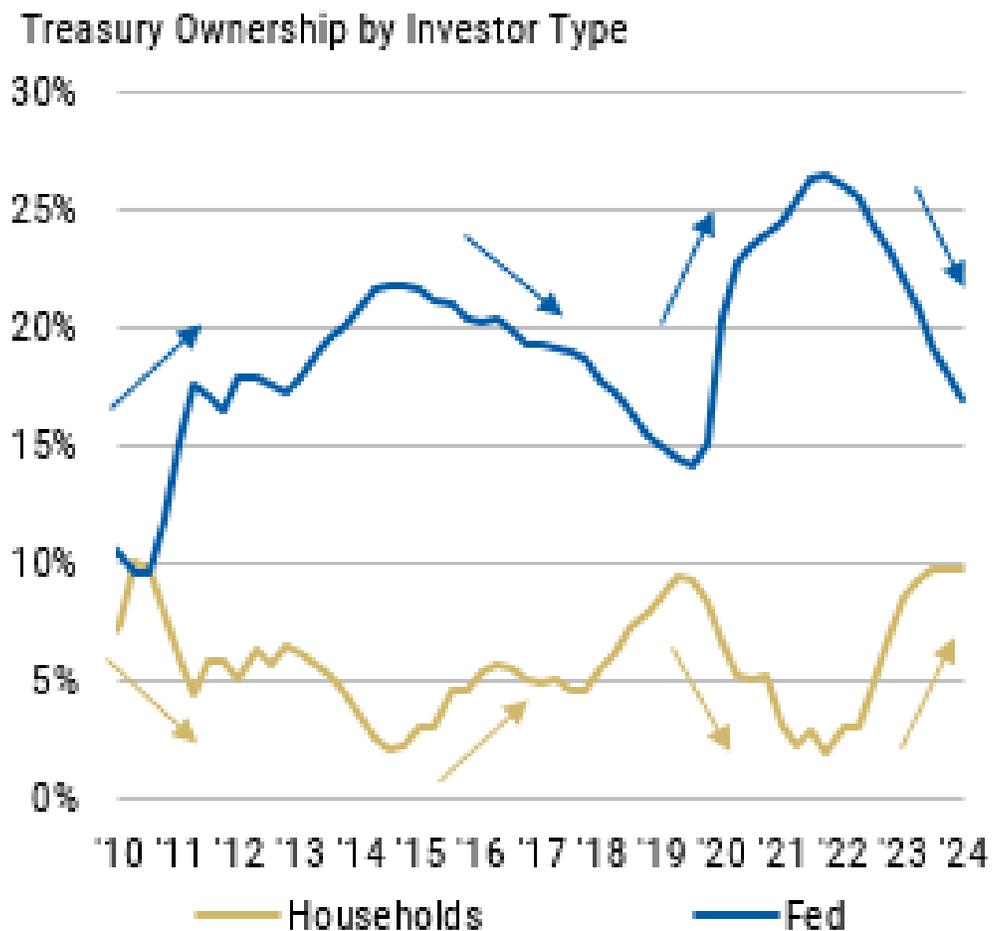


Source: Crane Data



Source: Crane Data

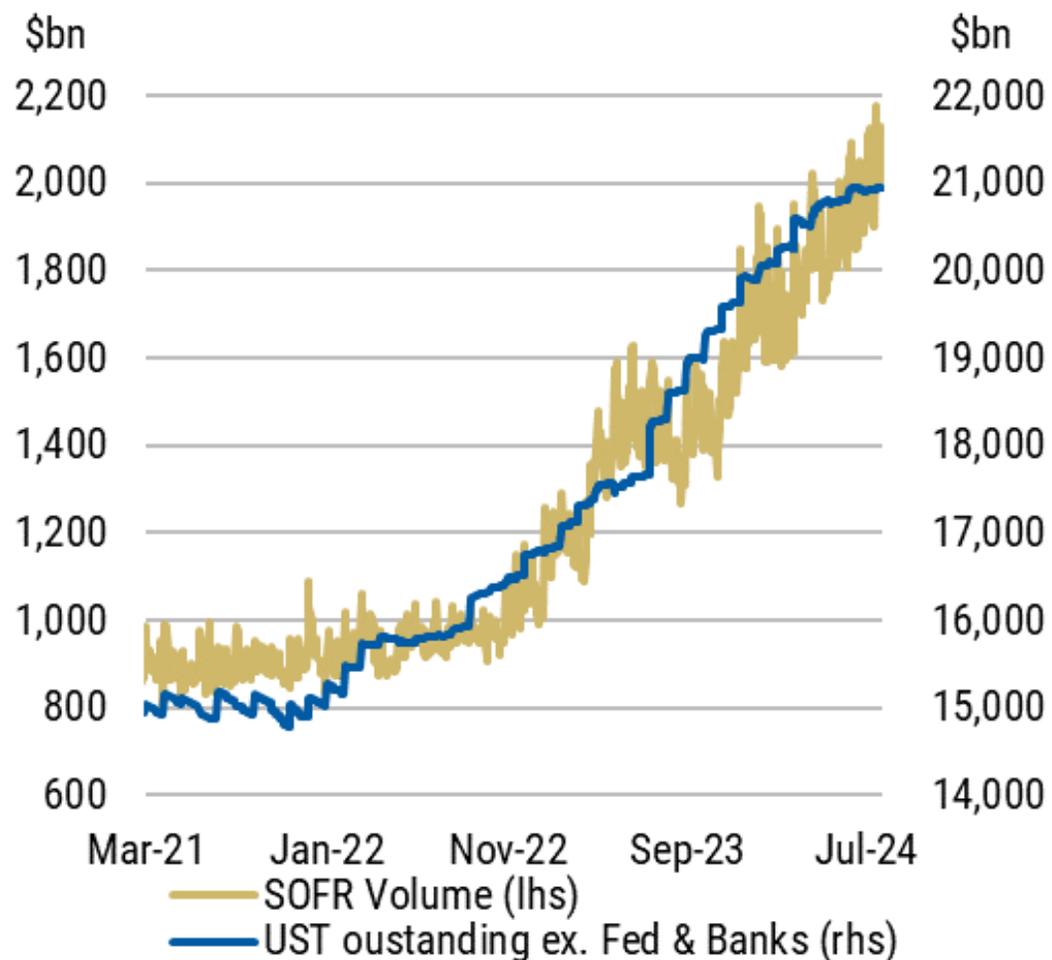
# Recent Trends and Developments: Households



Source: Federal Reserve

- Historical ownership patterns indicate household ownership of U.S. Treasuries has a negative correlation with the Fed.
- As the Fed changes its holdings, the most price-sensitive investor category is a natural candidate to be the residual; hedge funds are included within the household category.
- Fed Quantitative Tightening (QT) has passively reduced \$1.7T of Treasury holdings, while household holdings of Treasuries have increased by \$1.7T since June 2022. Although, the pace of this reduction will slow after the decision to start tapering run-off in June.
- Ongoing Quantitative Tightening (QT), higher-for-longer rates, and high levels of UST issuance have shifted UST ownership towards investors that are more balance-sheet constrained and valuation sensitive.
- A larger amount of Treasury securities sitting outside the Fed may help explain the increase in demand for repo financing (by hedge funds), reflected in higher SOFR volumes.

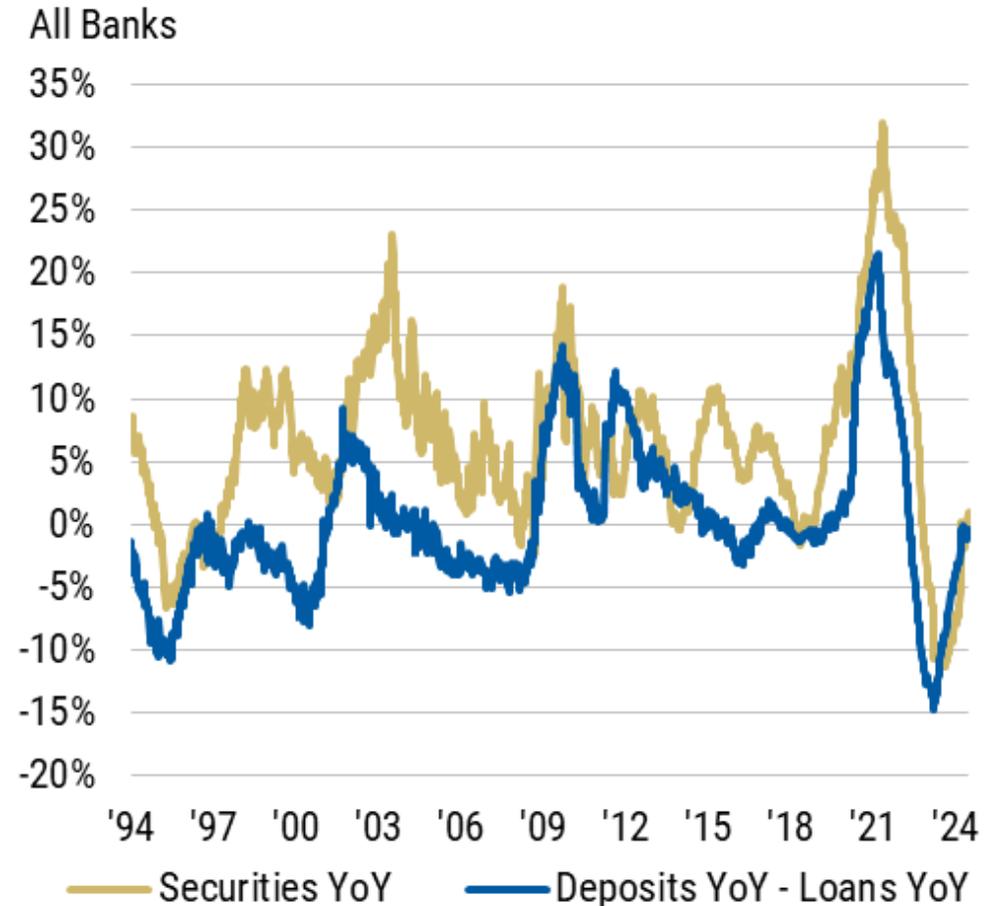
## Recent Trends and Developments: Households



Source: Federal Reserve, US Treasury

- The increase in household U.S. Treasury holdings is a sign hedge funds may have significantly increased their long exposure to Treasury securities.
- These new purchases, which likely are financed via repo, combined with increases in futures open interest suggest the presence of the cash-futures basis trade:
  - In a recent charge, TBAC highlighted the growth in the cash-futures basis trade ([TBAC Charge 1Q24](#)).
- It is also important to recognize that the incentive to engage in the cash-futures basis trade starts with demand from asset managers, who continue to obtain exposure to USTs via futures.

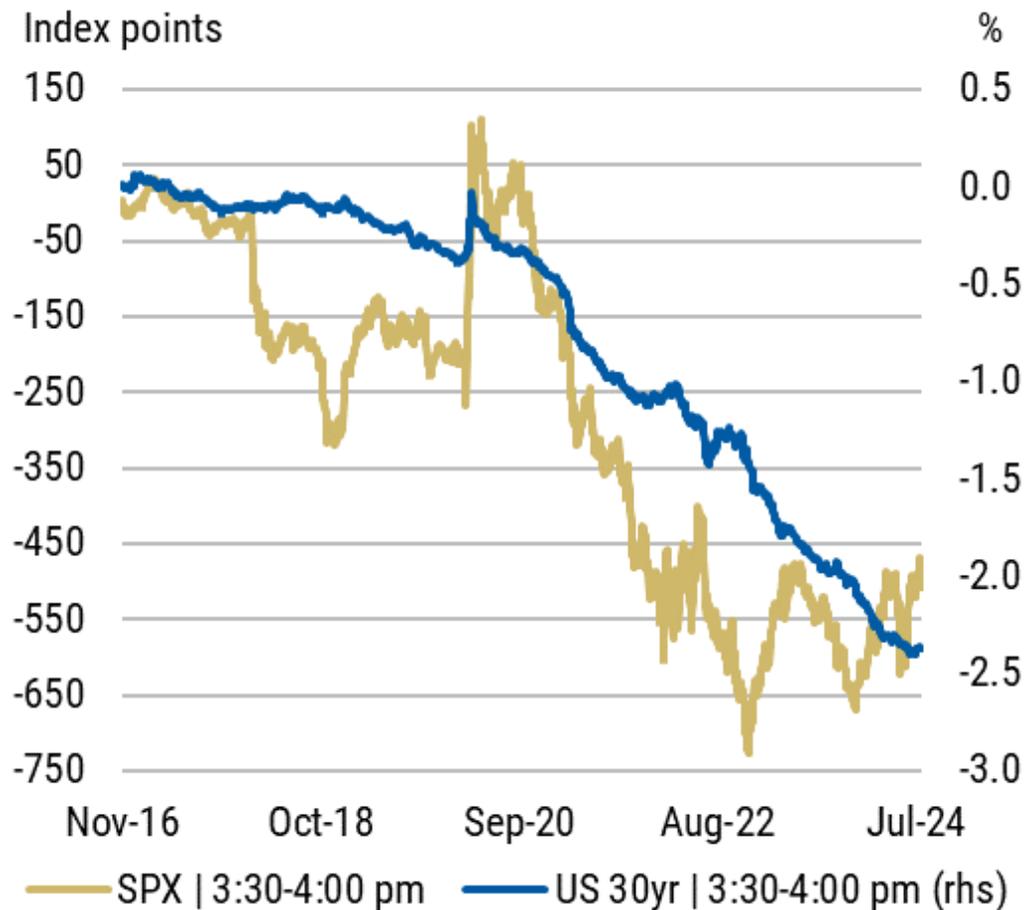
# Recent Trends and Developments: Banks



Source: Federal Reserve

- Banks have reduced U.S. Treasury holdings over the Quantitative Tightening (QT) period as the current cycle presents challenges that hinder their ability to add US Treasuries:
  - Elevated uncertainty surrounding when the Fed would begin rate cuts has also weighed on bank demand for U.S. Treasuries.
- Bank demand for securities (Treasuries + MBS) is driven by deposit and loan growth.
- Positive loan growth and deposit outflows have contributed to lower bank demand for U.S. Treasuries over the past two years, relative to growth in the size of the Treasury market.
- Treasuries outstanding have grown at a 5% annual rate over the past two years, while those held by banks have declined at a 1% annual rate over the same period.
- Bank demand for Treasury securities displayed sensitivity to expectations of a lower Fed rate path in 4Q23-1Q24, but the sustainability of this trend is uncertain at this point.

# Recent Trends and Developments: Pension Funds



Source: Presenter's calculation

\*<https://us.milliman.com/en/insight/pension-funding-index-july-2024>

- Milliman\* has shown a considerable improvement in the funded surplus for the 100 largest U.S. corporate defined benefit pension plans since 2020. In June, this cohort had a funded surplus of \$46bn and a funded ratio of 103.7%.
- In recent years, price action across equities and long-end U.S. Treasuries has suggested a rotation out of equities into bonds during 3:30pm – 4:00pm ET.
- A funded surplus indicates the market value of assets exceeds the present value of future liabilities. Thus, pension funds may not need to assume the same degree of risk to ensure distribution obligations are met.
- Stocks at record highs and higher market yields in bonds present an opportunity to de-risk portfolios, by selling equities and buying bonds.
- We consider most rebalancing by pension funds to be executed near the close, to minimize slippage costs compared to closing prices. Since November 2016, the cumulative decline in the 30y Treasury yield during 3:30pm – 4:00pm ET is estimated to be -237bp.
- During this period, the S&P 500 is down over 500 index points, which indicates signs of a rotation out of equities into 30y Treasuries.

**What are factors to consider when evaluating the outlook for domestic and foreign demand?**

# Outlook for Foreign and Domestic Demand

- **Regulatory Factors:**

- **Banks:** Bank demand for securities has been limited in the past two years, but changes to deposit assumptions and regulatory developments, related to capital requirements, suggest banks may allocate away from Agency MBS to Treasuries and may favor shorter-dated tenors on the curve.
- **Money Market Funds:** Continued asset growth of money market funds in addition to regulatory developments, which may shift assets into government and treasury funds from prime, may imply a substantial and possibly prolonged increase in demand for T-bills.

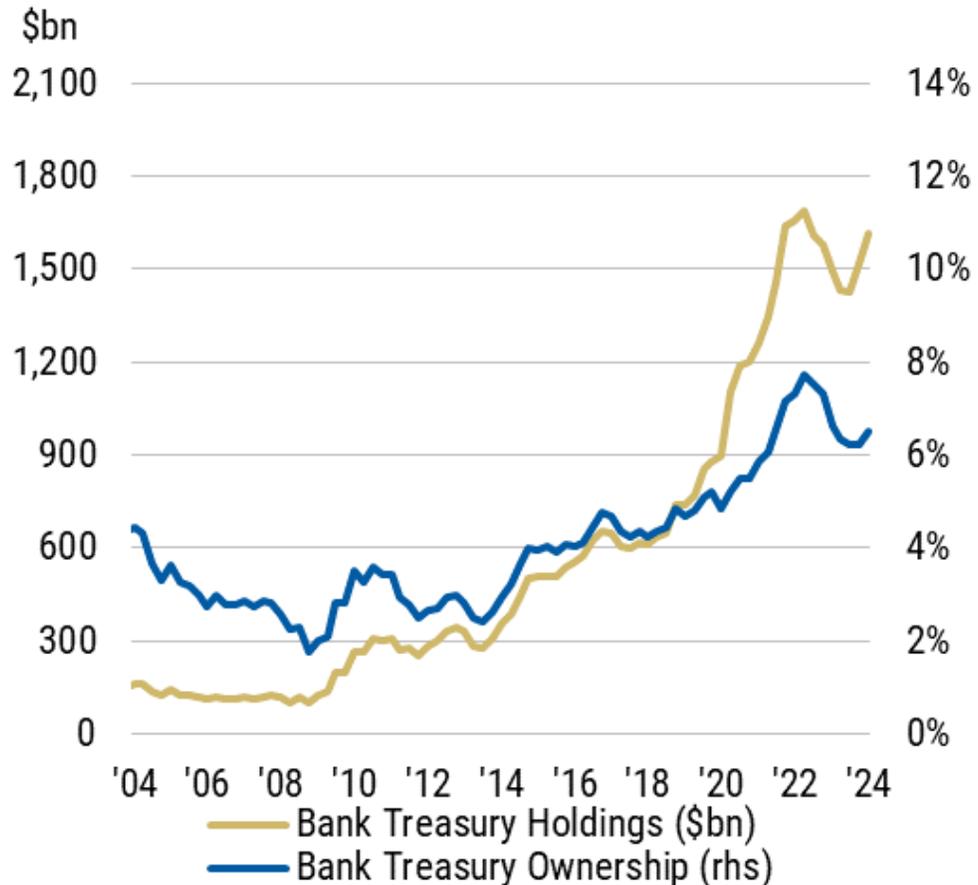
- **Economic Factors:**

- **Households and Mutual Funds:** Stock-bond correlations reverting to pre-pandemic norms mean Treasuries will perform better as a hedge to risk assets and could mean increased demand from households and mutual funds, given valuations. Although, expectations for larger fiscal deficits may result in households commanding higher term premium for their Treasury purchases.
- **Pension Funds:** After decades of being underfunded, pension plans are now in a funded surplus which provides an opportunity to de-risk investment portfolios, adding a source of demand for the long-end. Even in a higher rate environment, pension funds could constitute a potentially meaningful source of demand in the long-end.

- **Monetary Policy Factors:**

- **Foreign Investors:** As the point of lower policy rates approaches this could support demand from foreign investors, whose purchases of U.S. Treasuries is inversely linked to policy rates and influenced by the shape of the yield curve given currency hedging costs.

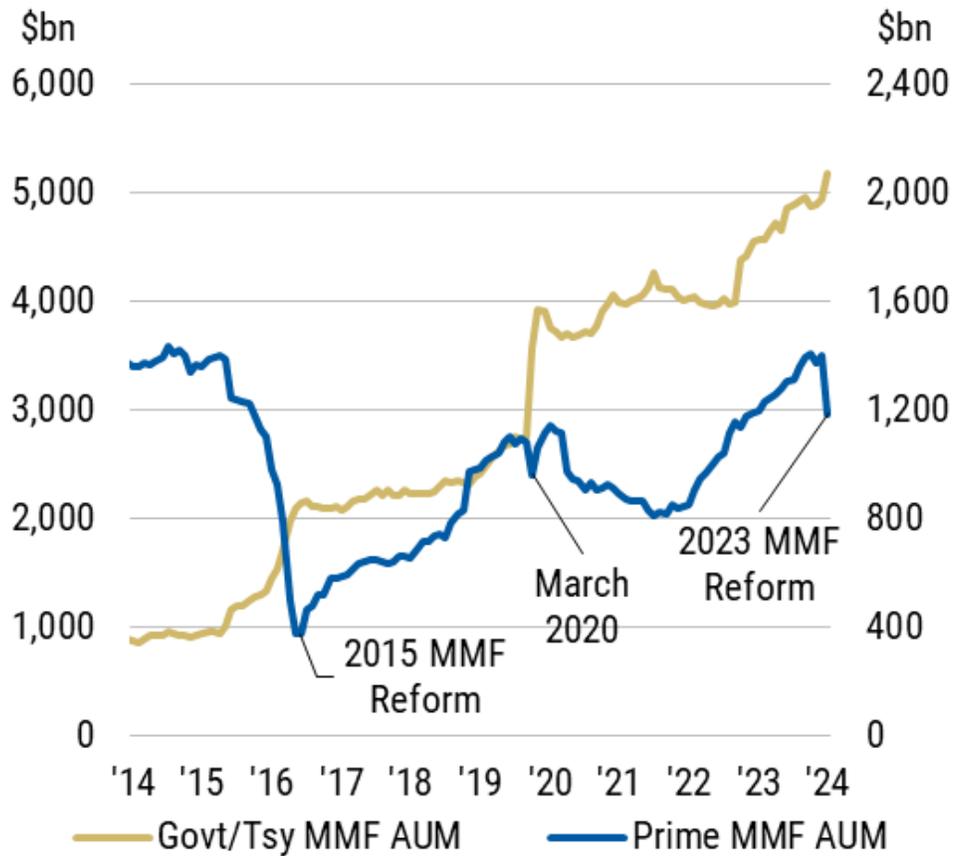
# Regulatory Factors: Banks



Source: Federal Reserve

- Changes to deposit duration assumptions after the March 2023 regional bank stresses suggest banks may now favor shorter-dated (2-3y) over the belly (5-7y) part of the curve.
- Two key potential regulatory changes on TLAC (total loss absorbing capacity) and the LCR (liquidity coverage ratio) could cause structural shifts in the composition of assets banks hold.
- From an LCR (liquidity coverage ratio) perspective, Treasuries are desirable relative to riskier and less liquid fixed income products – this could be supportive of bank demand for U.S. Treasuries in the future.
- A potential reduction of the Fed’s GSIB surcharge would free up capital and could have implications for bank demand for securities, including Treasuries.

# Regulatory Factors: Money Market Funds



Source: Crane Data

- To comply with upcoming SEC mandatory liquidity fee requirements (set to take effect on October 2), some institutional prime funds have shifted their holdings to government and treasury funds.
- The impact from this re-classification of investment strategy has resulted in growth in assets under management for government and treasury funds.
- This constitutes a larger base especially for T-bills, given money market funds own approximately 33% of total bills outstanding, but also for short-dated coupons and FRNs.

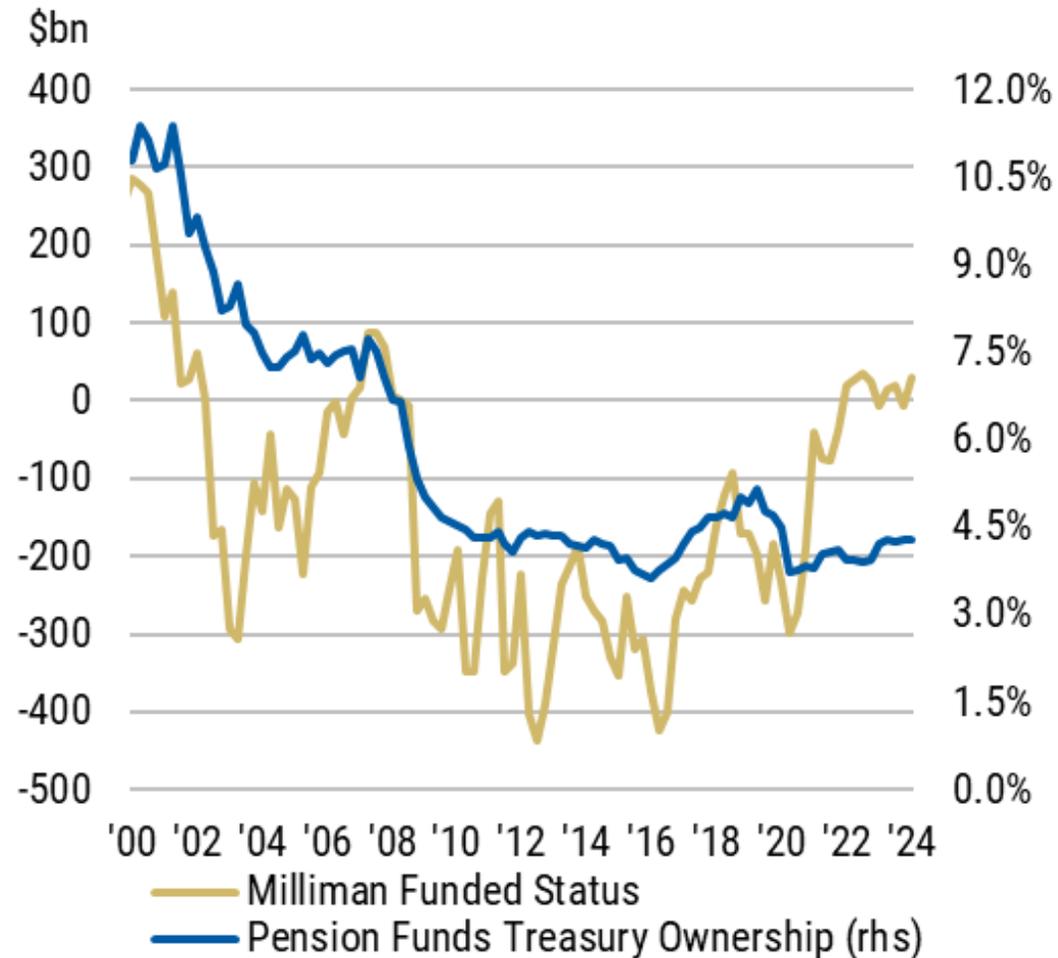
# Economic Outlook: Mutual Funds / Households



Source: Presenter's calculation

- In the past two years, it has been common for higher yields and lower stock prices simultaneously (i.e., the correlation between stock and bond prices turned positive).
- The flip in the stock-bond correlation, after two decades of being negatively correlated, has decreased demand for Treasuries as the diversification benefits of Treasuries are lower under positive stock correlation assumptions.
- As risks to the dual mandate move into better balance, the Fed may shift its focus to downside risks to growth, similar to its stance for much of the past two decades when inflation was low, and the stock-bond correlation was negative.
- With inflation moving closer to the Fed's target, demand for Treasuries as a risk-asset hedge may increase.

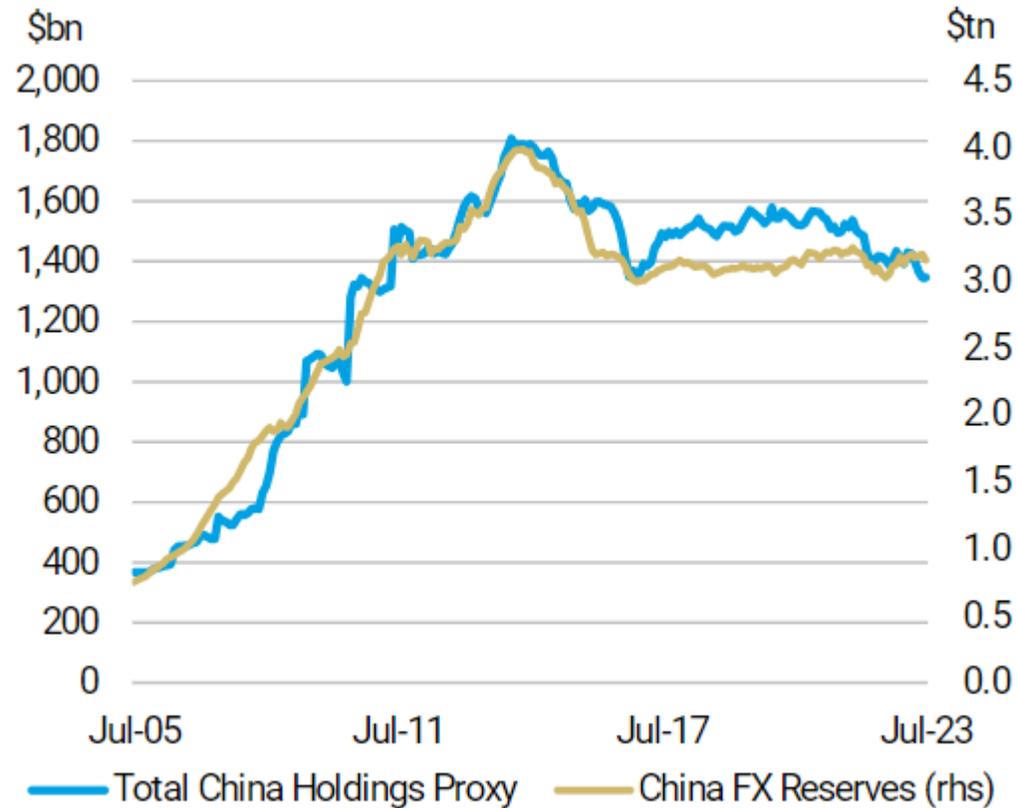
# Economic Outlook: Pension Funds



Source: Milliman, Federal Reserve

- Since 2020, pension funds have steadily increased their ownership of U.S. Treasuries, relative to the size of the Treasury market.
- In recent years, the funded status for the largest 100 U.S. corporate defined benefit pension plans has been in a surplus (i.e., the market value of assets exceeds the present value of future liabilities).
- Overfunded pension plans provide an incentive to de-risk investment portfolios and rotate out of equities (return enhancers) and into Treasuries (volatility reducers).
- Higher levels of interest rates could keep pension plans overfunded and increase demand for U.S. Treasuries in the long-end of the curve.
- There has been an increase in pension demand for U.S. Treasuries since 2020, with potential for future further increases in pension ownership with funded ratios above 1.

# Monetary Policy Outlook: Foreign Investors



Source: TIC, Presenter's Calculations

- The main driver of the decline in foreign ownership of Treasuries outstanding has been driven by foreign official holdings.
- Since foreign official holdings are a proxy for central banks around the globe, cyclical elements linked to monetary policy (i.e., yield levels and the US dollar) influence demand from foreign officials.
- Lower foreign FX reserves alongside a decline in holdings of Treasury securities suggests monetary authorities may feel pressured to defend their currencies from a stronger US dollar and in turn sell dollar assets, including Treasuries.
- The prospect of Fed rate cuts present the potential to increase foreign demand, in the form of a weaker U.S. dollar and lower FX hedging costs.
- A lower federal funds rate, to the point where the yield-curve is upward sloping and carry once again becomes positive for holding long U.S. Treasury positions, may also boost foreign demand.

# Conclusions

- **Banks** may exhibit **increased demand** for U.S. Treasuries, but at a shorter maturity (2-3y) than historical trends (5-7y) in the aftermath of the March 2023 banking stresses.
- **Money market funds** may exhibit **increased demand** for T-bills, with shorter-dated coupons and FRNs also possible beneficiaries from asset growth and a larger Treasury allocation.
- The outlook for **household demand** is **uncertain** with this investor's share of the Treasury market at historical highs. A return of stock-bond correlations to pre-pandemic norms argues for demand for Treasuries as a risk asset hedge but expectations of higher fiscal deficits may temper demand tailwinds. In a lower and less volatile inflationary environment, there also may be less demand from retail investors for TIPS. We recommend this to be an area of further study.
- **Pension funds** may exhibit **increased demand** for long-end U.S. Treasuries, as plans in funded surplus provide an opportunity to de-risk investment portfolios and rotate out of return enhancers (equities) into volatility reducers (bonds).
- **Foreign investors** may exhibit **increased demand** for U.S. Treasuries as the point of lower US policy rates approaches and the yield curve dis-inverts. Although, potential changes in foreign trade policy could weigh negatively on foreign demand.