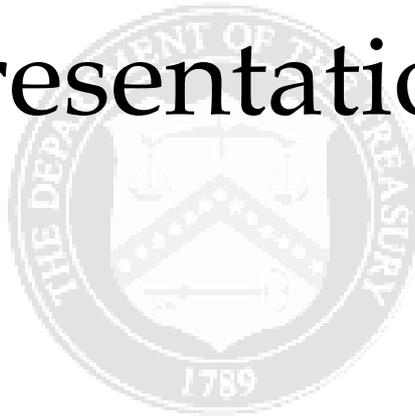


Treasury Presentation to TBAC



Office of Debt Management



Fiscal Year 2018 Q2 Report

Table of Contents

I.	Executive Summary	p. 4
II.	Fiscal	
	A. Quarterly Tax Receipts	p. 6
	B. Monthly Receipt Levels	p. 7
	C. Largest Outlays	p. 8
	D. Treasury Net Nonmarketable Borrowing	p. 9
	E. Cumulative Budget Deficits	p. 10
	F. Deficit and Borrowing Estimates	p. 11
	G. Budget Surplus/Deficit	p. 12
III.	Financing	
	A. Sources of Financing	p. 15
	B. OMB's Projections of Net Borrowing from the Public	p. 17
	C. Interest Rate Assumptions	p. 18
	D. Projected Net Marketable Borrowing Assuming Future Issuance Remains Constant	p. 19
IV.	Portfolio Metrics	
	A. Historical Weighted Average Maturity of Marketable Debt Outstanding	p. 22
	B. Maturity Profile	p. 23
V.	Demand	
	A. Summary Statistics	p. 25
	B. Bid-to-Cover Ratios	p. 26
	C. Investor Class Awards at Auction	p. 31
	D. Primary Dealer Awards at Auction	p. 35
	E. Direct Bidder Awards at Auction	p. 36
	F. Foreign Awards at Auction	p. 37

Section I: Executive Summary



Highlights of Treasury's May 2018 Quarterly Refunding Presentation to the Treasury Borrowing Advisory Committee (TBAC)

Receipts and Outlays

- Receipts totaled \$1,497 billion in 1H FY 2018, \$24 billion (2%) higher than last year. Withheld Income and FICA taxes increased by \$47 billion (4%) year-over-year, reflecting growth in both employment and wages. Non-withheld Income and SECA taxes increased by \$11 billion (7%) over the same timeframe. Partially offsetting these increases, gross corporate taxes were \$14 billion (11%) lower than last year.
- Outlays totaled \$2,097 billion in 1H FY 2018, \$97 billion (5%) higher year-over-year. After calendar adjustments, outlays were \$103 billion (5%) higher than the comparable period last year. Department of Treasury outlays were \$32 billion (10%) higher, due to increased interest on the public debt and payments made to the GSEs in March. Adjusted Social Security Administration outlays increased by \$19 billion (4%), due to increases in program enrollment and the average benefit payment. Adjusted Health and Human Services outlays were \$16 billion (3%) higher, due to increases in Medicare. Department of Homeland Security outlays were \$15 billion (61%) higher, due to increased payments for disaster relief. Fiscal year to-date outlays were 21.1% of GDP, unchanged from the same period last year.

Sources of Financing

- Based on the Quarterly Borrowing Estimate, Treasury's Office of Fiscal Projections (OFP) currently estimates a net privately-held marketable borrowing need of \$75 billion for Q3 FY 2018, with an end-of-June cash balance of \$360 billion. For Q4 FY 2018, the net privately-held marketable borrowing need is projected to be \$273 billion, with an end-of-September cash balance of \$350 billion. OFP's FY 2018 projection for net privately-held marketable borrowing is \$1,118 billion. Privately-held marketable borrowing excludes rollovers (auction "add-ons") of Treasury securities held in the Federal Reserve's System Open Market Account (SOMA), but includes financing required due to SOMA redemptions.
- OMB (\$1,124 billion in FY 2018) and CBO (\$1,023 billion in FY 2018) do not use the concept of privately-held marketable borrowing when discussing financing requirements. For comparison purposes, OFP's net marketable borrowing estimate of \$962 billion should be used. These figures do not take into account the additional privately-held borrowing necessary to finance SOMA redemptions.

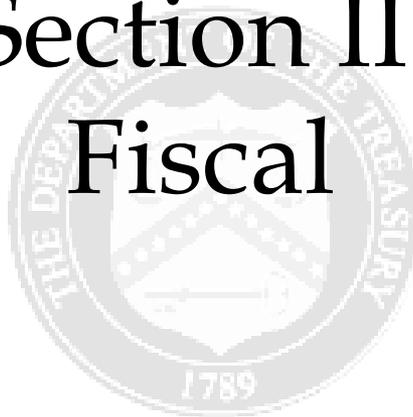
Projected Net Marketable Borrowing

- Recent deficit estimates in conjunction with SOMA redemptions suggest that Treasury auction sizes will need to rise over the next few years. Updated budget estimates from OMB and CBO provided information on the amount of borrowing needed over the next few years. CBO's budget projections are similar to OMB's.

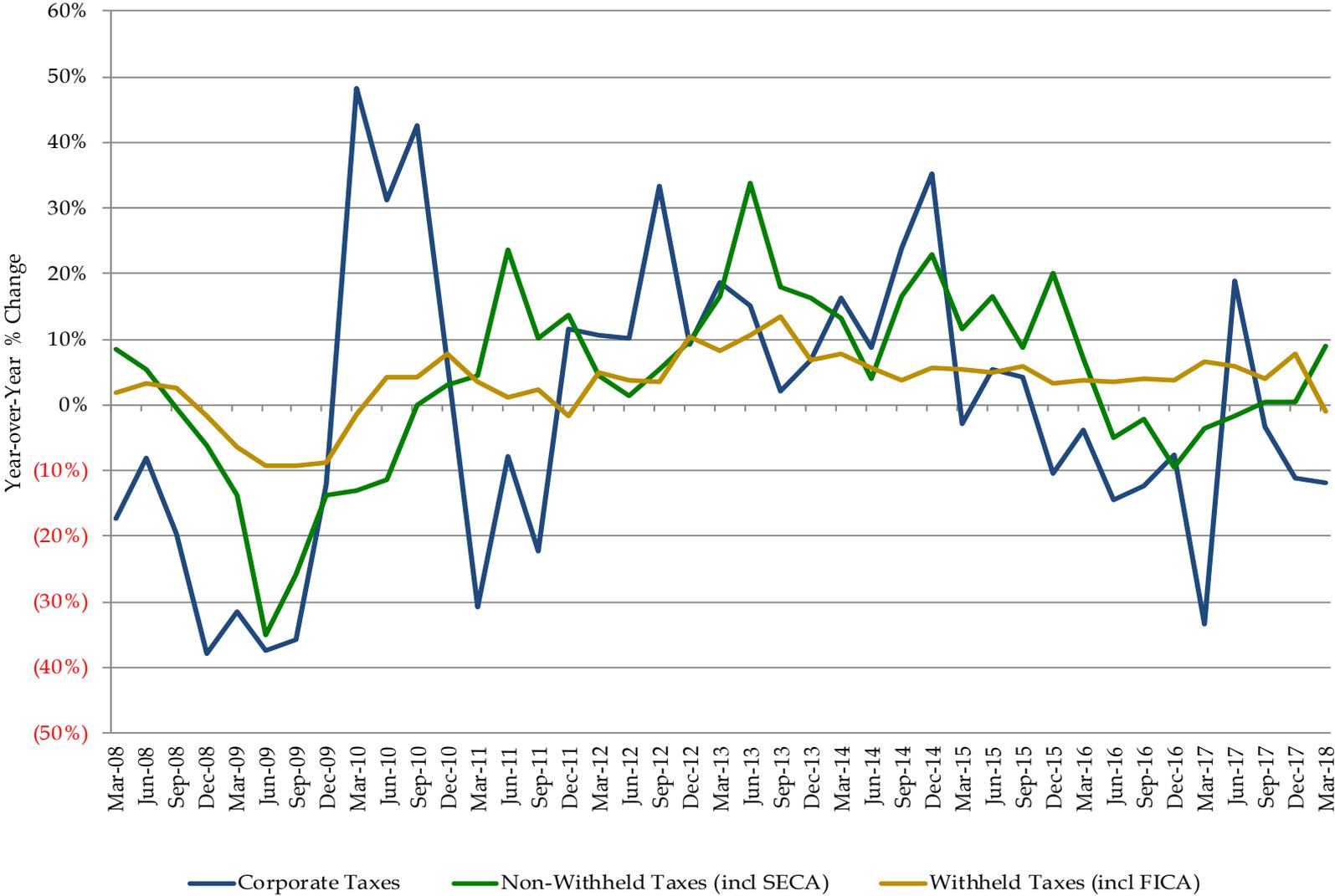
Demand for Treasury Securities

- Bid-to-cover ratios for bills remain above crisis-era levels, at a time when overall bill issuance rose to meet seasonal borrowing needs. Demand for nominal coupons, TIPS, and FRNs remains consistent with the recent past.
- Foreign demand remains strong.

Section II: Fiscal

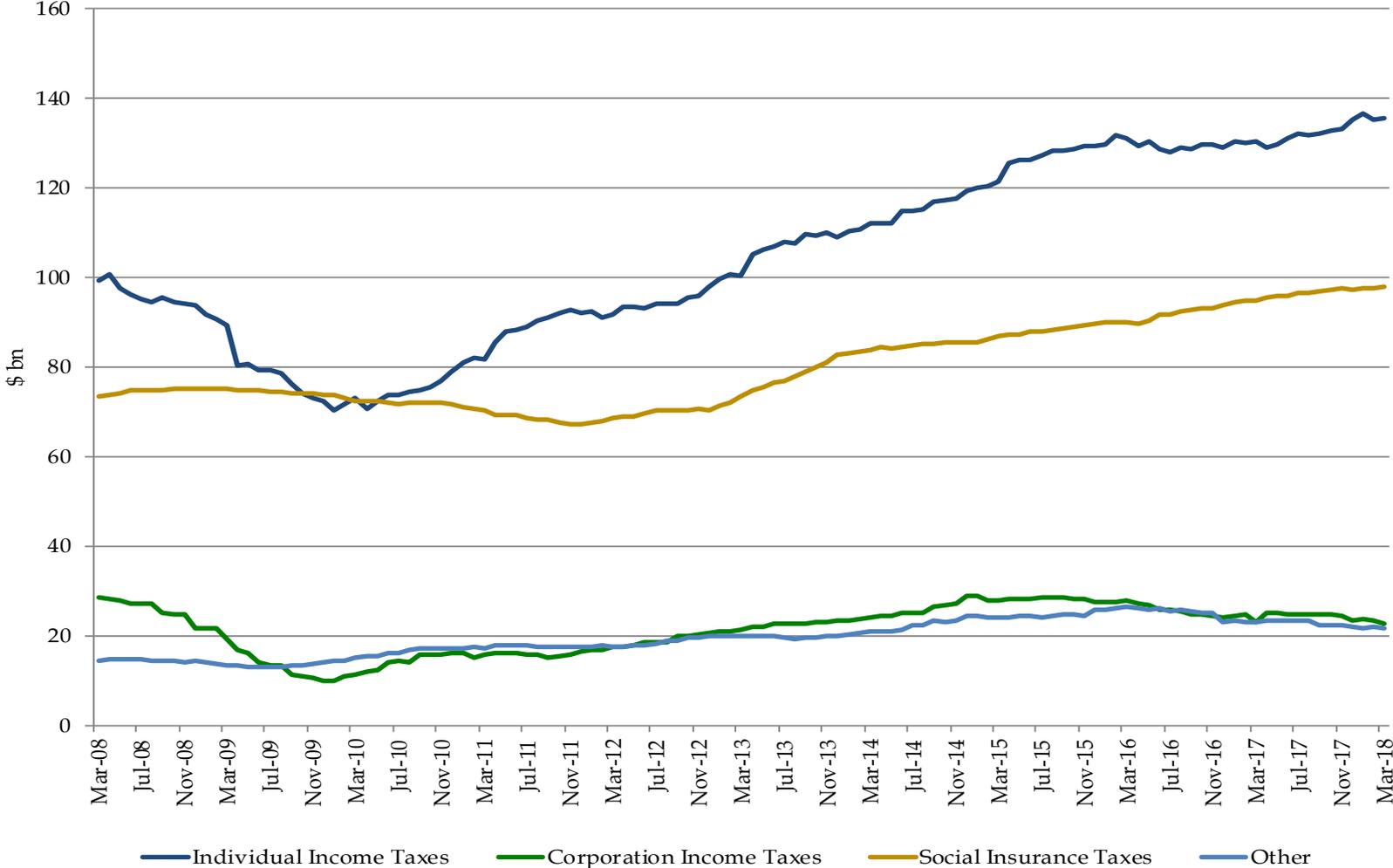


Quarterly Tax Receipts



Source: United States Department of the Treasury

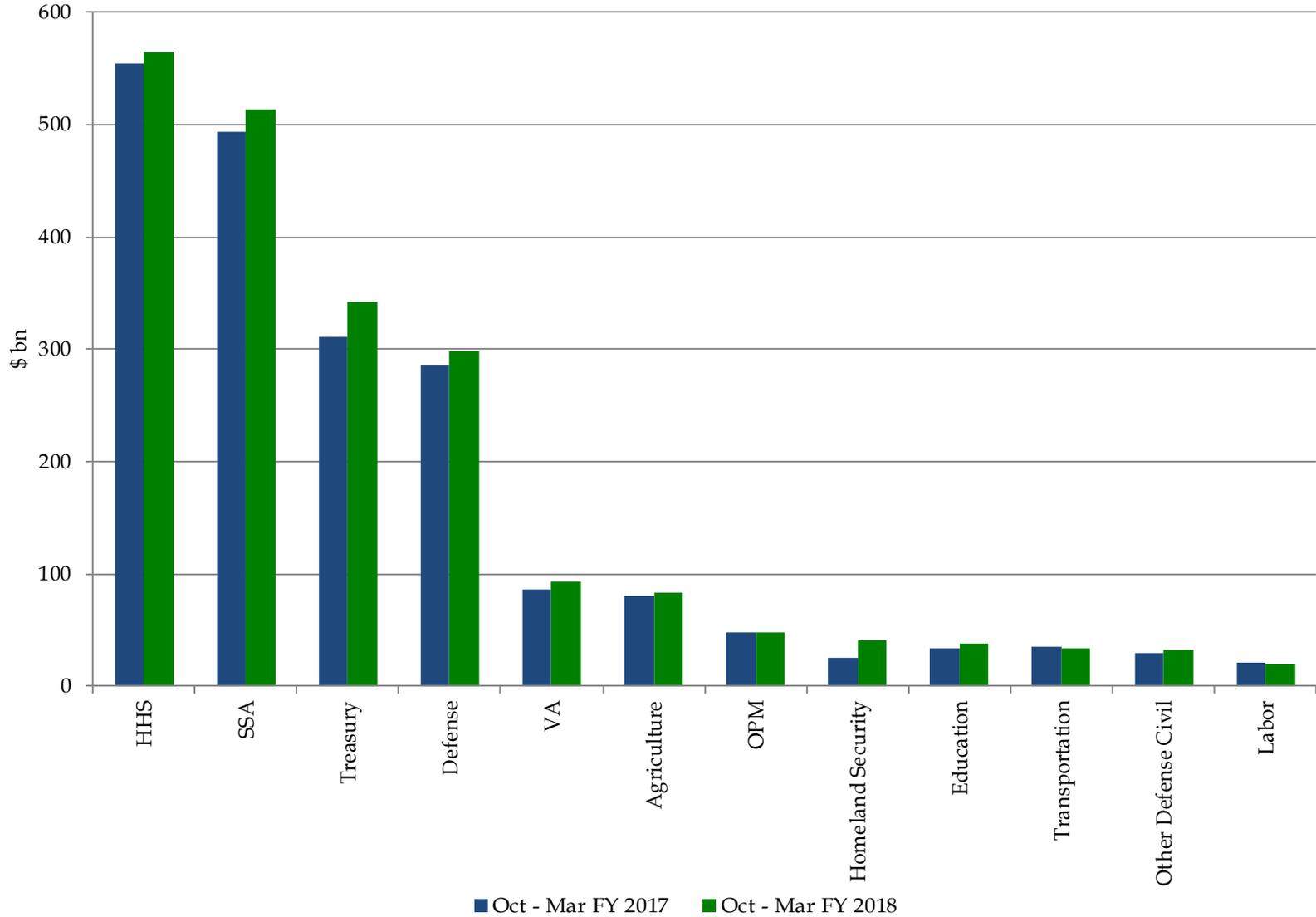
Monthly Receipt Levels (12-Month Moving Average)



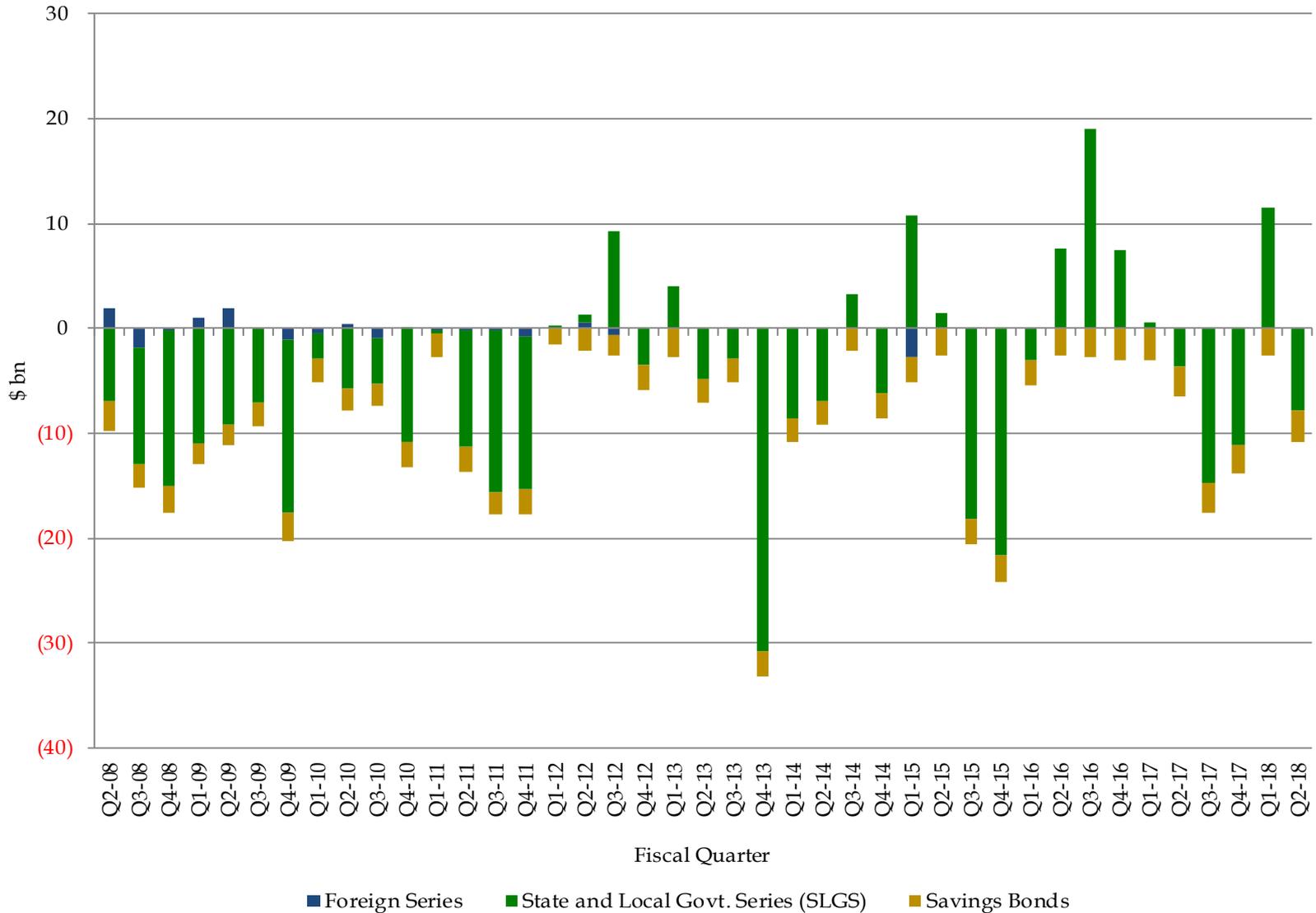
Individual Income Taxes include withheld and non-withheld. Social Insurance Taxes include FICA, SECA, RRTA, UTF deposits, FUTA and RUIA. Other includes excise taxes, estate and gift taxes, customs duties and miscellaneous receipts.

Source: United States Department of the Treasury

Largest Outlays

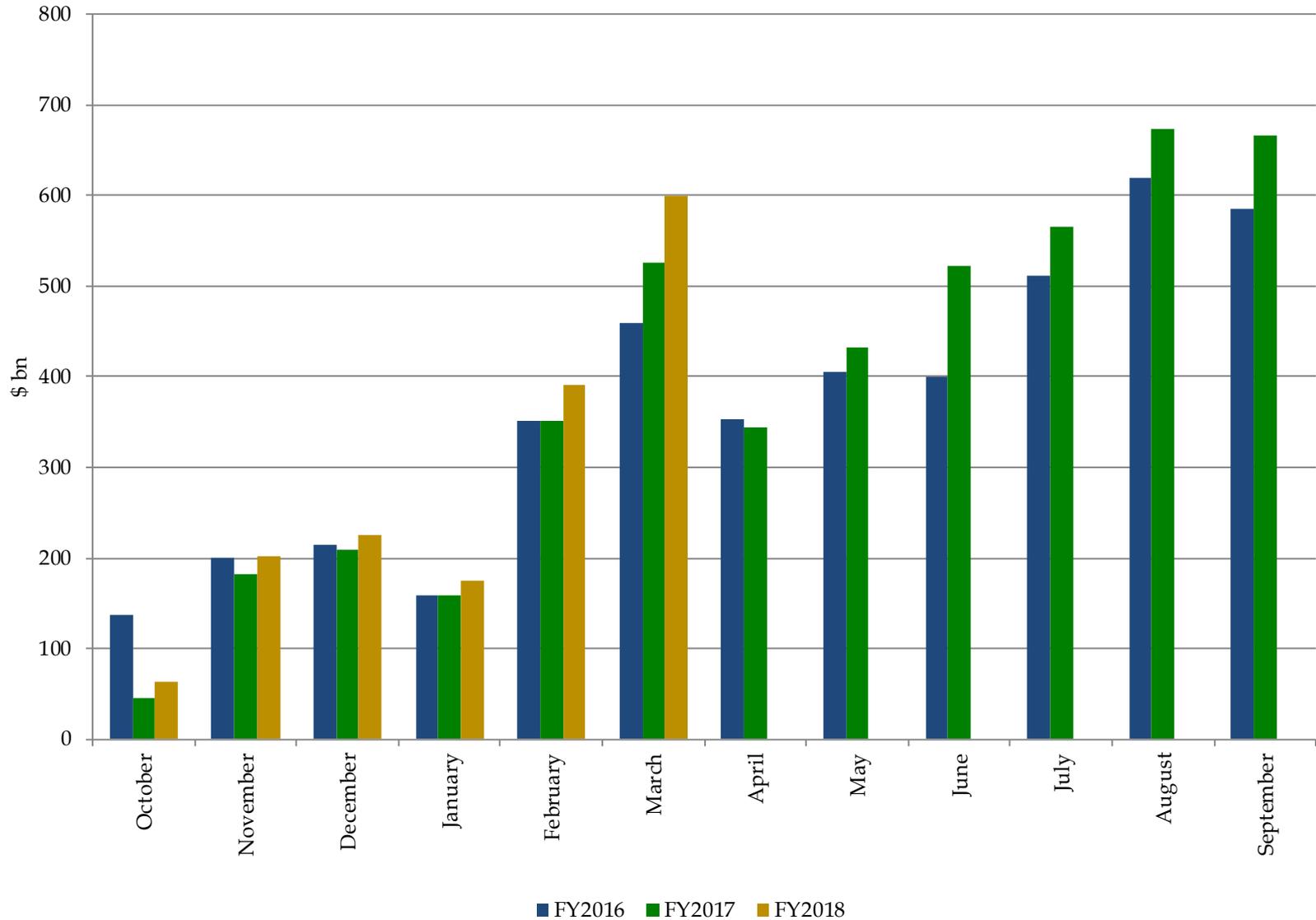


Treasury Net Nonmarketable Borrowing



Source: United States Department of the Treasury

Cumulative Budget Deficits by Fiscal Year



FY 2018-2020 Deficits and Net Marketable Borrowing Estimates in \$ billions

	Primary Dealers ¹	CBO ²	OMB ³
FY 2018 Deficit Estimate	820	804	832
FY 2019 Deficit Estimate	1,030	981	984
FY 2020 Deficit Estimate	1,110	1,008	987
FY 2018 Deficit Range	740-895		
FY 2019 Deficit Range	950-1,180		
FY 2020 Deficit Range	1,000-1,250		
FY 2018 Privately-Held Net Marketable Borrowing Estimate*	1,060		1,118**
FY 2019 Privately-Held Net Marketable Borrowing Estimate	1,300		
FY 2020 Privately-Held Net Marketable Borrowing Estimate	1,270		
FY 2018 Privately-Held Net Marketable Borrowing Range	899-1,320		
FY 2019 Privately-Held Net Marketable Borrowing Range	868-1,584		
FY 2020 Privately-Held Net Marketable Borrowing Range	1,000-1,500		
FY 2018 SOMA Redemption Estimate	175		156**
FY 2019 SOMA Redemption Estimate	285		
FY 2020 SOMA Redemption Estimate	222		
FY 2018 Net Marketable Borrowing Estimate	885	1,023	962**
FY 2019 Net Marketable Borrowing Estimate	1,015	1,074	1,082
FY 2020 Net Marketable Borrowing Estimate	1,048	1,065	1,075
Estimates as of:	Apr-18	Apr-18	Feb-18

¹Based on primary dealer feedback in April 2018. Estimates above are averages.

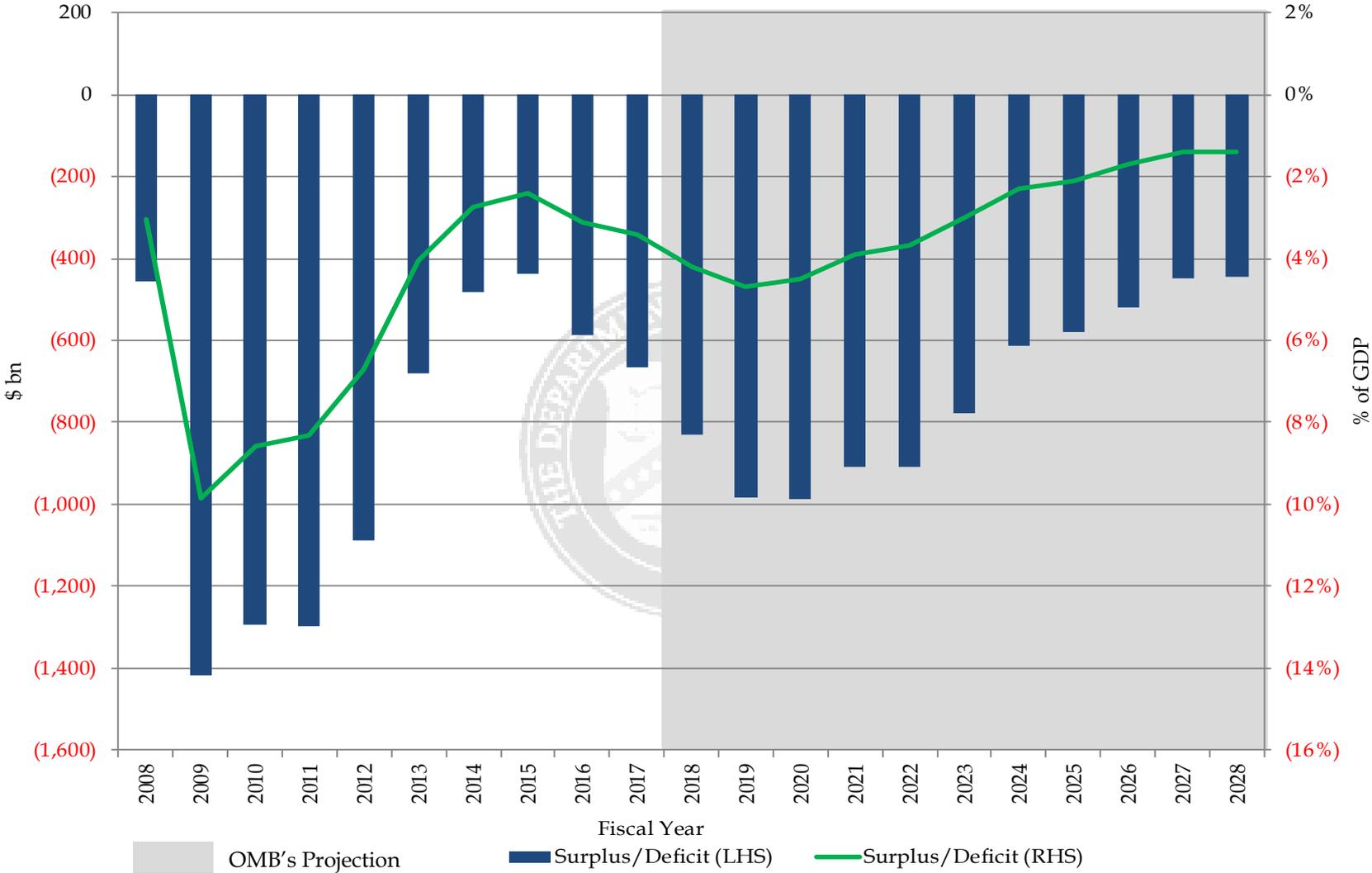
²Table 4-4 of CBO's "The Budget and Economic Outlook: 2018 to 2028," April 2018.

³Table S-10 of OMB's "Budget of the United States Government, Fiscal Year 2019," February 2018.

*Privately-held marketable borrowing excludes rollovers (auction "add-ons") of Treasury securities held in the Federal Reserve's System Open Market Account (SOMA), but includes financing required due to SOMA redemptions.

**OFP's FY 2018 Estimates.

Budget Surplus/Deficit



Projections are from OMB's Table S-10 of "Budget of The U.S. Government Fiscal Year 2019," February 2018.

Section III: Financing



Assumptions for Financing Section (pages 15 to 20)

- Portfolio and SOMA holdings as of 3/31/2018.
- Estimates assume an end date for SOMA capped redemptions at the end of CY2020. The assumption is based on the median case from “Statement Regarding the Annual Report on Open Market Operations during 2017,” Federal Reserve Bank of New York, April 2018.
- Estimates assume announced issuance sizes and patterns remain constant for nominal coupons, TIPS, and FRNs given changes made at February 2018 refunding, while using a total of ~\$2.29 trillion of bills outstanding.
- The principal on the TIPS securities was accreted to each projection date based on market ZCIS levels as of 3/31/2018.
- No attempt was made to account for future financing needs.



Sources of Privately-Held Financing in Fiscal Year 2018 Q2*

January - March 2018	
Net Bill Issuance	333
Net Coupon Issuance	155
Subtotal: Net Marketable Borrowing	488
Ending Cash Balance	290
Beginning Cash Balance	229
Subtotal: Change in Cash Balance	61
Net Implied Funding for FY18 Q2**	428

Security	January - March 2018 Bill Issuance			Fiscal Year-to-Date Bill Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
4-Week	645	565	80	1,220	1,085	135
13-Week	642	555	87	1,197	1,068	129
26-Week	564	435	129	1,041	864	177
52-Week	86	80	6	146	140	6
CMBs	80	49	31	139	99	40
Bill Subtotal	2,017	1,684	333	3,743	3,256	487

Security	January - March 2018 Coupon Issuance			Fiscal Year-to-Date Coupon Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
2-Year FRN	30	41	(11)	71	82	(11)
2-Year	80	52	28	158	78	80
3-Year	78	72	6	150	150	(0)
5-Year	103	108	(5)	205	255	(50)
7-Year	85	46	39	169	118	51
10-Year	65	23	42	128	39	89
30-Year	41	0	41	80	0	80
5-Year TIPS	0	0	0	14	0	14
10-Year TIPS	24	16	8	35	16	19
30-Year TIPS	7	0	7	12	0	12
Coupon Subtotal	513	358	155	1,022	738	284

Total	2,530	2,041	488	4,765	3,994	771
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*Privately-held marketable borrowing excludes rollovers (auction “add-ons”) of Treasury securities held in the Federal Reserve’s System Open Market Account (SOMA), but includes financing required due to SOMA redemptions.

**An end-of-March 2018 cash balance of \$290 billion versus a beginning-of-January 2018 cash balance of \$229 billion. By keeping the cash balance constant, Treasury arrives at the net implied funding number.

Sources of Privately-Held Financing in Fiscal Year 2018 Q3*

April - June 2018	
Assuming Constant Coupon Issuance Sizes**	
Treasury Announced Net Marketable Borrowing***	75
Net Coupon Issuance	192
Implied Change in Bills	(117)

Security	April - June 2018 Coupon Issuance			Fiscal Year-to-Date Coupon Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
2-Year FRN	62	41	21	133	123	10
2-Year	94	78	16	252	156	96
3-Year	90	72	18	240	222	18
5-Year	105	90	15	310	345	(35)
7-Year	87	37	50	256	155	101
10-Year	66	12	54	194	52	142
30-Year	42	3	39	122	3	119
5-Year TIPS	16	53	(37)	30	53	(23)
10-Year TIPS	11	0	11	46	16	30
30-Year TIPS	5	0	5	17	0	17
Coupon Subtotal	578	386	192	1,600	1,125	475

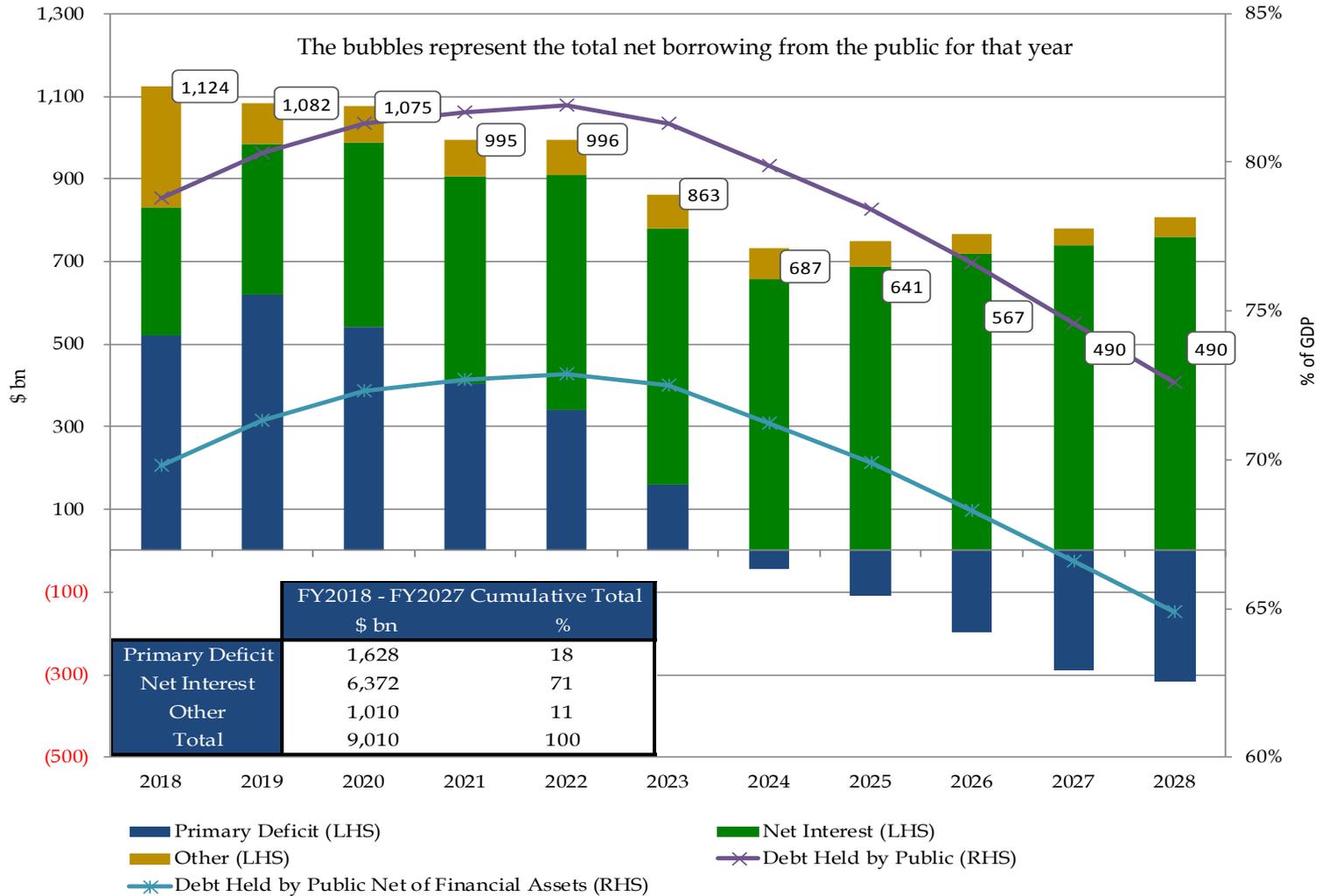
*Privately-held marketable borrowing excludes rollovers (auction “add-ons”) of Treasury securities held in the Federal Reserve’s System Open Market Account (SOMA), but includes financing required due to SOMA redemptions.

**Keeping announced issuance sizes and patterns constant for nominal coupons, TIPS, and FRNs based on changes made at February 2018 refunding.

***Assumes an end-of-June 2018 cash balance of \$360 billion versus a beginning-of-April 2018 cash balance of \$290 billion.

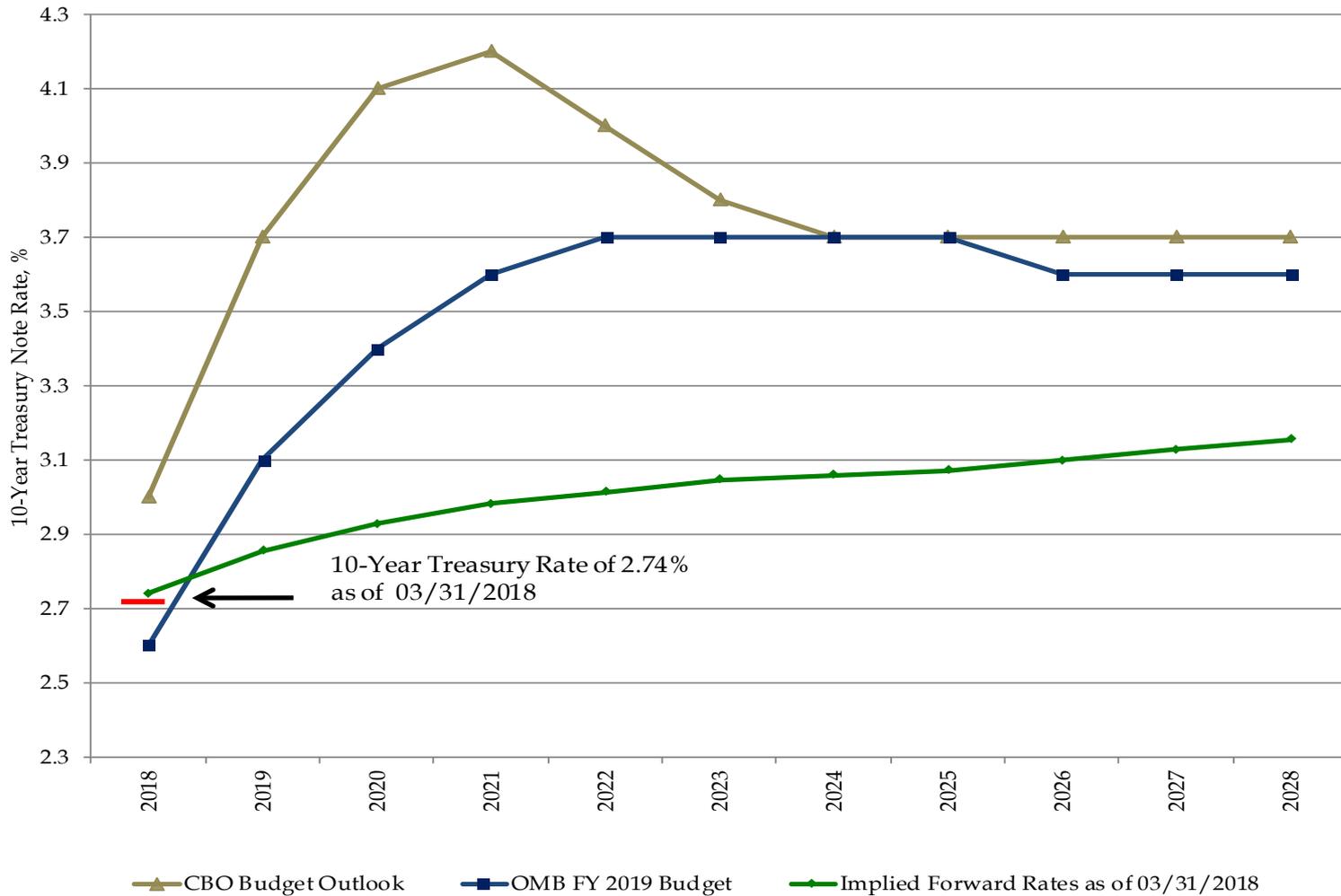
Financing Estimates released by the Treasury can be found here: <http://www.treasury.gov/resource-center/data-chart-center/quarterly-refunding/Pages/Latest.aspx>

OMB's Projection of Borrowing from the Public



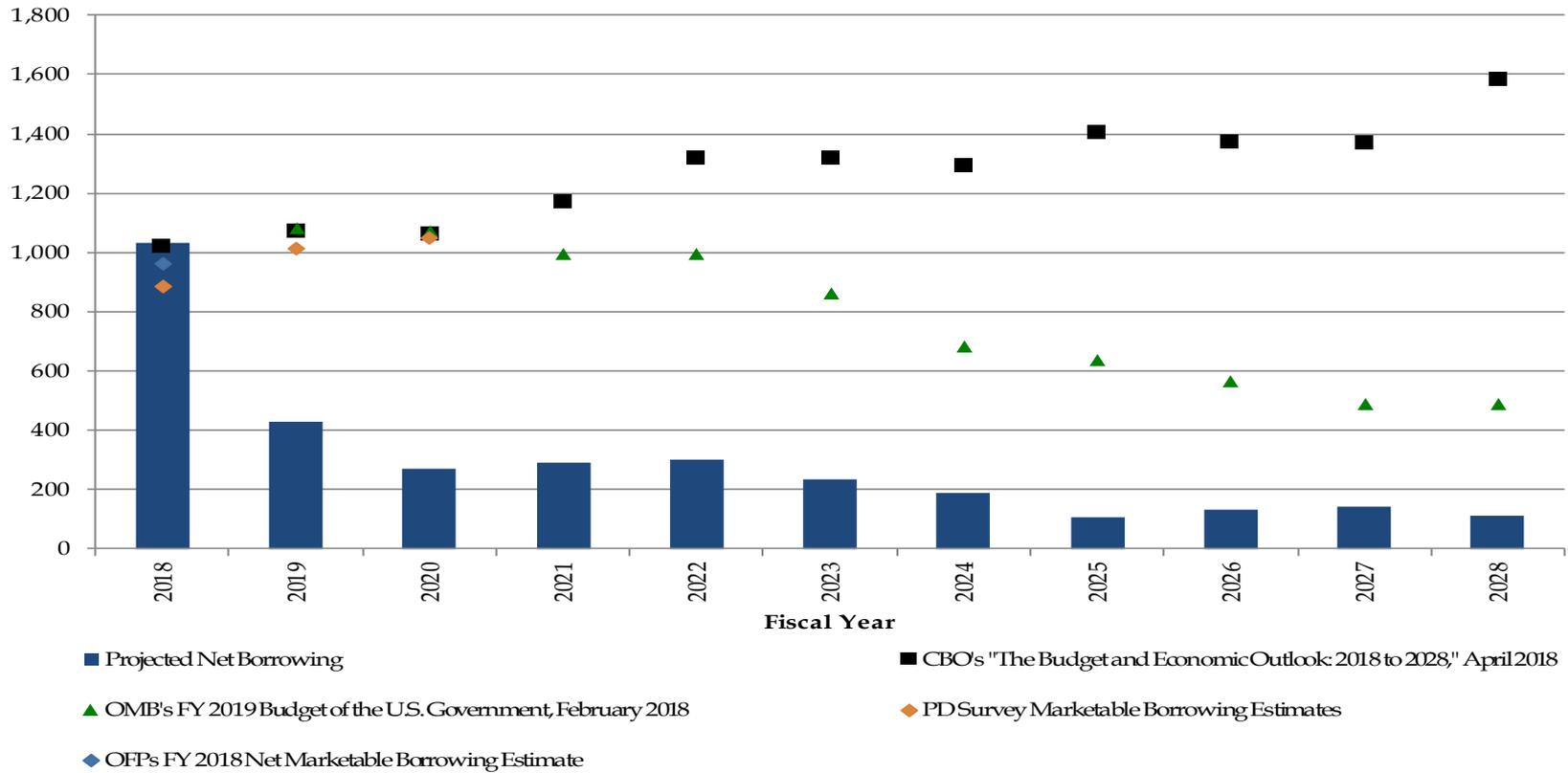
OMB's projections of the change in debt held by the public are from Table S-10 of "Budget of the U.S. Government Fiscal Year 2019," February 2018. "Other" represents borrowing from the public to provide direct and guaranteed loans.

Interest Rate Assumptions: 10-Year Treasury Note



OMB's economic assumption of the 10-Year Treasury Note rates are from Table S-9 of OMB's "Budget of the United States Government Fiscal Year 2019," February 2018. CBO's economic assumption of the 10-Year Treasury Note rates are from Table D-1 of CBO's "The Budget and Economic Outlook: 2018 to 2028," April 2018. The forward rates are the implied 10-Year Treasury Note rates on March 31, 2018.

Projected Net Borrowing Assuming Future Issuance Remains Constant



Treasury's April 2018 primary dealer survey estimates can be found on page 11. OMB's projections of the change in debt held by the public are from Table S-10 of "Budget of the U.S. Government Fiscal Year 2019," February 2018. CBO's baseline budget projections of the change in debt held by the public are from Table 4-4 of "The Budget and Economic Outlook: 2018 to 2028," April 2018. See table at the end of this section for details.

*Projections reflect capped SOMA Treasury redemptions up until the end of CY 2020.

Historical Net Marketable Borrowing and Projected Net Borrowing Assuming Future Issuance Remains Constant, \$ billions

Fiscal Year	Bills	2/3/5	7/10/30	TIPS	FRN	Historical/Projected Net Borrowing Capacity	OMB's FY 2019 Budget of the U.S. Government	CBO's "The Budget and Economic Outlook: 2018 to 2028"	Primary Dealer Survey
2013	(86)	86	720	111	0	830			
2014	(119)	(92)	669	88	123	669			
2015	(53)	(282)	641	88	164	558			
2016	289	(82)	477	64	47	795			
2017	155	9	292	55	9	519			
2018	487	179	296	52	19	1,033	962*	1,023	885
2019	0	228	133	45	18	425	1,082	1,074	1,015
2020	0	85	171	15	(1)	270	1,075	1,065	1,048
2021	0	61	229	(0)	(0)	290	995	1,171	
2022	0	53	255	(12)	3	299	996	1,321	
2023	0	106	132	(9)	5	234	863	1,319	
2024	0	(7)	209	(11)	1	191	687	1,294	
2025	0	(31)	196	(53)	(2)	109	641	1,406	
2026	0	(29)	209	(45)	(2)	133	567	1,377	
2027	0	(5)	185	(34)	(3)	142	490	1,372	

Net borrowing capacity reflects capped SOMA redemptions up until the end of CY 2020.

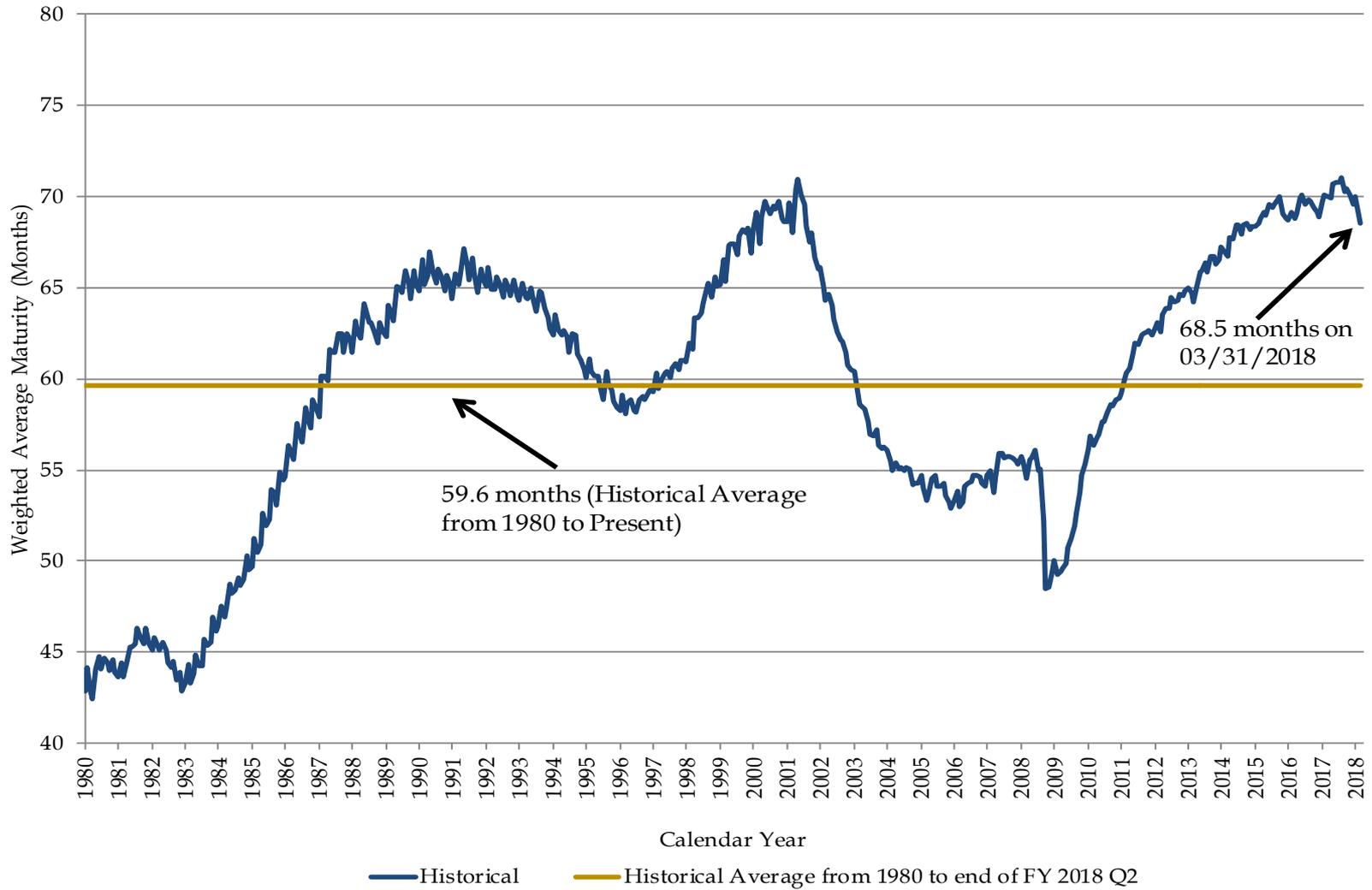
Treasury's April 2018 primary dealer survey estimates can be found on page 11. OMB's projections of the change in debt held by the public are from Table S-10 of "Budget of the U.S. Government Fiscal Year 2019," February 2018. CBO's baseline budget projections of the change in debt held by the public are from Table 4-4 of CBO's "The Budget and Economic Outlook: 2018-2028," April 2018.

*OFP's FY 2018 Net Marketable Borrowing Estimate.

Section IV: Portfolio Metrics



Historical Weighted Average Maturity of Marketable Debt Outstanding



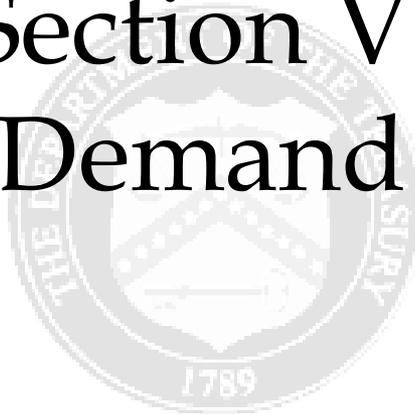
Recent Maturity Profile, \$ billions

End of Fiscal Year	<= 1yr	(1,2]	(2,3]	(3,5]	(5,7]	(7,10]	> 10	Total	(0,5]
2010	2,563	1,141	895	1,273	907	856	853	8,488	5,872
2011	2,620	1,334	980	1,541	1,070	1,053	1,017	9,616	6,476
2012	2,951	1,373	1,104	1,811	1,214	1,108	1,181	10,742	7,239
2013	2,939	1,523	1,242	1,965	1,454	1,136	1,331	11,590	7,669
2014	2,935	1,739	1,319	2,207	1,440	1,113	1,528	12,281	8,199
2015	3,097	1,775	1,335	2,382	1,478	1,121	1,654	12,841	8,589
2016	3,423	1,828	1,538	2,406	1,501	1,151	1,800	13,648	9,195
2017	3,631	2,027	1,504	2,433	1,466	1,180	1,946	14,188	9,596

Recent Maturity Profile, percent

End of Fiscal Year	<= 1yr	(1,2]	(2,3]	(3,5]	(5,7]	(7,10]	> 10	(0,3]	(0,5]
2010	30.2	13.4	10.5	15.0	10.7	10.1	10.0	54.2	69.2
2011	27.2	13.9	10.2	16.0	11.1	10.9	10.6	51.3	67.3
2012	27.5	12.8	10.3	16.9	11.3	10.3	11.0	50.5	67.4
2013	25.4	13.1	10.7	17.0	12.5	9.8	11.5	49.2	66.2
2014	23.9	14.2	10.7	18.0	11.7	9.1	12.4	48.8	66.8
2015	24.1	13.8	10.4	18.5	11.5	8.7	12.9	48.3	66.9
2016	25.1	13.4	11.3	17.6	11.0	8.4	13.2	49.7	67.4
2017	25.6	14.3	10.6	17.1	10.3	8.3	13.7	50.5	67.6

Section V: Demand



Summary Statistics for Fiscal Year 2018 Q2 Auctions

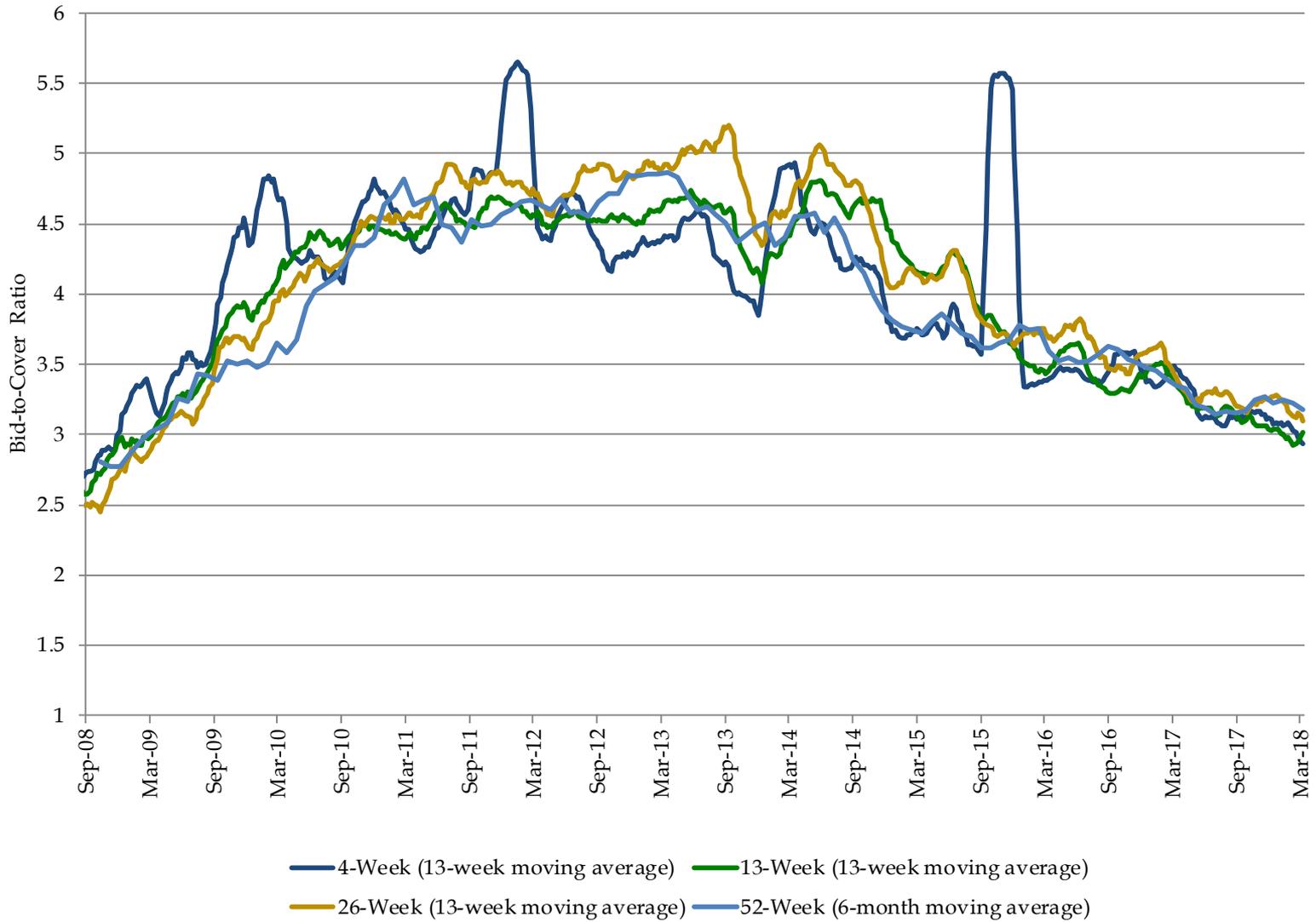
Security Type	Term	Stop Out Rate (%)*	Bid-to-Cover Ratio*	Competitive Awards (\$bn)	% Primary Dealer*	% Direct*	% Indirect*	Non-Competitive Awards (\$bn)	SOMA "Add-Ons" (\$bn)	10-Year Equivalent (\$bn)**
Bill	4-Week	1.475	2.9	634.7	59.6	8.2	32.1	10.3	0.0	5.7
Bill	13-Week	1.570	3.0	627.2	49.3	6.5	44.2	14.8	0.0	18.4
Bill	26-Week	1.742	3.1	550.3	49.3	4.0	46.7	13.7	0.0	32.3
Bill	52-Week	1.934	3.1	84.3	61.2	7.1	31.7	1.7	0.0	9.8
Bill	CMB	1.515	3.0	80.0	60.6	4.9	34.4	0.0	0.0	1.5
Coupon	2-Year	2.216	2.9	82.8	36.2	14.4	49.4	1.2	15.9	22.5
Coupon	3-Year	2.274	3.0	77.4	38.5	10.1	51.4	0.6	5.7	27.9
Coupon	5-Year	2.569	2.5	103.8	27.8	10.0	62.2	0.2	19.7	66.9
Coupon	7-Year	2.710	2.5	85.9	22.1	12.7	65.3	0.1	16.3	75.3
Coupon	10-Year	2.765	2.5	64.9	25.6	6.1	68.3	0.1	5.2	70.3
Coupon	30-Year	3.043	2.4	41.0	26.9	9.9	63.2	0.0	3.4	101.0
TIPS	10-Year	0.647	2.6	23.9	16.0	13.1	70.9	0.1	1.9	28.8
TIPS	30-Year	1.003	2.3	7.0	22.5	3.8	73.6	0.0	1.7	25.9
FRN	2-Year	0.022	3.0	44.9	57.7	5.1	37.1	0.1	4.8	0.0

Total Bills	1.601	3.0	1,976.5	53.6	6.3	40.1	40.5	0.0	67.7
Total Coupons	2.552	2.7	455.8	29.7	10.8	59.6	2.2	66.3	364.0
Total TIPS	0.727	2.6	30.9	17.5	11.0	71.5	0.1	3.6	54.7
Total FRN	0.022	3.0	44.9	57.7	5.1	37.1	0.1	4.8	0.0

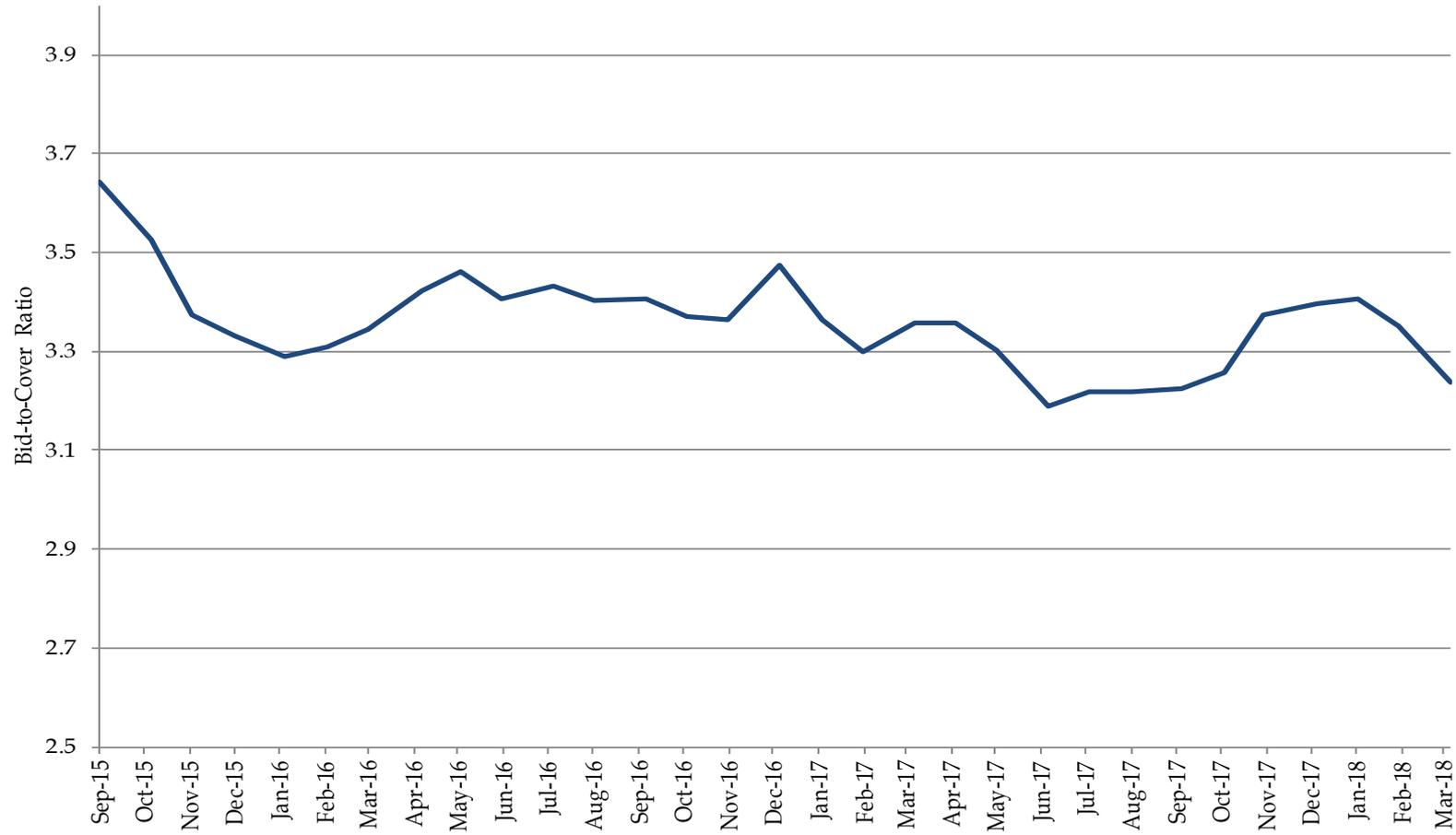
*Weighted averages of Competitive Awards.

**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.

Bid-to-Cover Ratios for Treasury Bills



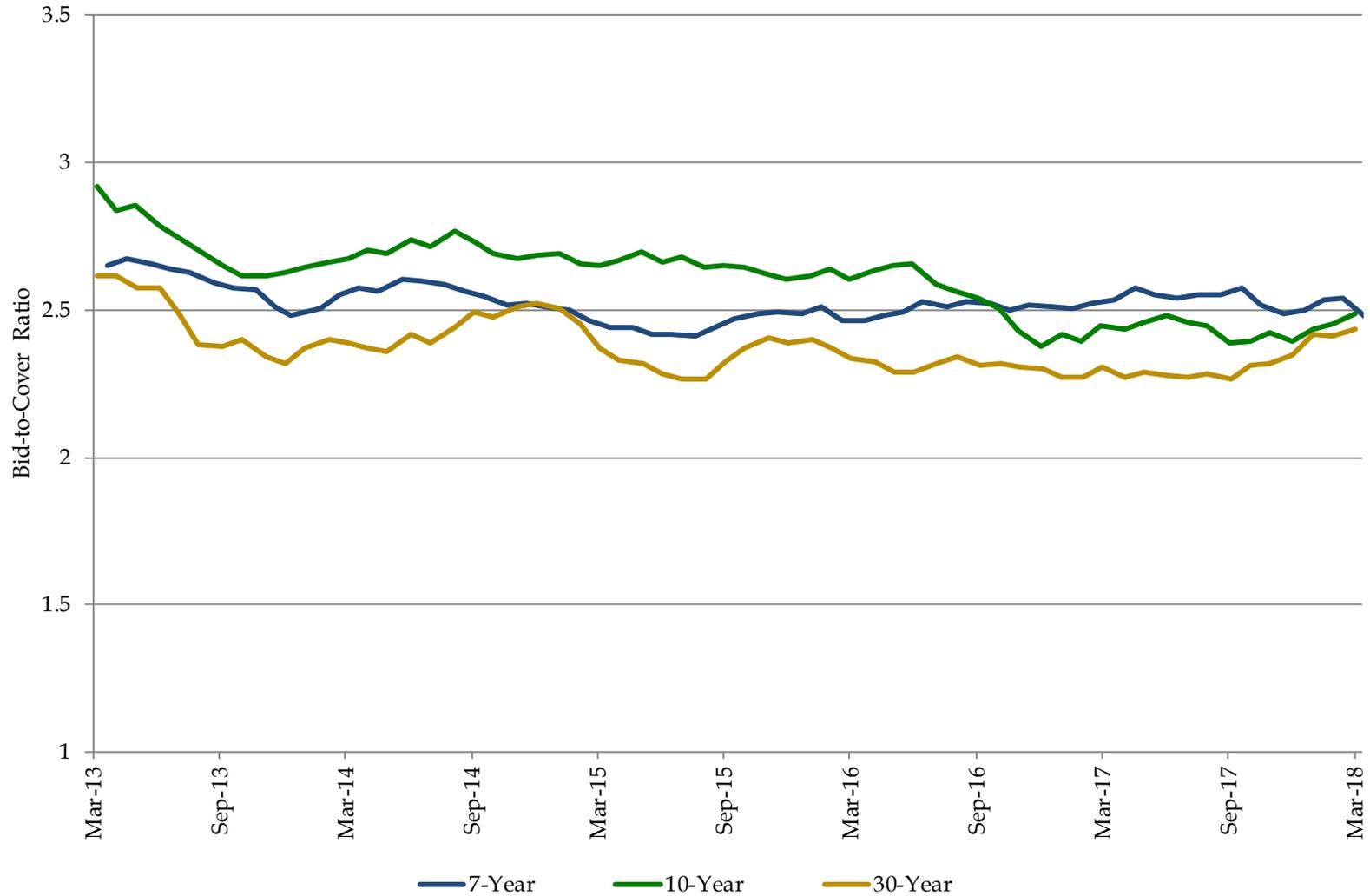
Bid-to-Cover Ratios for FRNs (6-Month Moving Average)



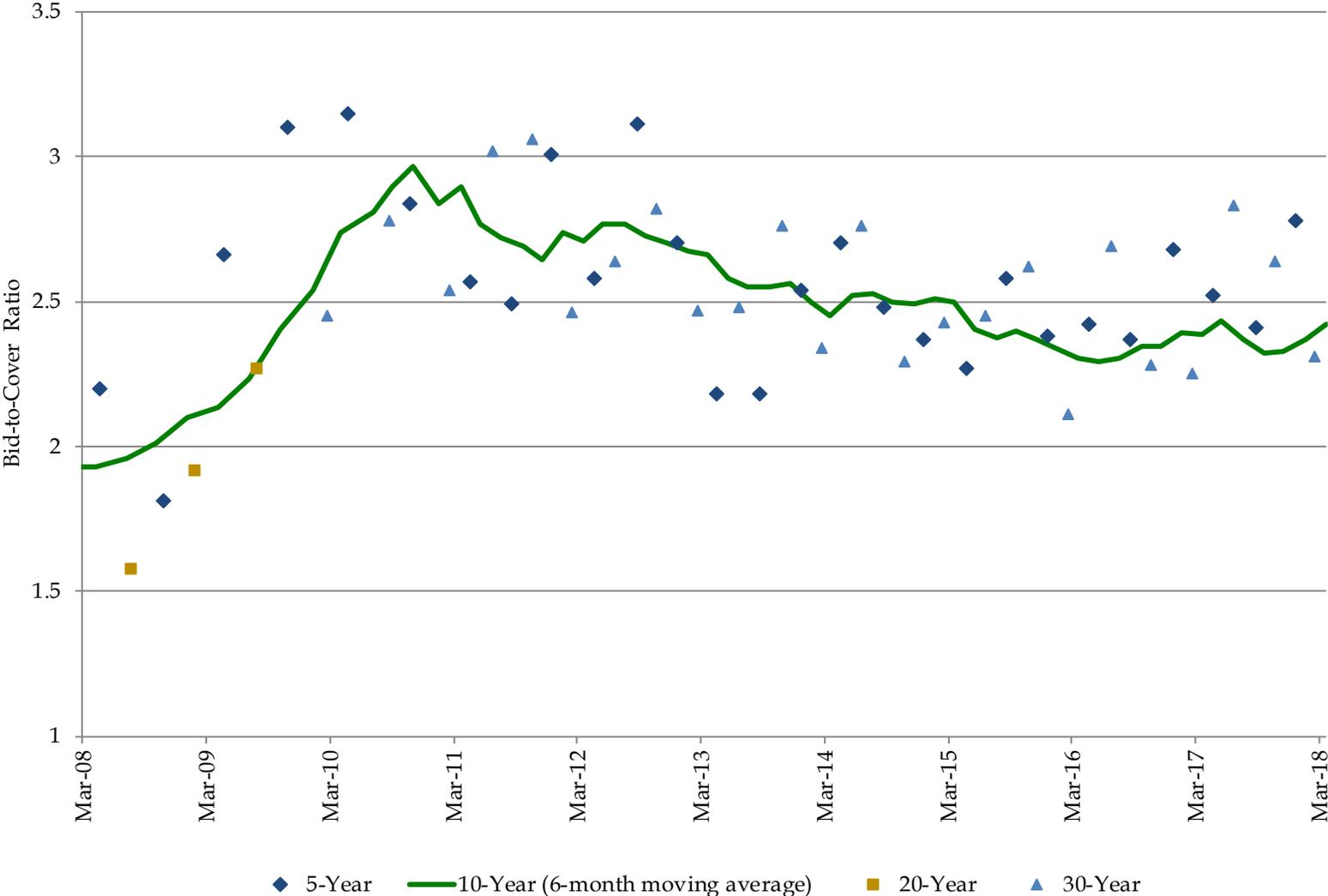
Bid-to-Cover Ratios for 2-, 3-, and 5-Year Nominal Securities (6-Month Moving Average)



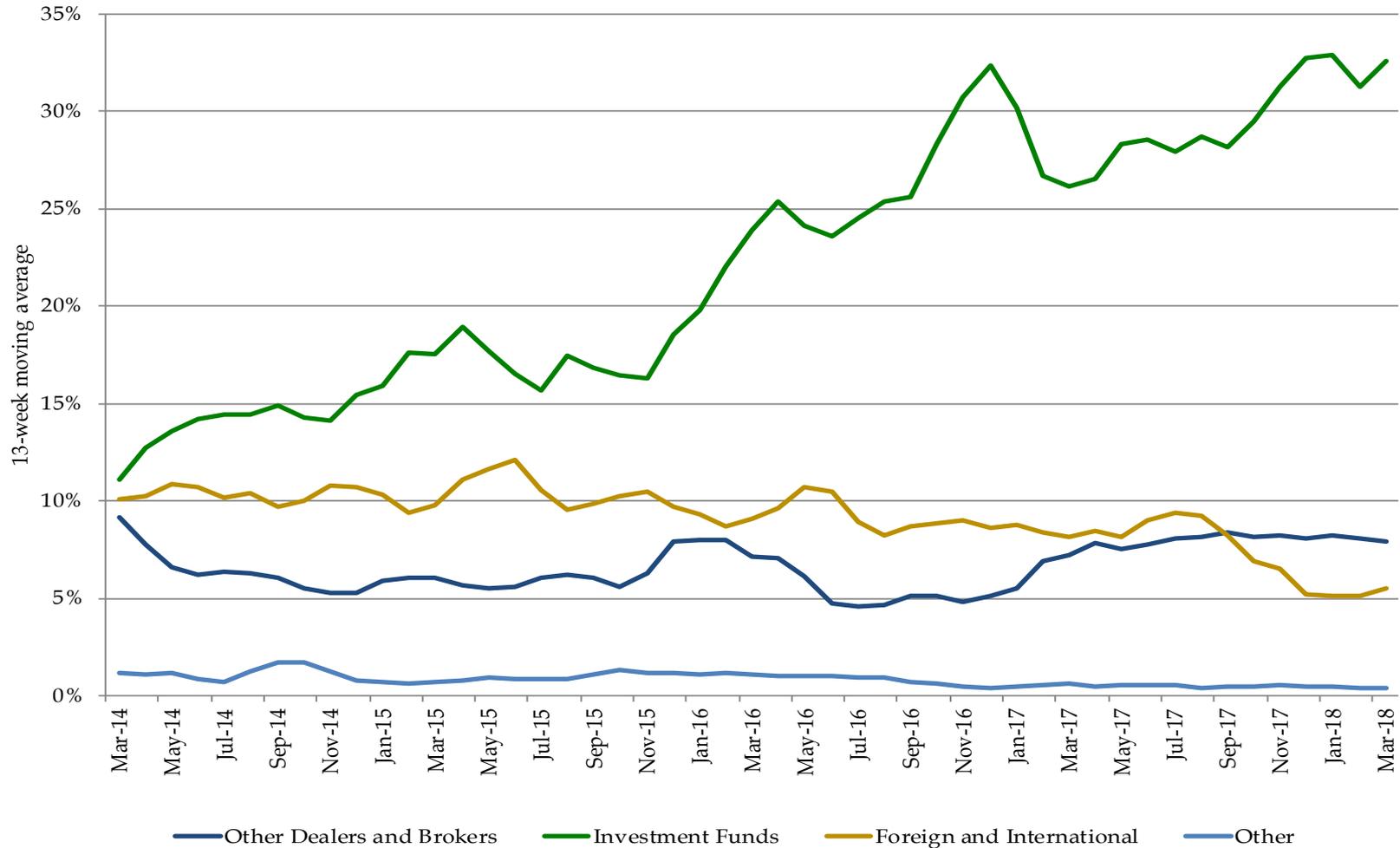
Bid-to-Cover Ratios for 7-, 10-, and 30-Year Nominal Securities (6-Month Moving Average)



Bid-to-Cover Ratios for TIPS

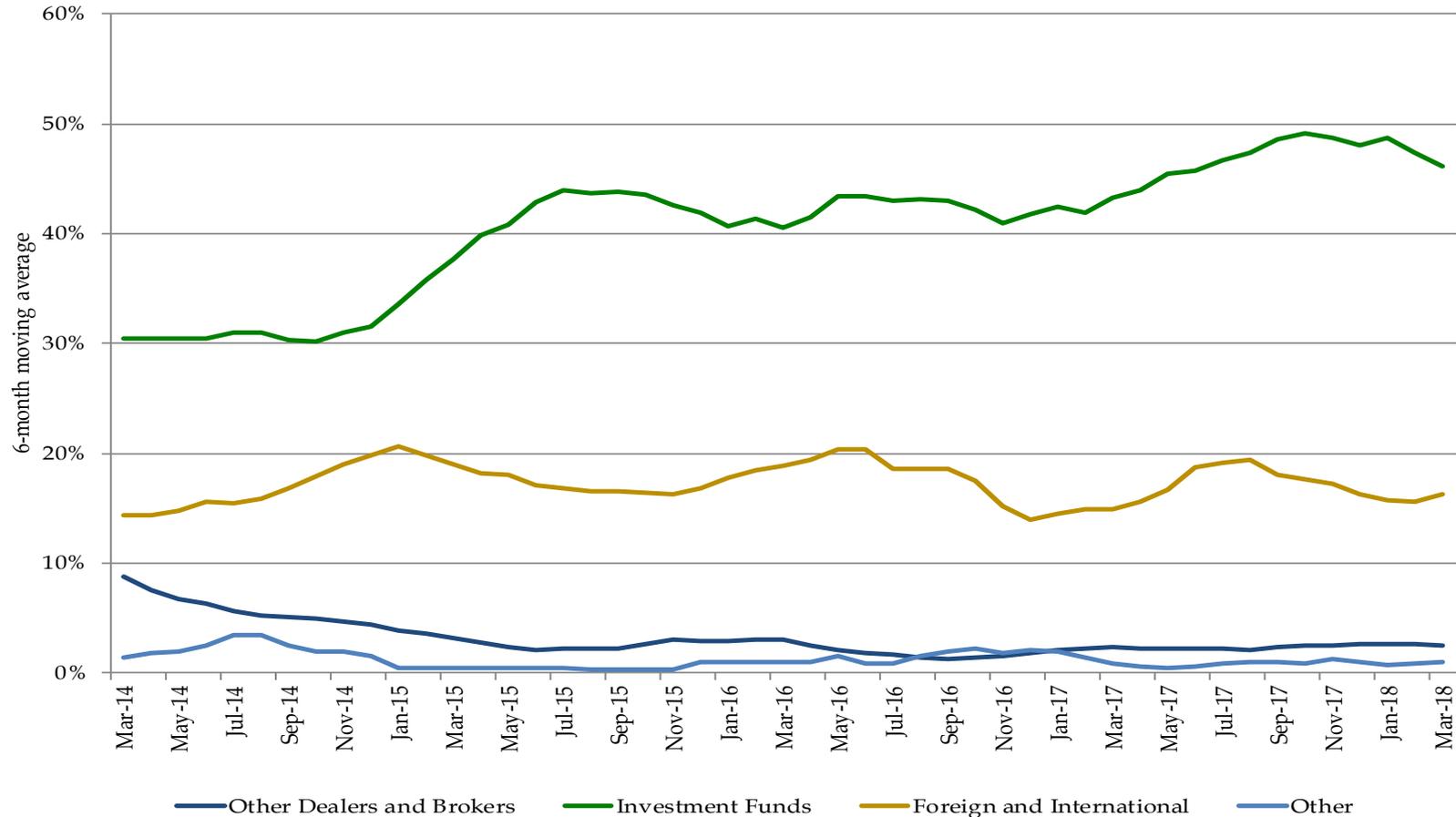


Percent Awarded in Bill Auctions by Investor Class (13-Week Moving Average)



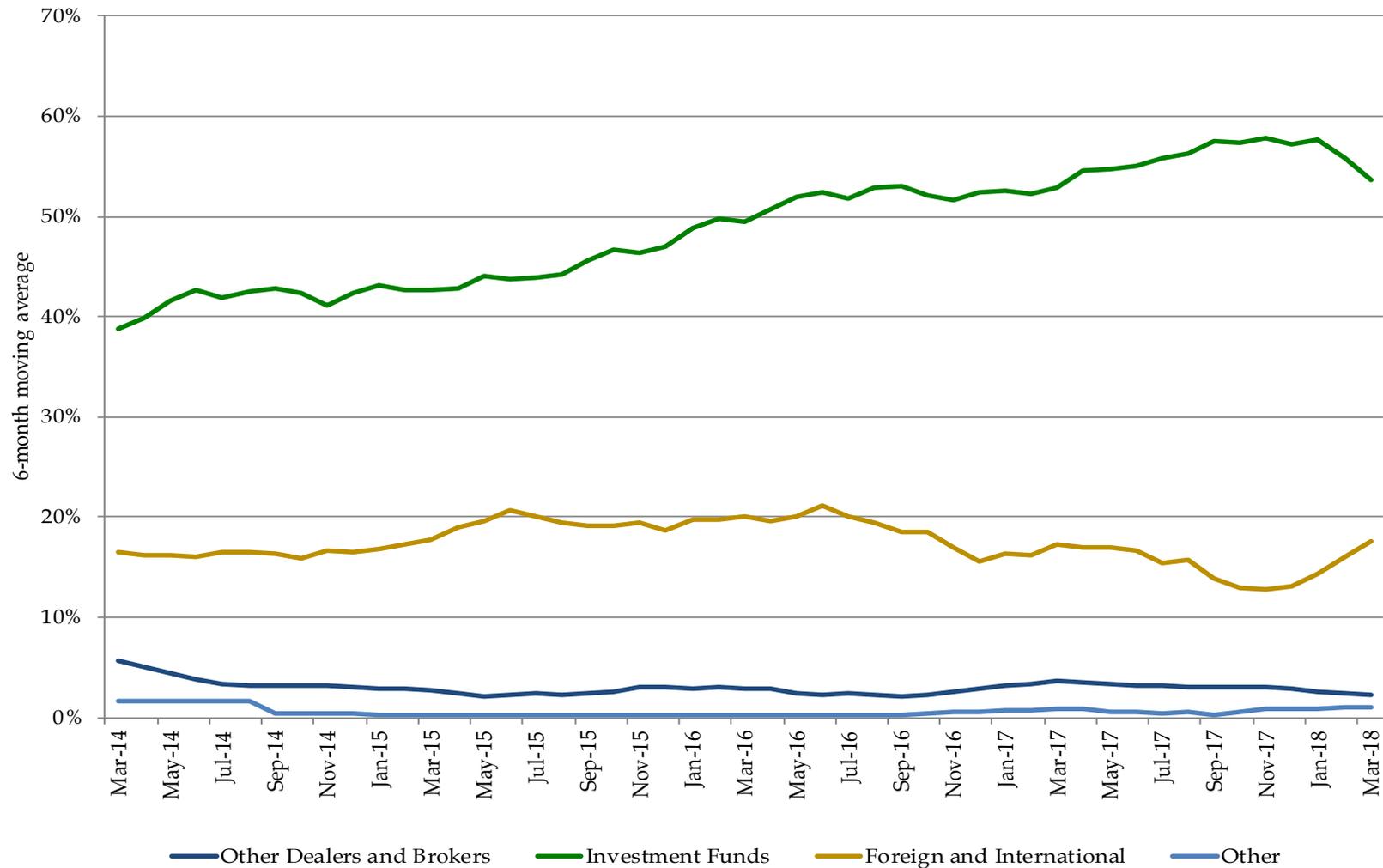
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



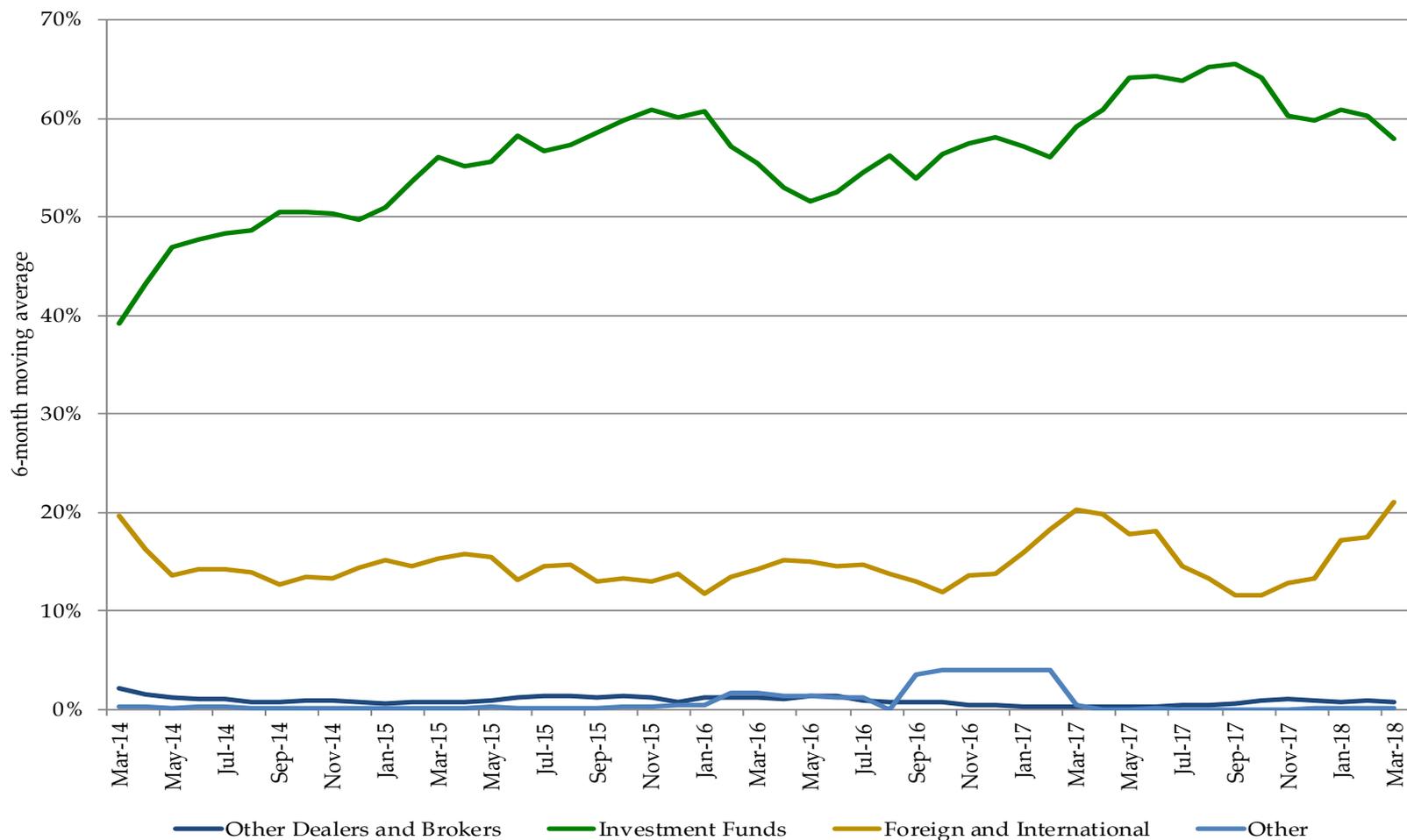
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



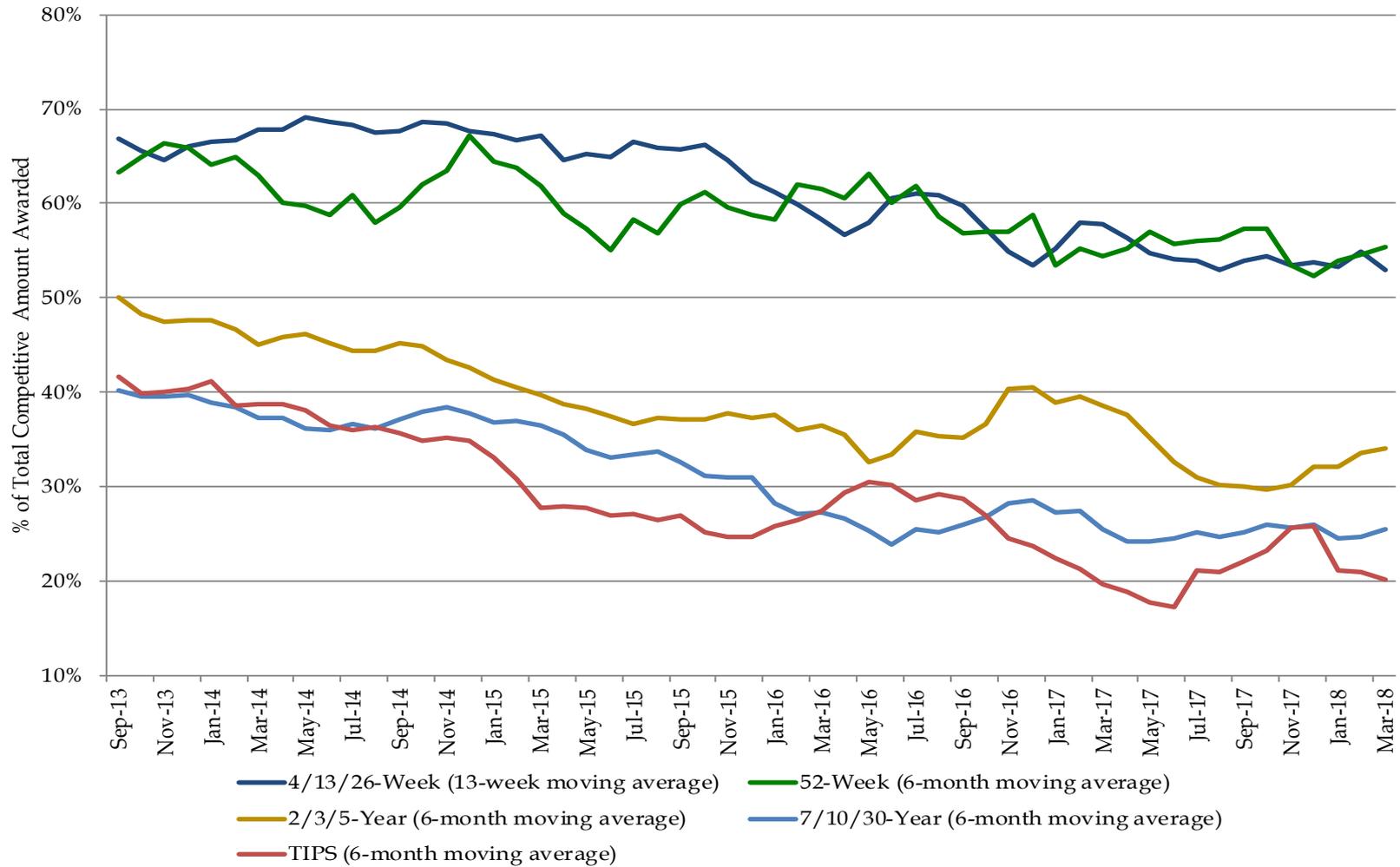
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



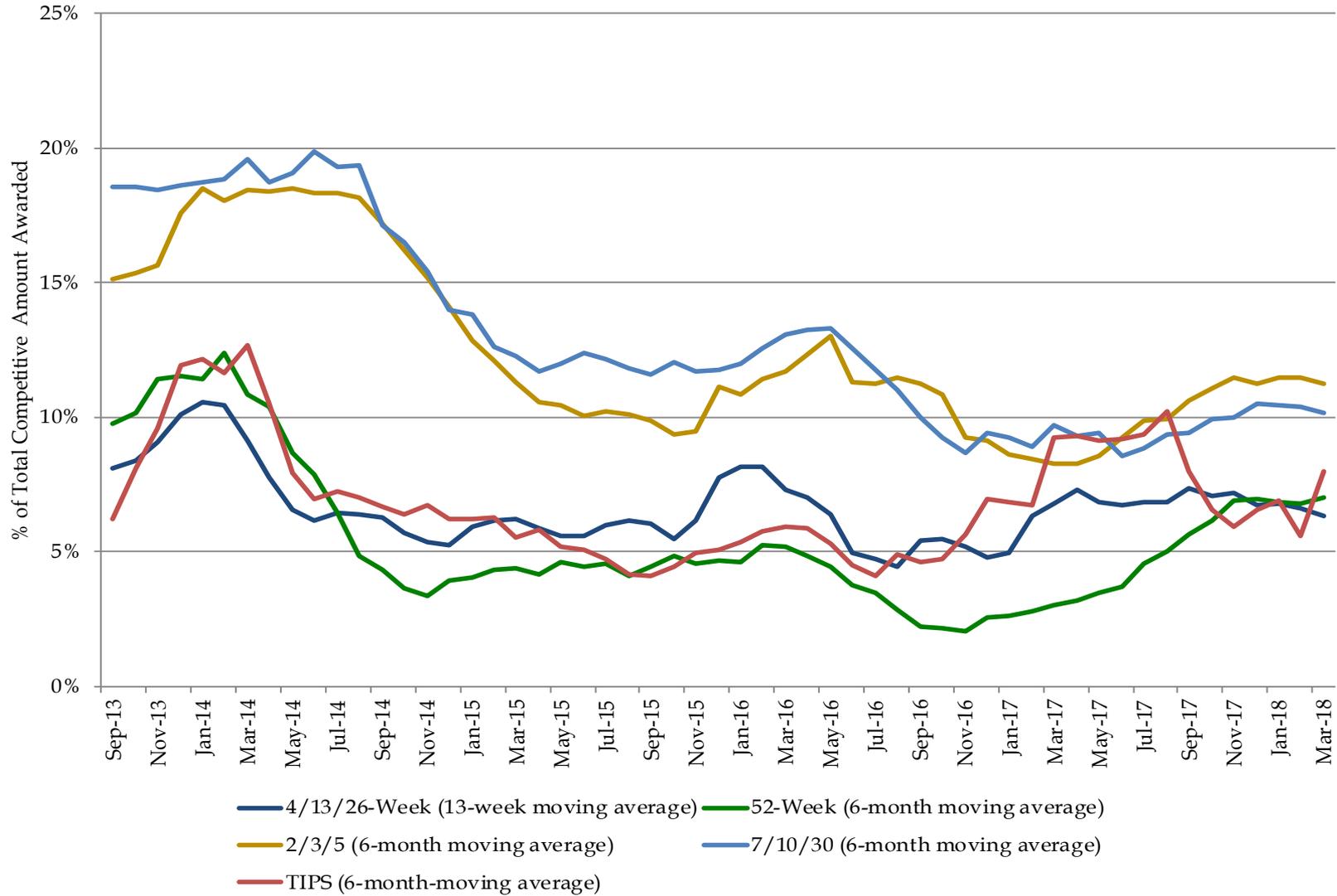
Excludes SOMA add-ons. The “Other” category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

Primary Dealer Awards at Auction



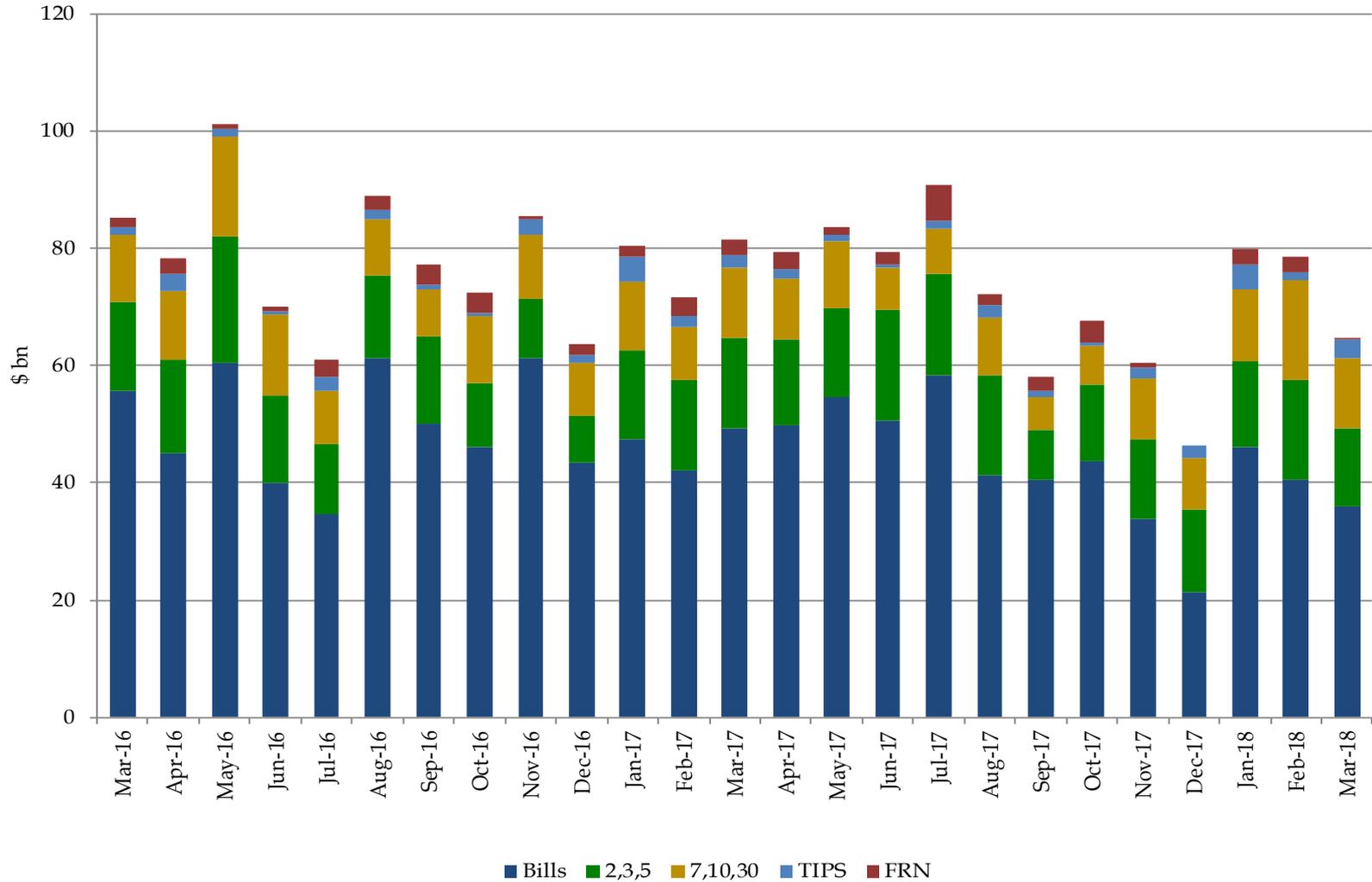
Excludes SOMA add-ons.

Direct Bidder Awards at Auction



Excludes SOMA add-ons.

Total Foreign Awards of Treasuries at Auction, \$ billions



Foreign includes both private sector and official institutions.

Appendix

The seal of the U.S. Department of the Treasury is centered behind the word "Appendix". The seal is circular and features a shield with a scale of justice, a sword, and a chevron with stars. The text "THE DEPARTMENT OF THE TREASURY" is written around the top inner edge of the seal, and "1789" is at the bottom.

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	1/4/2018	1.270	2.89	49.3	64.0	8.2	27.8	0.7	0.0	0.4
4-Week	1/11/2018	1.280	3.03	49.4	66.4	11.1	22.5	0.6	0.0	0.4
4-Week	1/18/2018	1.295	2.99	44.4	55.3	8.9	35.9	0.6	0.0	0.4
4-Week	1/25/2018	1.230	3.52	34.4	42.5	9.4	48.1	0.6	0.0	0.3
4-Week	2/1/2018	1.440	2.76	24.4	76.3	2.8	20.9	0.6	0.0	0.2
4-Week	2/8/2018	1.480	3.16	13.9	72.4	15.2	12.5	1.1	0.0	0.1
4-Week	2/15/2018	1.360	3.27	49.4	57.2	5.1	37.7	0.6	0.0	0.4
4-Week	2/22/2018	1.380	2.48	54.4	57.8	8.6	33.6	0.6	0.0	0.5
4-Week	3/1/2018	1.495	2.80	59.0	54.4	9.3	36.3	1.0	0.0	0.5
4-Week	3/8/2018	1.550	3.01	63.7	55.0	8.8	36.2	1.3	0.0	0.6
4-Week	3/15/2018	1.650	2.58	64.3	70.4	8.8	20.8	0.7	0.0	0.6
4-Week	3/22/2018	1.720	2.88	64.1	59.9	8.0	32.1	0.9	0.0	0.6
4-Week	3/29/2018	1.705	2.71	63.8	56.0	5.7	38.3	1.2	0.0	0.6
13-Week	1/4/2018	1.435	3.08	46.7	41.9	6.2	51.8	1.3	0.0	1.4
13-Week	1/11/2018	1.430	2.90	47.0	54.9	7.7	37.4	1.0	0.0	1.4
13-Week	1/18/2018	1.430	3.15	47.1	41.1	11.7	47.2	0.9	0.0	1.4
13-Week	1/25/2018	1.430	2.84	46.4	65.9	7.4	26.7	1.6	0.0	1.4
13-Week	2/1/2018	1.425	2.98	47.0	58.4	9.6	32.1	1.0	0.0	1.4
13-Week	2/8/2018	1.500	2.78	47.2	69.4	7.8	22.8	0.8	0.0	1.4
13-Week	2/15/2018	1.570	3.12	46.8	40.2	5.5	54.3	1.2	0.0	1.4
13-Week	2/22/2018	1.630	2.74	49.9	53.5	5.9	40.6	1.1	0.0	1.5
13-Week	3/1/2018	1.645	2.84	50.0	47.0	5.1	47.9	1.0	0.0	1.4
13-Week	3/8/2018	1.660	3.26	50.0	44.4	4.9	50.6	1.0	0.0	1.5
13-Week	3/15/2018	1.670	3.13	50.1	50.0	5.3	44.7	0.9	0.0	1.5
13-Week	3/22/2018	1.780	3.35	49.9	26.2	5.1	68.8	1.1	0.0	1.5
13-Week	3/29/2018	1.760	2.98	49.1	49.6	3.3	47.2	1.9	0.0	1.5
26-Week	1/4/2018	1.575	3.05	41.2	56.7	3.6	39.7	0.8	0.0	2.4
26-Week	1/11/2018	1.575	3.11	41.1	46.5	4.4	49.0	0.9	0.0	2.4
26-Week	1/18/2018	1.600	3.18	40.9	54.4	7.7	37.9	1.1	0.0	2.4
26-Week	1/25/2018	1.615	3.00	40.4	44.7	4.0	51.3	1.6	0.0	2.4
26-Week	2/1/2018	1.625	3.21	41.0	45.1	5.8	49.0	1.0	0.0	2.4
26-Week	2/8/2018	1.650	2.93	41.1	61.1	4.7	34.3	0.9	0.0	2.4
26-Week	2/15/2018	1.785	2.74	41.1	67.7	3.3	29.0	0.9	0.0	2.4
26-Week	2/22/2018	1.820	3.11	44.0	36.8	3.1	60.1	1.0	0.0	2.6
26-Week	3/1/2018	1.830	3.08	44.1	52.6	3.2	44.2	0.9	0.0	2.5
26-Week	3/8/2018	1.830	3.19	44.1	38.5	2.5	59.1	0.9	0.0	2.6
26-Week	3/15/2018	1.850	3.67	44.1	49.3	3.1	47.6	0.9	0.0	2.6
26-Week	3/22/2018	1.950	2.89	44.0	42.7	2.8	54.5	1.0	0.0	2.6
26-Week	3/29/2018	1.895	3.06	43.2	46.8	4.1	49.1	1.8	0.0	2.6
52-Week	1/4/2018	1.780	2.91	19.7	63.8	5.9	30.3	0.3	0.0	2.3
52-Week	2/1/2018	1.830	3.36	19.5	53.9	8.3	37.8	0.5	0.0	2.3
52-Week	3/1/2018	2.020	3.00	21.6	65.9	5.9	28.2	0.4	0.0	2.5
52-Week	3/29/2018	2.070	2.99	23.5	60.9	8.1	30.9	0.5	0.0	2.8
CMB	1/19/2018	1.210	5.62	0.0	100.0	0.0	0.0	0.0	0.0	0.0
CMB	2/8/2018	1.440	3.80	30.0	35.9	4.1	60.0	0.0	0.0	0.7
CMB	2/16/2018	1.560	2.54	50.0	75.4	5.4	19.1	0.0	0.0	0.9

*Weighted averages of competitive awards.

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

Nominal Coupons										
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	1/31/2018	2.066	3.22	25.6	25.8	15.9	58.3	0.4	3.8	6.7
2-Year	2/28/2018	2.255	2.72	27.6	40.3	13.4	46.3	0.4	6.8	7.9
2-Year	4/2/2018	2.310	2.91	29.6	41.3	14.1	44.5	0.4	5.3	8.0
3-Year	1/16/2018	2.080	3.13	23.8	33.6	11.5	54.9	0.2	0.8	8.2
3-Year	2/15/2018	2.280	3.00	25.8	40.5	9.7	49.8	0.2	4.9	10.3
3-Year	3/15/2018	2.436	2.94	27.7	40.7	9.3	50.0	0.3	0.0	9.4
5-Year	1/31/2018	2.434	2.48	34.0	26.0	9.1	65.0	0.0	5.0	21.1
5-Year	2/28/2018	2.658	2.44	34.9	29.3	12.7	58.0	0.1	8.5	23.5
5-Year	4/2/2018	2.612	2.50	34.9	28.2	8.3	63.5	0.1	6.2	22.4
7-Year	1/31/2018	2.565	2.73	28.0	11.7	10.2	78.1	0.0	4.1	23.6
7-Year	2/28/2018	2.839	2.49	29.0	22.1	15.6	62.2	0.0	7.1	26.4
7-Year	4/2/2018	2.720	2.34	29.0	32.1	12.1	55.8	0.0	5.1	25.3
10-Year	1/16/2018	2.579	2.69	20.0	22.0	6.5	71.4	0.0	0.7	20.6
10-Year	2/15/2018	2.811	2.34	24.0	27.1	5.4	67.5	0.0	4.5	28.7
10-Year	3/15/2018	2.889	2.50	21.0	27.3	6.5	66.2	0.0	0.0	21.0
30-Year	1/16/2018	2.867	2.74	12.0	21.2	7.3	71.5	0.0	0.4	28.5
30-Year	2/15/2018	3.121	2.26	16.0	30.8	8.1	61.2	0.0	3.0	43.1
30-Year	3/15/2018	3.109	2.38	13.0	27.3	14.8	57.9	0.0	0.0	29.4
2-Year FRN	1/31/2018	0.000	3.38	15.0	62.8	0.0	37.2	0.0	2.2	0.0
2-Year FRN	2/23/2018	0.016	2.75	15.0	58.9	14.0	27.0	0.0	0.0	0.0
2-Year FRN	4/2/2018	0.049	2.78	15.0	51.5	1.3	47.2	0.0	2.6	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)*
10-Year TIPS	1/31/2018	0.548	2.69	12.9	11.0	10.0	78.9	0.1	1.9	16.6
10-Year TIPS	3/29/2018	0.764	2.56	11.0	21.9	16.7	61.4	0.0	0.0	12.2
30-Year TIPS	2/28/2018	1.003	2.31	7.0	22.5	3.8	73.6	0.0	1.7	25.9

*Weighted averages of competitive awards.

**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.

Assessment of Potential 2-Month Bill Issuance and Possible Alternative Settlement Cycle

Confidential

TBAC Charge

Treasury would like the Committee to comment on potential demand for a 2-month bill tenor, as well as the effect a 2-month bill would have on pricing and liquidity of other T-bill tenors. Please also comment on the potential advantages and disadvantages to having some Treasury bill tenors settle and mature outside of the typical Thursday-to-Thursday cycle.

In addition, Treasury would like the Committee to comment on the potential advantages and disadvantages to having some Treasury bill tenors settle and mature outside of the typical Thursday-to-Thursday cycle.

Potential 2m Bill Issuance

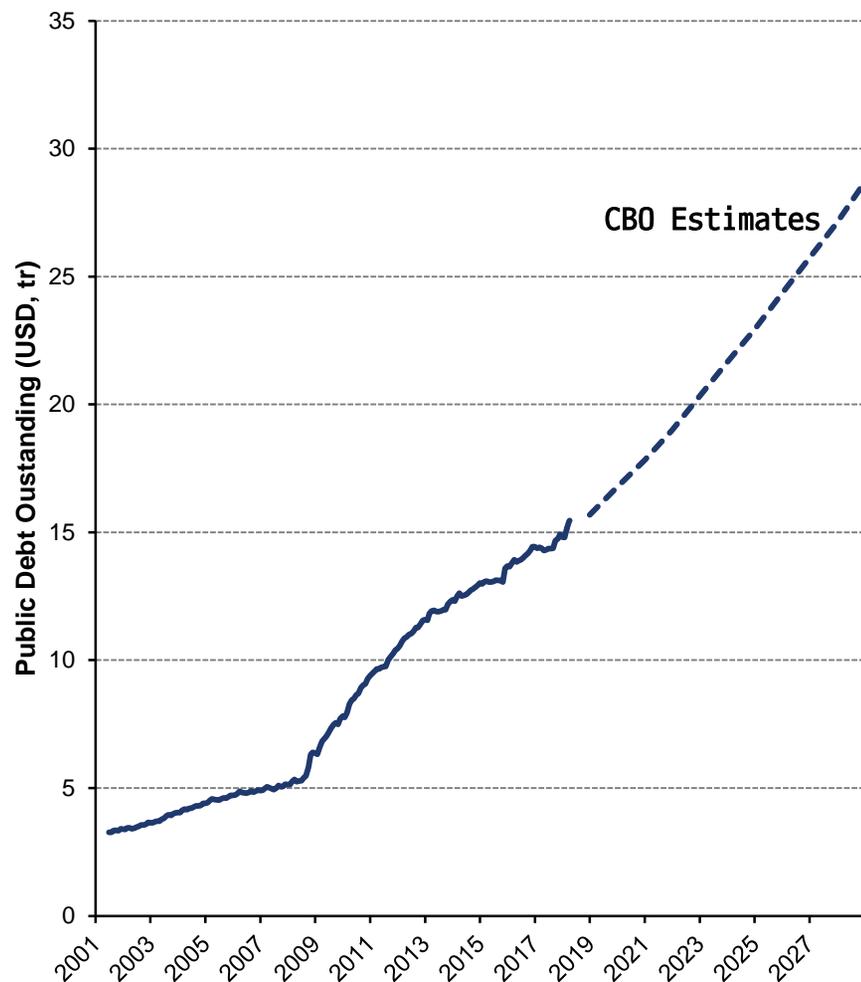
Summary

- The public debt is expected to rise considerably in the coming decade. This committee has already recommended that 1/4th to 1/3rd of the financing gap should be met with bill issuance
- Money Market Fund (MMF) regulation has led to a durable reallocation from Prime to Government funds. Despite this, total 2a7 fund investment in T-Bills has increased only modestly with more asset growth in repo.
- Increased issuance should cheapen T-Bills vs. repo and unlock significant additional demand from MMFs.
- Academic research and our updated work shows a persistent T-Bill premium vs. Coupons throughout market regimes. This premium is most pronounced in the very front-end of the curve (<90 days).
- Issuing a 2m bill tenor would allow Treasury to meet investor demand, further utilize the on-the-run premium, and diversify funding sources while controlling the growth of auction sizes.

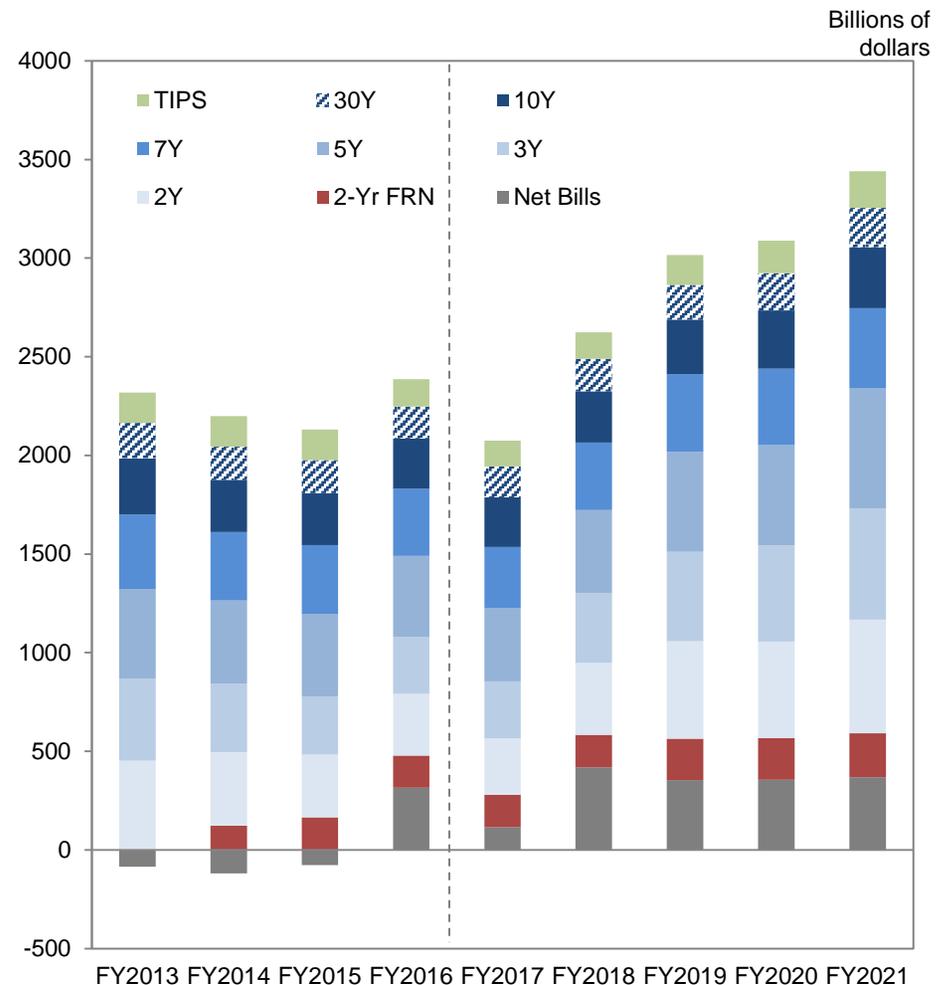
Projected Debt and Issuance

Significant Increase in Debt with 1/4th to 1/3rd of Growth Projected in Bills

Public Debt Estimated to Rise Considerably*



Estimated Future Issuance by Instrument**

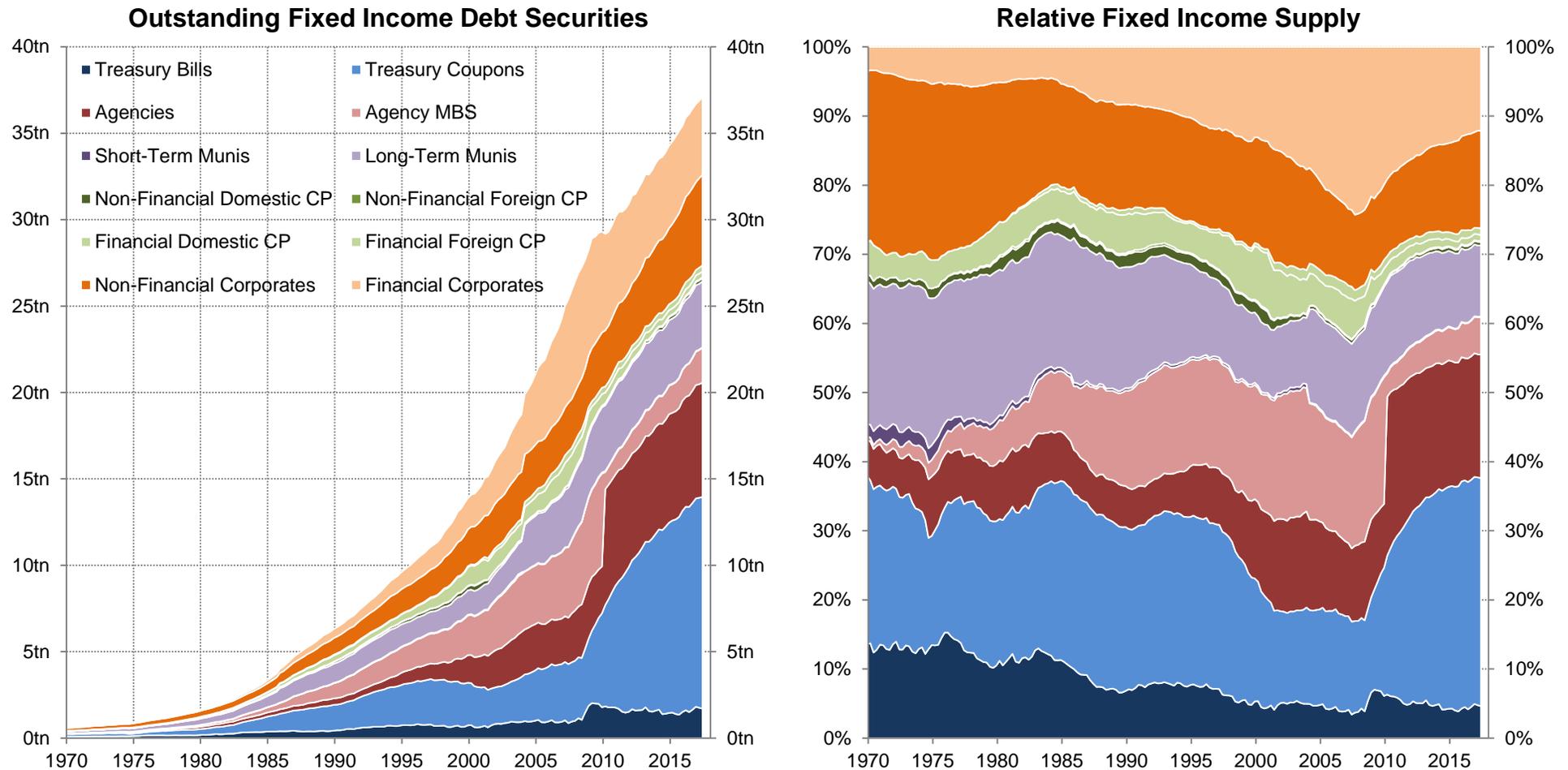


* See CBO's "Budget and Economic Outlook" report ([link](#)).

** Issuance estimates from Goldman Sachs GIR ("US Daily: Small Changes to Our Forecast of Big Deficits", 12Apr18). Estimates rely on bills to meet the majority of the financing gap in FY 2017, scaling into approximately 1/3rd of the financing gap being met by bill issuance in FY2019.

Bill Supply in Context: Total Fixed Income Supply

Bills have been roughly unchanged, while other asset classes have substantially grown

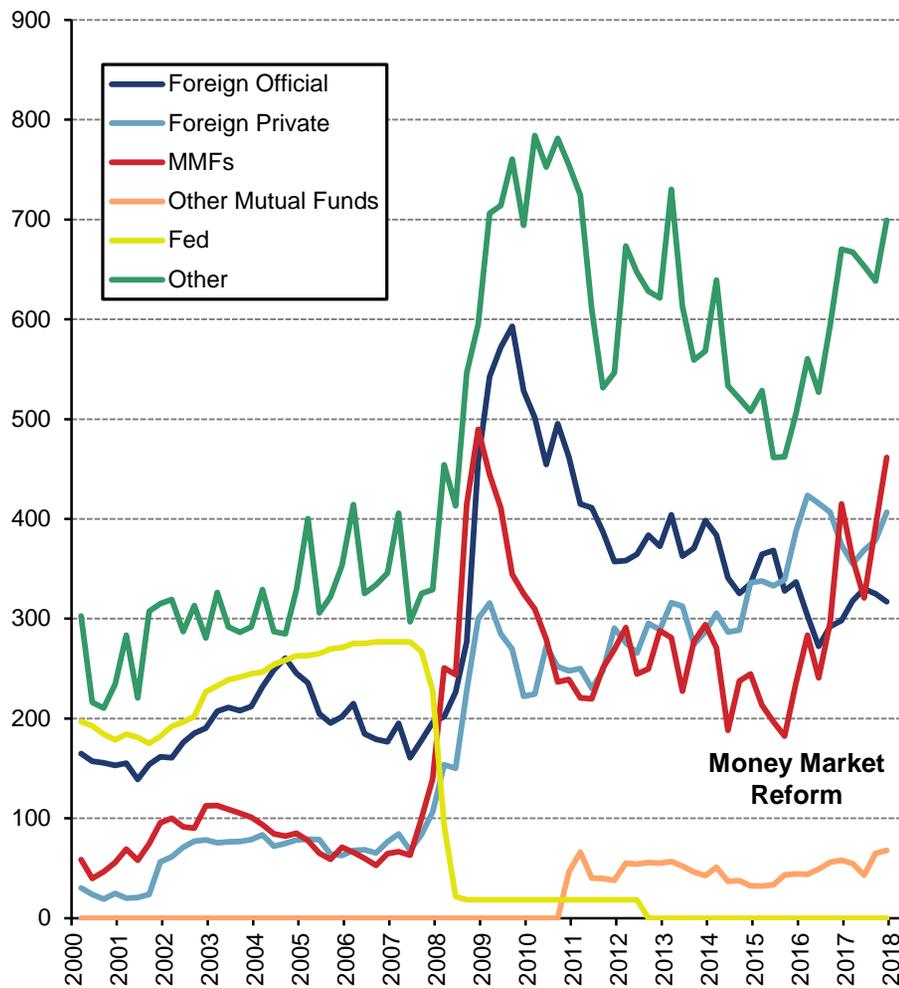


Source: Fed Flow of Funds. Retrieved via Haver Analytics as of 24-Oct-17.

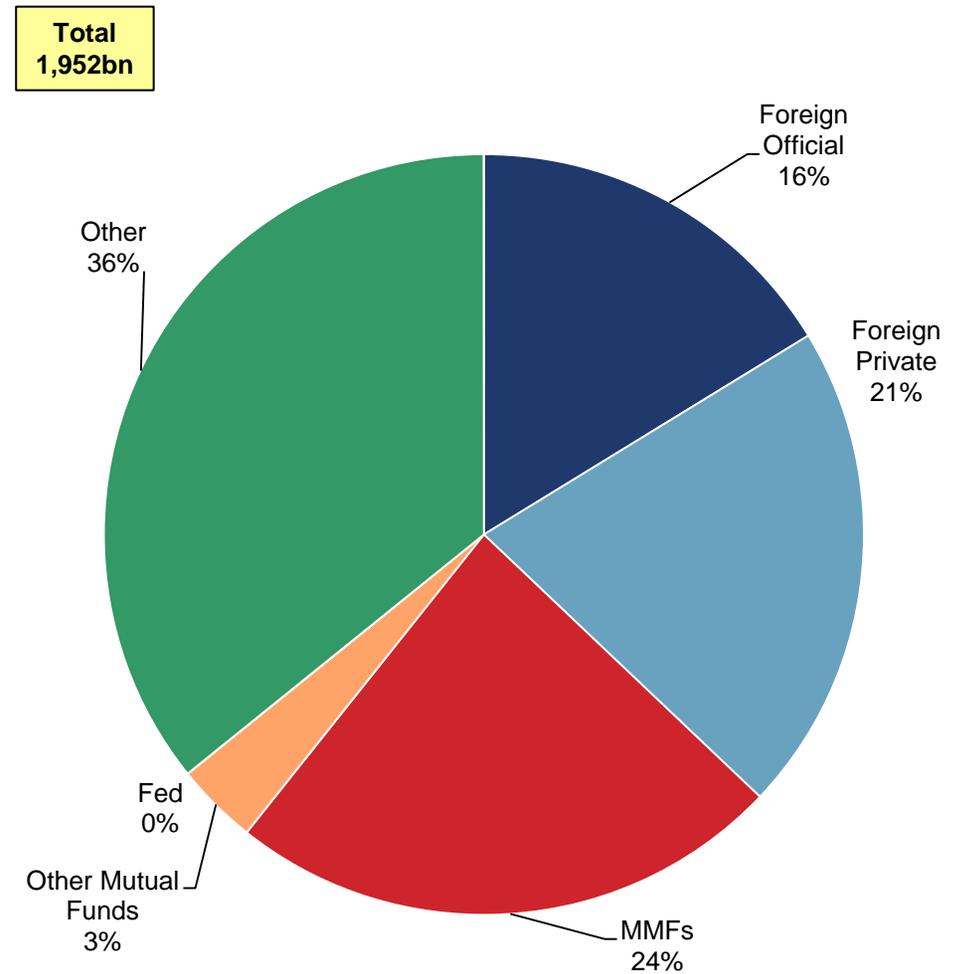
Major Treasury Bill Holders by Investor Type

Foreign investors and U.S. Money Market Funds hold the majority of bills

Historical Bill Holdings by Investor Type



Treasury Bill Holdings – Q4 2017



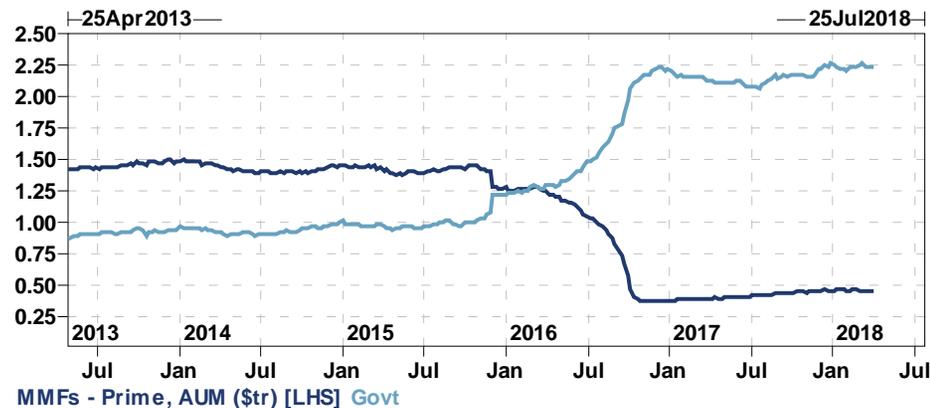
*Other holders include all investor types not included in the granular flow of fund breakdown, notably: banks, broker/dealers, hedge funds, clearinghouses, and retail investors.

Source: Fed Flow of Funds (via Haver). As of 18Apr18..

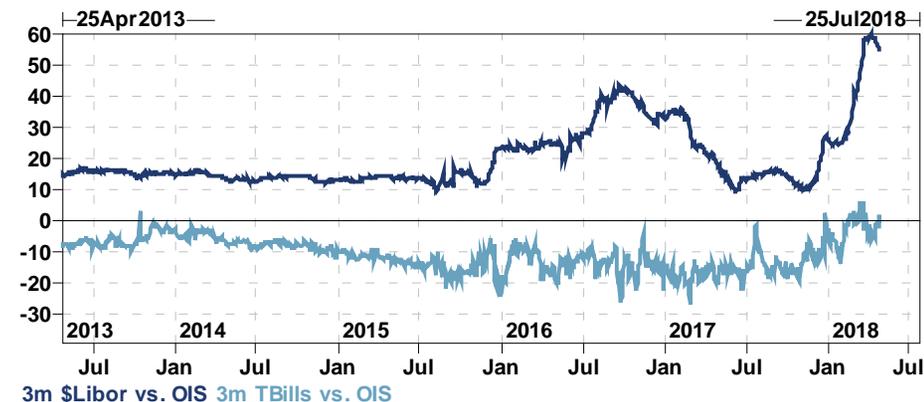
Money Market Reform

Durable Asset Reallocation to Govt 2a7 Funds from Prime

AUM of Money Market Funds: Govt vs. Prime



Libor/OIS and T-Bill/OIS

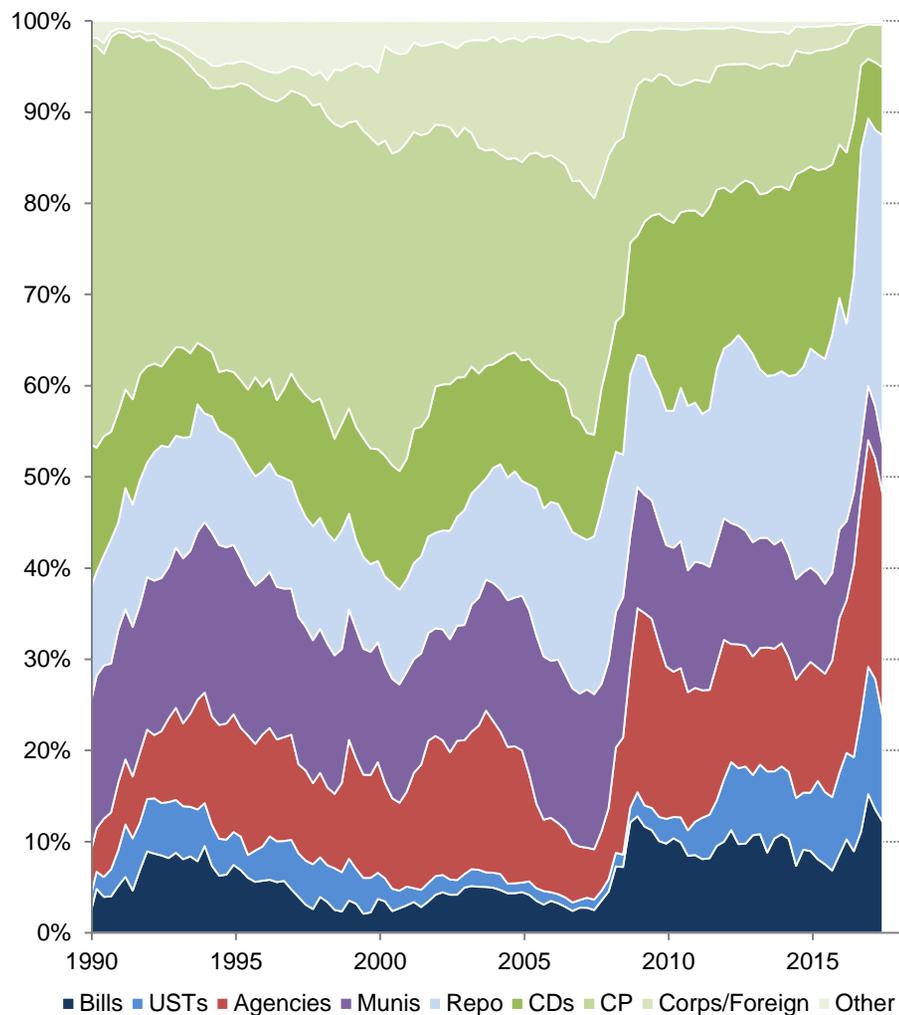


- Regulatory changes for MMFs created a significant reallocation away from Prime funds to Gov't funds. This has created a significant potential source of demand for T-Bills.
- The recent widening of Libor/OIS—driven by technical factors—has increased the yield differential between Prime and Gov't MMFs.
- Investor's allocation to Gov't MMFs has remained steady despite the rising yield premium for Prime funds.
- Elsewhere, the market has seen a reallocation to front-end spread products. This suggests that the new requirements for some Prime MMFs (gates, floating NAVs, etc) has created a durable reallocation to Govt products.

Money Market Fund Demand

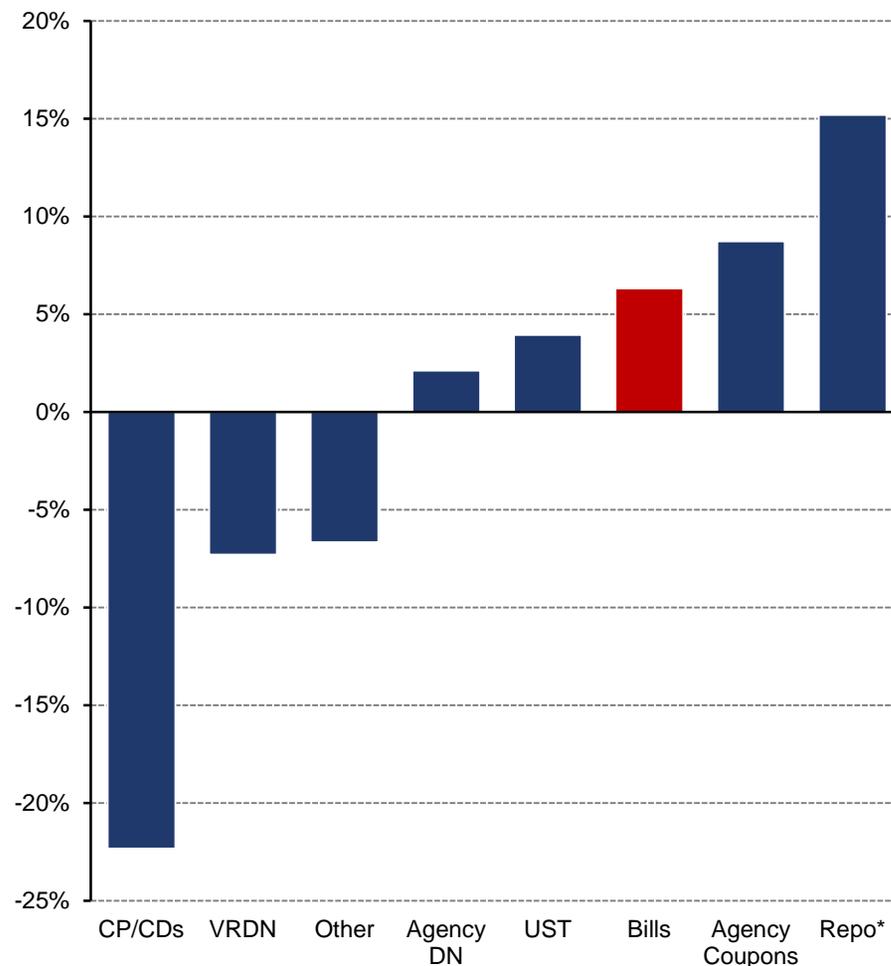
Recent Allocations to Government Funds have been split across Repo, Coups and Bills

2a7 Money Fund Relative Holdings



Change in 2a7 Money Fund Holdings

(July '14 to September '17)

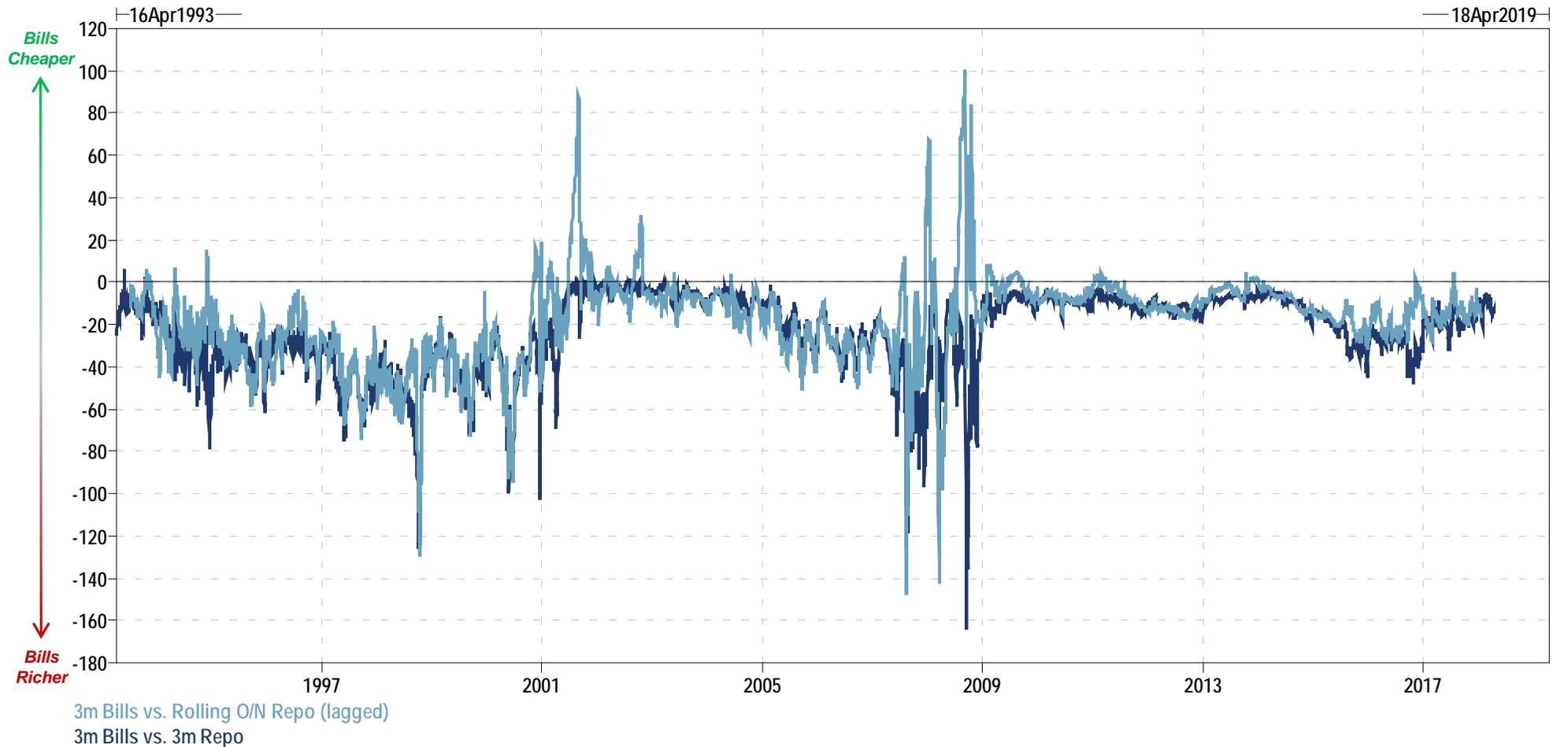


* Repo includes Treasury Repo, Agency Repo, RRP and Other Repo

Source: Morgan Stanley Research, Fed Flow of Funds (via Haver), Crane, ICI, Bloomberg, MSPD (via Haver), Morningstar. As of 24-Oct-17.

Treasury Bill Relative Value

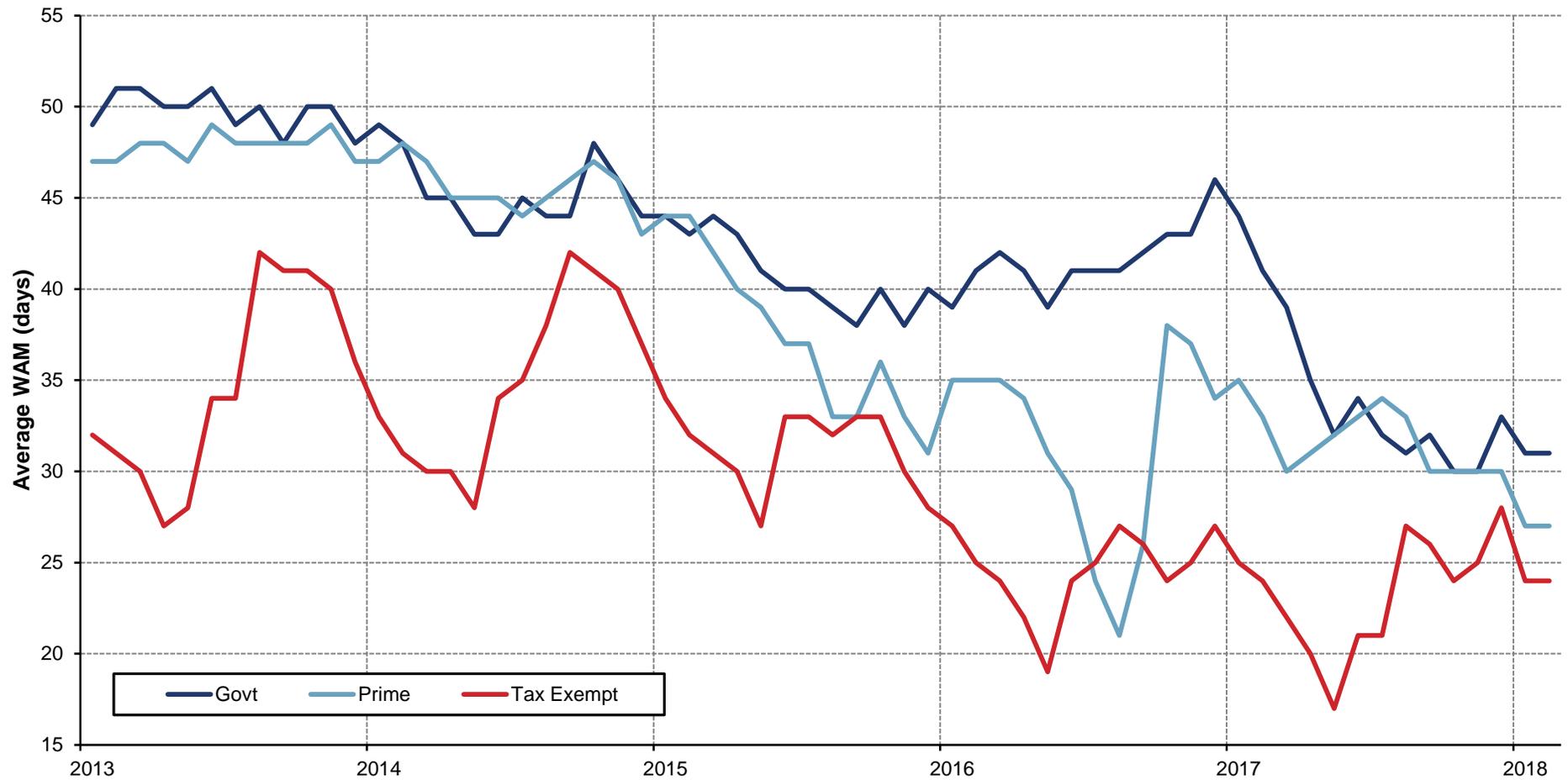
Bills trade rich to Repo



Source: Bloomberg. As of April 2018.

Money Market Funds

WAM Has Been Shortening Through The Hiking Cycle



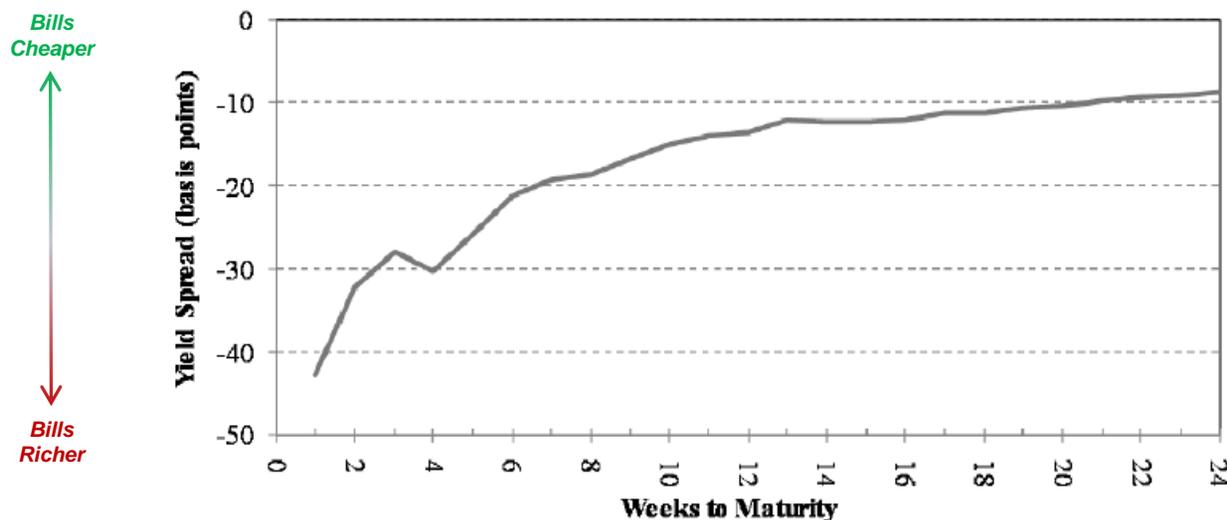
Revisiting the T-Bill Premium

Research presented at the Nov'16 TBAC meeting supports the existence of bill premia

Academic research previously present to TBAC suggested that Treasury should consider issuing more bills given the existence of a T-bill premium. This premium seems to be especially large at the front-end of the bill curve, suggesting there may be unmet investor demand at these tenors.

The premium is estimated by comparing actual historical T-Bill yields to a fitted yield curve calculated from off-the-run USTs.

GHS Estimate of T-Bill Premium (1990-2006)



Note: The GHS estimate of the T-Bill premium is based on the difference between actual T-bill yields and a curve that is fitted using all outstanding nominal Treasury coupon securities with a maturity greater than 3 months.. The curve is fitted using the model developed by Gurkaynak, Sack and Wright (2007).

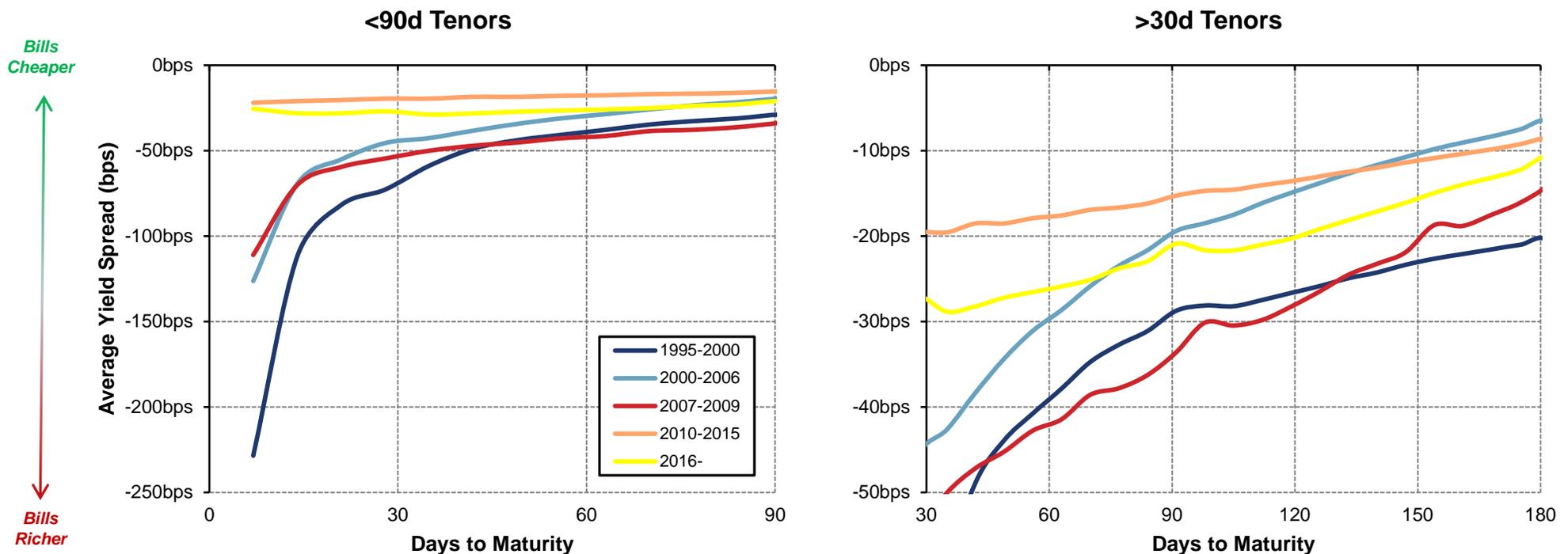
Source: Greenwood, Robin, Samuel G. Hansen, and Jeremy C. Stein, 2015, "A Comparative Advantage Approach to Government Debt Maturity," *Journal of Finance*.

Revisiting The T-Bill Premium

Updating Prior Academic Work

We have updated the prior Academic models with additional data and analysis. Our work confirms the prior result that T-Bills trade at a premium to the Treasury yield curve. Further, this premium is most pronounced in the front-end of the T-Bill curve (<90 days of remaining maturity).

In addition, we split the analysis to study how the premium has evolved over time. This premium has existed throughout different marked conditions since at least 1995. While in absolute bps the premium is smaller today than in the past, this can largely be explained by low front-end rates.

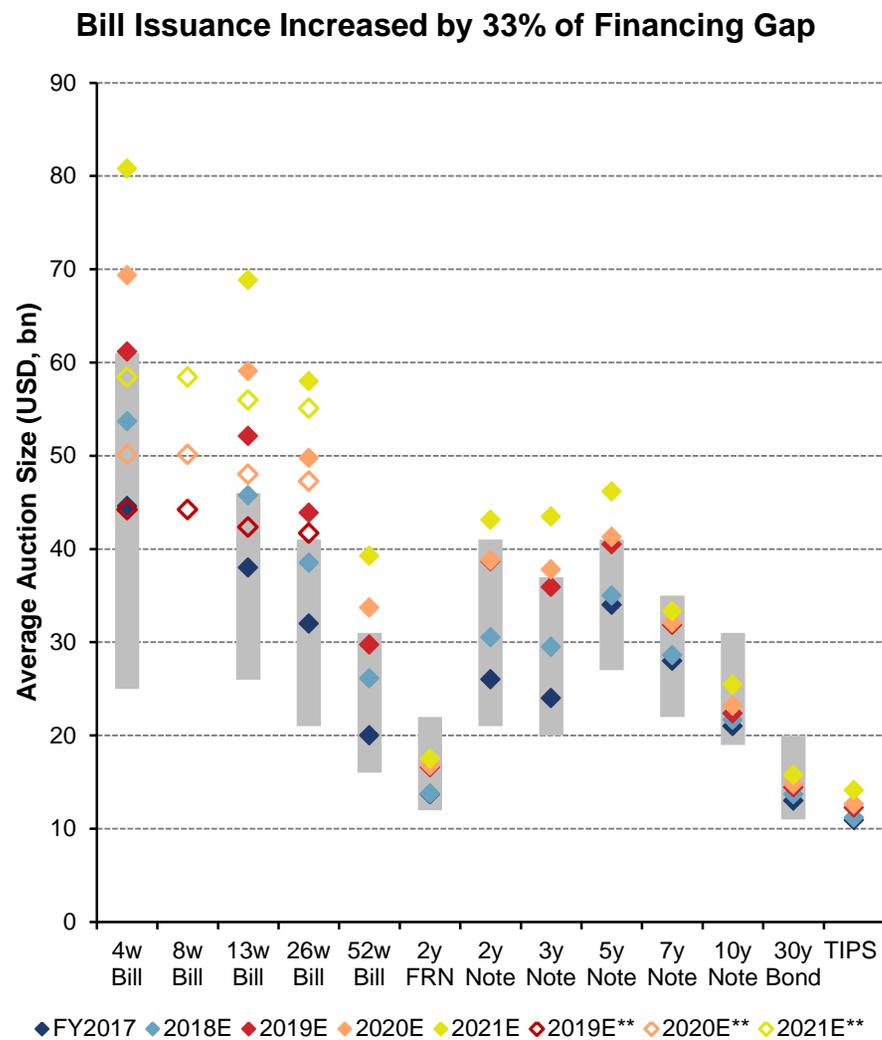
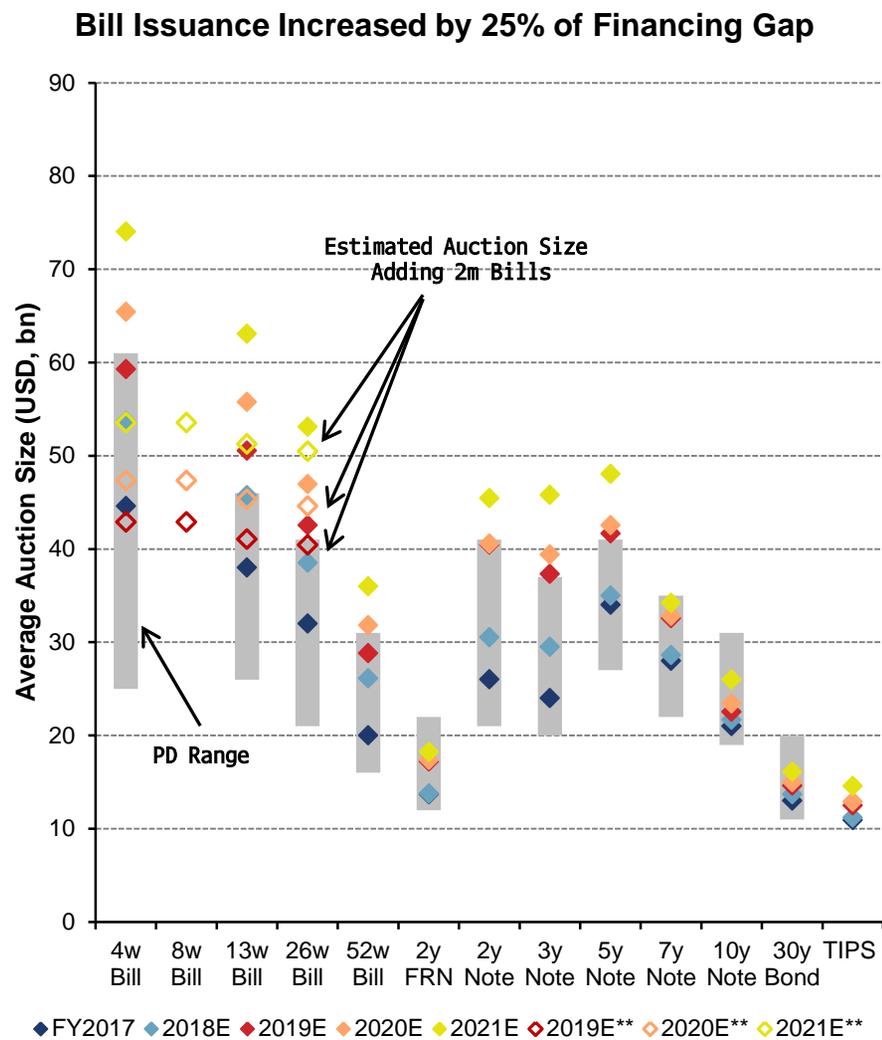


Source: The estimate of the Tbill premium is based on the difference between actual T-bill yields and a curve that is fitted using most outstanding off-the-run nominal Treasury coupon securities with a maturity greater than 3 months. The curve is fitted using the model developed by Gurkaynak, Sack and Wright (2006).

Calculations by TBAC committee staff. As of April 2018.

Impact on Auction Size

Auction Sizes With and Without 2 Month Issuance



Average is shown *per auction*, including re-openings. CMBs excluded. The top of the PD range shows dealer estimated “maximum auction size ... without causing significant yield deviations from fair value”. Estimated issuance if adding 2m Bill representing 14% of outstanding Bill debt, with 4w, 13w and 26w bill reduced disproportionately. TIPS collapsed into single issuance bucket for simplicity.

Source: Treasury Direct and Primary Dealer Survey Q4'17. Calculations by TBAC committee staff. As of April 2018.

Considering 2m Pairing and Settlement timing

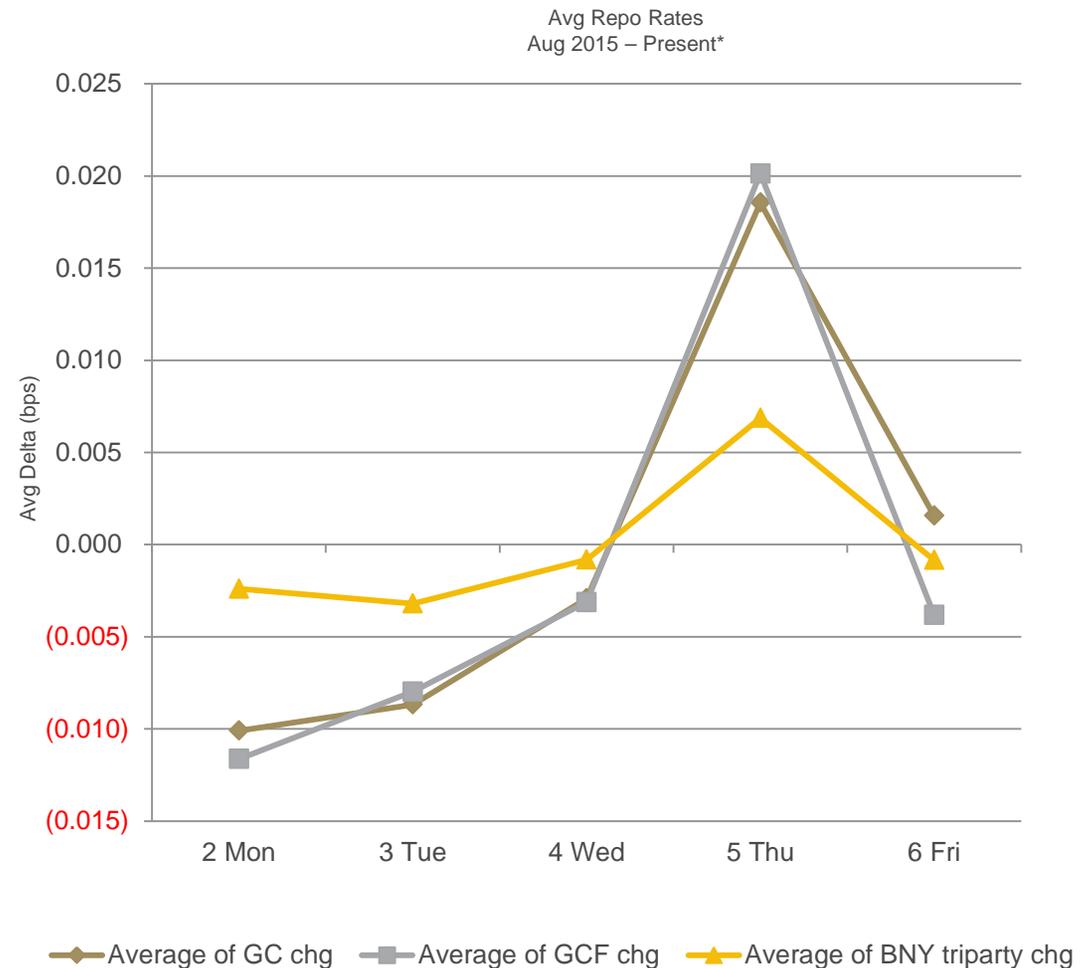
A Tuesday settlement of both 1m and 2m bills provides relief to observed challenges

- Bifurcation of settlement days across the week will act to alleviate overnight funding spikes and concentration of funding risk.
 - Shifting more issuance settlement to another day via pairing the 1m with the 2m will further increase this benefit, and importantly allows the 2m to be reopened as 1m.
 - The pairing of 12m, 6m and 3m should remain unchanged to facilitate the growth of liquidity for the 12m as it is reopened.
- Given the tendency of very short end investors to stay there, pairing the 1m and 2m can simplify the roll/laddering for this segment, and provides investors with an additional cash flow management option.
- Tuesday settlement allows for avoidance of common Monday/Friday market holidays. From a client flow or volume perspective we generally do not observe periodicity around days of the week, however we do observe this based on the monthly calendar (i.e. Treasury P&I payments, month-end, quarter end).
- While there likely is plenty of liquidity in the market to allow for investors to move between bills of different settlement dates in the steady state, the initial 2 month ramp up period could see material swings (up to \$80bn) in outstanding bills between one Thursday and the next Tuesday.

Overnight Funding

Growing Thursday settlement has led to spikes in O/N Funding Rates

- We observe overnight funding spikes of ~2bp every Thursday driven by the current T-bill settlement cycle.
- With further increase of Thursday bill settlements, either through a new bill tenor or increasing size on existing issues, this impact will increase.
- While the effect has thus far been manageable, there are 2 reasons for concern: increased bill issuance driving the spike higher, and the use of O/N funding rates in the creation of SOFR will increase the need for stability.



* First and last days of the month, and Fed move days + following days are excluded

Source: BNYM Tri Party Data: BNYM, ICAP General Collateral Data: Bloomberg, DTCC GCF Repo Index: Bloomberg

5 Day Settlement Mismatch

Sufficient liquidity exists to support reinvestment needs between settlement cycles

With respect to the need to cover the 5 day window between Thursday and Tuesday settlements, there is sufficient liquidity in the market, assuming a conservative scenario of 2m bill issuance size of at least \$20bn and less than \$10bn/week of Thurs to Tues roll activity.

Short Bill Size

				\$bn
26-Apr	Original	15-Apr-17	12m	20
	Reopen	20-Oct-17	6m	36
	Reopen	25-Jan-18	3m	48
	Reopen	29-Mar-18	1m	65
				169

				\$bn
3-May	Original	2-Nov-17	6m	36
	Reopen	1-Feb-18	3m	48
	Reopen	5-Apr-18	1m	55
				139

				\$bn
10-May	Original	9-Nov-17	6m	36
	Reopen	8-Feb-18	3m	48
	Reopen	12-Apr-18	1m	45
				129

Short Bill Activity

Bill	Trading Range		Volume	Bill Issuance History		\$bn
19-Apr-18	12-Apr	1.64/1.56	Last 5 days \$3.1bn ICAP	19-Oct-17	6m	36
	13-Apr	1.64/1.57		18-Jan-18	3m	48
	16-Apr	1.62/1.45		8-Feb-18	CM	30
	17-Apr	1.65/1.48		22-Mar-18	1m	65
	18-Apr	1.65/1.55				
						179

Bill	Trading Range		Volume	Bill Issuance History		\$bn
12-Apr-18	5-Apr	1.65/1.60	Last 5 days \$2bn ICAP	12-Oct-17	6m	36
	6-Apr	1.64/1.61		11-Jan-18	3m	48
	9-Apr	1.64/1.61		6-Feb-18	CM	50
	10-Apr	1.65/1.62		15-Mar-18	1m	65
	11-Apr	1.67/1.64				
						199

Settlement and Clearance

Concentrated funding stress and intraday credit extension needs around the single weekly settlement would be alleviated through a bifurcated cycle

- The primary US Government Clearing firm has a highly resilient operating infrastructure which has been tested for 2x current peak volumes of securities clearance and settlement.
- Increasing issuance and settlement volumes present innate increases in Operational Risk, however there are no specific areas of concern.
- The single point of new US Government security issuance at 9:15am EST creates an acute liquidity drain for the Clearing firms.
- The single day of security issuance also concentrates intraday credit extension from Clearing firms into one day, as clients work to fund their positions through tri-party or other means.
- The distribution of settlement, staggered within the business day or across multiple days of the week, would act to reduce both the financing burden for the clearing system and the intraday credit risk profile in the market.

Foreign Bill Markets

Given their relatively small size, foreign markets require single auction and settlement cycles to maintain liquidity

Germany

- Small market
 - Currently €10bn total outstanding
- Irregular auction schedule
 - Announced and auctioned as needed

France

- Full Curve
 - €141bn total outstanding
 - 1 week to 1 year maturities outstanding
 - Individual issues are relatively small <€10bn
 - Bid/Offer spreads are 5bps wide in 'active' bills
- Regular weekly auction schedule
 - 3m and 6m auctioned weekly, 1y auctioned monthly
 - Friday announcements
 - Monday Auction
 - Wednesday settlement (T+2)
 - Outstanding issues are tapped at each point as the roll down the curve
 - CM bills issued as needed

United Kingdom

- Issuance currently to 9mo
 - £60bn total outstanding
 - 1 week to 9 month maturities outstanding
 - 1 year bills can be issued at times
 - Individual issues are very small <£3.5bn
 - Illiquid
 - Bid/Offer spreads are 10bps wide in 'active' bills
- Regular weekly auction schedule
 - 1m, 3m, and 6m are auctioned weekly, 9m, and 1y as needed
 - Friday auction, and announcement for the following week
 - Monday settlement (T+1)
 - Outstanding issues are tapped at each point as the roll down the curve
 - CM bills issued as needed

Conclusion

- Observed congestion around the current auction cycle creates capacity and potential operational risk.
- This committee has previously recommended 25% to 33% of the financing gap to be funded with T-Bills. This is projected to significantly increase T-Bill auction sizes.
- Heavy settlement volumes on Thursday has a negative impact on funding markets and increases Treasury's concentration of funding risk.
- Introducing a 2m point at a new settlement date can alleviate both problems – reducing supply per issue and per day.
- TBAC recommends introducing an 8 week bill to settle on Tuesdays.
- TBAC further recommends moving the 4 week bill settlement to Tuesdays as well, as a way to further reduce settlement concentration and increase liquidity in the 8 week bill.
- 13-, 26- and 52-week bills should remain on the Thursday cycle.
- This will increase the bill sector to 52 cusips from the current 44.
- There is sufficient liquidity in extremely short end bills to support the resultant 5 day window between Thursday and Tuesday settlements.