

Treasury Presentation to TBAC



Office of Debt Management



Fiscal Year 2016 Q4 Report

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Section I: Executive Summary



Highlights of Treasury's November 2016 Quarterly Refunding Presentations to the Treasury Borrowing Advisory Committee (TBAC)

Receipts and Outlays

- Corporate taxes have been weaker than during the equivalent period last year, potentially attributable to the extension of bonus depreciation and smaller corporate profits.
- In FY 2016, net outlays were \$166 billion higher than FY 2015, primarily attributable to increased HHS payments, which resulted from a calendar effect that shifted payments from October into September. Interest expenses rose due to higher inflation compensation on TIPS and higher interest expense on Government Account Series (GAS) debt.
- The budget deficit for FY 2016 was \$148 billion higher than the FY 2015 deficit.

Sources of Financing in Fiscal Year 2017

- Based on the Quarterly Borrowing Estimate, Treasury's Office of Fiscal Projections currently projects a net marketable borrowing need of \$188 billion for Q1 FY 2017, with an end of December cash balance of \$390 billion. For the Q2 FY 2017, net marketable borrowing need is projected to be \$56 billion, with an end of March cash balance of \$100 billion.
- In FY 2017, OMB projects that borrowing from the public will decline to \$573 billion. In FY 2016, net marketable borrowing totaled \$795 billion, in part reflecting a \$155 billion increase in cash balance.

Projected Net Marketable Borrowing

- Between FY 2017 and 2019 Treasury's net marketable borrowing could rise notably if the Federal Reserve allows the Treasury securities held in the SOMA portfolio to mature.
- As of the September 2016 survey of primary dealers, the median expectation was for SOMA reinvestments to continue until June 2018.

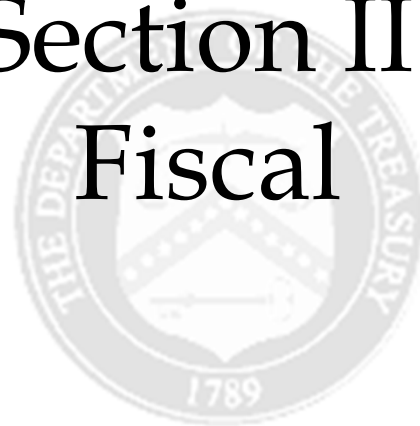
Bid-to-Cover Ratios (BTC)

- BTC ratios for TIPS have increased slightly in recent months, and most other coupon tenors are little changed.
- Since June, 4- and 13-Week bill BTC ratios increased, while 26- and 52-Week bill BTC ratios decreased.

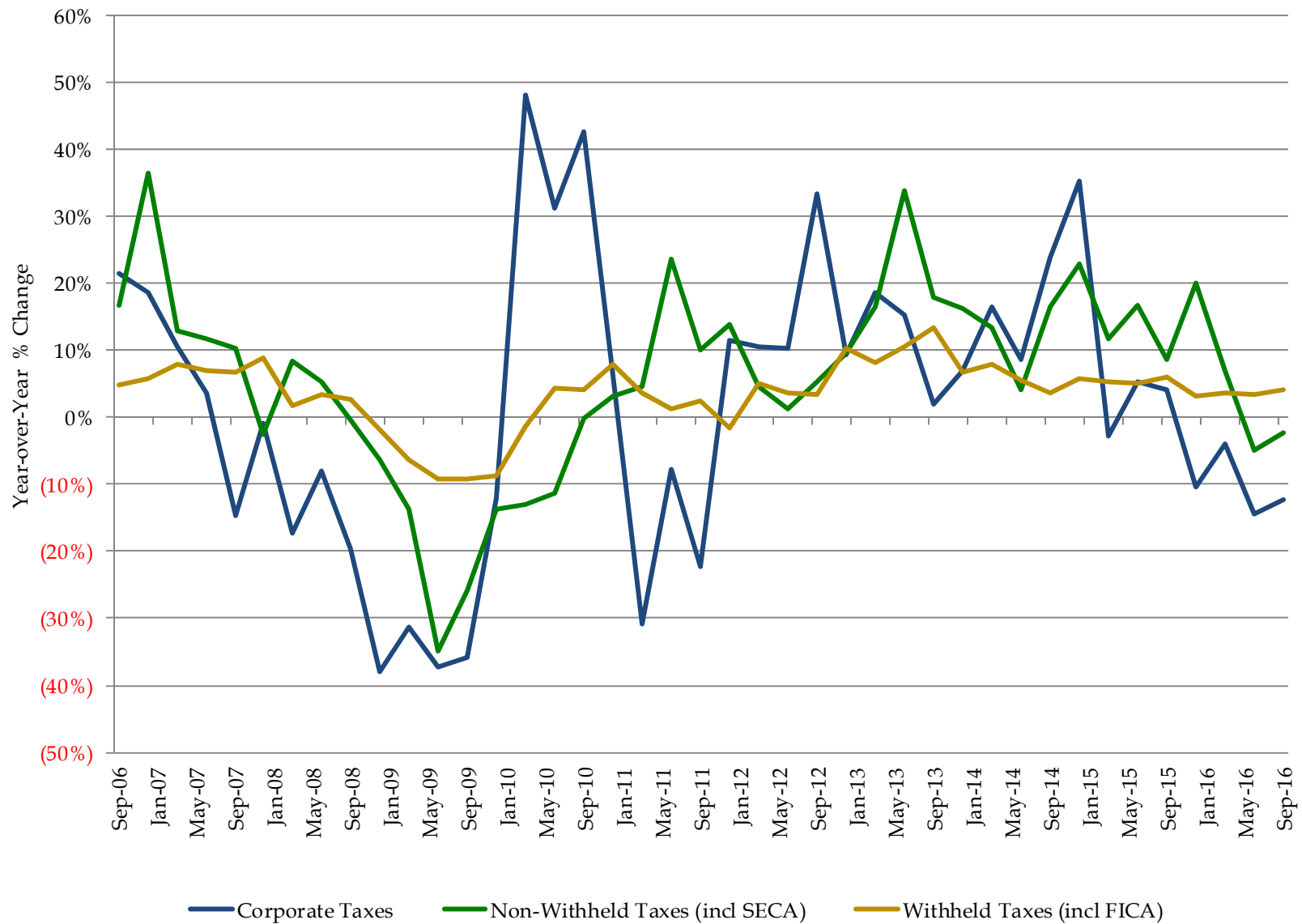
Investor Class Allotments

- Since the beginning of July, bill auction awards are higher for other dealers and brokers, investment funds, and foreign and international institutions. Accordingly, bill auction awards fell for primary dealers.
- Direct bidder awards were modestly lower across most tenors.

Section II: Fiscal

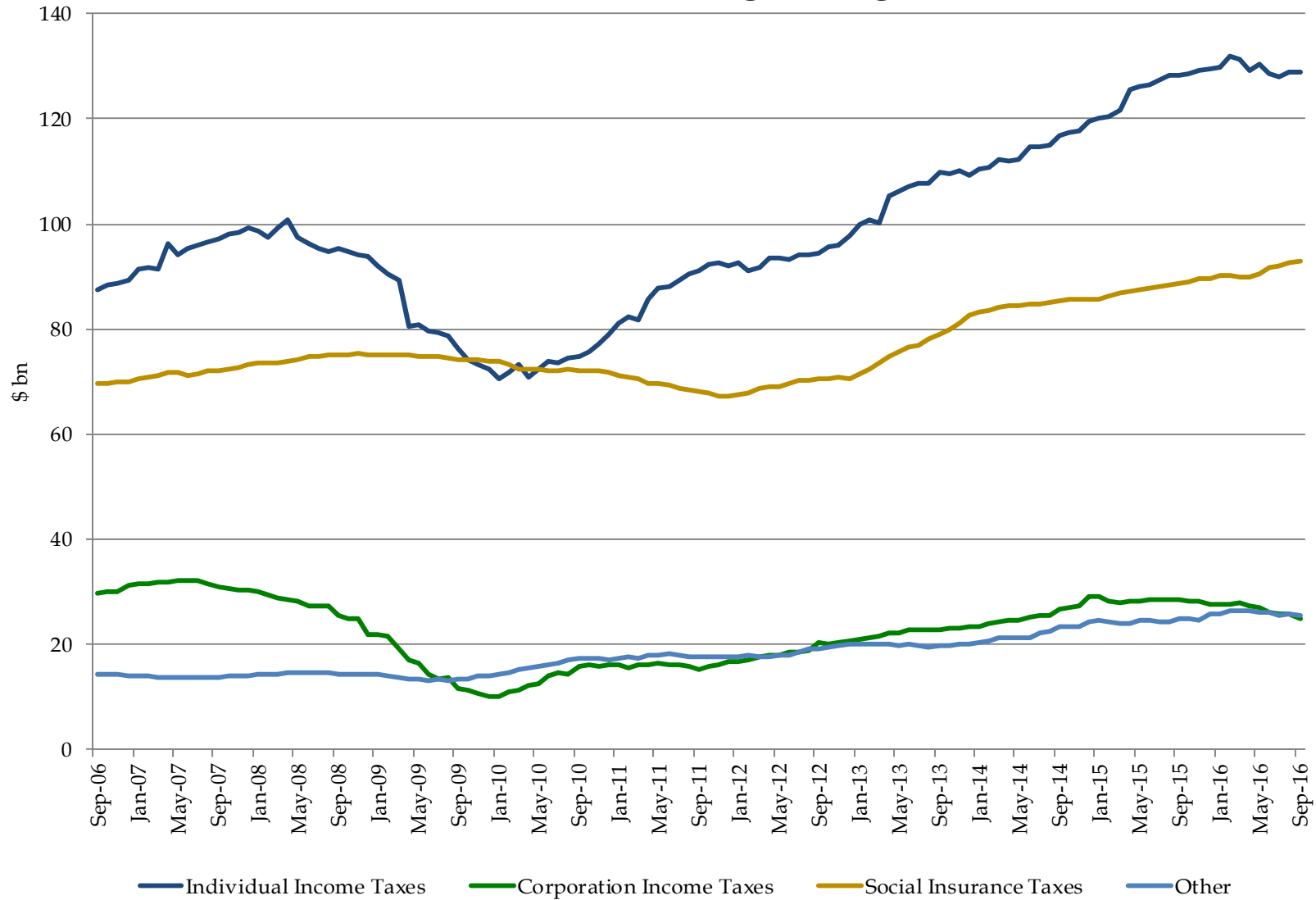


Quarterly Tax Receipts



Source: United States Department of the Treasury

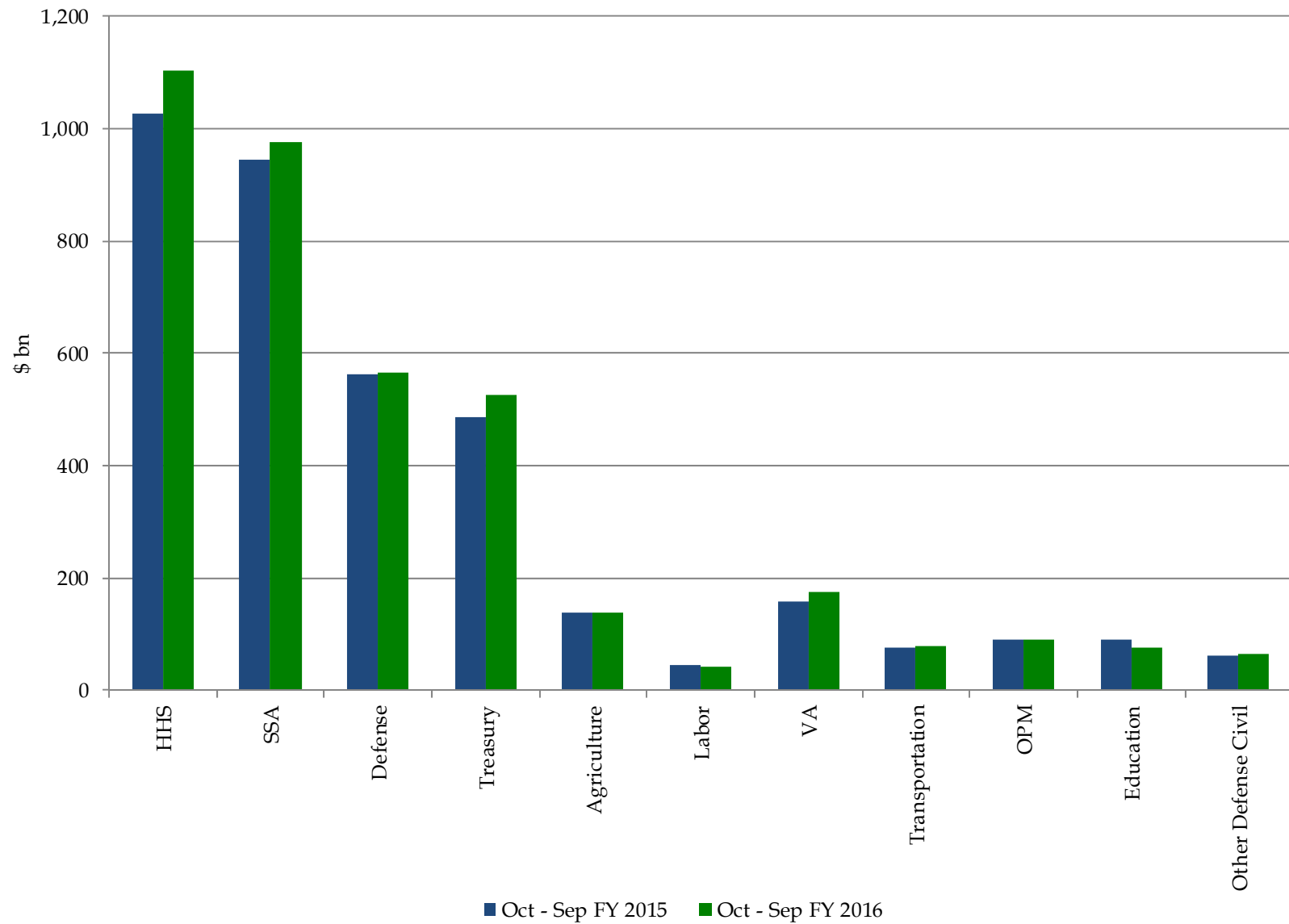
Monthly Receipt Levels (12-Month Moving Average)



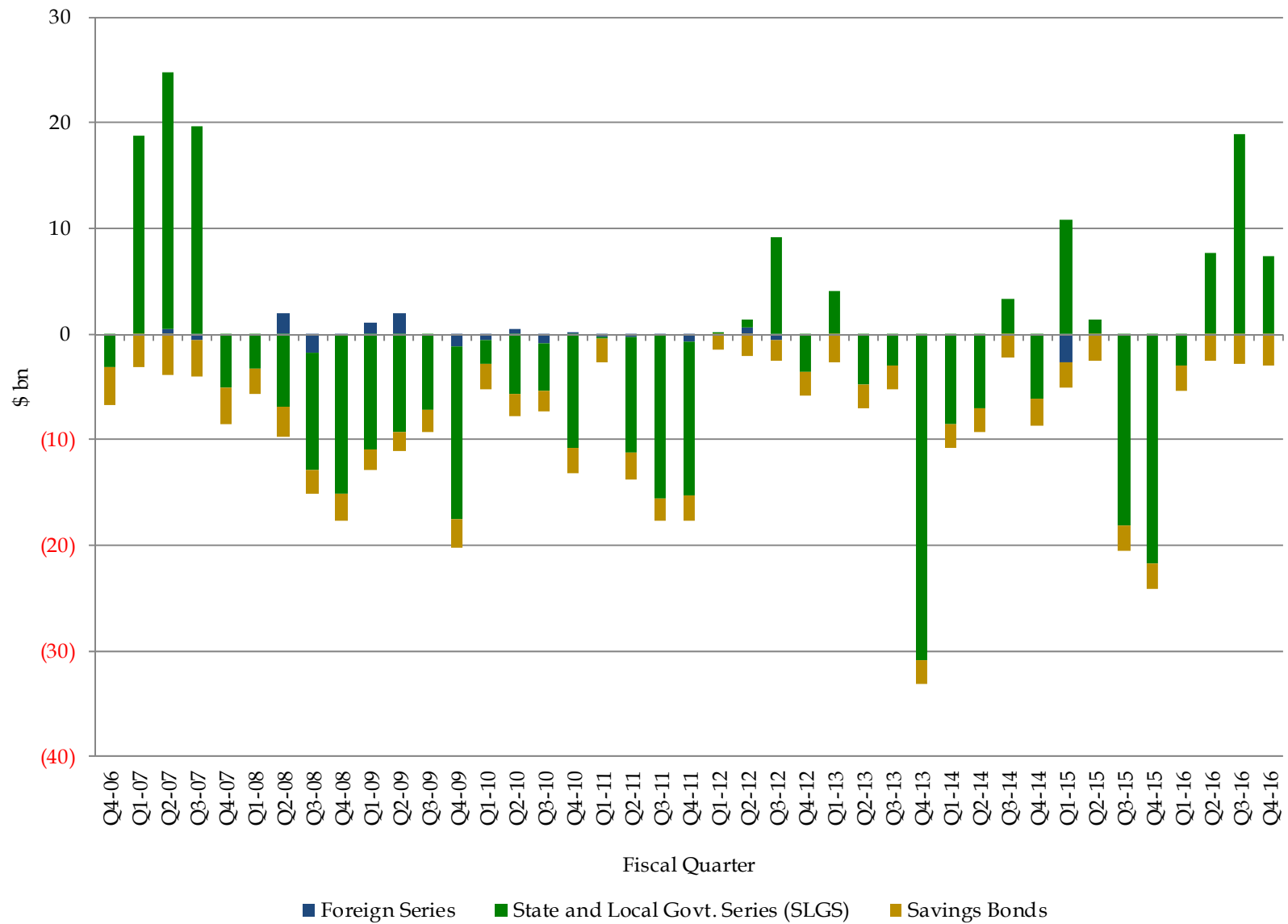
Individual Income Taxes include withheld and non-withheld. Social Insurance Taxes include FICA, SECA, RRTA, UTF deposits, FUTA and RUIA. Other includes excise taxes, estate and gift taxes, customs duties and miscellaneous receipts.

Source: United States Department of the Treasury

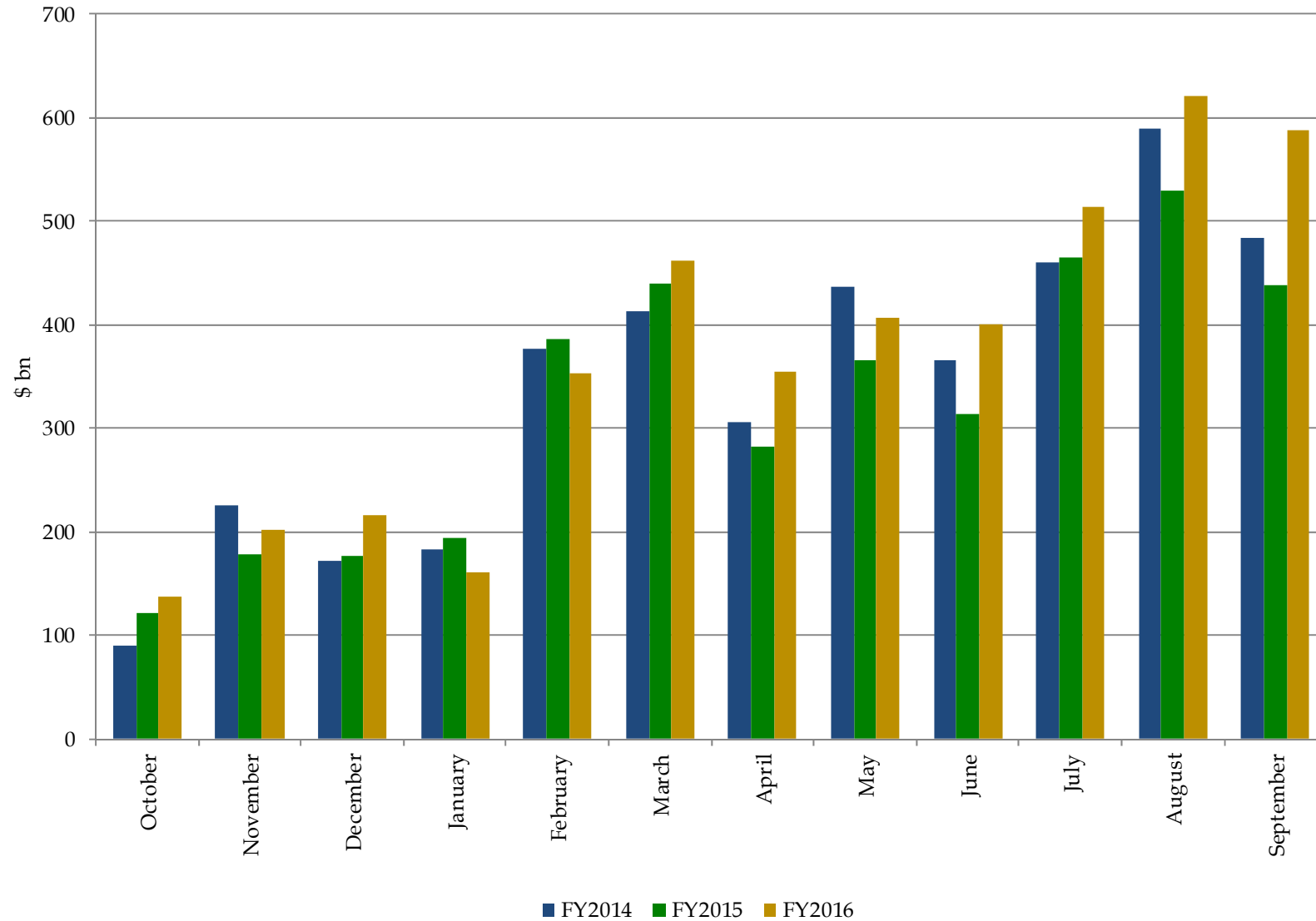
Eleven Largest Outlays



Treasury Net Nonmarketable Borrowing



Cumulative Budget Deficits by Fiscal Year



FY 2017-2019 Deficits and Net Marketable Borrowing Estimates In \$ billions

	Primary Dealers ¹	CBO ²	CBO ³	OMB MSR ⁴	OMB ⁵
FY 2017 Deficit Estimate	600	594	433	441	504
FY 2018 Deficit Estimate	606	520	383	330	454
FY 2019 Deficit Estimate	685	625	518	427	550
FY 2017 Deficit Range	525-656				
FY 2018 Deficit Range	525-700				
FY 2019 Deficit Range	550-775				
FY 2017 Net Marketable Borrowing Estimate	628	670	508	573	635
FY 2018 Net Marketable Borrowing Estimate	665	582	452	436	561
FY 2019 Net Marketable Borrowing Estimate	750	676	578	534	659
FY 2017 Net Marketable Borrowing Range	390-762				
FY 2018 Net Marketable Borrowing Range	550-740				
FY 2019 Net Marketable Borrowing Range	650-900				
Estimates as of:	Oct-16	Aug-16	Mar-16	Jul-16	Feb-16

¹Based on primary dealer feedback on October 24, 2016. Estimates above are averages.

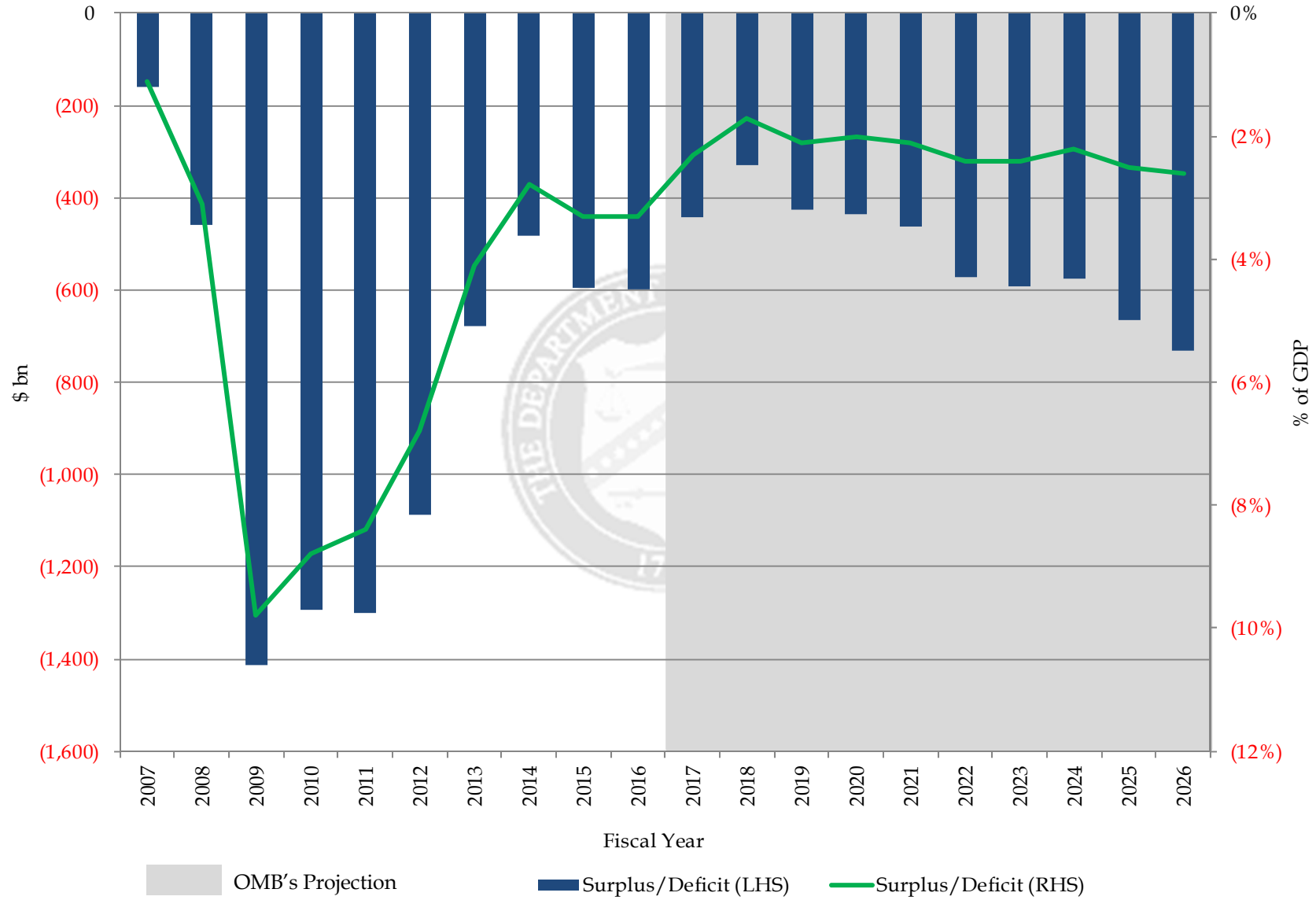
²Table 1 and 2 of CBO's "An Update to the Budget and Economic Outlook: 2016 to 2026"

³Table 1 and 2 of CBO's "An Analysis of the President's 2017 Budget"

⁴Table S-11 of OMB's "The FY2017 Mid-Session Review"

⁵Table S-13 of OMB's "Budget of the United States Government, Fiscal Year 2017"

Budget Surplus/Deficit



Projections are from Table S-11 of "The FY2017 Mid-Session Review."

Section III: Financing



Assumptions for Financing Section (pages 15 to 22)

- Portfolio and SOMA holdings as of 9/30/2016.
- SOMA reinvestments until June 2018, followed by SOMA redemptions until and including February 2022. These assumptions are based on Chair Yellen's December 2015 press conference and the median expectations from the September FRB-NY survey of primary dealers.
- Assumes announced issuance sizes and patterns constant for Nominal Coupons, TIPS, and FRNs as of 9/30/2016, while using an average of ~\$1.6 trillion of Bills outstanding.
- The principal on the TIPS securities was accreted to each projection date based on market ZCIS levels as of 9/30/2016.
- No attempt was made to match future financing needs.



Sources of Financing in Fiscal Year 2016 Q4

July - September 2016	
Net Bill Issuance	139
Net Coupon Issuance	83
Subtotal: Net Marketable Borrowing	222
Ending Cash Balance	353
Beginning Cash Balance	364
Subtotal: Change in Cash Balance	(10)
Net Implied Funding for FY 2016 Q4*	233

Security	July - September 2016 Bill Issuance			Fiscal Year-to-Date Bill Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
4-Week	590	625	(35)	2,285	2,235	50
13-Week	502	388	114	1,702	1,502	200
26-Week	437	370	67	1,484	1,333	151
52-Week	60	67	(7)	230	317	(87)
CMBs	0	0	0	95	120	(25)
Bill Subtotal	1,589	1,450	139	5,796	5,507	289

Security	July - September 2016 Coupon Issuance			Fiscal Year-to-Date Coupon Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
2-Year FRN	43	41	2	170	123	47
2-Year	83	87	(4)	350	372	(22)
3-Year	76	95	(19)	300	383	(83)
5-Year	109	108	1	462	438	24
7-Year	90	87	3	381	217	164
10-Year	67	23	44	267	91	176
30-Year	41	0	41	167	30	137
5-Year TIPS	15	0	15	47	41	6
10-Year TIPS	25	24	1	80	44	36
30-Year TIPS	0	0	0	22	0	22
Coupon Subtotal	548	465	83	2,245	1,739	507

Total	2,137	1,915	222	8,041	7,246	795
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*An end-of-September 2016 cash balance of \$353 billion versus a beginning-of-July 2016 cash balance of \$364 billion. By keeping the cash balance constant, Treasury arrives at the net implied funding number.
Gross issuance values include SOMA add-ons

Sources of Financing in Fiscal Year 2017 Q1

October - December 2016	
Assuming Constant Coupon Issuance Sizes*	
Treasury Announced Net Marketable Borrowing**	188
Net Coupon Issuance	47
Implied Change in Bills	141

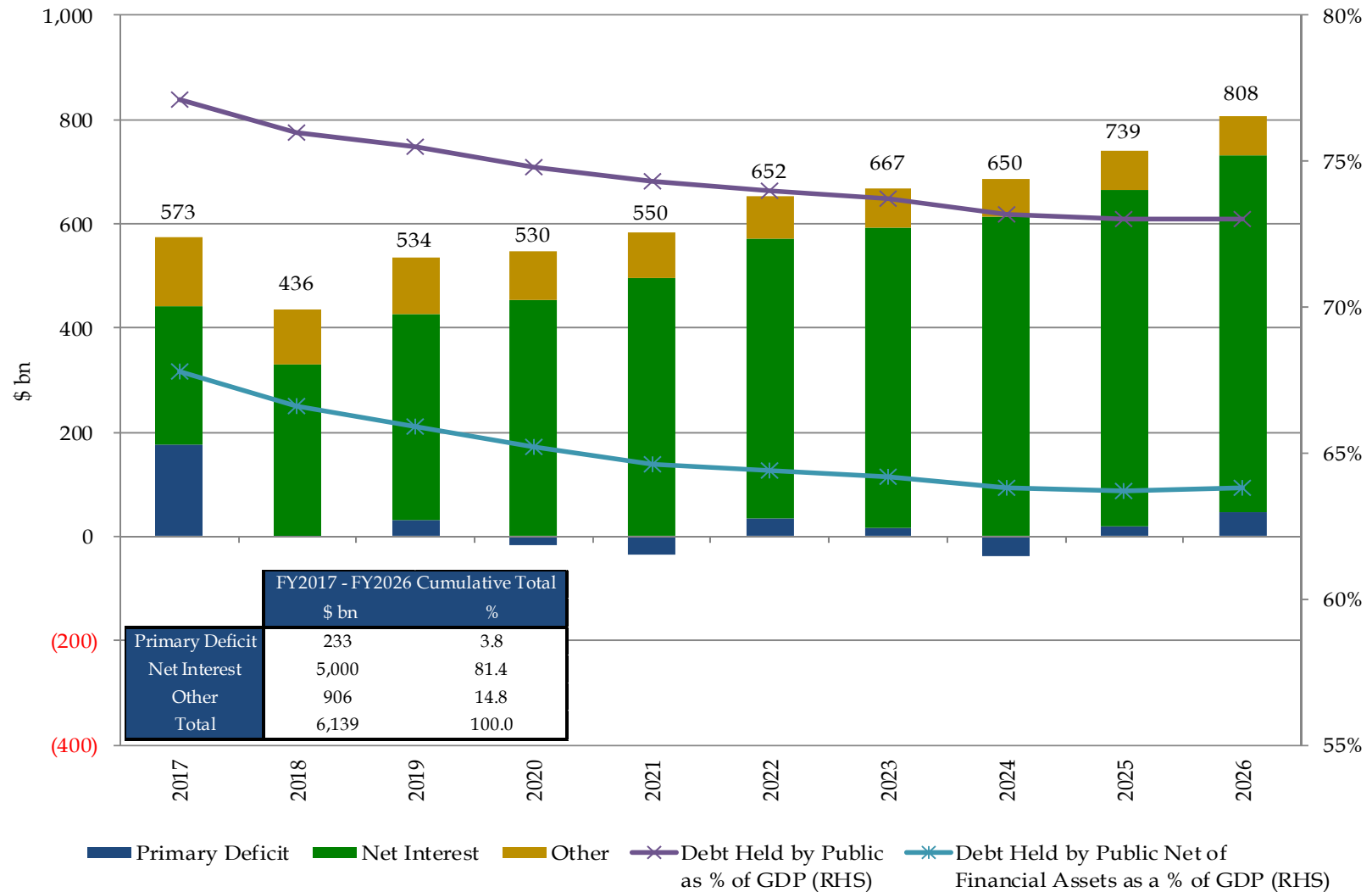
Security	October - December 2016 Coupon Issuance			Fiscal Year-to-Date Coupon Issuance		
	Gross	Maturing	Net	Gross	Maturing	Net
2-Year FRN	41	41	(0)	41	41	(0)
2-Year	52	57	(5)	52	57	(5)
3-Year	72	90	(18)	72	90	(18)
5-Year	68	73	(5)	68	73	(5)
7-Year	56	65	(9)	56	65	(9)
10-Year	63	23	40	63	23	40
30-Year	39	19	20	39	19	20
5-Year TIPS	12	0	12	12	0	12
10-Year TIPS	9	0	9	9	0	9
30-Year TIPS	3	0	3	3	0	3
Coupon Subtotal	415	368	47	415	368	47

*Keeping announced issuance sizes and patterns constant for Nominal Coupons, TIPS, and FRNs as of 9/30/2016. Gross issuance does not reflect SOMA reinvestments.

**Assumes an end-of-December 2016 cash balance of \$390 billion versus a beginning-of-October 2016 cash balance of \$353 billion.

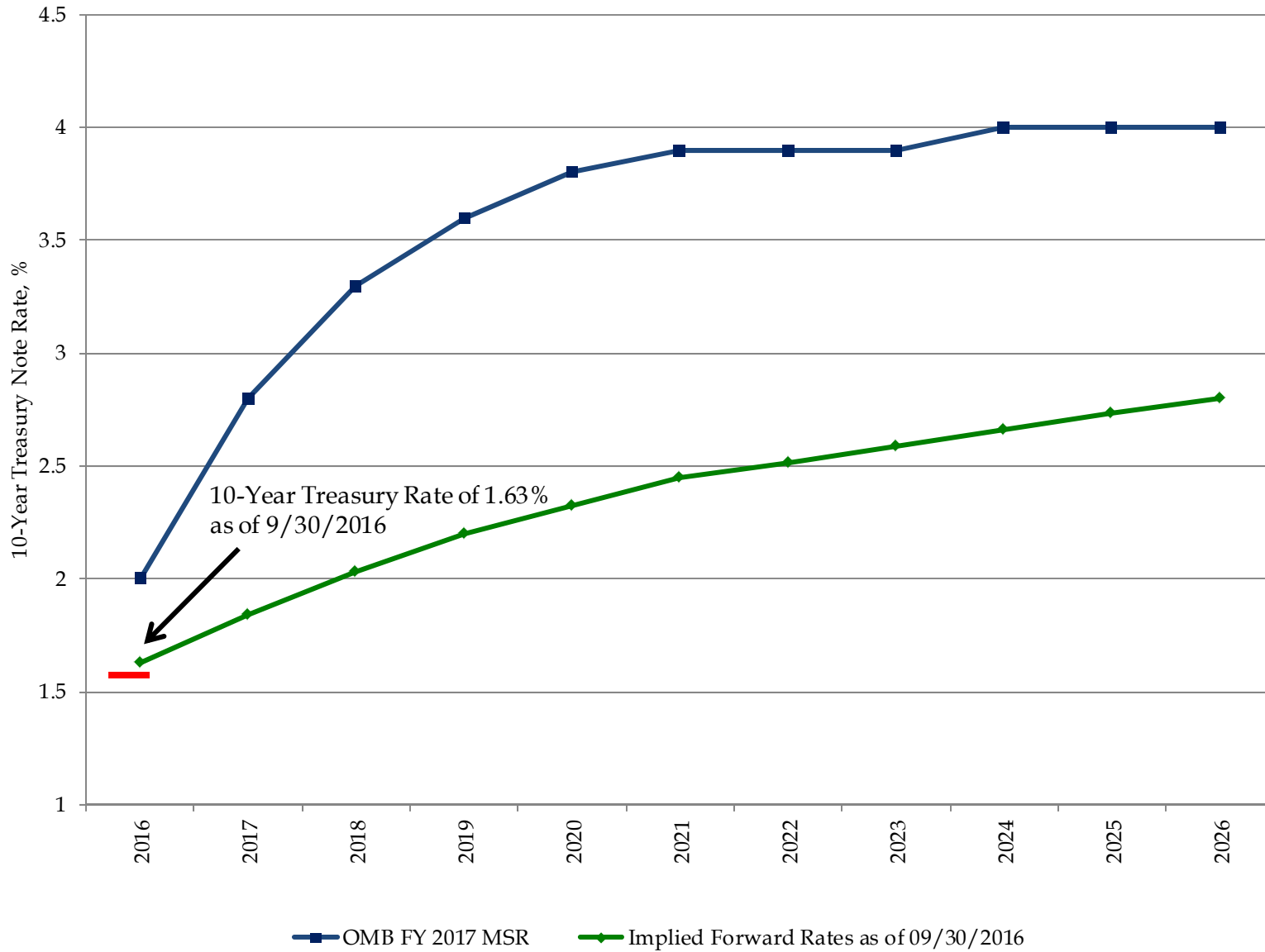
Financing Estimates released by the Treasury can be found here: <http://www.treasury.gov/resource-center/data-chart-center/quarterly-refunding/Pages/Latest.aspx>

OMB's Projection of Borrowing from the Public



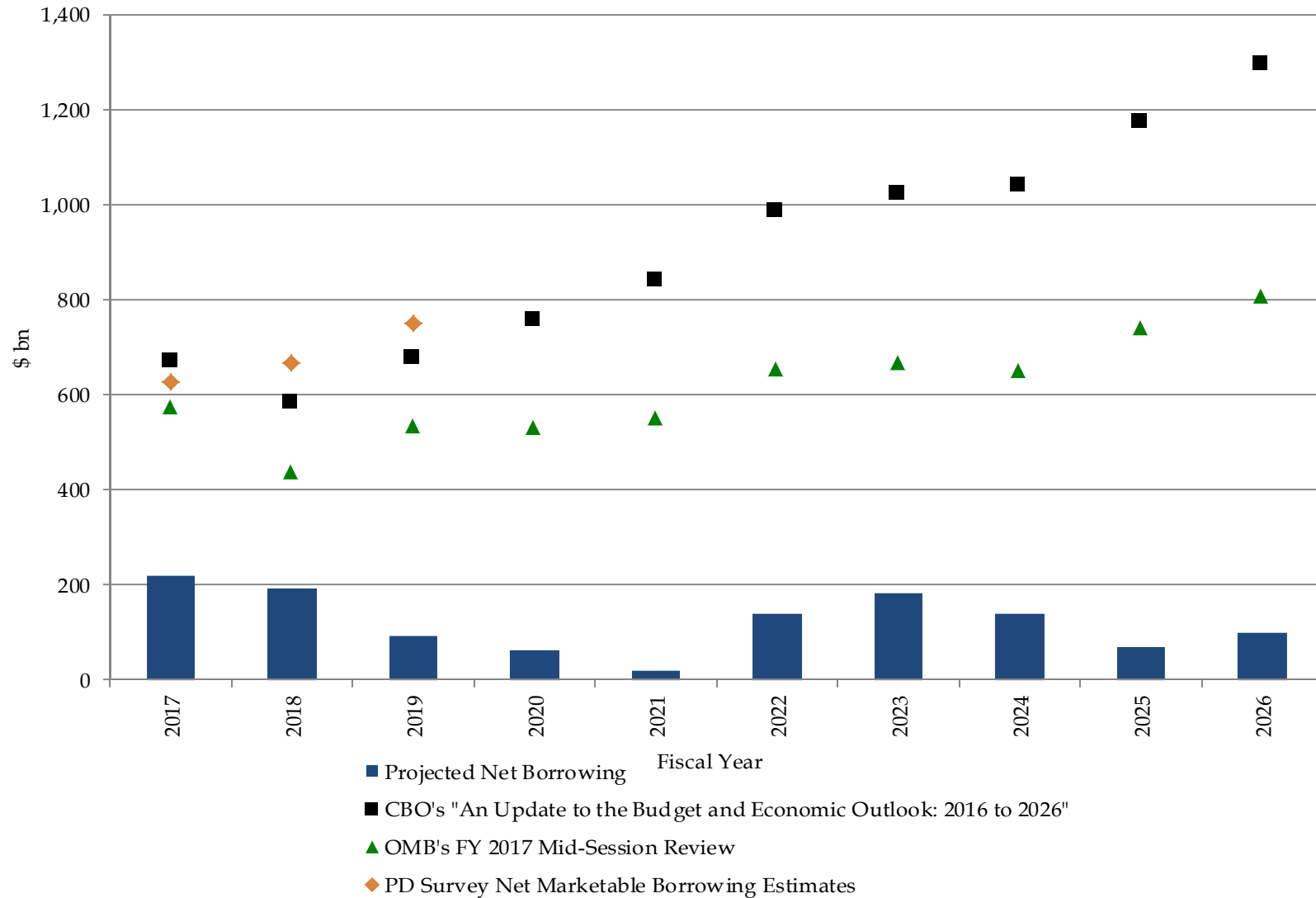
OMB's projections of net borrowing from the public are from Table S-11 of "The FY2017 Mid-Session Review." Data labels at the top represent the change in debt held by the public in \$ billions. "Other" represents borrowing from the public to provide direct and guaranteed loans.

Interest Rate Assumptions: 10-Year Treasury Note



OMB's economic assumption of the 10-Year Treasury Note rates are from Table S-11 of "The FY2017 Mid-Session Review." The forward rates are the implied 10-Year Treasury Note rates on September 30 of that year.

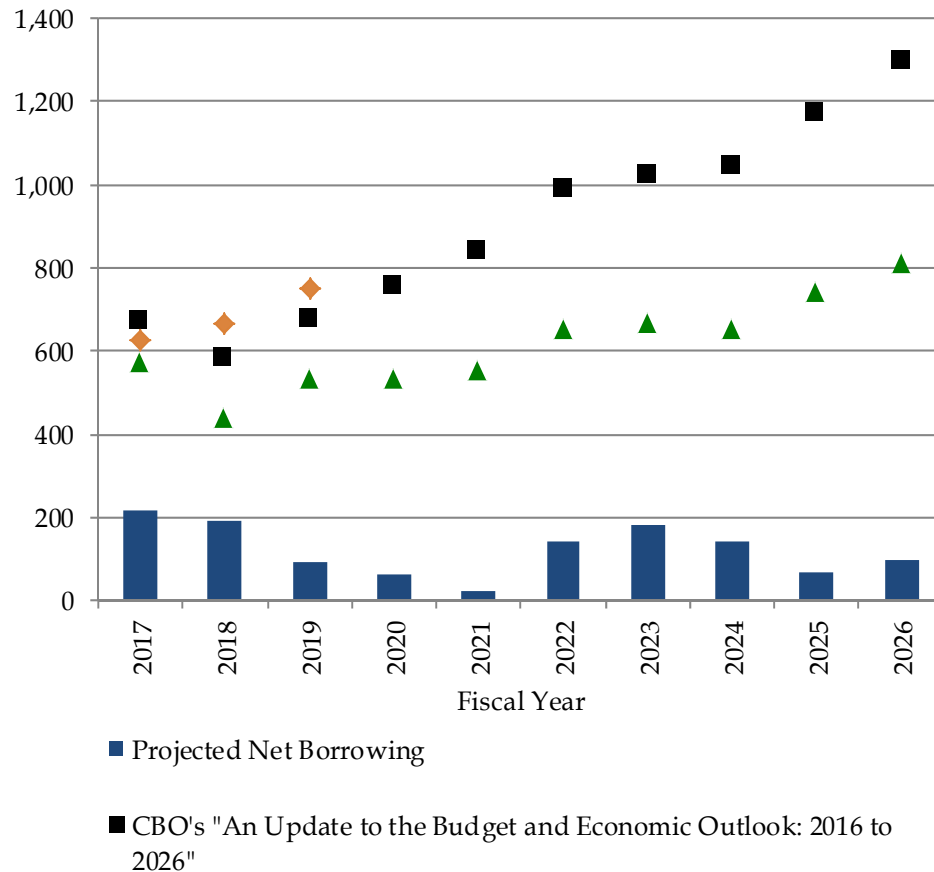
Projected Net Borrowing Assuming Constant Future Issuance



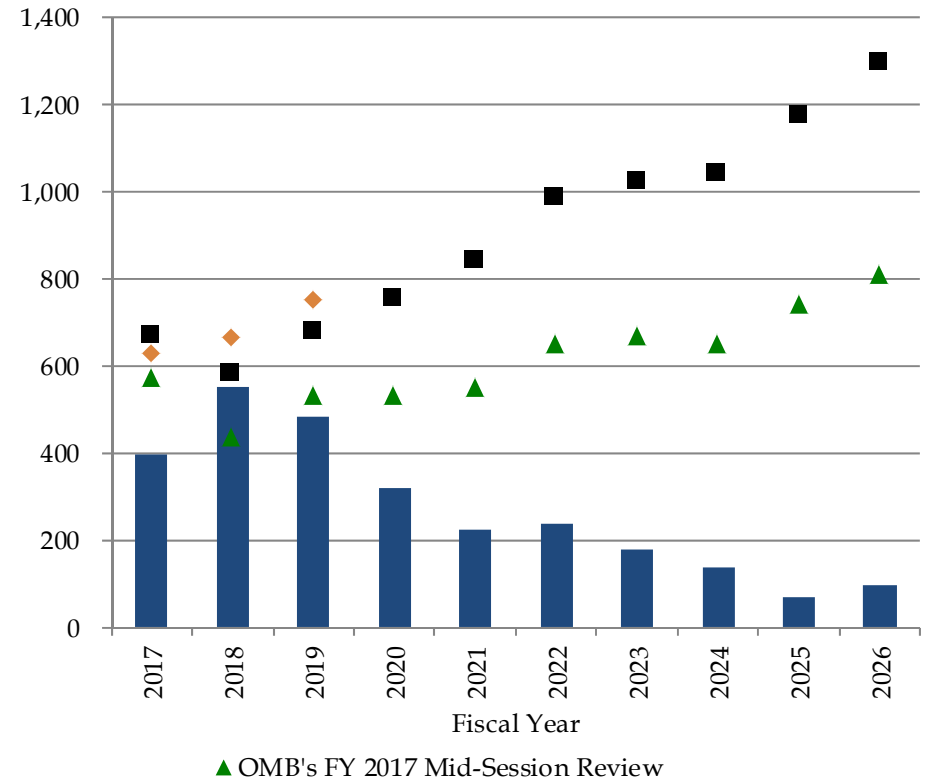
Treasury's primary dealer survey estimates can be found on page 11. OMB's projections of net borrowing from the public are from Table S-11 of "The FY2017 Mid-Session Review." CBO's estimates of the borrowing from the public are from Table 1 and 2 of "An Update to the Budget and Economic Outlook: 2016 to 2026." See table at the end of this section for details.

Impact of SOMA Actions on Projected Net Borrowing Assuming Future Issuance Remains Constant

Without Fed Reinvestments (\$ bn)



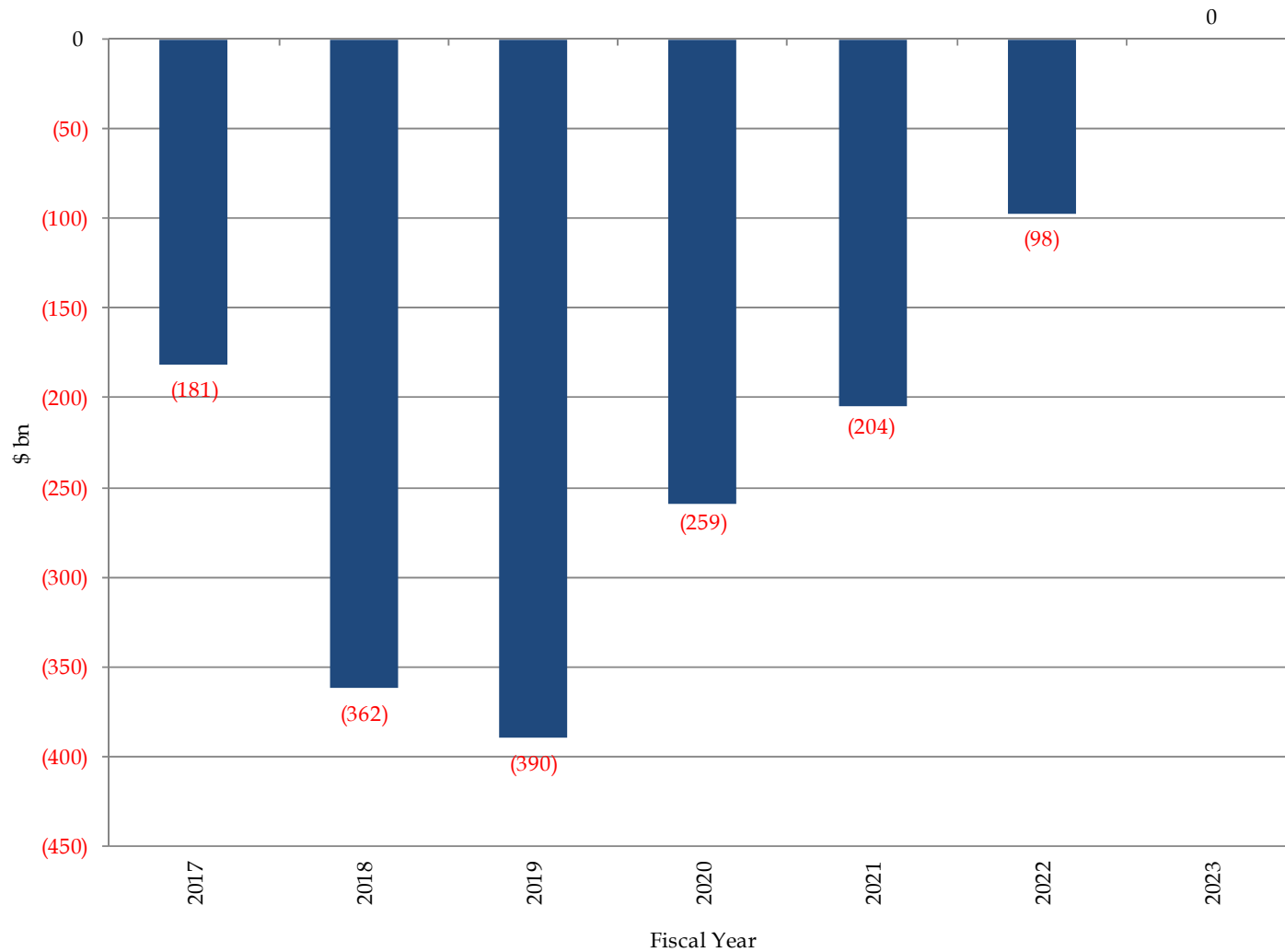
With Fed Reinvestments (\$ bn)



◆ PD Survey Marketable Borrowing Estimates

Treasury's primary dealer survey estimates can be found on page 11. OMB's projections of net borrowing from the public are from Table S-11 of "The FY2017 Mid-Session Review." CBO's estimates of the borrowing from the public are Table 1 and 2 of "An Update to the Budget and Economic Outlook: 2016 to 2026." See table at the end of this section for details.

Additional Funding Gap Assuming No SOMA Roll



Assumes normalization will be complete by FY 2023, which implies no additional funding gap.

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 2017 Mid-Session Review	CBO's "An Update to the Budget and Economic Outlook: 2016 to 2026"	Primary Dealer Survey
2012	139	148	738	90	0	1,115			
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	60	(84)	221	22	(0)	219	573	670	628
2018	0	(20)	202	17	(6)	193	436	582	665
2019	0	9	67	18	0	94	534	676	750
2020	0	(12)	83	(8)	0	63	530	757	
2021	0	(54)	99	(25)	0	20	550	840	
2022	0	36	133	(29)	0	140	652	987	
2023	0	68	137	(27)	3	181	667	1,024	
2024	0	11	159	(30)	(0)	141	650	1,041	
2025	0	(13)	156	(72)	(2)	69	739	1,174	
2026	0	(14)	168	(54)	(0)	99	808	1,294	

Net Borrowing capacity does not reflect SOMA reinvestments.

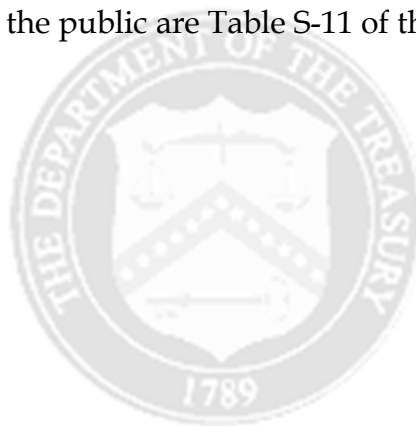
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Section IV: Portfolio Metrics

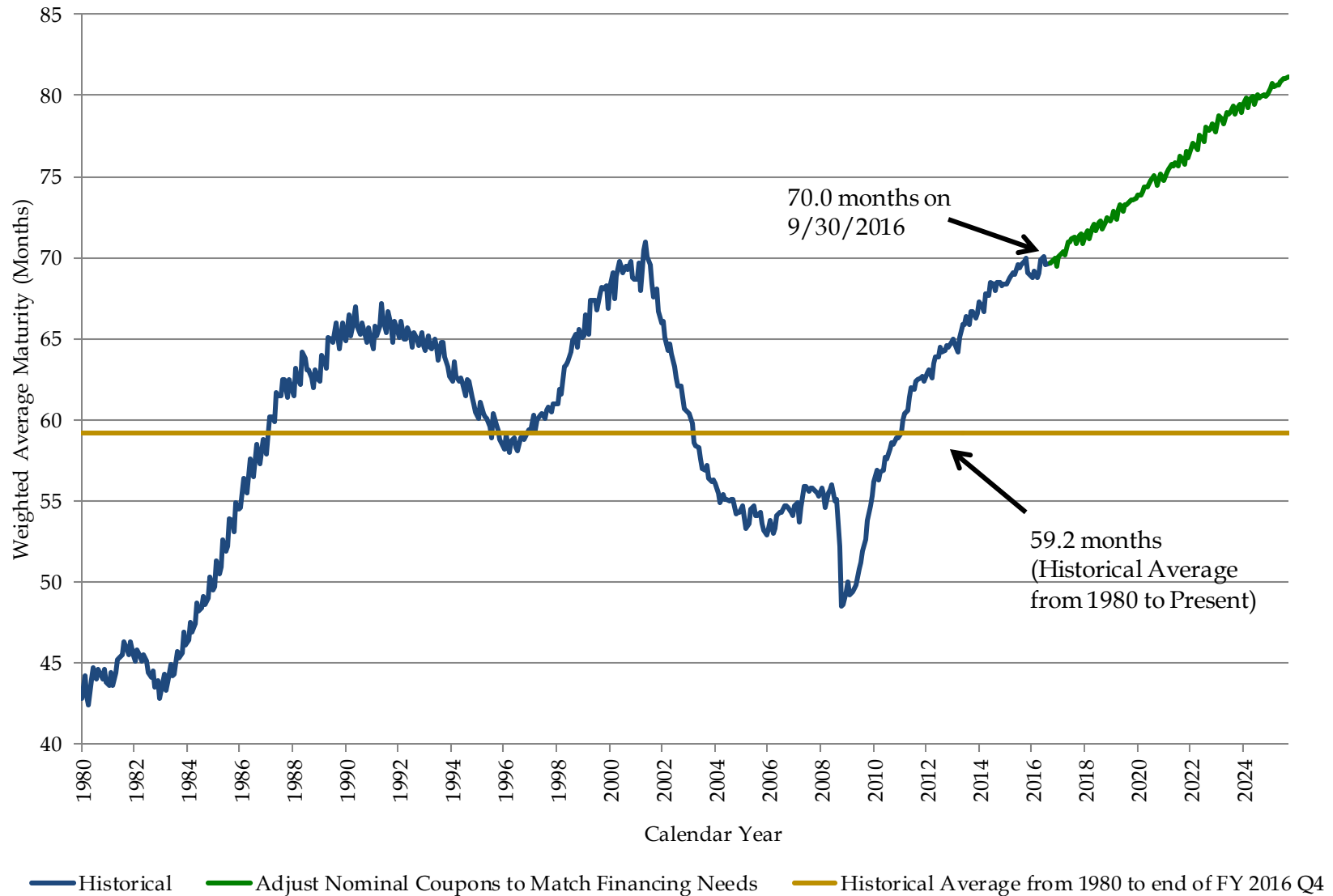


Assumptions for Portfolio Metrics Section (pages 25 to 30) and Appendix

- Portfolio and SOMA holdings as of 9/30/2016.
- SOMA reinvestments until June 2018, followed by SOMA redemptions until and including February 2022. These assumptions are based on Chair Yellen's December 2015 press conference and the median expectations from the September FRB-NY survey of primary dealers.
- To match OMB's projected borrowing from the public for the next 10 years, Nominal Coupon securities (2-, 3-, 5-, 7-, 10-, and 30-year) were adjusted by the same percentage.
- The principal on the TIPS securities was accreted to each projection date based on market ZCIS levels as of 9/30/2016.
- OMB's estimates of borrowing from the public are Table S-11 of the "Fiscal Year 2017 Mid-Session Review."

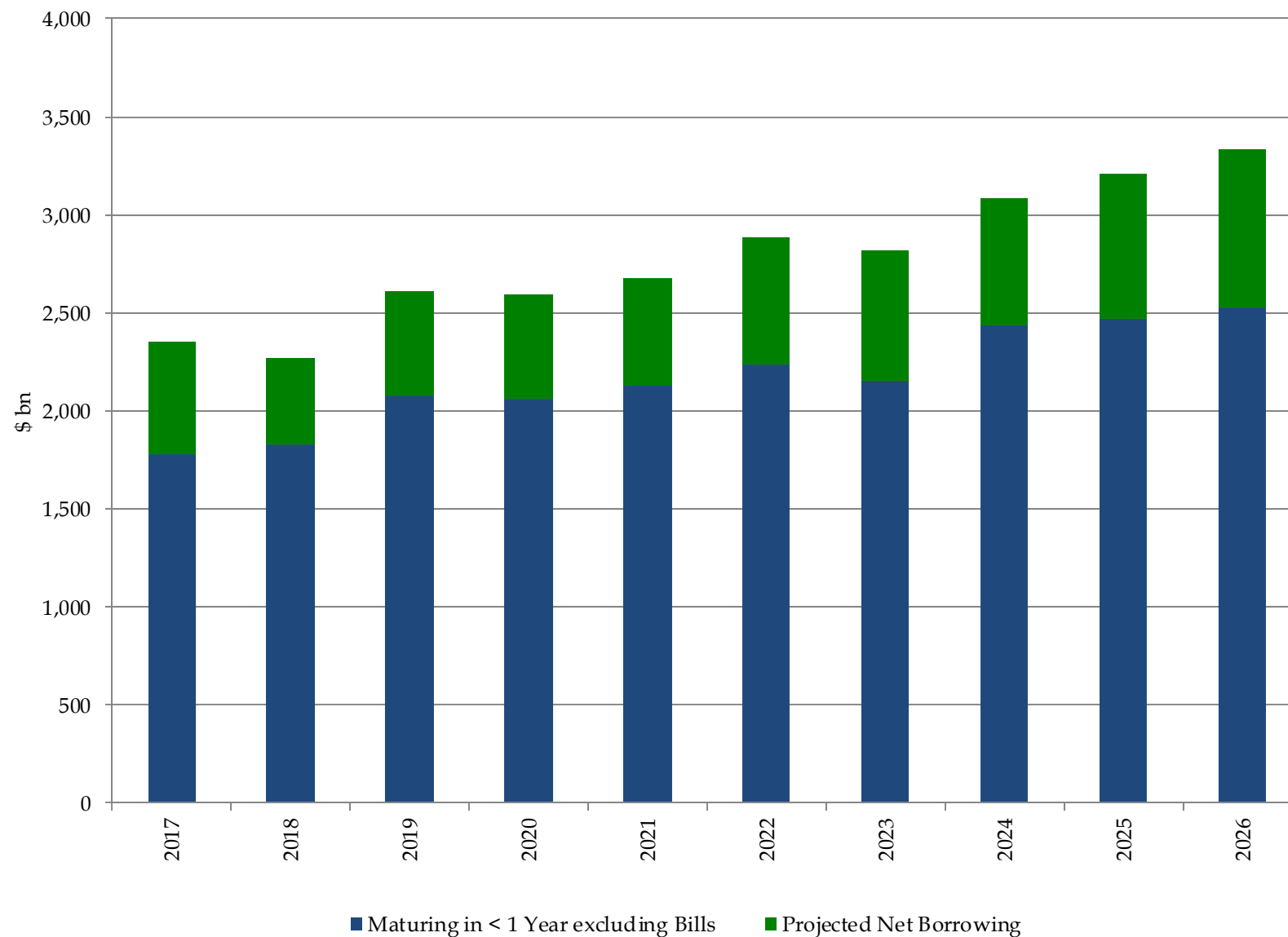


Weighted Average Maturity of Marketable Debt Outstanding



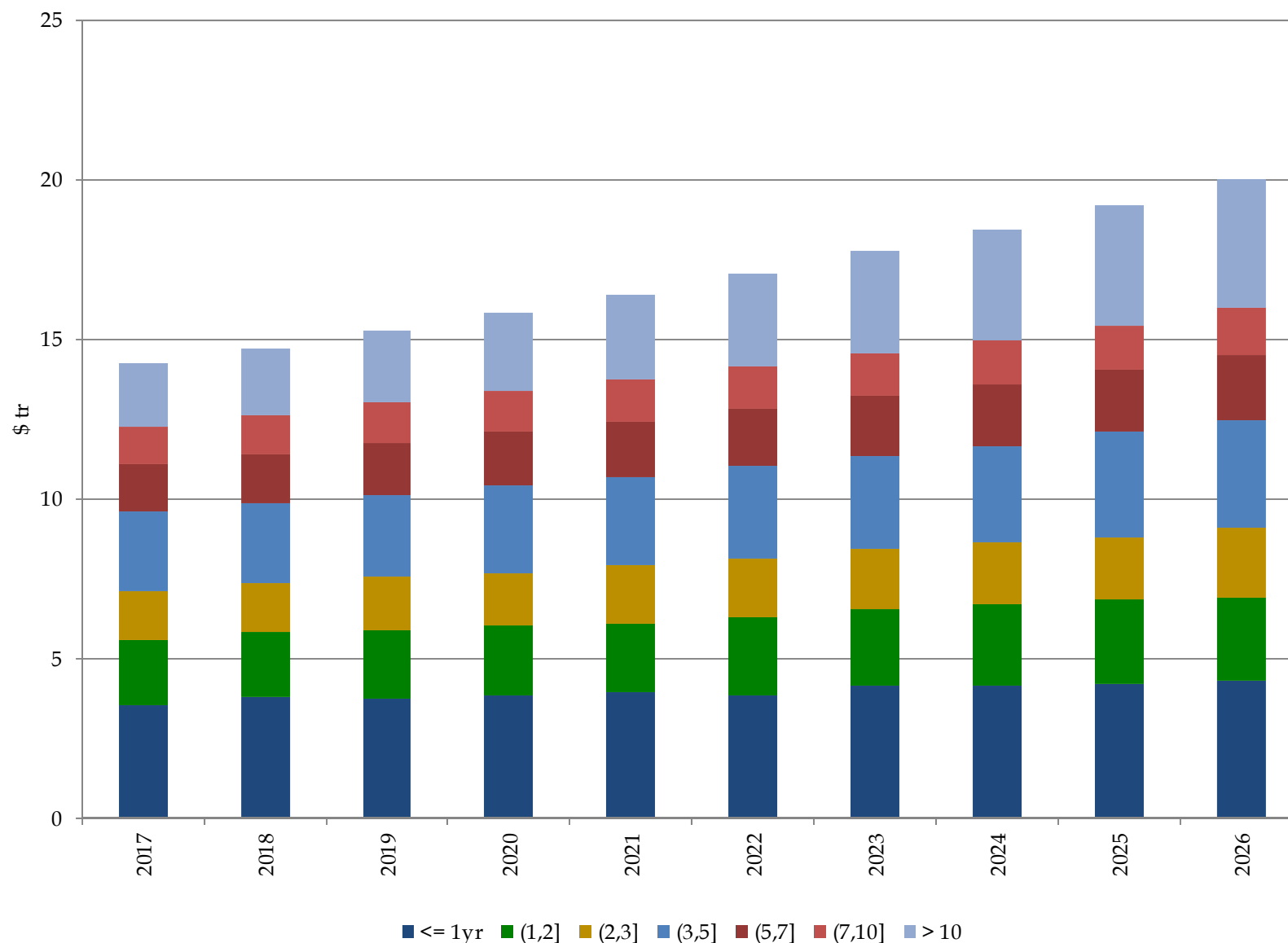
This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury.

Projected Gross Borrowing excluding Bills for Fiscal Year



This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury.

Projected Maturity Profile from end of Fiscal Year



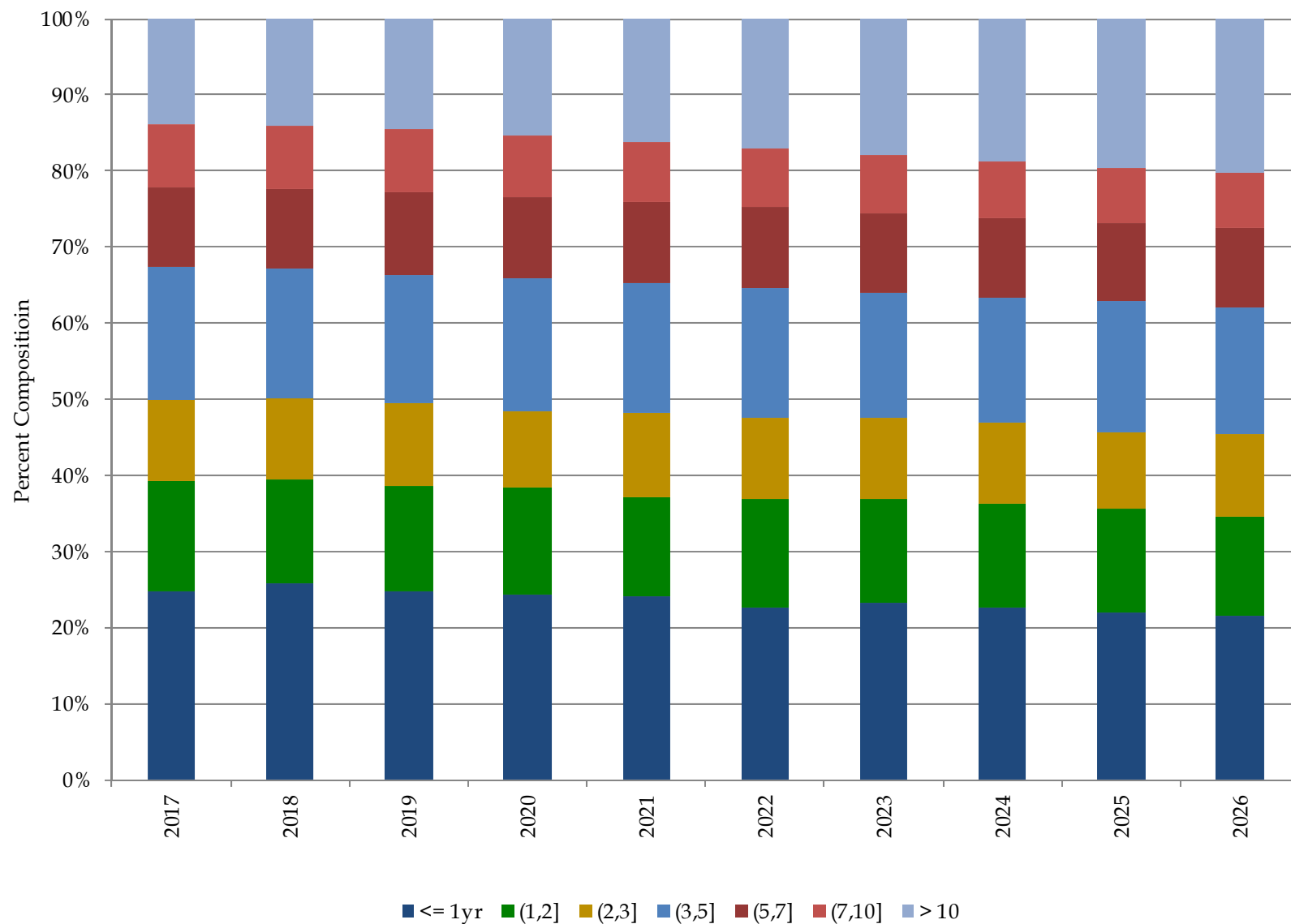
This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury. See table on following page for details.

Recent and Projected Maturity Profile, \$ billions

End of Fiscal Year	<= 1yr	(1,2]	(2,3]	(3,5]	(5,7]	(7,10]	> 10	Total	(0,5]
2009	2,702	774	663	962	559	643	695	6,998	5,101
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	3,537	2,049	1,539	2,466	1,499	1,195	1,960	14,245	9,590
2018	3,786	2,029	1,560	2,486	1,552	1,209	2,079	14,701	9,862
2019	3,771	2,122	1,655	2,586	1,630	1,277	2,216	15,256	10,133
2020	3,831	2,232	1,595	2,758	1,691	1,274	2,426	15,808	10,417
2021	3,941	2,151	1,817	2,797	1,716	1,313	2,645	16,380	10,707
2022	3,861	2,429	1,837	2,902	1,801	1,318	2,907	17,056	11,029
2023	4,139	2,426	1,884	2,920	1,860	1,336	3,185	17,749	11,368
2024	4,176	2,520	1,936	3,036	1,939	1,366	3,453	18,426	11,668
2025	4,230	2,612	1,938	3,305	1,959	1,398	3,751	19,193	12,086
2026	4,322	2,588	2,171	3,363	2,067	1,478	4,039	20,030	12,444

This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury. Portfolio composition by original issuance type and term can be found in the appendix (Page 45).

Projected Maturity Profile from end of Fiscal Year



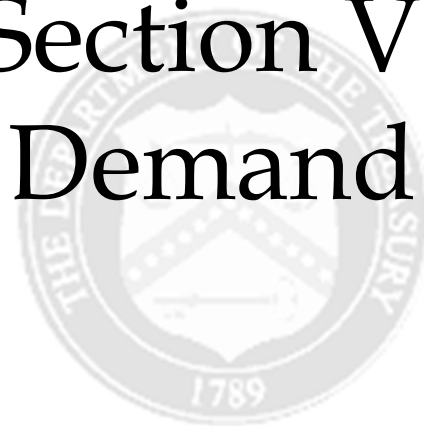
This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury. See table on following page for details.

Recent and Projected Maturity Profile, percent

End of Fiscal Year	<= 1yr	(1,2]	(2,3]	(3,5]	(5,7]	(7,10]	> 10	(0,3]	(0,5]
2009	38.6	11.1	9.5	13.7	8.0	9.2	9.9	59.1	72.9
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	24.8	14.4	10.8	17.3	10.5	8.4	13.8	50.0	67.3
2018	25.8	13.8	10.6	16.9	10.6	8.2	14.1	50.2	67.1
2019	24.7	13.9	10.8	17.0	10.7	8.4	14.5	49.5	66.4
2020	24.2	14.1	10.1	17.4	10.7	8.1	15.3	48.4	65.9
2021	24.1	13.1	11.1	17.1	10.5	8.0	16.1	48.3	65.4
2022	22.6	14.2	10.8	17.0	10.6	7.7	17.0	47.6	64.7
2023	23.3	13.7	10.6	16.4	10.5	7.5	17.9	47.6	64.0
2024	22.7	13.7	10.5	16.5	10.5	7.4	18.7	46.8	63.3
2025	22.0	13.6	10.1	17.2	10.2	7.3	19.5	45.7	63.0
2026	21.6	12.9	10.8	16.8	10.3	7.4	20.2	45.3	62.1

This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury. Portfolio composition by original issuance type and term can be found in the appendix (Page 45).

Section V: Demand



Summary Statistics for Fiscal Year 2016 Q4 Auctions

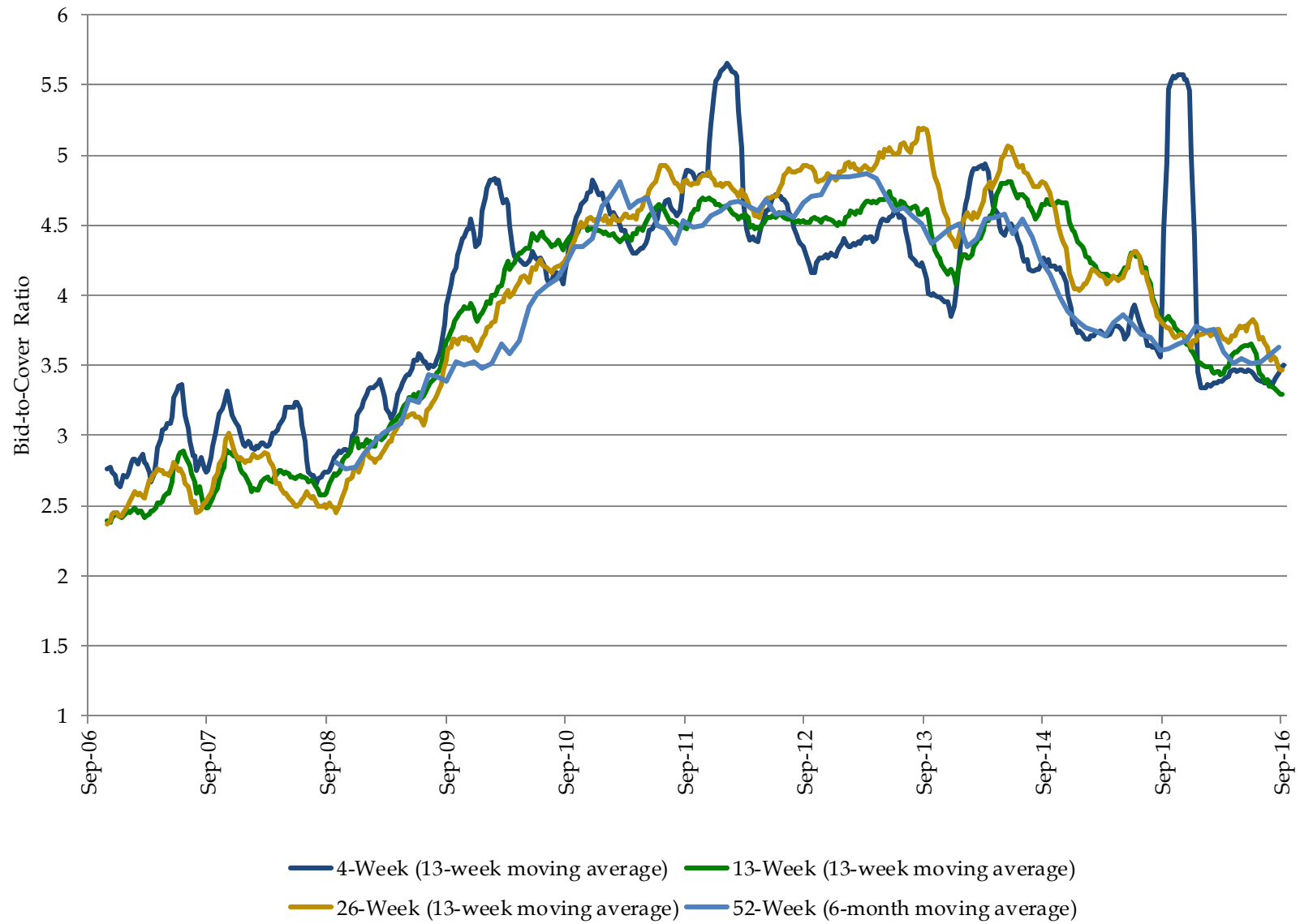
Security Type	Term	Stop Out Rate (%)*	Bid-to-Cover Ratio*	Competitive Awards (\$bn)	% Primary Dealer*	% Direct*	% Indirect*	Non-Competitive Awards (\$bn)	SOMA Add Ons (\$bn)	10-Year Equivalent (\$bn)**
Bill	4-Week	0.256	3.5	585.3	61.2	7.1	31.7	3.6	0.0	4.9
Bill	13-Week	0.310	3.3	494.0	65.9	5.7	28.4	5.0	0.0	13.7
Bill	26-Week	0.443	3.5	427.1	50.5	2.5	47.0	5.0	0.0	23.8
Bill	52-Week	0.583	3.6	59.4	61.0	2.2	36.8	0.5	0.0	6.5
Bill	CMBs	0.200	5.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0
Coupon	2-Year	0.757	2.7	77.5	44.4	18.2	37.5	0.5	5.2	18.1
Coupon	3-Year	0.854	2.8	71.9	37.9	10.0	52.1	0.1	4.0	24.8
Coupon	5-Year	1.145	2.4	101.9	33.6	5.1	61.3	0.1	6.8	57.8
Coupon	7-Year	1.384	2.5	84.0	29.4	9.5	61.1	0.0	5.6	65.4
Coupon	10-Year	1.569	2.4	63.0	30.3	6.4	63.3	0.0	3.7	67.4
Coupon	30-Year	2.304	2.3	39.0	29.3	8.2	62.5	0.0	2.3	98.0
TIPS	5-Year	(0.209)	2.4	14.0	30.5	7.3	62.2	0.0	1.0	7.5
TIPS	10-Year	0.048	2.5	23.9	26.6	4.4	69.0	0.1	0.7	26.7
FRN	2-Year	0.173	3.5	41.0	57.9	0.7	41.4	0.0	1.8	0.0

Total Bills	0.336	3.4	1,565.9	59.8	5.2	35.0	14.1	0.0	49.0
Total Coupons	1.239	2.5	437.1	34.6	9.5	55.9	0.9	27.5	331.6
Total TIPS	(0.047)	2.4	37.9	28.1	5.4	66.5	0.1	1.6	34.2
Total FRNs	0.173	3.5	41.0	57.9	0.7	41.4	0.0	1.8	0.0

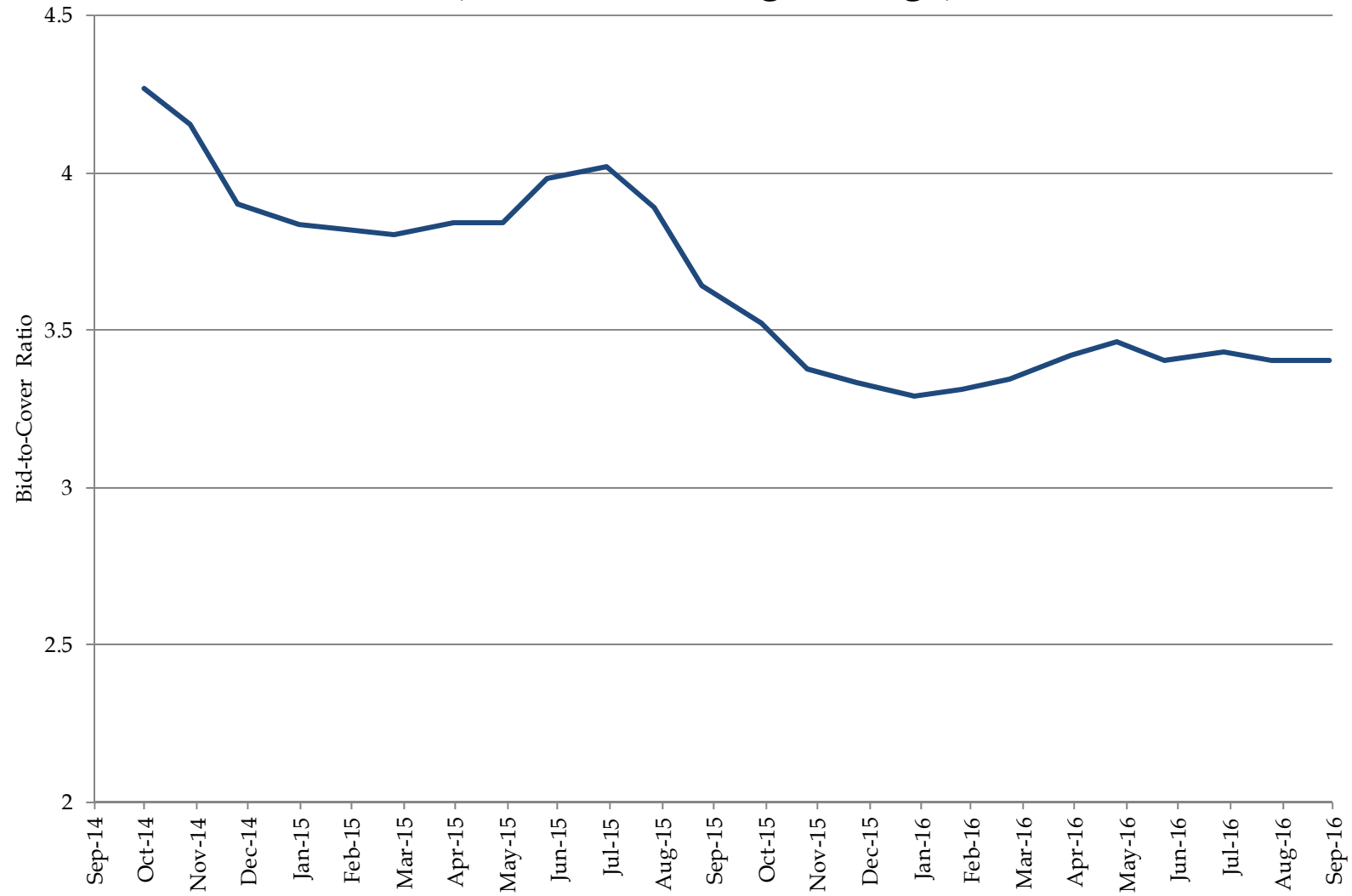
*Weighted averages of Competitive Awards.

**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.

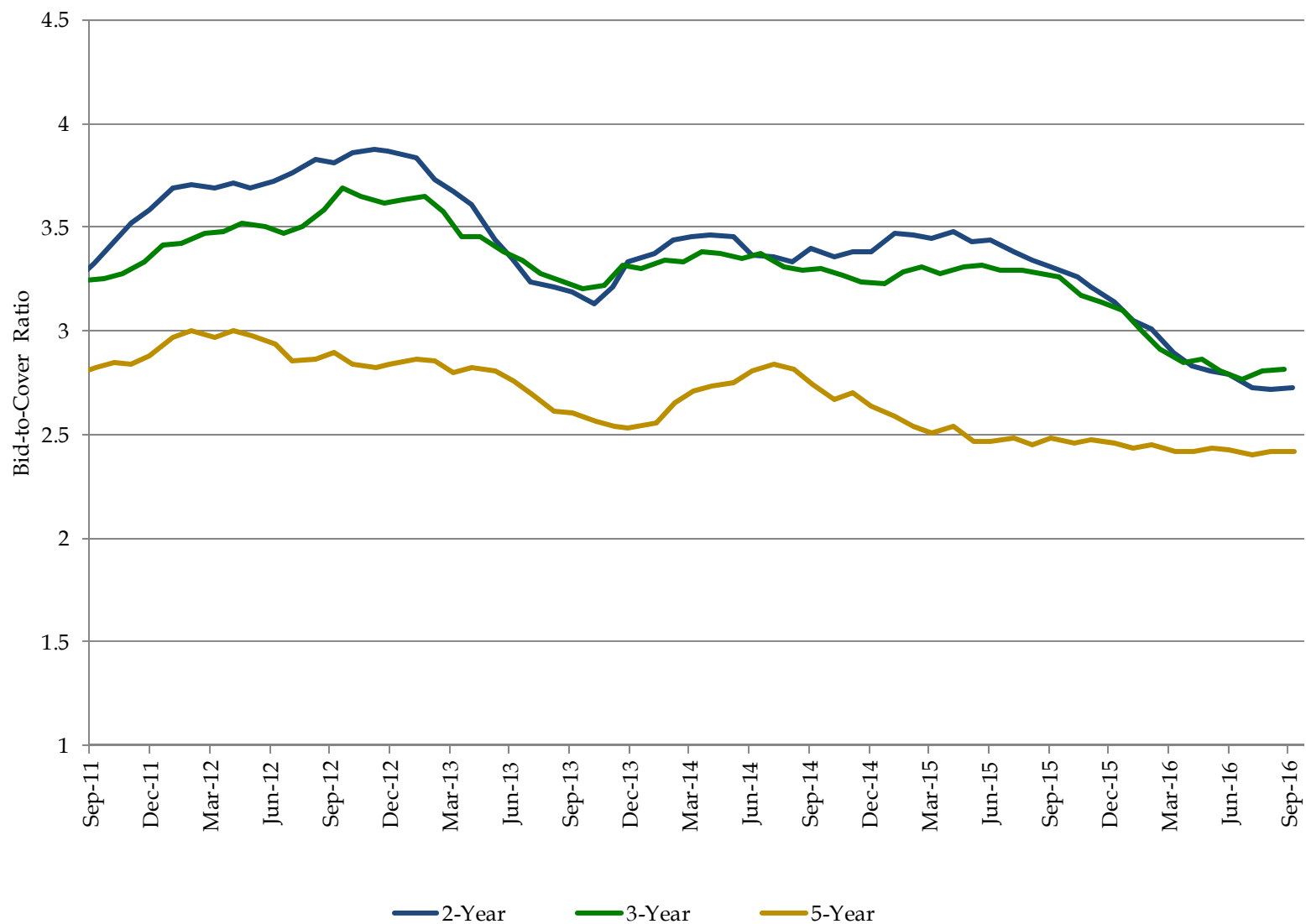
Bid-to-Cover Ratios for Treasury Bills



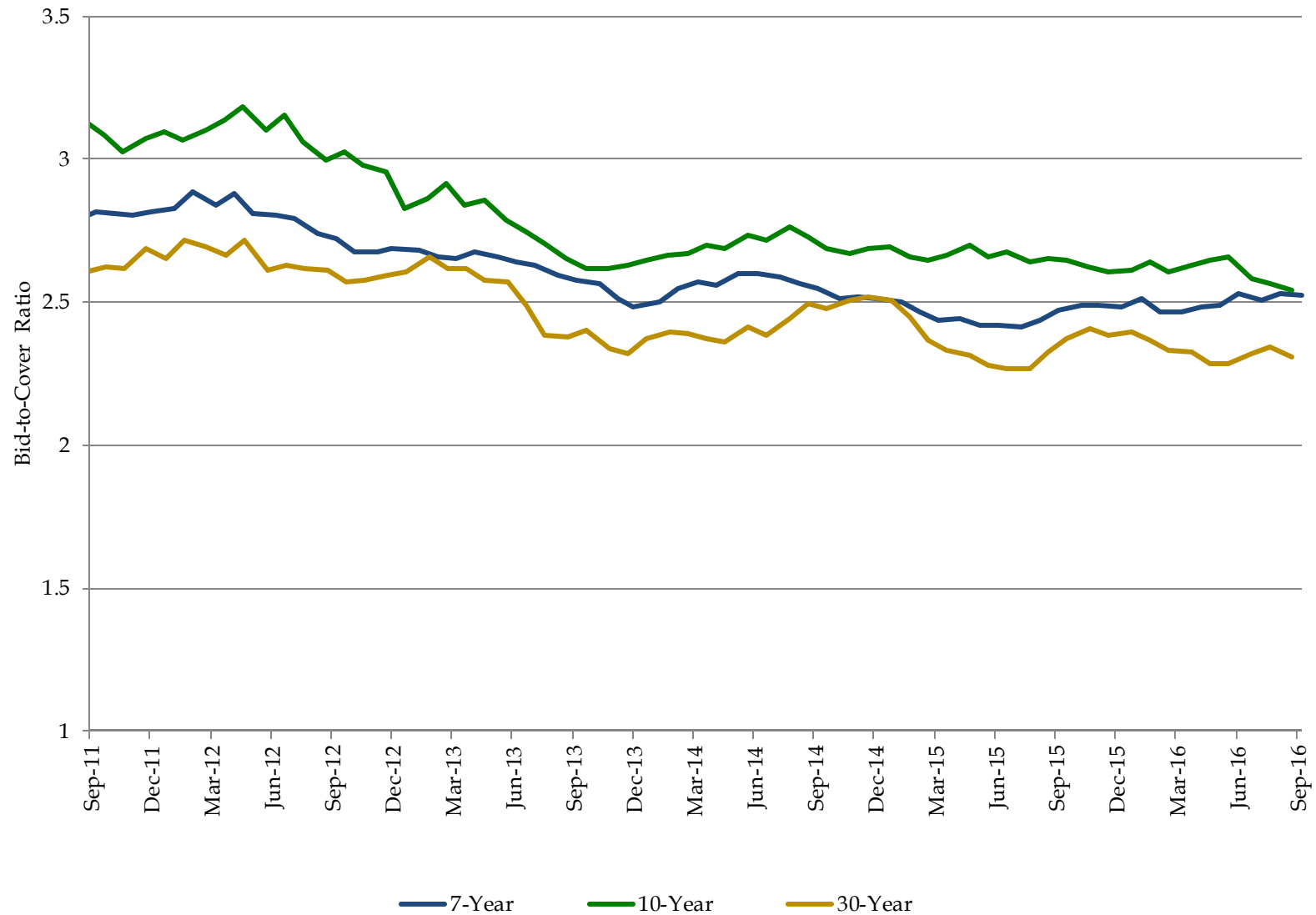
Bid-to-Cover Ratios for FRNs (6-Month Moving Average)



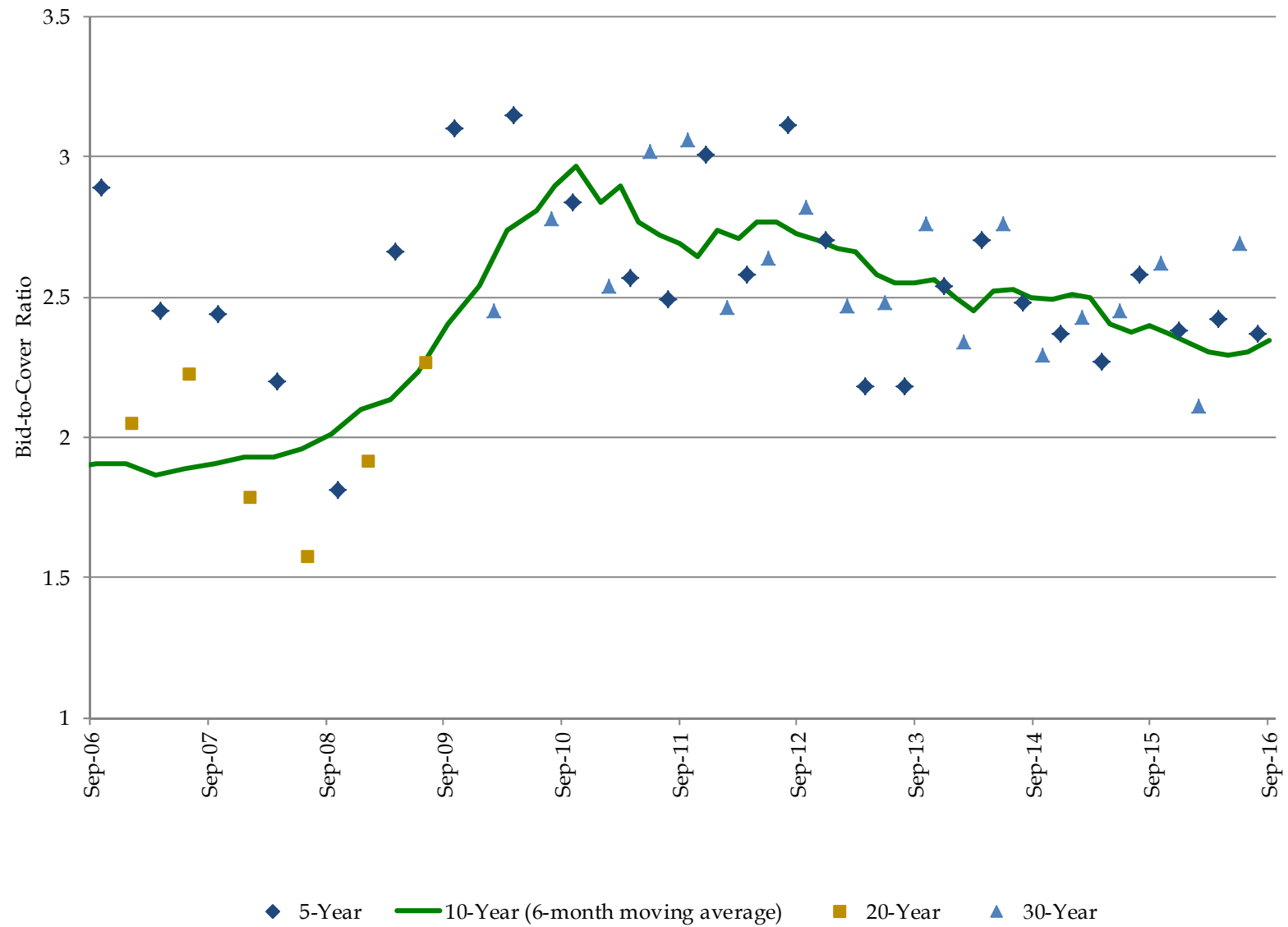
Bid-to-Cover Ratios for 2-, 3-, and 5-Year Nominal Securities (6-Month Moving Average)



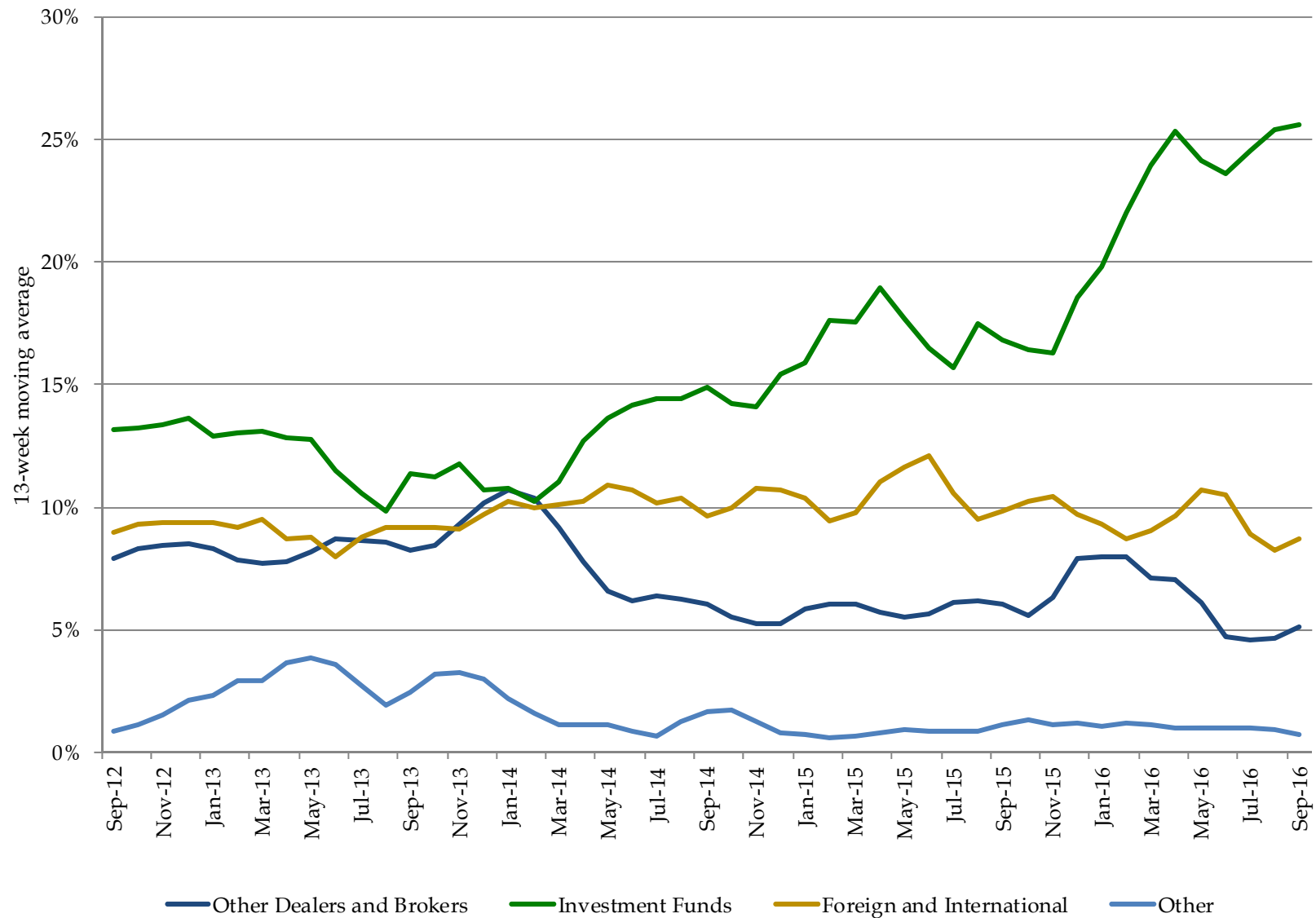
Bid-to-Cover Ratios for 7-, 10-, and 30-Year Nominal Securities (6-Month Moving Average)



Bid-to-Cover Ratios for TIPS

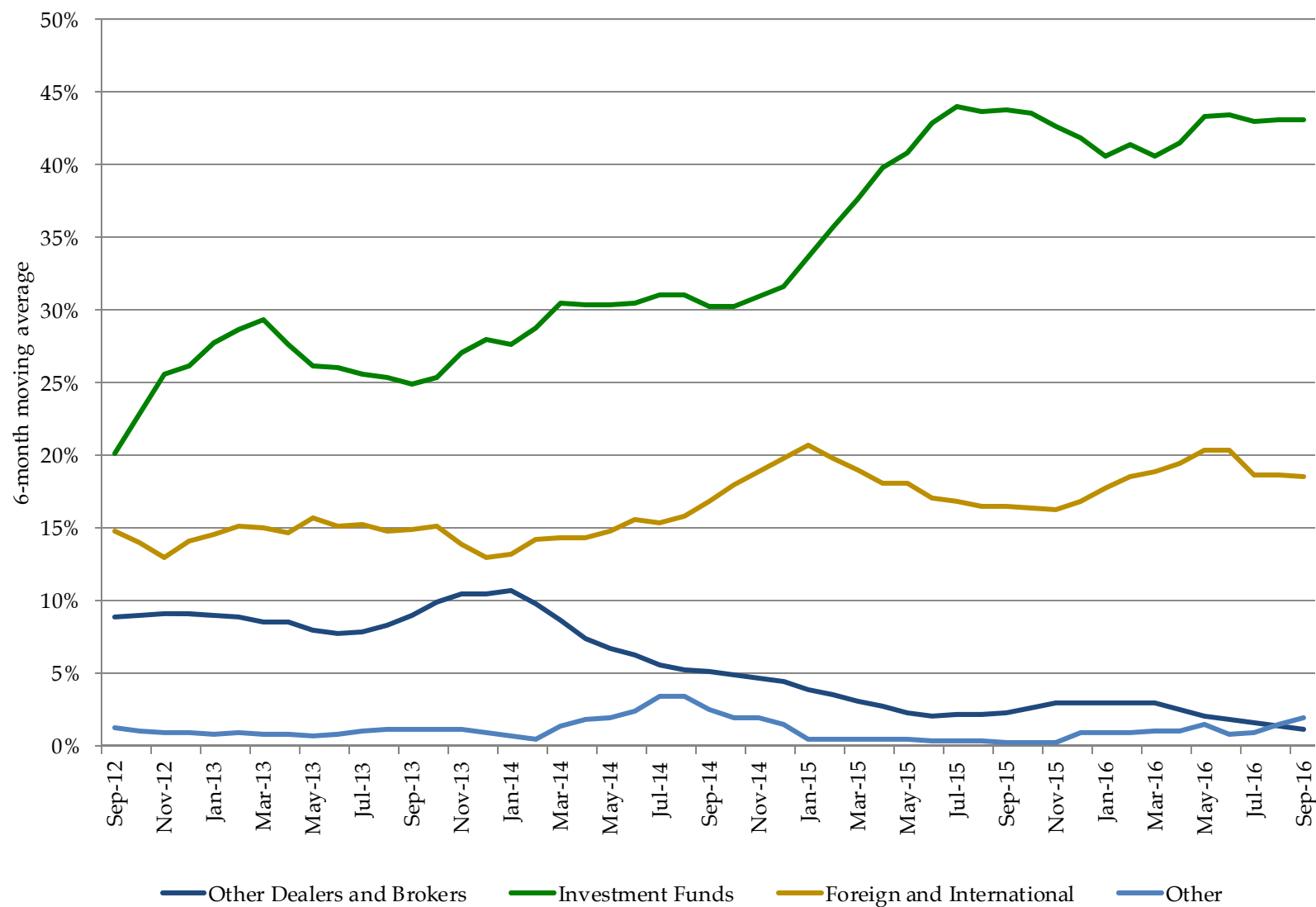


Percent Awarded in Bill Auctions by Investor Class (13-Week Moving Average)



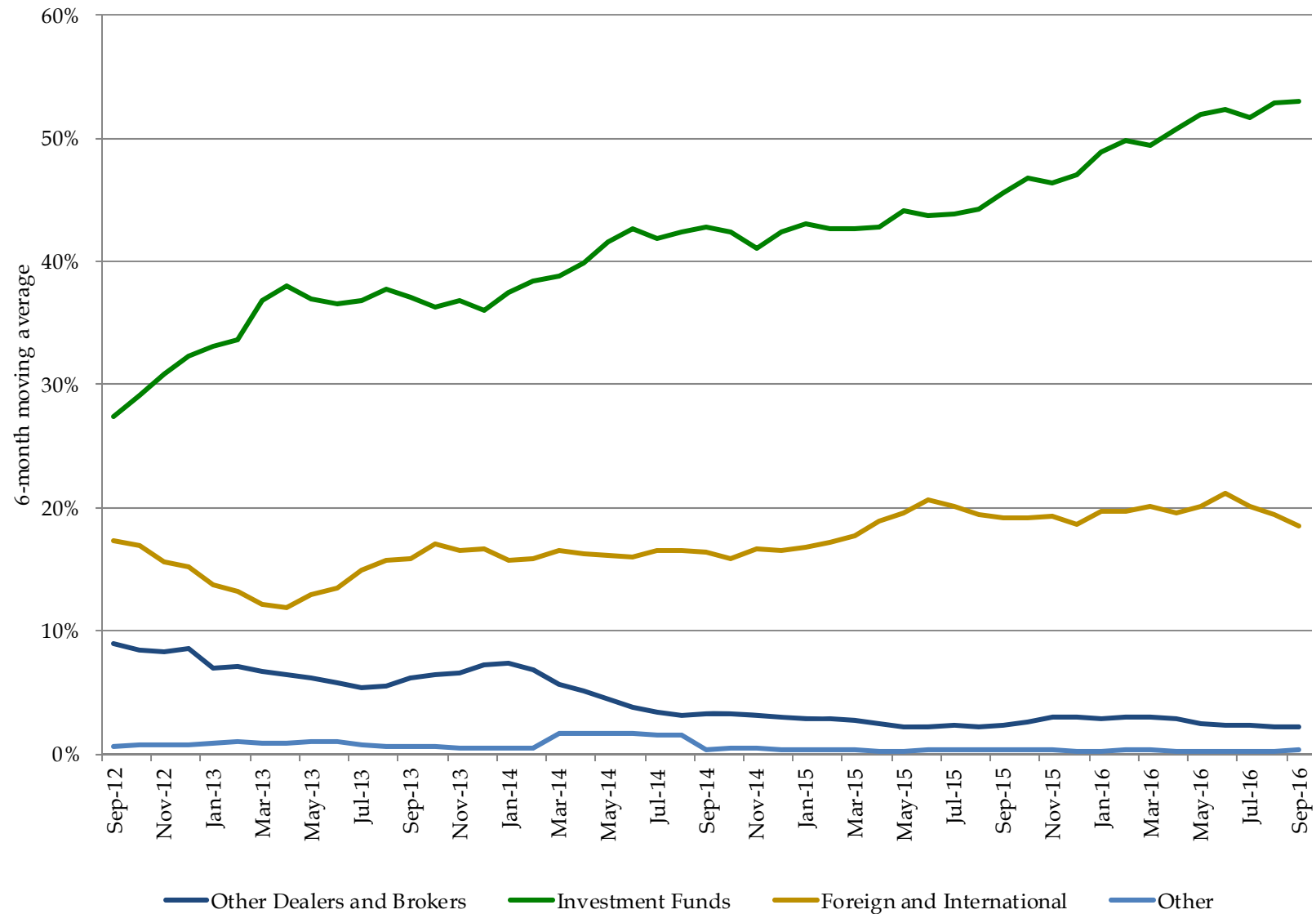
Excludes SOMA add-ons. The "Other" category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



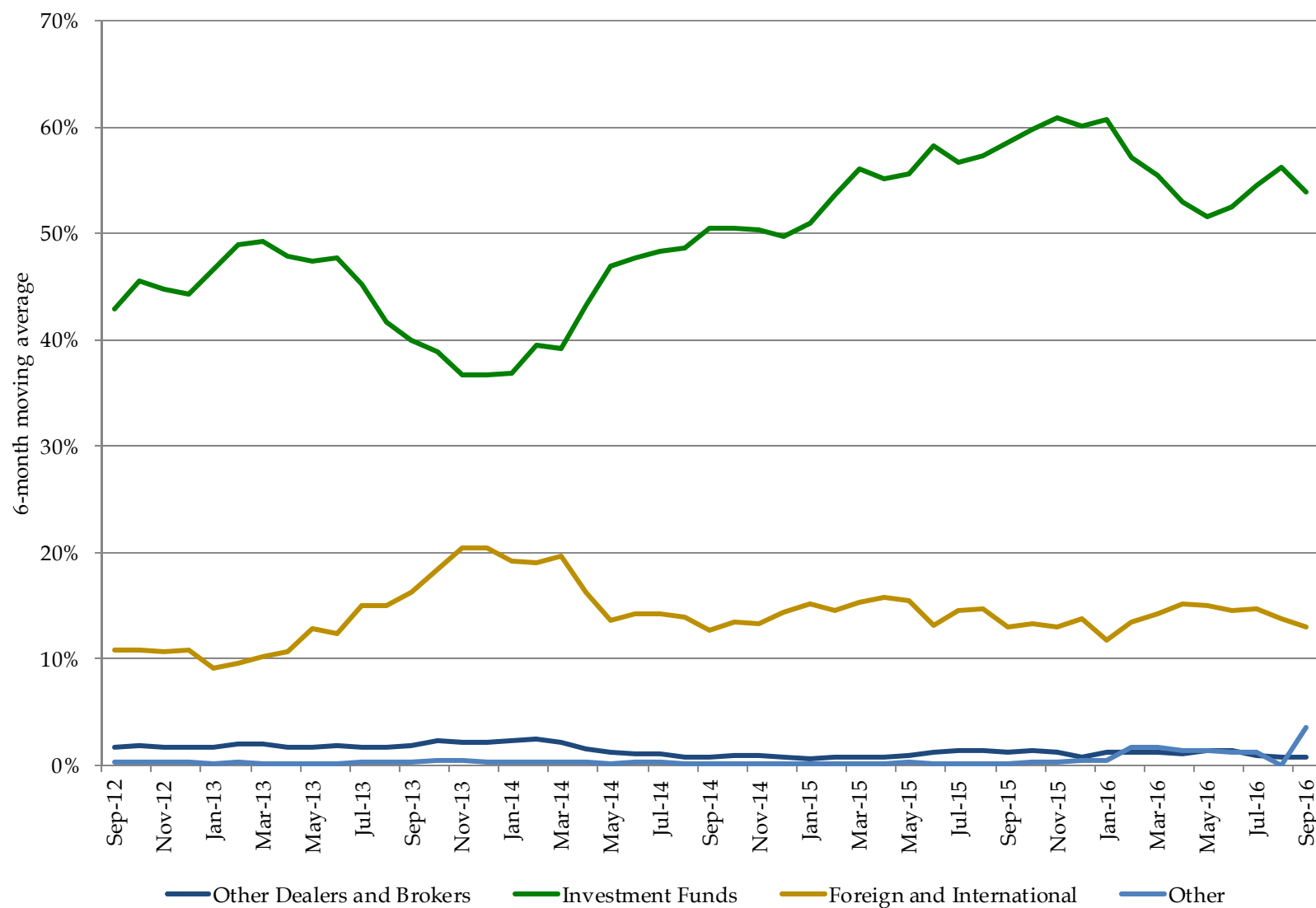
Excludes SOMA add-ons. The "Other" category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



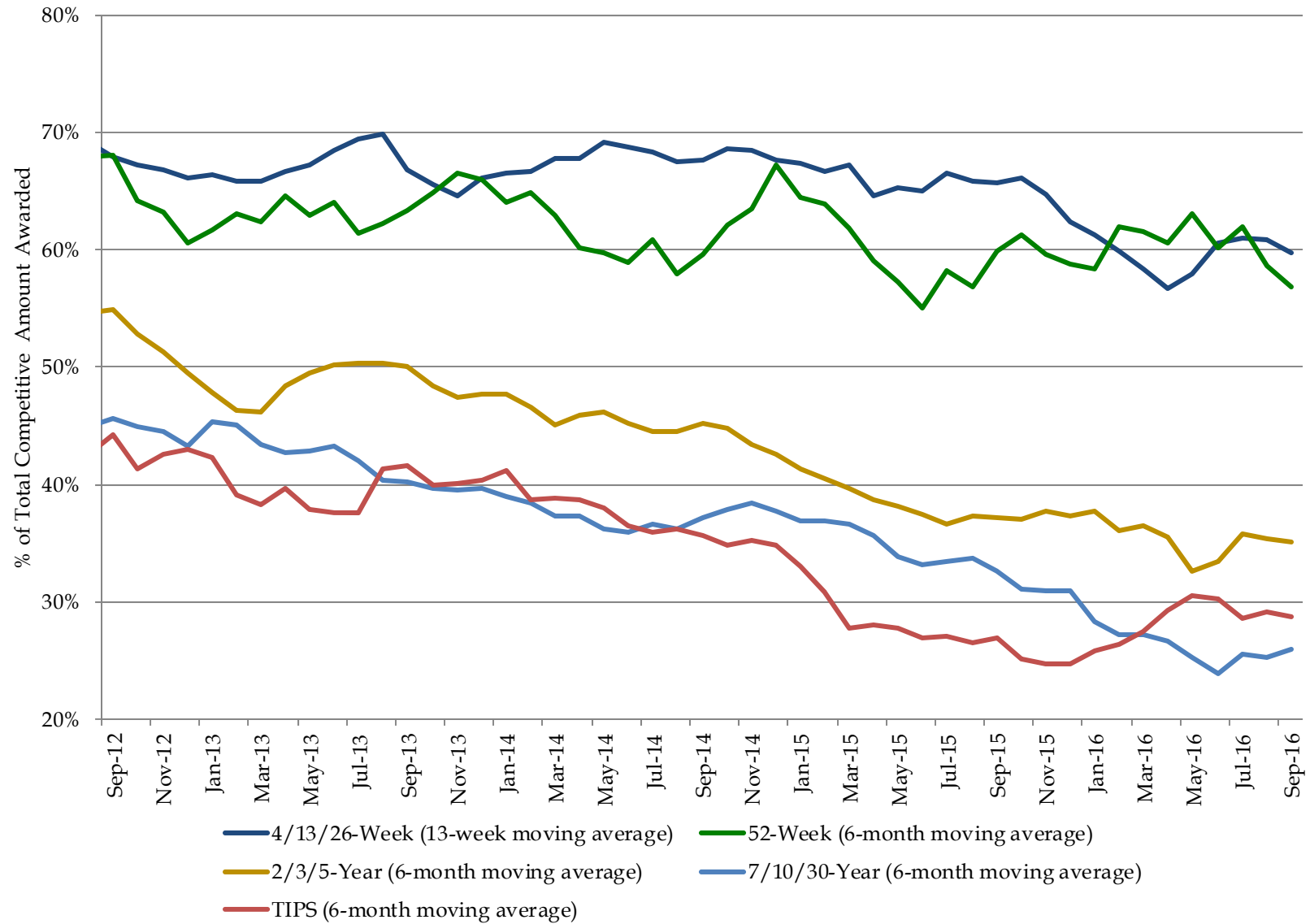
Excludes SOMA add-ons. The "Other" category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

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



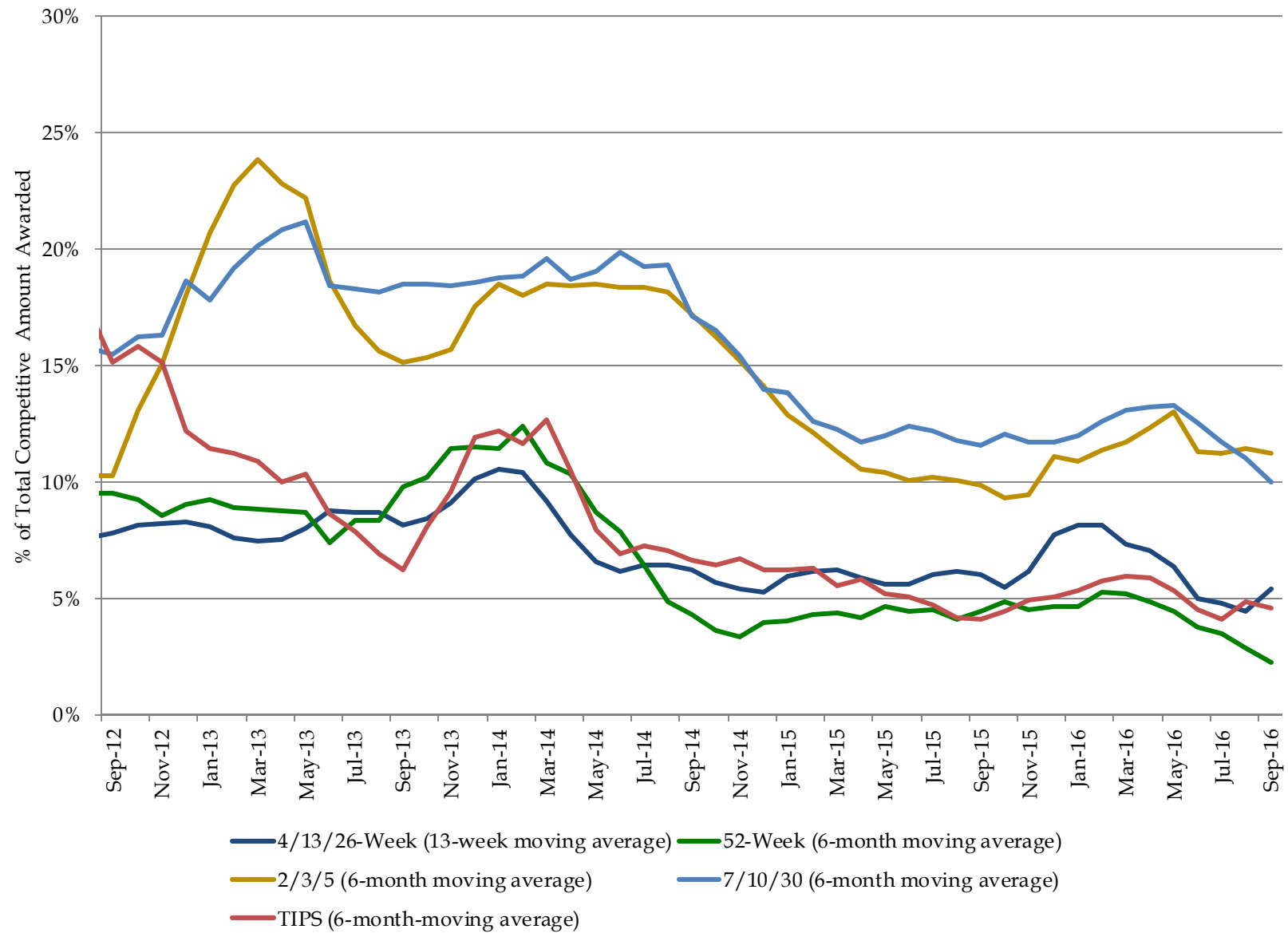
Excludes SOMA add-ons. The "Other" category includes categories that are each less than 5%, which include Depository Institutions, Individuals, Pension and Insurance.

Primary Dealer Awards at Auction



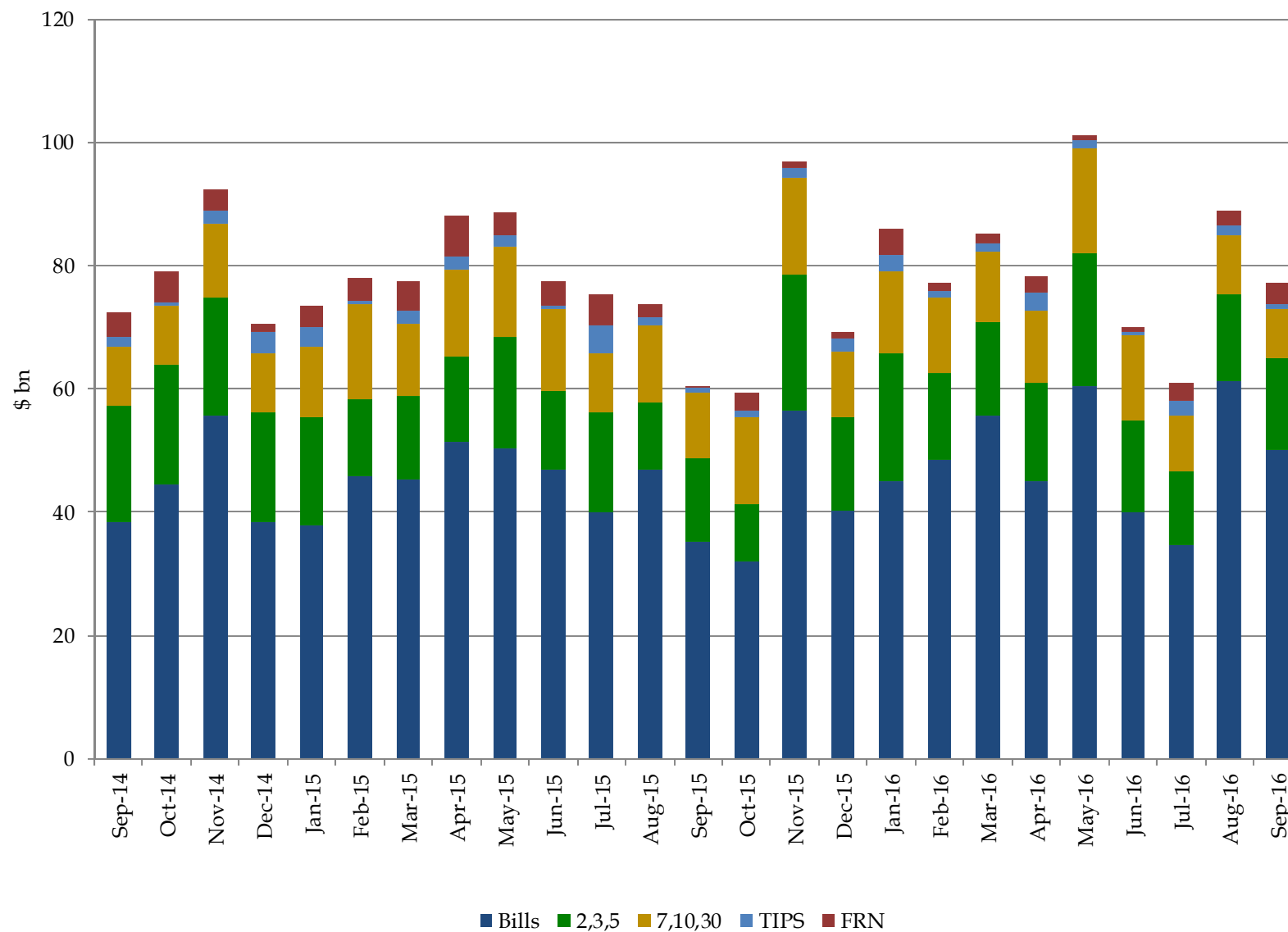
Excludes SOMA add-ons.

Direct Bidder Awards at Auction



Excludes SOMA add-ons.

Total Foreign Awards of Treasuries at Auction, \$ billions

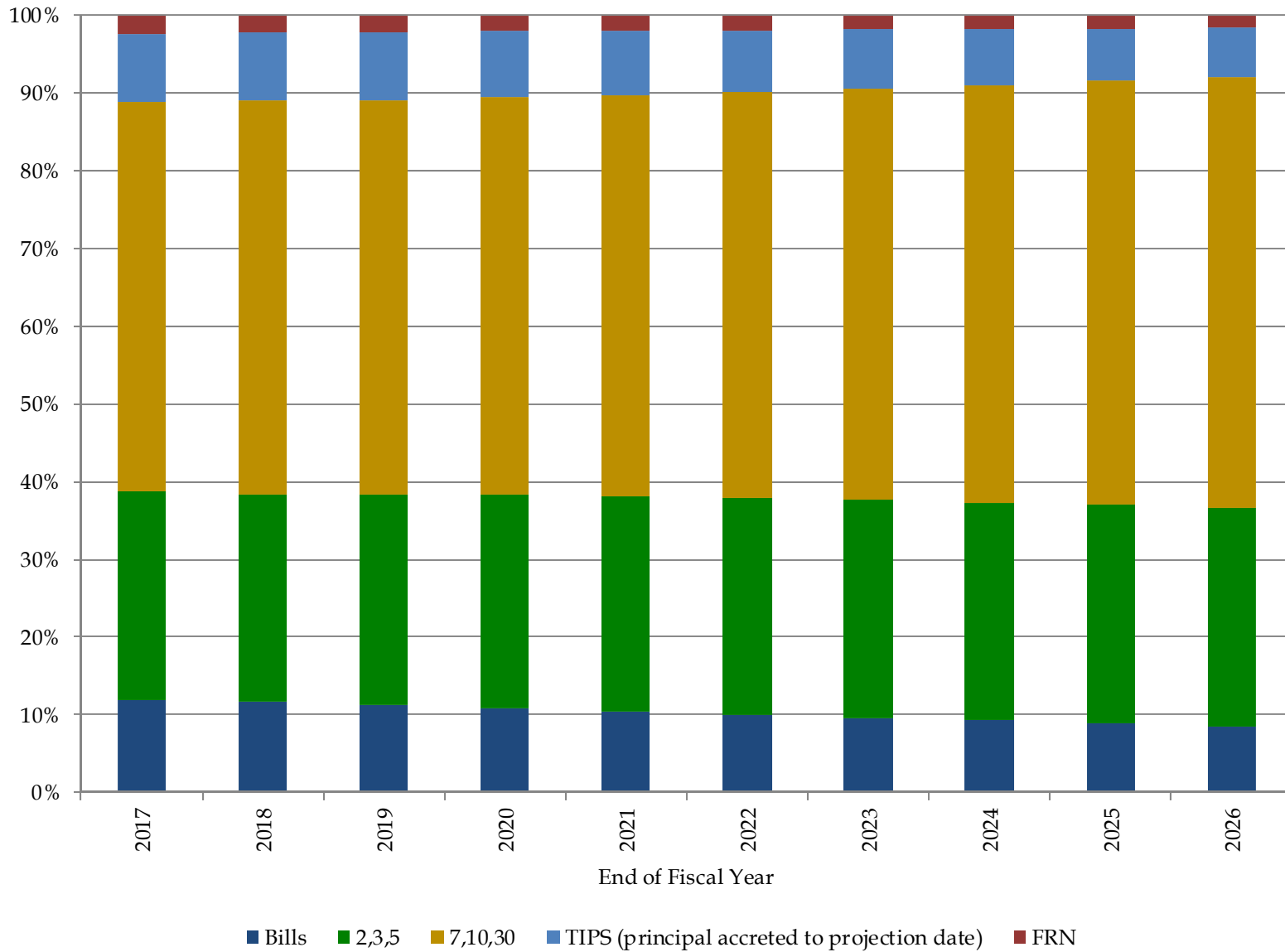


Foreign includes both private sector and official institutions.

Appendix



Projected Portfolio Composition by Issuance Type



This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury. See table on following page for details.

Recent and Projected Portfolio Composition by Issuance Type, Percent

End of Fiscal Year	Bills	2-, 3-, 5-Year Nominal Coupons	7-, 10-, 30-Year Nominal Coupons	Total Nominal Coupons	TIPS (principal accreted to projection date)	FRN
2009	28.5	36.2	27.4	63.6	7.9	0.0
2010	21.1	40.1	31.8	71.9	7.0	0.0
2011	15.4	41.4	35.9	77.3	7.3	0.0
2012	15.0	38.4	39.0	77.4	7.5	0.0
2013	13.2	35.8	43.0	78.7	8.1	0.0
2014	11.5	33.0	46.0	79.0	8.5	1.0
2015	10.6	29.4	49.0	78.3	8.8	2.2
2016	12.1	27.0	49.6	76.6	8.9	2.4
2017	12.0	26.7	50.2	76.9	8.8	2.3
2018	11.6	26.6	50.7	77.4	8.8	2.2
2019	11.2	27.2	50.7	77.9	8.7	2.1
2020	10.8	27.5	51.1	78.6	8.5	2.1
2021	10.4	27.7	51.6	79.4	8.2	2.0
2022	10.0	27.9	52.3	80.2	7.9	1.9
2023	9.6	28.1	52.9	81.0	7.5	1.9
2024	9.3	28.0	53.7	81.7	7.2	1.8
2025	8.9	28.0	54.6	82.7	6.7	1.7
2026	8.5	28.1	55.4	83.5	6.3	1.6

This scenario does not represent any particular course of action that Treasury is expected to follow. Instead, it is intended to demonstrate the basic trajectory of average maturity absent changes to the mix of securities issued by Treasury.

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	7/7/2016	0.275	3.22	44.7	81.0	4.5	14.5	0.2	0.0	0.4
4-Week	7/14/2016	0.290	3.38	44.7	61.2	11.4	27.5	0.3	0.0	0.4
4-Week	7/21/2016	0.275	3.37	44.6	66.0	8.2	25.8	0.3	0.0	0.4
4-Week	7/28/2016	0.270	3.92	44.6	44.7	6.0	49.2	0.3	0.0	0.4
4-Week	8/4/2016	0.260	3.47	49.7	70.6	2.3	27.1	0.2	0.0	0.4
4-Week	8/11/2016	0.270	3.38	54.6	71.6	4.0	24.4	0.3	0.0	0.5
4-Week	8/18/2016	0.275	3.38	54.6	60.2	10.2	29.6	0.3	0.0	0.5
4-Week	8/25/2016	0.275	3.17	54.6	59.4	6.1	34.4	0.3	0.0	0.5
4-Week	9/1/2016	0.255	3.42	44.6	56.8	7.8	35.4	0.3	0.0	0.4
4-Week	9/8/2016	0.250	3.80	39.6	53.3	5.3	41.3	0.3	0.0	0.3
4-Week	9/15/2016	0.250	3.76	34.6	60.3	8.5	31.2	0.3	0.0	0.3
4-Week	9/22/2016	0.180	3.68	34.6	49.9	17.8	32.4	0.3	0.0	0.3
4-Week	9/29/2016	0.160	3.60	39.7	53.3	3.1	43.5	0.3	0.0	0.3
13-Week	7/7/2016	0.270	3.39	33.5	73.1	3.2	23.7	0.4	0.0	0.9
13-Week	7/14/2016	0.310	2.98	36.6	67.3	5.1	27.6	0.4	0.0	1.0
13-Week	7/21/2016	0.320	3.21	36.5	61.1	6.9	32.1	0.4	0.0	1.0
13-Week	7/28/2016	0.320	3.34	35.7	68.0	3.0	29.0	0.3	0.0	1.0
13-Week	8/4/2016	0.285	3.33	36.4	64.5	3.7	31.8	0.4	0.0	1.0
13-Week	8/11/2016	0.305	3.42	39.4	69.0	5.3	25.6	0.4	0.0	1.1
13-Week	8/18/2016	0.300	3.20	39.4	53.8	5.0	41.2	0.4	0.0	1.1
13-Week	8/25/2016	0.310	3.30	39.4	58.2	7.2	34.6	0.4	0.0	1.1
13-Week	9/1/2016	0.335	3.30	39.3	72.4	2.7	24.9	0.4	0.0	1.1
13-Week	9/8/2016	0.335	3.30	39.5	69.8	2.4	27.7	0.4	0.0	1.1
13-Week	9/15/2016	0.375	3.23	39.4	63.8	2.7	33.4	0.4	0.0	1.1
13-Week	9/22/2016	0.305	3.40	39.4	58.4	17.5	24.1	0.4	0.0	1.1
13-Week	9/29/2016	0.250	3.42	39.3	78.3	8.9	12.8	0.4	0.0	1.1
26-Week	7/7/2016	0.340	3.67	28.5	51.0	2.5	46.5	0.3	0.0	1.6
26-Week	7/14/2016	0.390	3.07	31.6	50.9	3.5	45.6	0.4	0.0	1.7
26-Week	7/21/2016	0.430	3.28	31.3	60.1	4.3	35.6	0.5	0.0	1.7
26-Week	7/28/2016	0.425	3.84	30.6	39.9	1.7	58.4	0.4	0.0	1.8
26-Week	8/4/2016	0.395	3.50	31.4	56.3	2.6	41.1	0.4	0.0	1.8
26-Week	8/11/2016	0.440	3.82	33.2	39.2	2.6	58.2	0.5	0.0	1.9
26-Week	8/18/2016	0.445	3.23	33.4	50.1	0.7	49.2	0.5	0.0	1.8
26-Week	8/25/2016	0.450	3.23	33.4	57.4	2.5	40.0	0.4	0.0	1.8
26-Week	9/1/2016	0.480	3.80	32.7	35.1	1.6	63.3	0.3	0.0	1.9
26-Week	9/8/2016	0.470	3.27	35.5	60.7	1.4	37.9	0.3	0.0	2.0
26-Week	9/15/2016	0.540	3.30	35.5	56.8	1.7	41.5	0.3	0.0	2.0
26-Week	9/22/2016	0.500	3.41	35.4	54.9	1.2	43.9	0.4	0.0	2.0
26-Week	9/29/2016	0.420	3.65	34.6	43.0	5.8	51.3	0.4	0.0	2.0
52-Week	7/21/2016	0.550	3.65	19.8	79.5	2.6	17.9	0.2	0.0	2.2
52-Week	8/18/2016	0.570	3.59	19.8	49.1	1.9	49.0	0.2	0.0	2.2
52-Week	9/15/2016	0.630	3.48	19.8	54.5	1.9	43.6	0.2	0.0	2.2
CMBs	8/17/2016	0.200	5.02	0.0	100.0	0.0	0.0	0.0	0.0	0.0

*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	8/1/2016	0.760	2.52	25.8	59.8	10.3	29.9	0.2	1.8	6.1
2-Year	8/31/2016	0.760	2.83	25.8	29.0	25.2	45.8	0.2	1.8	6.0
2-Year	9/30/2016	0.750	2.65	25.8	44.4	19.0	36.7	0.2	1.6	6.0
3-Year	7/15/2016	0.765	2.69	24.0	39.4	15.8	44.7	0.0	1.6	8.4
3-Year	8/15/2016	0.850	2.98	24.0	33.7	9.5	56.9	0.0	2.5	8.7
3-Year	9/15/2016	0.947	2.77	24.0	40.5	4.7	54.8	0.0	0.0	7.7
5-Year	8/1/2016	1.180	2.27	34.0	41.6	4.7	53.6	0.0	2.4	19.6
5-Year	8/31/2016	1.125	2.54	34.0	25.1	6.2	68.7	0.0	2.3	19.1
5-Year	9/30/2016	1.129	2.39	34.0	34.1	4.4	61.4	0.0	2.1	19.1
7-Year	8/1/2016	1.340	2.51	28.0	26.8	7.7	65.5	0.0	2.0	22.2
7-Year	8/31/2016	1.423	2.38	28.0	31.3	10.4	58.3	0.0	1.9	21.6
7-Year	9/30/2016	1.389	2.47	28.0	30.2	10.5	59.4	0.0	1.7	21.6
10-Year	7/15/2016	1.516	2.33	20.0	37.7	7.9	54.3	0.0	1.3	21.3
10-Year	8/15/2016	1.503	2.43	23.0	20.2	7.6	72.2	0.0	2.4	26.2
10-Year	9/15/2016	1.699	2.35	20.0	34.5	3.4	62.1	0.0	0.0	20.0
30-Year	7/15/2016	2.172	2.48	12.0	23.1	8.4	68.5	0.0	0.8	30.0
30-Year	8/15/2016	2.274	2.24	15.0	27.7	10.9	61.5	0.0	1.5	40.0
30-Year	9/15/2016	2.475	2.13	12.0	37.5	4.6	57.9	0.0	0.0	28.0
2-Year FRN	8/1/2016	0.174	3.82	15.0	55.6	0.3	44.1	0.0	1.0	0.0
2-Year FRN	8/26/2016	0.165	3.46	13.0	62.3	1.9	35.8	0.0	0.0	0.0
2-Year FRN	9/30/2016	0.180	3.09	13.0	56.2	0.0	43.8	0.0	0.8	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	8/31/2016	(0.209)	2.37	14.0	30.5	7.3	62.2	0.0	1.0	7.5
10-Year TIPS	7/29/2016	0.045	2.39	13.0	23.9	7.7	68.4	0.0	0.0	14.3
10-Year TIPS	9/30/2016	0.052	2.59	11.0	29.9	0.4	69.7	0.0	0.7	12.4

*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.

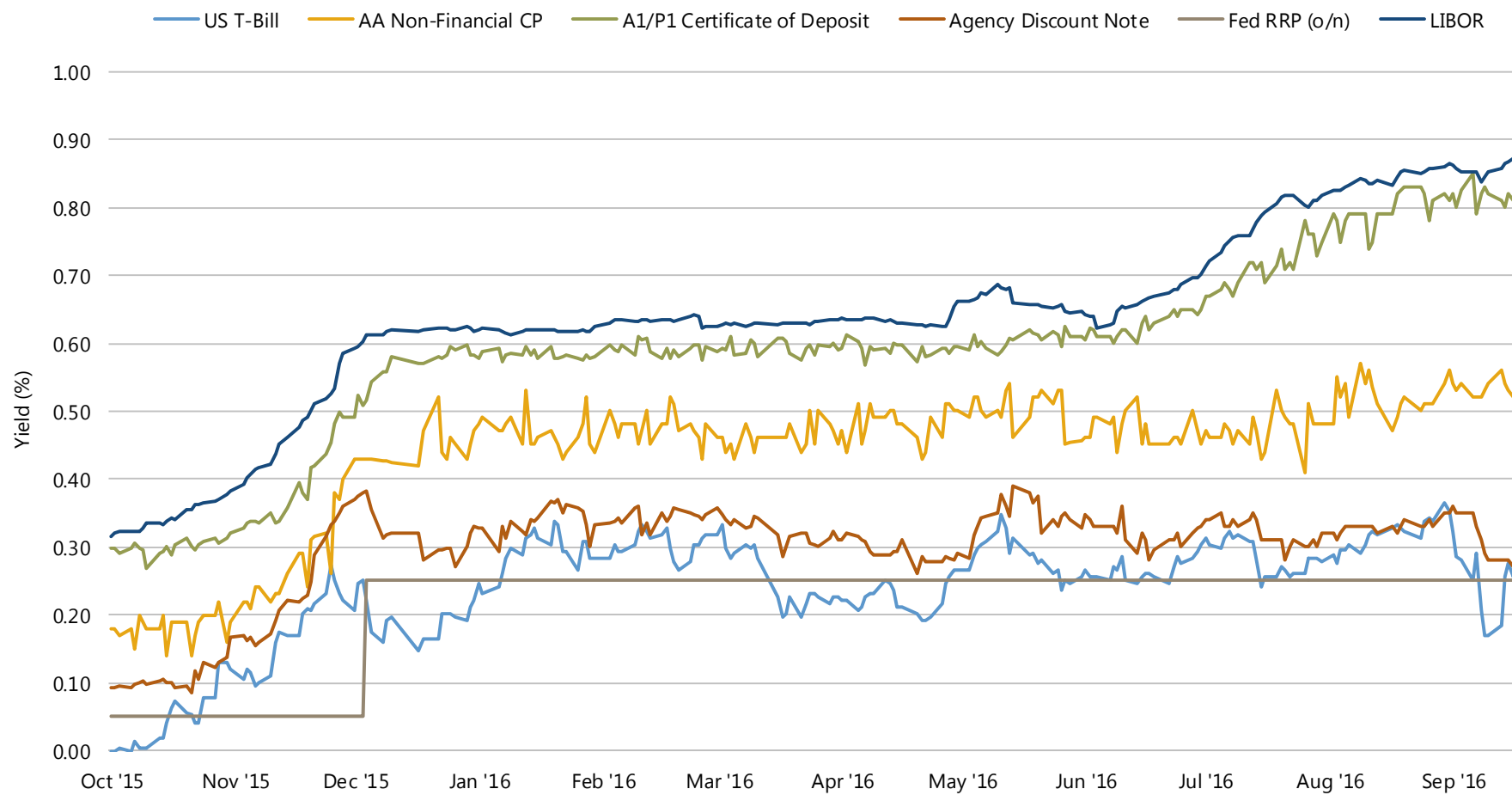
Treasury Borrowing Advisory Committee Presentation

November 2016

TBAC Charge: Money Market Fund Reform rules were implemented on October 14. Given that these reforms are now effective, we would like for the Committee to assess, over the short and intermediate term, the market's demand for Treasury bills and other high quality liquid assets. How has demand shifted among the short-term products available to investors and what are the implications for entities that rely on short-term funding? Given Treasury's projected borrowing need what, if any, changes to the existing auction schedule should Treasury consider in response to changes in demand for HQLA and Treasury bills?

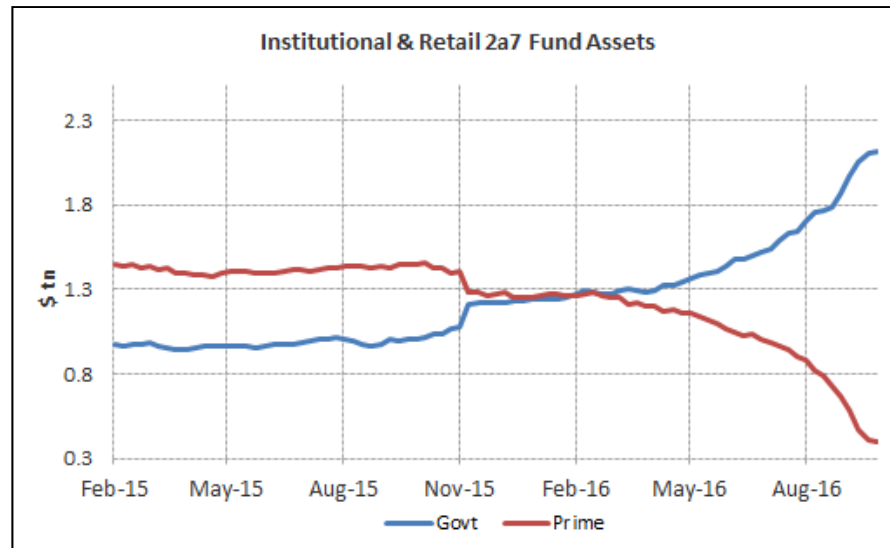
Part 1: State of the Money Markets Post Reform

Yields on Money Market Securities (90-day maturities)



2a7 Funds AUM

- Institutional Prime Funds assets have dropped \$800bln over the last 1-year (85%)
- The flows have been almost dollar for dollar into Government Only Funds

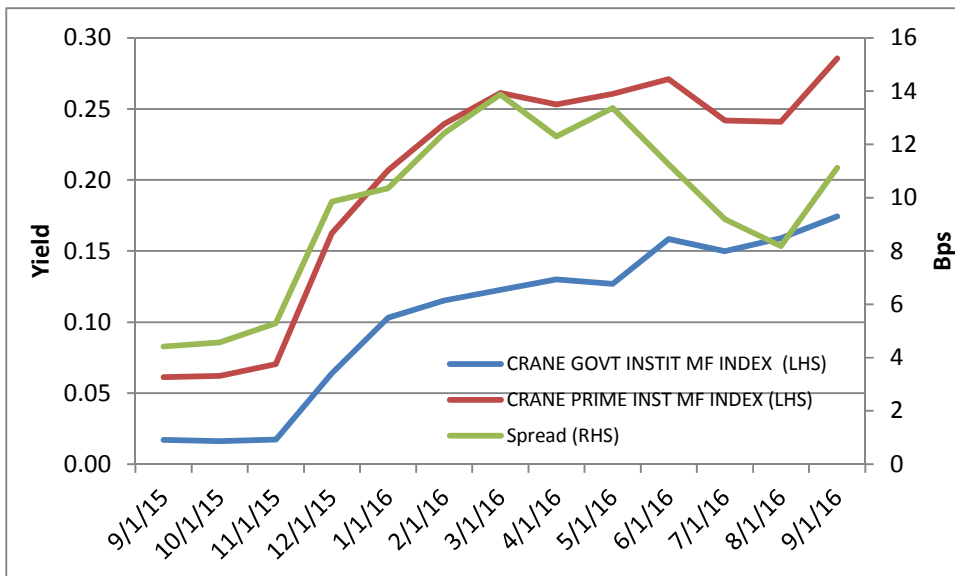


	STOCK			Inst.		Retail	
As of Date	Total MMF Assets	Govt Assets	Prime Assets	Govt	Prime	Govt	Prime
10/19/2016	2,635	2,112	395	1,552	132	561	263
9/21/2016	2,670	1,863	669	1,336	376	527	293
7/20/2016	2,715	1,519	1,007	1,061	651	458	356
4/20/2016	2,698	1,282	1,197	894	770	387	427
10/21/2015	2,698	1,002	1,450	793	935	208	515
10/22/2014	2,619	962	1,402	757	870	205	532

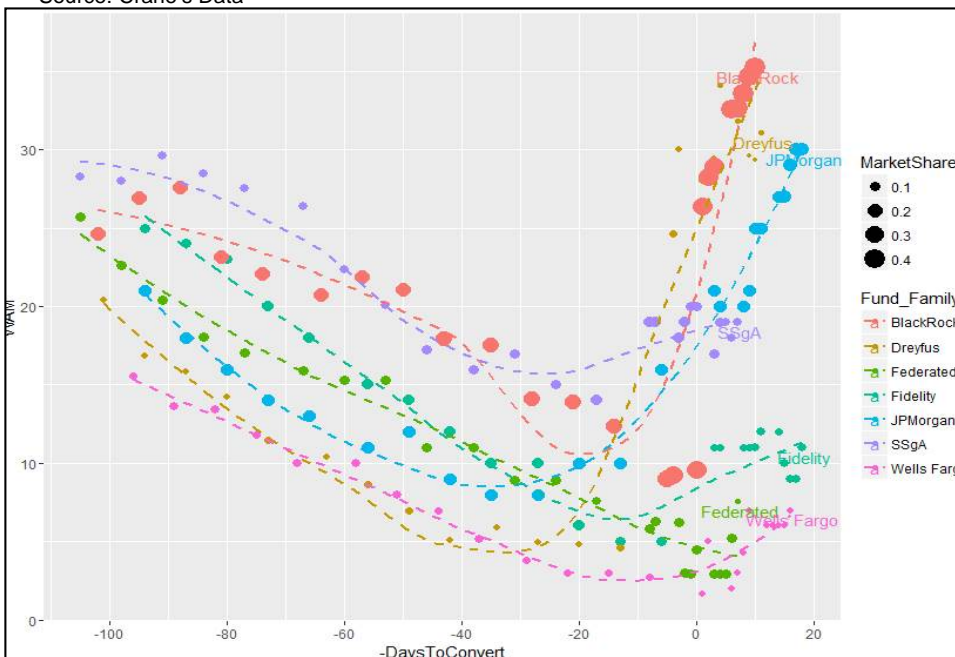
	CHANGES			Inst.		Retail	
	Total MMF Assets	Govt Assets	Prime Assets	Govt	Prime	Govt	Prime
1m	(35)	249	(274)	215	(245)	34	(30)
3m	(80)	593	(612)	491	(519)	102	(93)
6m	(63)	831	(802)	657	(638)	173	(164)
1-yr	(63)	1,111	(1,056)	758	(803)	352	(253)
2-yr	16	1,150	(1,007)	795	(738)	356	(269)

* Source ICI (Investment Company Institute)

Prime Funds



* Source: Crane's Data



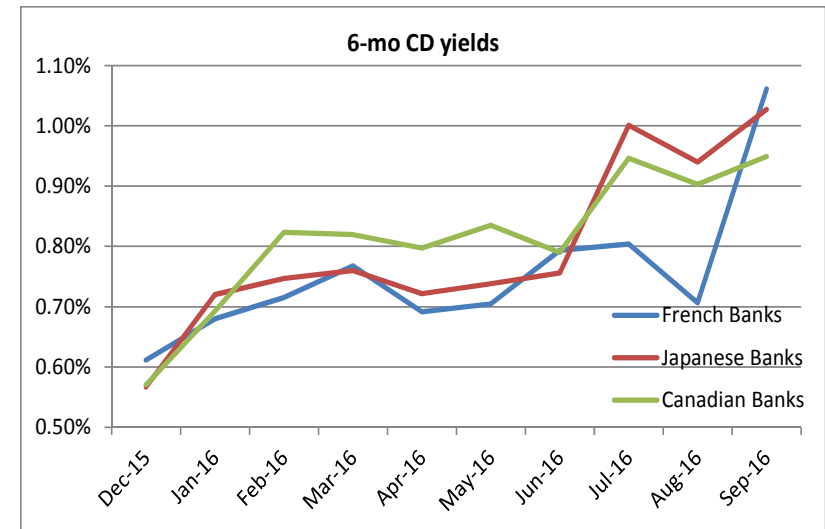
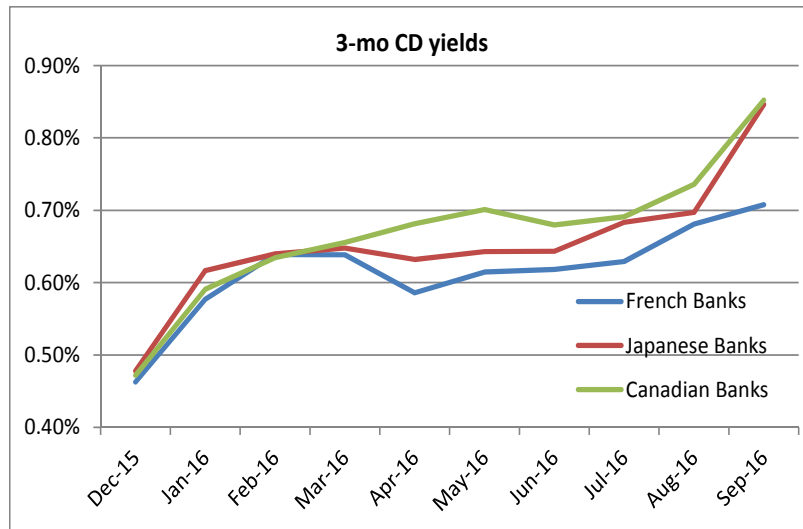
- Yield spread b/w Prime and Government only funds has been relatively constant since the Fed hike in December 2015
- This is primarily due to Prime funds reducing their WAMs heading into the October 14th reform date
- We are starting to see Prime Funds extend WAMs as outflows have slowed
 - This should cause yield differential to widen
 - LIBOR curve steepness incentivizes WAM extension (1mL: 0.5359, 6mL:1.2604)
- Outflows from Prime funds have continued post October 14th, however, at a much slower pace
- It will likely take a yield pick-up of around 40bps to attract end users back into Prime funds

Commercial Paper Market Has Shrunk

As of 10/19/2016	Millions USD							Change from 1Y ago	
	Total	Change on Week		Change MTD		Change YTD			
Commercial Paper Outstanding, N SA	942,791	18,953	2.1%	(19,295)	-2.0%	(29,018)	-3.0%	(117,767)	-11.1%
Non-financial	267,876	12,823	5.0%	8,759	3.4%	38,760	16.9%	(24,040)	-8.2%
Financial	420,273	6,862	1.7%	(24,610)	-5.5%	(50,450)	-10.7%	(102,696)	-19.6%
Financial-Domestic	223,539	(421)	-0.2%	(9,238)	-4.0%	36	0.0%	(32,930)	-12.8%
Domestic Financial, U.S. Owned	48,326	147	0.3%	(3,337)	-6.5%	(3,036)	-5.9%	(15,205)	-23.9%
Domestic Financial, Foreign Nonbank Parent	58,979	(821)	-1.4%	1,309	2.3%	10,871	22.6%	3,822	6.9%
Domestic Financial, Foreign Bank Parent	116,033	258	0.2%	(7,192)	-5.8%	(7,774)	-6.3%	(20,090)	-14.8%
Foreign-Financial	196,734	7,283	3.8%	(15,372)	-7.2%	(50,486)	-20.4%	(69,765)	-26.2%
Asset-backed	248,292	(680)	-0.3%	(2,151)	-0.9%	7,144	3.0%	24,543	11.0%
Other	6,350	(51)	-0.8%	(1,294)	-16.9%	(24,472)	-79.4%	(15,575)	-71.0%

- ❑ Commercial paper supply has decreased as demand from Prime institutional funds has decreased
- ❑ Over the past year, market has decreased by \$118bln
 - Largest decline has been in the foreign financial category
 - Some of this drop had no real market impact because foreign banks were merely issuing at levels below IOER and then placing proceeds with Fed to earn IOER
 - Wider funding spreads have caused this arbitrage trade to become unprofitable
- ❑ Non-Financial issuers still remain well received by buyers given their attractive levels and diversification (+16.9% in outstandings ytd)
 - Short-Term Funding Markets remain open to issuers with appropriate pricing and those issuers who benefited from structural demand from 2a-7 funds are simply reducing their issuance/outstandings

Short-Term Funding Cost for Yankee Banks Has Increased



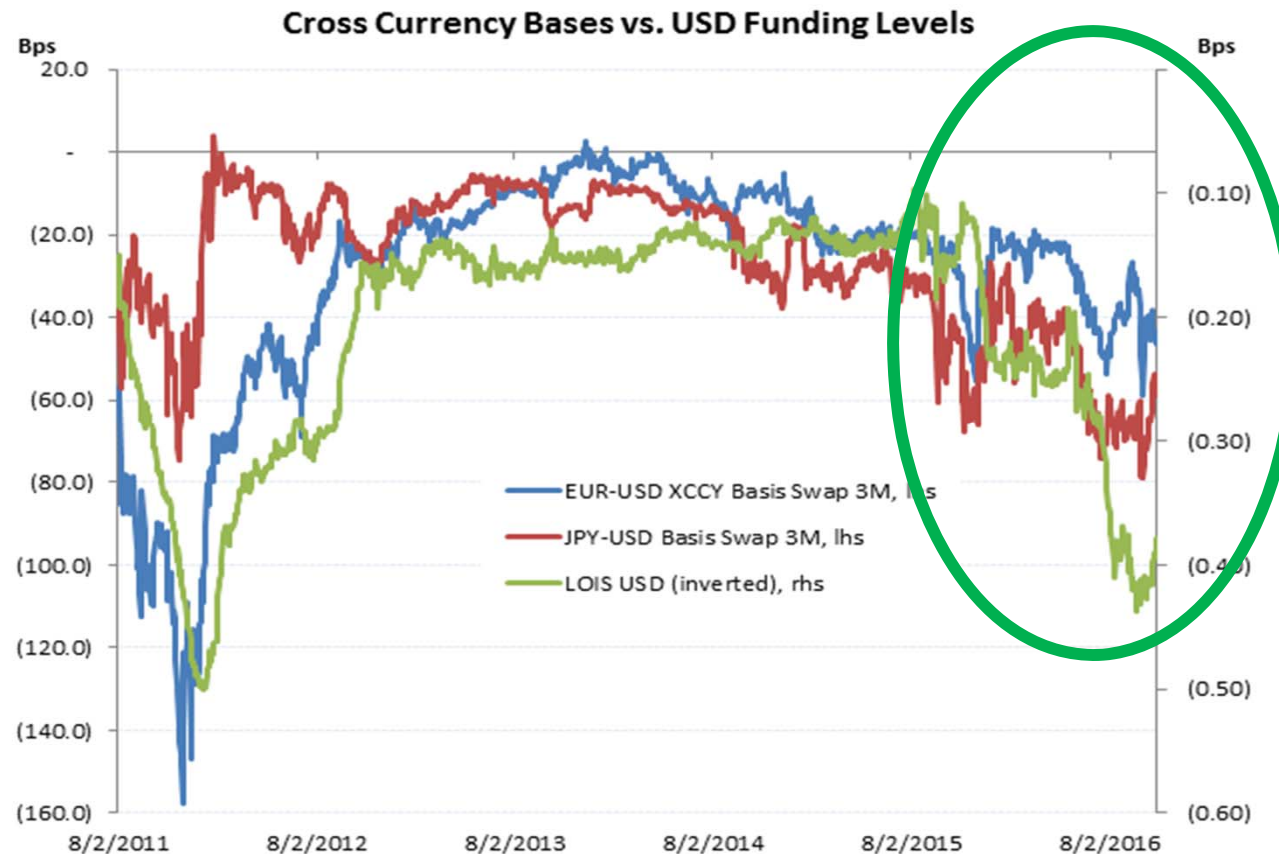
Yankee banks have done five things to replace demand from Prime Funds

1. Replace buyer base with new participants (asset managers, corporate cash accounts)
 - These buyers demand higher yields/spreads
2. Tap home office for funding
 - Evident through increased (more negative) XCCY basis spreads
3. Term out debt
4. Mitigate overall funding needs, primarily through reduction in IOER arbitrage trades
5. Raised deposit rates to attract more core deposits

Evidence of Yankee Banks Diversifying Their Sources Of Funding

There are signs that efforts to diversify sources of funding by Yankee Banks have affected pricing in other markets.

- ❑ Unlike 2011, current diversification efforts not only have had an impact on LIBOR/OIS (funding spreads), but have also increased demand for USD funding from both Japanese and European borrowers
 - ❑ Utilization of central bank swap lines as backstop source for USD funding remains very limited



Bank Issuance to Prime Money Market Funds

Regional Summary	Changes between				
	3/31/2016	6/30/2016	9/30/2016	3/31 - 6/30	6/30 - 9/30
US	52	48	14	(4)	(34)
Europe	138	111	33	(27)	(78)
CA	123	93	43	(29)	(50)
JPN	139	125	34	(14)	(91)
Australia	31	22	15	(9)	(7)
Total	484	400	140	-84	-260

- Japanese banks were the largest issuers of CD/CP to Prime Funds
 - Over the past two quarters, they decreased issuance by \$105bln
- European bank (in particular, French banks) were the second largest issuer
 - Over the past two quarters they also decreased issuance by \$105bln
- US banks were relatively small issuers of CP/CDs

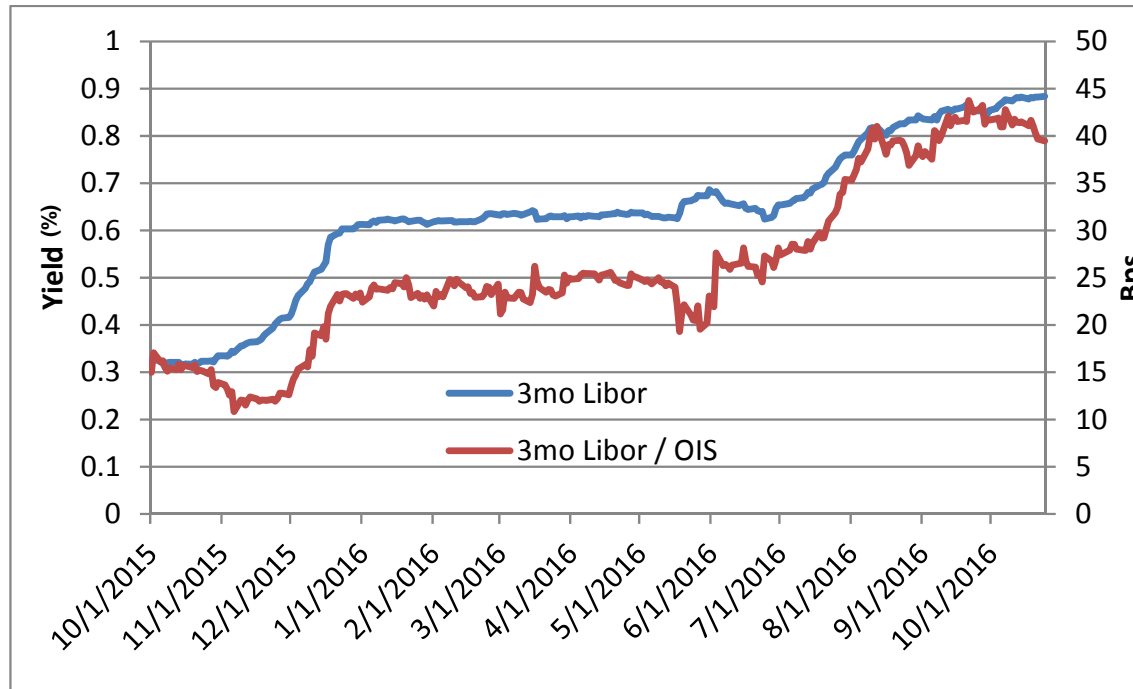
What Have Issuers Done?

Yankee Banks Have Termed Out \$45Bln Since Aug 1

Issue Date	Issuer	Security	Size (\$Bn)
1-Aug	Santander UK Holdings	5-Year Fixed-Rate Senior Notes	1.50
2-Aug	Rabobank	3-Year Fixed- and Floating-Rate Senior Notes	1.40
3-Aug	UBS	Long 5-Year Fixed- and Floating-Rate Senior Notes	2.50
3-Aug	Barclays Plc	5-Year Fixed- and Floating Rate & Tap of 5/12/2026 Senior Notes	2.00
8-Aug	ING Bank	3-Year Fixed/Floating-Rate & 5-Year Fixed/Floating-Rate Senior Notes	1.55
11-Aug	Westpac Banking Corp.	3-Year Fixed/Floating-Rate, 5-Year Fixed/Floating-Rate & 10-Year Senior Notes	5.00
16-Aug	Standard Chartered Plc	3-Year Fixed- and Floating-Rate & 10.5-Year Senior Notes	3.00
24-Aug	Bank of Montreal	2-Year Fixed-Rate & 5-Year Fixed- and Floating-Rate Senior Notes	3.50
29-Aug	Commonwealth Bank of Australia	2-Year Fixed-Rate & 5-Year Fixed/Floating-Rate & 10-Year Senior Notes	3.30
29-Aug	Canadian Imperial Bank of Commerce	3-Year Fixed- and Floating-Rate Senior Notes	1.50
29-Aug	Toronto Dominion Bank	2-Year Fixed-Rate Senior Notes	1.00
30-Aug	Svenska Handelsbanken	3-Year Fixed- and Floating-Rate & 5-Year Fixed-Rate Senior Notes	2.50
31-Aug	Danske Bank	3-Year Fixed- and Floating-Rate & 5-Year Fixed-Rate Senior Notes	2.00
6-Sep	Skandinaviska Enskilda Banken AB	3-Year Fixed- and Floating-Rate & 5-Year Fixed-Rate Senior Notes	2.50
6-Sep	Mitsubishi UFJ Financial Group, Inc.	5-Year Fixed/Floating-Rate, 7-Year (Green) & 10-Year Senior Notes	4.00
6-Sep	BNZ International Funding, Ltd.	5-Year Fixed- and Floating-Rate Senior Notes	0.85
7-Sep	The Royal Bank of Scotland Group	7-Year Senior Notes	2.65
7-Sep	Mizuho Financial	5-Year Fixed- and Floating-Rate & 10-Year Senior Notes	3.25
13-Sep	ABN Amro Bank	3-Year Fixed-Rate Senior Notes	0.75
22-Sep	Nordea Bank	3-Year Fixed- and Floating-Rate Senior Notes	1.00
Total Yankee Issuance			45.75

Source: Dealogic

Impact on LIBOR and LIBOR / OIS



Forward 3mo LIBOR / OIS	
Forward	Level
3mo	36.6
6mo	35.0
9mo	35.4
12mo	35.0
15mo	35.1
18mo	35.0
21mo	34.9

- ❑ 3mo LIBOR / OIS widened by about 20 bps recently
- ❑ This increase is directly attributable to money market reform and increased funding cost of Yankee banks
- ❑ Expect forward 3mo LIBOR / OIS to remain elevated.
 - Forwards are trading at 35bps, compared to 15bps average over previous 3-years
 - Expect forward 3mo LIBOR / OIS to remain elevated.
- ❑ **As such, expect short-dated bank funding CP/CD levels out to 3m to 1-Year to remain structurally elevated as issuers attempt to term out funding**
 - +15 to +30 bps wider versus prior periods

Asset Breakdown of Government only 2a7 Funds

- ❑ The shift from Prime funds to Government only funds has increased demand for high quality liquid assets (HQLA)
 - The demand has been met by:
 1. Repo (RRP / Dealer): + 340bln YTD
 2. Agency Discount Notes: +218bln YTD
 3. T-bills / Notes: +188bln YTD

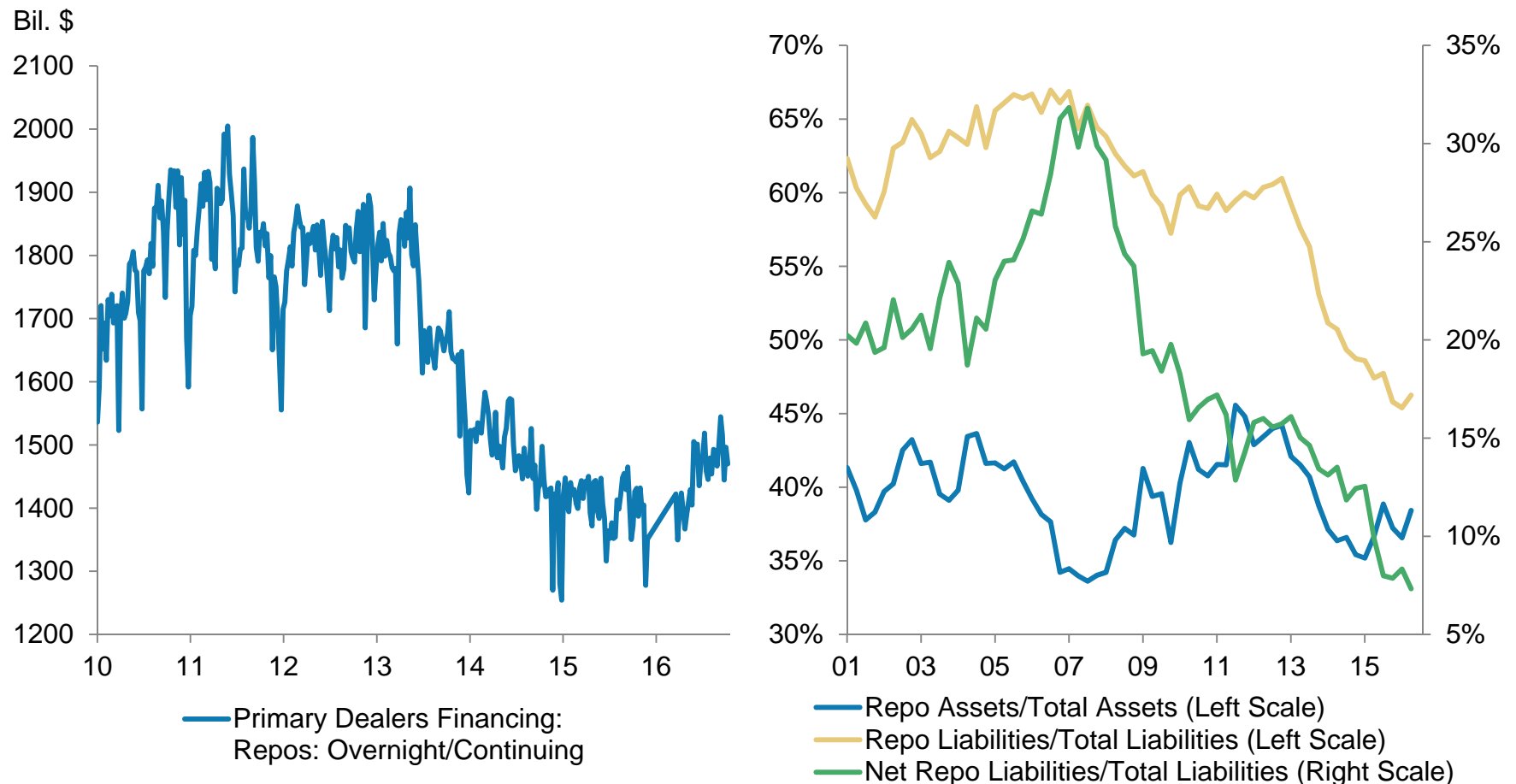
Instrument (Notional in \$bn)	9/30/2016	%	4/30/2016	%	12/31/2015	%	\$Chg from Apr	\$Chg from Dec
Fed ON RRP	\$317	16.3%	\$29	2.3%	\$205	17.2%	\$288	\$112
Treasury Repo	\$229	11.8%	\$200	16.0%	\$86	7.2%	\$29	\$144 ⁽¹⁾
Agency Repo	\$187	9.6%	\$143	11.4%	\$102	8.6%	\$44	\$85
Total Repo	\$734	37.7%	\$372	29.7%	\$394	32.9%	\$362	\$340
Agency Discos and Bullets	\$594	30.5%	\$417	33.3%	\$376	31.4%	\$177	\$218
Bills / Notes	\$613	31.5%	\$462	36.8%	\$424	35.5%	\$151	\$188
VRDN	\$5	0.3%	\$1	0.1%	\$	0.0%	\$4	\$4
Other MMF	\$2	0.1%	\$	0.0%	\$	0.0%	\$2	\$2
Other	\$	0.0%	\$1	0.1%	\$2	0.2%	-\$1	-\$2
Total	\$1,948	100.0%	\$1,254	100.0%	\$1,196	100.0%	\$694	\$752

* Source: Crane Data, *Money Fund Wisdom*

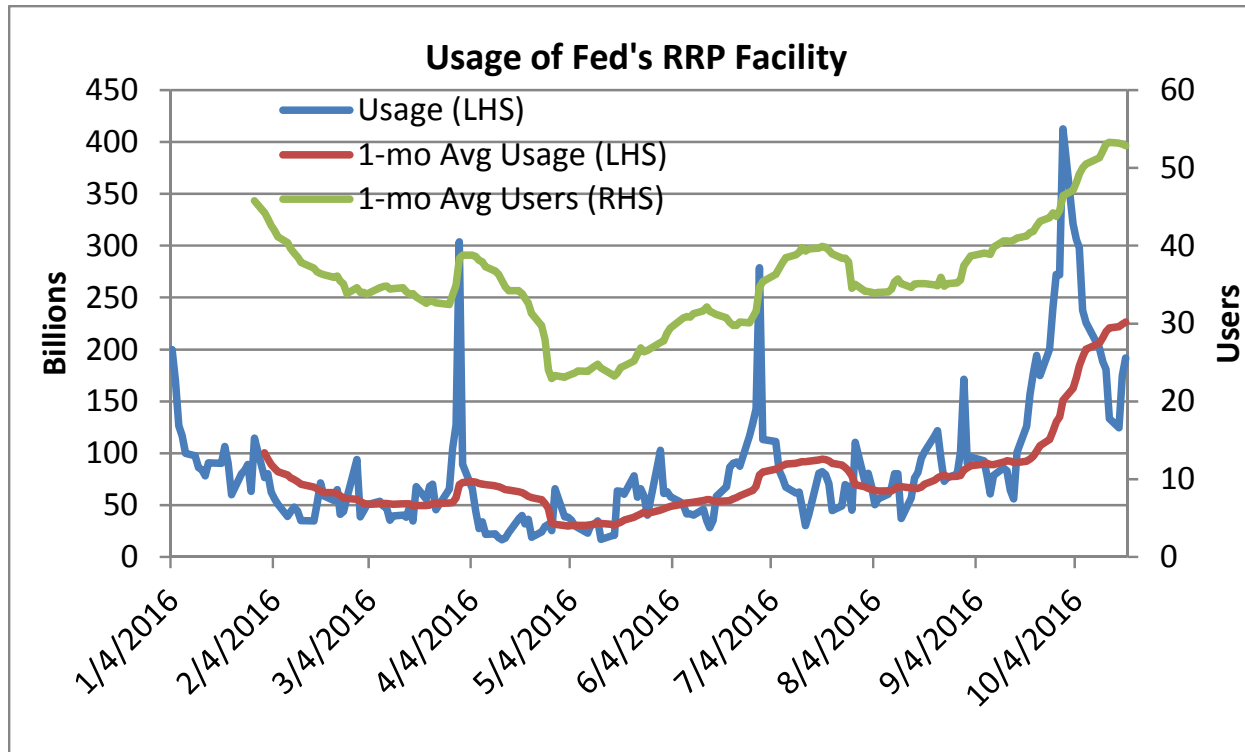
⁽¹⁾ The \$144bn increase in Treasury repo holdings by government-only funds is offset by \$154bn decrease in Treasury repo holdings by prime funds over the same period.

Dealer Balance Sheet Pressures

Due to regulatory changes, dealer balance sheets have been under pressure in recent years. This has contributed to a reduced availability of repo in the dealer market. Market participants and regulators have been working to develop a central clearing platform for repo which should help alleviate balance sheet constraints. In the meantime, the Fed's RRP program has served as an important buffer.



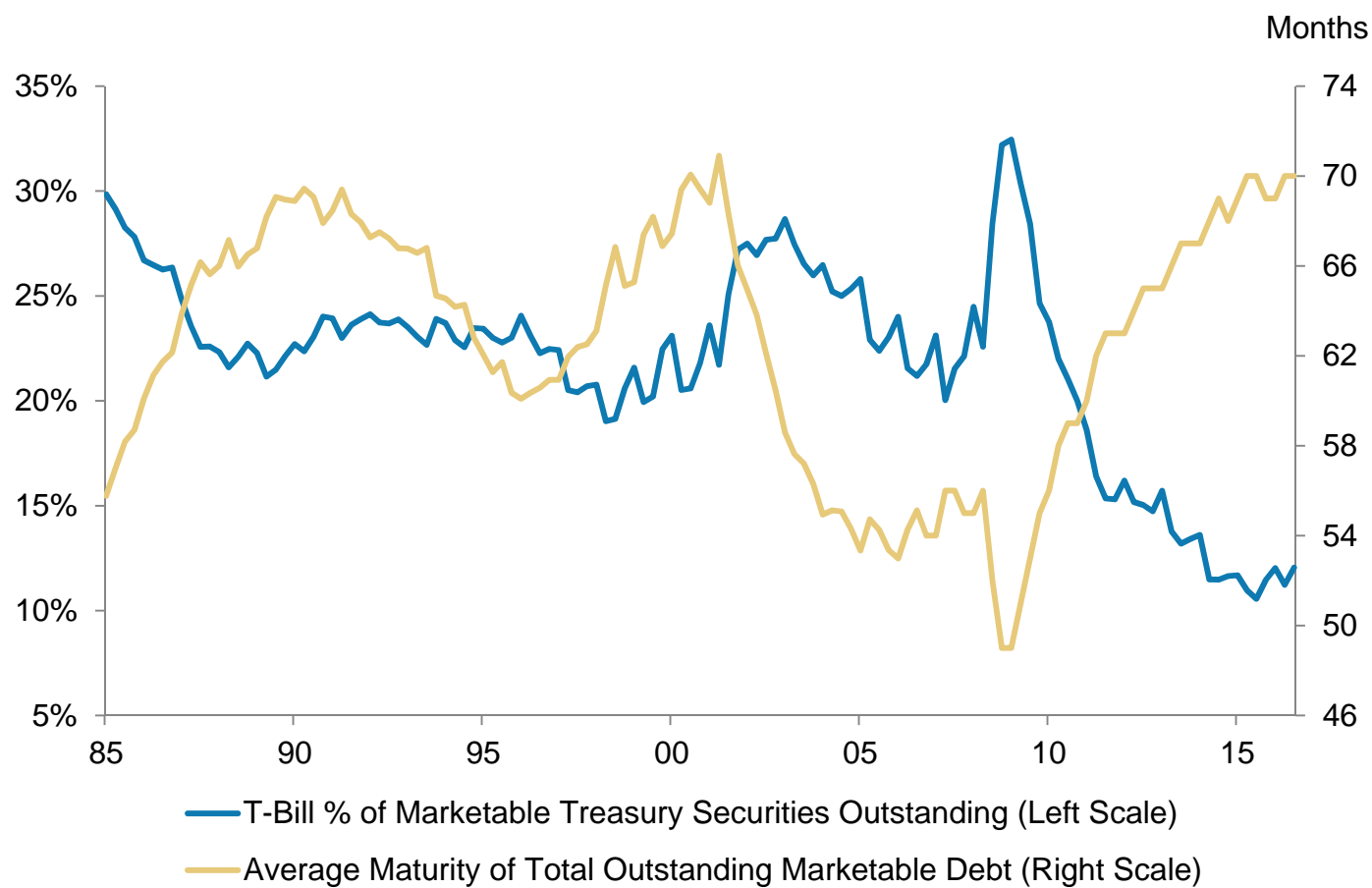
Fed's RRP Facility Is Critical For Short-Term Markets



- ❑ Government only funds have increased usage of the Fed's RRP facility as AUM have risen
- ❑ The average 1-month usage has increased by \$150bln over last 6-months
- ❑ While not a perfect substitute for T-bills, RRP has become a key instrument for larger funds to manage inflows.
- ❑ If Fed's RRP facility were to shrink dramatically or be discontinued there is a high probability that T-bill market would become dysfunctional

Part 2: Money Market Reform and Treasury Bill Supply

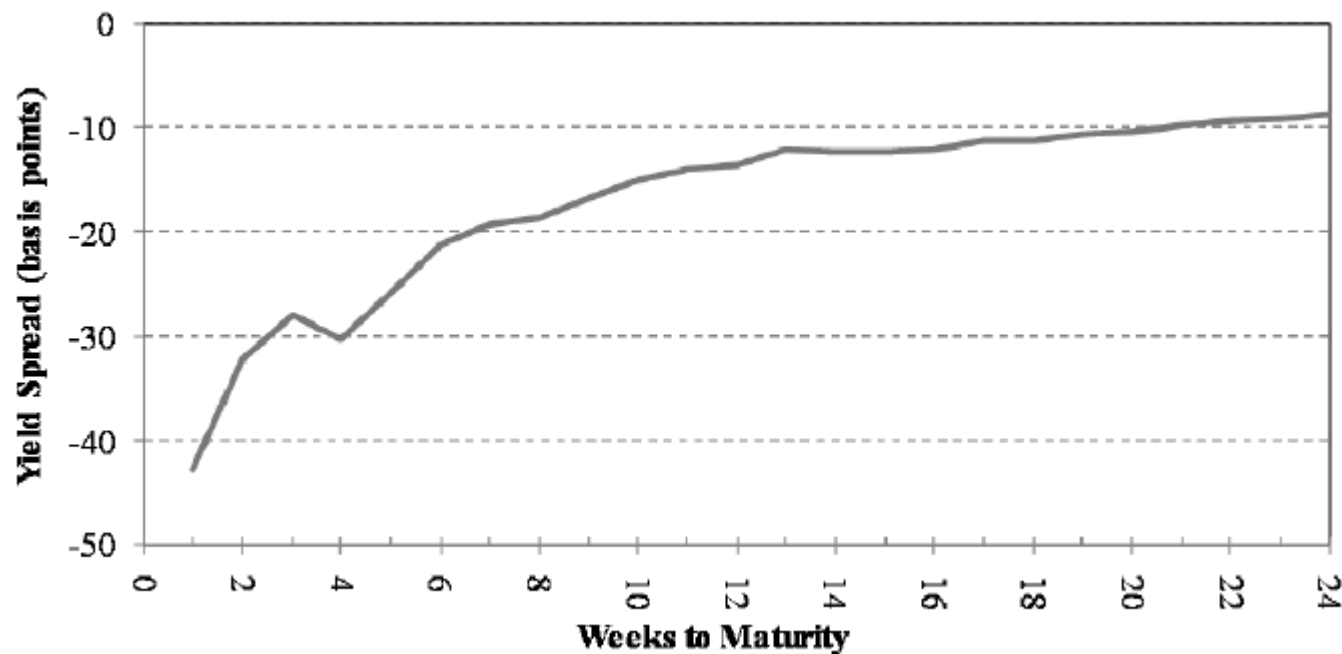
T-bill Share of Treasury Market



Should Treasury Issue More Bills?

Even pre-MMF reform, academic research suggested that Treasury should consider issuing more bills. A couple of reasons have been offered: (1) financial stability considerations; and, (2) the existence of a T-bill premium. This premium seems to be especially large at the very short-end of the bill curve.

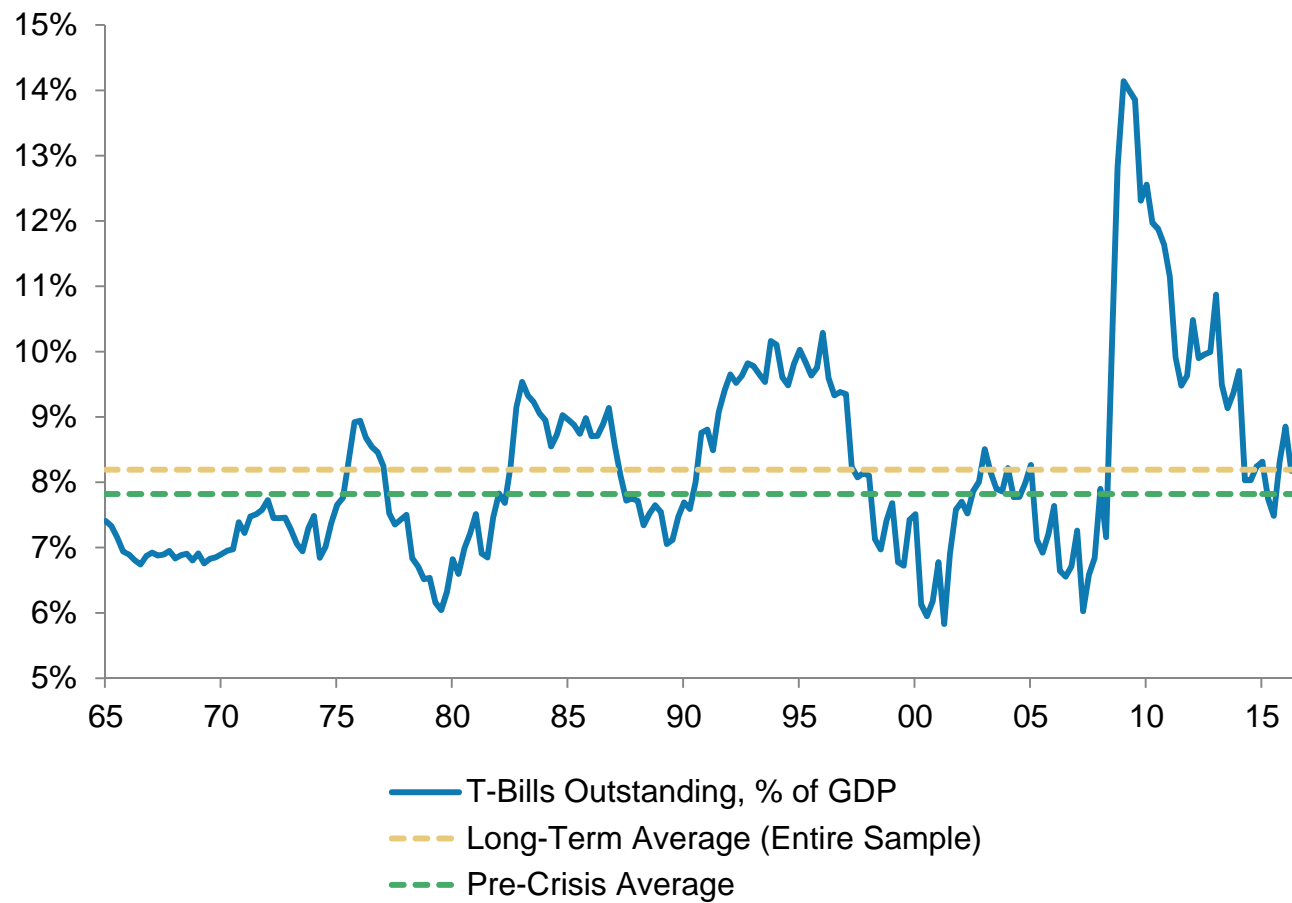
GHS Estimate of T-bill Premium (1983-2009)



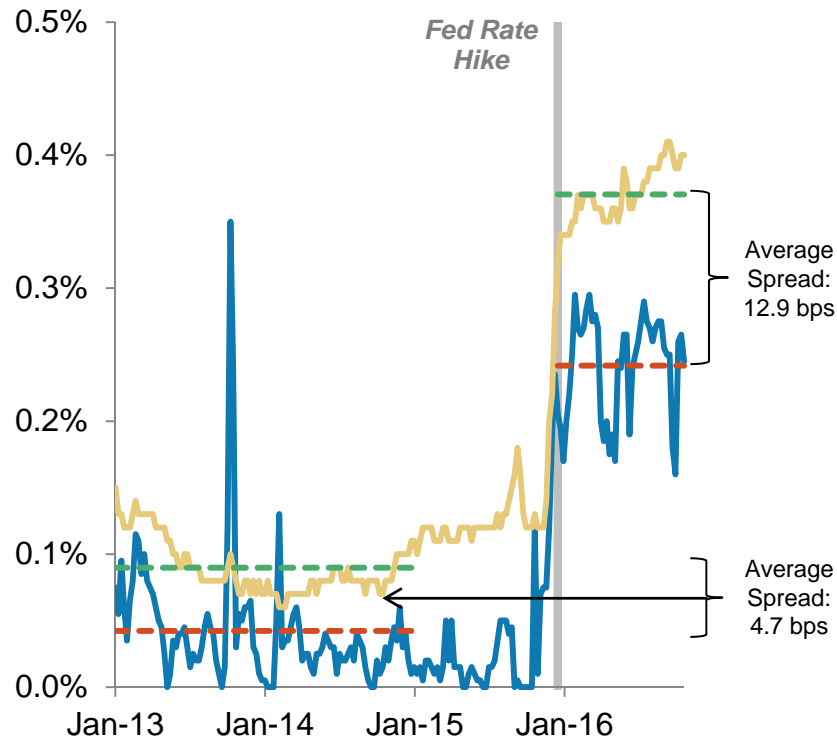
Note: The GHS estimate of the Tbill premium is based on the difference between actual T-bill yields and a curve that is fitted using all outstanding nominal Treasury coupon securities with a maturity greater than 3 months.. The curve is fitted using the model developed by Gurkaynak, Sack and Wright (2007).

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

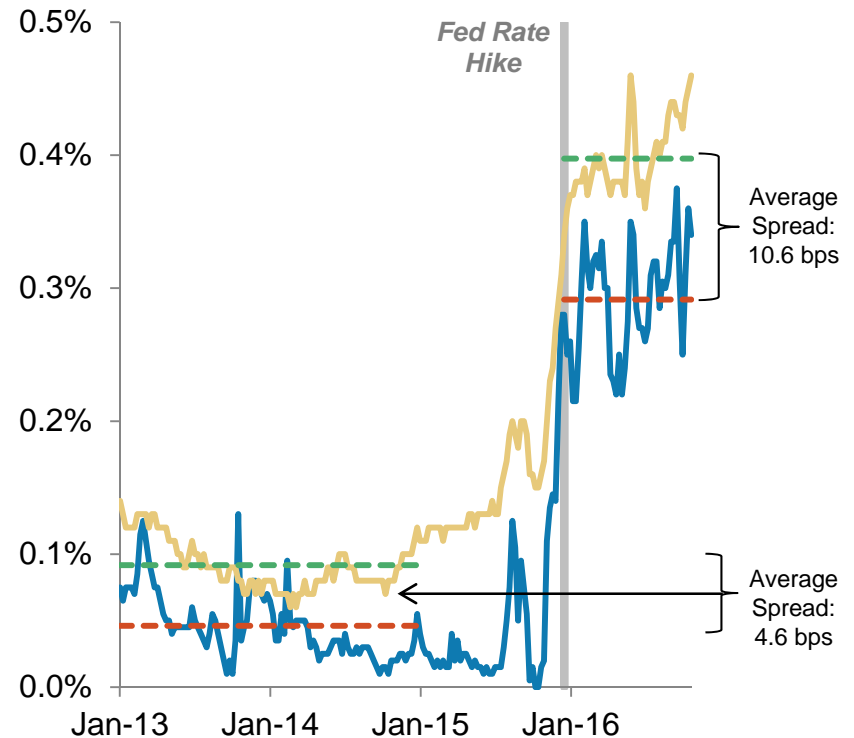
T-bill Supply in Relation to the Size of the US Economy is Close to Long-Run Average



How much of an impact did MMF reform have on the T-bill premium?



— 1-Month Treasury Bill — 1-Month OIS



— 3-Month Treasury Bill — 3-Month OIS

How Much Would T-bill Supply Need to Rise to Offset a 7.5 bp Premium?

Research presented at the Treasury's Debt Management Conference in recent years can be used to provide an estimate of the impact of T-bill supply changes on rates.

- GHS find that a 1 percentage point increase in the ratio of T-bills to GDP would lead to about a 12 bp increase in T-bill rates (with larger increases for very short term bills and lower for longer term bills). So, offsetting a 7.5 bp premium would require a 0.625 percentage point of GDP increase in T-bill supply. At current levels of GDP, this translates to about \$115bn.
- KV-J find that a one standard deviation increase in the ratio of T-bills to GDP would lead to about a 26 bp increase in T-bill rates. So, offsetting a 7.5 bp premium would require a \$185bn increase in T-bill supply (assuming the standard deviation of the T-bills/GDP series is equal to KV-J's long run estimate of 0.02).
- Therefore, our back-of-the-envelope answer is: a \$150bn increase in T-bill supply would be needed to offset the 7.5 bp premium associated with MMF reform.

Source: "A Comparative-Advantage Approach to Government Debt Management" by Greenwood, Hanson and Stein, Journal of Finance, August 2015 and "The Aggregate Demand for Treasury Debt" by Krishnamurthy and Vissing-Jorgensen, Journal of Political Economy, 2012.

Baseline Financing Scenario: FY 2017-21

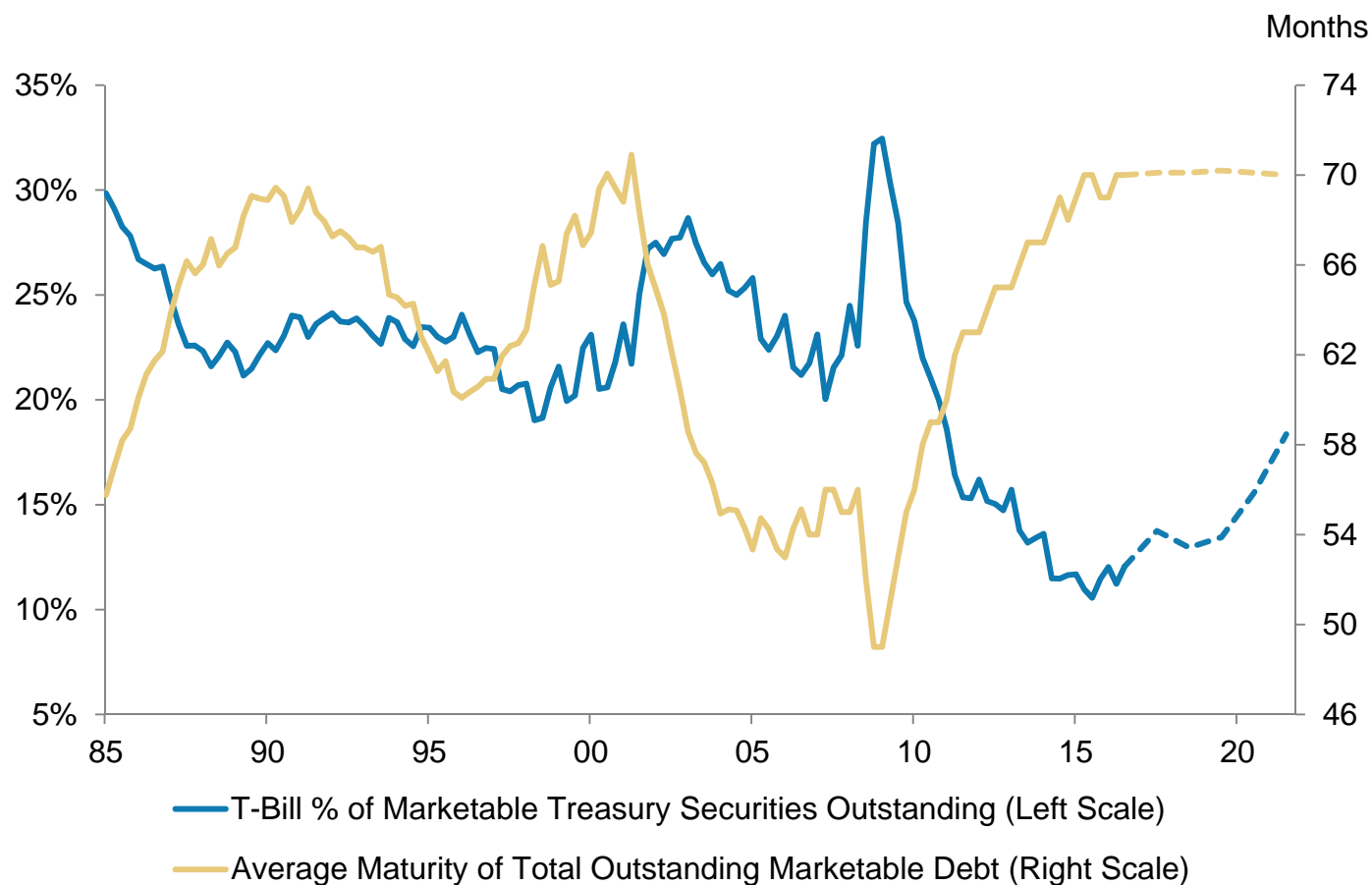
T-bill issuance rose sharply during FY2016. This was partly attributable to Treasury's adoption of a much higher cash balance target. Based on CBO's estimated financing need and assuming that the cash balance target is held at \$350 bil, a further jump in T-bill issuance will be needed in FY2017 if coupon sizes remain steady. So, it appears that Treasury is well positioned to boost bill supply in the near term by at least as much as the \$150 bil estimate associated with the impact of money market reform on the T-bill premium. Longer run estimates suggest that coupon hikes would likely be needed by the end of the forecast horizon. And, of course, any Fed redemptions would add to the Treasury's estimated financing need.

Required Change in Net T-bill Issuance, Holding Coupon Sizes Steady	
FY	Change in Tbills (Bil. \$)
2016 (Actual)	289
2017	294
2018	-4
2019	180
2020	408
2021	570

Note: Assumes CBO estimate of financing need (August, 2016 Update), \$350bn Treasury cash balance target, and no Fed redemptions

Source: Authors' calculations

T-bill Share & WAM Under a Baseline Financing Scenario



Source: US Treasury with authors' estimates for 2017-21 using the baseline financing scenario and assumptions shown on the prior page.

Note: Obviously, the T-bill share would be lower and WAM higher to the extent that a portion of the required financing was met with coupon size increases instead of bills.

Debt Ceiling Disruptions Pose a Risk

- The federal government debt limit, which was suspended by Congress and the President in November 2015, is set to be reinstated on March 16, 2017. Unless legislative action is taken by that date, the Treasury Department will be forced to reduce its cash balance to \$23 bil (the amount held at the time of the debt ceiling suspension) .
- Under a scenario in which Treasury was forced to draw down T-bill supply in order to reduce its cash balance, we estimate that the T-bill share of marketable debt outstanding (excluding Fed holdings) would decline to 13.8% -- versus 14.7% at the end of FY 2016.
- Using the rule-of-thumb parameters developed earlier, such a supply shift would imply a nearly 20 bp decline in T-bill rates all else equal. The Fed's RRP program may cushion this impact somewhat but probably not in its entirety because the program is not a perfect substitute for T-bills. Specifically, not all investors participate in the Fed's program (e.g., corporate Treasurers), there are daily limits for the counterparties who do participate (\$30 bil), some investors find the administrative costs associated with having to roll investments daily to be prohibitive, and investors can use T-bills as margin collateral (with relatively attractive haircuts).
- The bottom line is that risks associated with supply disruptions to T-bill issuance – such as might occur during a debt ceiling showdown – could be particularly severe in a post-money market reform environment despite the existence of the Fed's RRP program

Conclusion

- Money market reform has triggered massive fund flows but no major price disruptions to date.
- A number of factors have contributed to an orderly adjustment, including: 1) long lead time, 2) availability of Fed RRP and 3) strong demand for corporate credit (allowing some issuers to extend).
- A modest near term boost in Treasury bill supply would help to alleviate pressures in the front end. This can be accomplished without shortening WAM.
- Market participants and regulators should act quickly on central clearing for repo. This would be one of the best ways to increase the volume of HQLA available to the market.
- Debt ceiling disruptions could be particularly severe in a post-money market reform environment.