

US Rates Watch

Follow the money: cash & collateral trends August 15 update

Money map: shift from stress onto cash / collateral

Banking system stress has stabilized. As a result, we shift the focus of this piece away from signs of banking system stability to the cash / collateral balance. We plan to continue to track themes in FHLB issuance, MMF flows, ON RRP take-up and banking system liquidity but adjust to discuss the drain in cash from QT and TGA refill, as well as the increase in collateral largely from Treasury issuance trends.

Cash: slow drain and MMF inflows continue

We believe that US money markets are fundamentally driven by three factors (1) cash available to be invested in money markets (MM) (2) collateral that needs funding in MMs (3) regulatory constraints. To understand cash dynamics, we consider the Fed balance sheet, TGA, MMFs, and the asset side of commercial bank balance sheets. Fed balance sheet data from the Fed's H.4.1 for the week ending Aug 9 shows bank reserves grew \$11b while ON RRP grew \$26b. This was likely driven in part by \$29b in TGA outflows. TGA may decline further in Aug due to a high deficit, but the trend will eventually reverse. UST is targeting TGA of \$650b & \$750b at end Q3 & Q4. We expect TGA growth to drain from Fed ON RRP rather than reserves, driven by bill issuance. MMF AUM grew \$23 on the week ending Aug 11, but the Fed's ON RRP declined \$21b last week as of Friday. This implies that MMFs likely placed inflows into bills and commercial paper in addition to shifting cash out of the ON RRP. Bank balance sheet data shows banking system assets have grown \$60b over the week ending Aug 2, with \$44b in growth in cash on the asset side of bank balance sheets and \$122b in deposits on the liabilities side. The growth in bank balance sheets was primarily driven by small domestic banks who saw a \$31b increase in loans and leases over that period. Bank borrowing declined across domestic and foreign banks. Cash bottom line: increase with lower TGA, MMF inflows, & higher bank cash holdings.

Collateral: UST growth continues, other issuance moderate

To understand collateral dynamics, we consider UST issuance, FHLB debt growth, CP outstanding, and dealer holdings. UST issuance grew \$53b last week and is up \$934b since the debt limit resolution. Most of that issuance has come from bills, which are up \$816b over that period. Coupon supply has grown \$118b but is expected to grow faster going forward because of higher coupon auction sizes announced at the last quarterly refunding (see: [August refunding](#)). This week UST net settlements include \$63b in bills & \$19b in coupons.

15 August 2023

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Abbreviations:

BTFP: bank term funding program
CB: Central bank
DW: discount window
FHLB: Federal Home Loan Banks
FIMA: Foreign and international monetary authorities
Gov't: government
GSE: Government sponsored enterprises
Inst'l: institutional
MMF: Money market funds
ON RRP: Overnight reverse repo facility
P&I: principal & interest
TGA: Treasury General Account
w/w: week on week
DL: debt limit
WTD: week to date
DN: Discount Note

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Timestamp: 15 August 2023 10:13AM EDT

FHLB debt issuance declined roughly \$8b last week, a continuation of the \$340b in paydowns since the debt limit resolution (Exhibit 9).

CP issuance: We are tracking commercial paper issuance in detail in a monthly report, see the latest here: [CP monitor: supply stable & levels tight](#). Data from the Federal Reserve shows that CP outstanding grew nearly \$8b on the week ending Aug 9, \$12.5b in financial CP with a \$4.6b decline in non-financial CP (Exhibit 11).

Collateral bottom line: UST paper higher, FHLB debt & CP roughly offset.

Funding: stable with cash / collateral offsetting

To translate cash / collateral dynamics into funding markets we examine dealer holdings, repo volumes, & realized funding levels.

Dealer holdings show a reduction in Treasury holdings over recent weeks (Exhibit 12, Exhibit 13), which is consistent with UST auction results. PD holdings of bills have driven the decline in UST as bill auctions have performed well with higher direct bidder take-down (Exhibit 8).

Repo volumes: Consistent with the growth in UST supply, prior weeks have seen growth in repo volumes (Exhibit 15, Exhibit 16). However, on the week ending Aug 11, SOFR volumes have declined \$22b and sponsored repo volumes are down \$12b.

Funding bottom line: dealer holdings & repo volumes have dropped with more cash.

Key takeaway: funding markets have been very stable with increased cash in the system (reserves +\$11b, ON RRP +\$26b, MMF +\$23b) & have largely offset the \$53b of bill settlements last week. The relatively balanced cash / collateral backdrop likely contributed to lower dealer holdings & repo volumes.

We do not expect recent trends to hold & look for them to reverse in coming weeks / months. Fed QT will continue, TGA will continue to grow, ON RRP will decline & reserves should modestly fall. Cash will be removed from the system while UST collateral builds & FHLB supply likely ceases its recent decline. This should put upwards pressure on dealer holdings & repo volumes. We expect greater funding pressure in coming months & quarters as collateral slowly overwhelms cash.

Exhibit 1: Fed balance sheet, selected assets & liabilities (\$bn, Wednesday comparison data)

Cash in banking system exceeded Fed balance sheet growth due to lower ON RRP

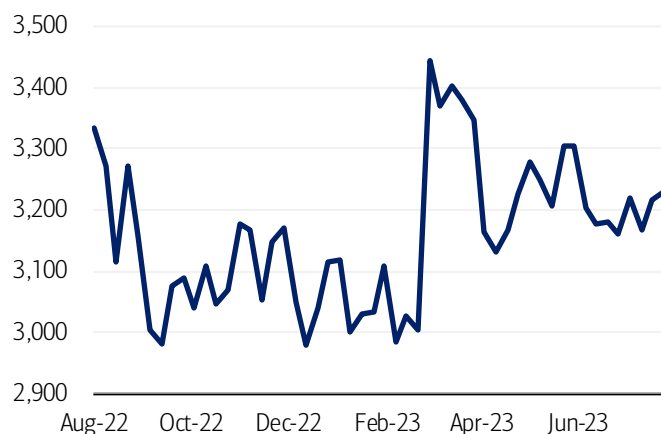
Dates	Securities	Repo	DW	Assets			FX Swaps	Liabilities					Total
				BTFP	FDIC bank credit			Currency	Foreign RRP	ON RRP	TGA	Reserves	
5/31/2023	7,725	0	4	94	188		0	2,344	361	2,255	49	3,206	8,435
8/2/2023	7,568	0	2	106	148		0	2,333	302	1,770	461	3,217	8,256
8/9/2023	7,568	0	2	107	145		0	2,333	300	1,797	432	3,229	8,258
Change from 5/31-8/9	-157	0	-2	13	-43		0	-12	-61	-458	384	23	-177
Change from 8/2-8/9	0	0	0	1	-3		0	0	-2	26	-29	11	2

Source: BofA Global Research, Federal Reserve

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Exhibit 2: Fed reserve balances outstanding (\$bn)

Change in reserve balance from prior week was \$11.19bn as of Aug 9



Source: Federal Reserve

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Exhibit 3: ON RRP take-up (\$bn)

ON RRP take-up decreased -\$20.57bn from prior week as of Aug 11



Source: FRBNY

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Exhibit 4: Daily Crane MMF AUM (\$bn)

MMF AUM increased \$23b WoW, with inflows primarily into gov't funds

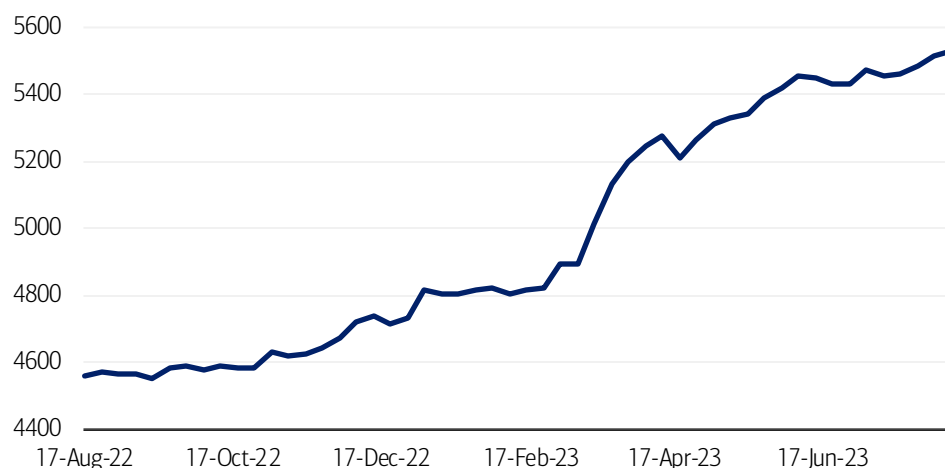
Dates	Total	Prime	Gov't	Tax exempt	Retail	Inst'l	Prime Inst'l	Gov't Instit'l	Prime Retail	Gov't Retail
8/4/2023	5,911	1,226	4,563	123	1,990	3,799	638	3,161	588	1,401
8/7/2023	5,921	1,226	4,571	124	1,990	3,807	636	3,170	590	1,401
8/8/2023	5,934	1,229	4,581	124	1,993	3,816	638	3,178	591	1,403
8/9/2023	5,923	1,232	4,567	124	1,995	3,804	640	3,164	592	1,403
8/10/2023	5,937	1,230	4,584	124	2,000	3,813	637	3,177	593	1,407
8/11/2023	5,934	1,231	4,580	123	2,005	3,806	636	3,170	595	1,410
DoD Change	-3	1	-3	0	5	-8	-1	-7	1	3
WoW change	23	5	18	1	16	7	-2	9	7	9

Source: Crane Data

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Exhibit 5: MMF AUM (\$bn)

MMFs saw \$14.36bn in flows from prior week as of Aug 9



Source: ICI, Bloomberg

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Exhibit 6: US Commercial Bank balance sheets, selected assets & liabilities (\$bn)

Domestic banks saw deposit inflows while loans & leases picked up for small domestics and cash increased for banks across the board

Total	Assets							Liabilities			
	Cash	UST & Agy	MBS	Repo & FF	Loans & Leases	Other		Deposits	Borrowings	Net due to related foreign offices	Other



Exhibit 6: US Commercial Bank balance sheets, selected assets & liabilities (\$bn)

Domestic banks saw deposit inflows while loans & leases picked up for small domestics and cash increased for banks across the board

		Total	Assets						Liabilities			
All Banks	8/2/2023	22812	3291	1499	2569	607	12146	2700	17326	2221	302	2963
	1w Chg	60	44	-8	-8	2	39	-10	122	-37	-10	-14
	1m Chg	-46	5	-7	-15	-1	31	-60	-24	-63	72	-31
	YTD Chg	-164	196	-154	-204	6	40	-48	-619	367	31	57
Domestic Banks	8/2/2023	19735	1968	1389	2543	239	11124	2472	16046	1236	-349	2802
	1w Chg	56	35	-7	-8	3	40	-8	134	-30	-39	-9
	1m Chg	-110	-47	-1	-13	-23	34	-59	-41	-52	10	-27
	YTD Chg	-266	99	-158	-193	-75	77	-16	-585	252	-10	77
Large Banks	8/2/2023	13200	1505	1100	1938	206	6742	1710	10790	781	-381	2011
	1w Chg	10	26	-5	-10	2	9	-11	81	-21	-38	-13
	1m Chg	-138	-50	-1	-9	-24	3	-57	-93	-24	11	-31
	YTD Chg	-145	64	-129	-26	-62	-2	10	-388	186	-6	63
Small Banks	8/2/2023	6534	463	290	605	32	4382	762	5256	455	32	791
	1w Chg	46	9	-1	2	1	31	4	53	-10	-1	3
	1m Chg	28	3	0	-4	0	31	-2	53	-28	-1	4
	YTD Chg	-122	35	-29	-167	-13	79	-26	-197	67	-4	13
Foreign Banks	8/2/2023	3077	1323	110	26	369	1021	228	1281	985	651	161
	1w Chg	4	10	-1	0	-1	-1	-2	-12	-6	28	-5
	1m Chg	63	52	-6	-2	22	-3	-1	17	-11	62	-4
	YTD Chg	103	97	4	-11	81	-37	-32	-34	115	42	-20

Source: Federal Reserve H8

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Exhibit 7: Treasury bill and coupon issuance (\$000s)

Treasury issuance has grown \$106b in Aug MTD as of Aug 11, all from bills

	Net total	Net bills	Net coupons	Gross new issue	Gross bill issue	Gross Coupon issue	Gross maturing	Gross bill maturing	Gross coupon maturing
MTD	106,069.00	106,069.00	-	747,000.00	747,000.00	-	640,931.00	640,931.00	-
YTD	1,728,285.00	1,210,727.00	517,558.00	11,840,000.00	9,863,000.00	1,977,000.00	10,111,715.00	8,652,273.00	1,459,442.00
FYTD	2,101,535.00	1,283,876.00	817,659.00	15,772,000.00	13,129,000.00	2,643,000.00	13,670,465.00	11,845,124.00	1,825,341.00

Source: BofA Global Research, Haver Analytics

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Exhibit 8: Treasury bill auctions

Treasury bill auction data are showing higher than avg take-down from direct bidders at last week's auctions

	Tenor	Auction Date	Maturity Date	High rate	Bid to Cover ratio	% Direct bidders	% Indirect bidders	% Primary Dealers
Upcoming bill auctions	42-Day	8/15/2023	9/28/2023					
	13-Week	8/14/2023	11/16/2023					
	26-Week	8/14/2023	2/15/2024					
Last week's bill auctions	4-Week	8/10/2023	9/12/2023	5.28%	2.62	6.47%	49.45%	44.08%
	8-Week	8/10/2023	10/10/2023	5.28%	2.96	2.50%	57.88%	39.63%
	17-Week	8/9/2023	12/12/2023	5.31%	3.19	5.18%	54.68%	40.13%
	42-Day	8/8/2023	9/21/2023	5.28%	2.95	5.41%	44.92%	49.66%
	52-Week	8/8/2023	8/8/2024	5.06%	2.97	3.17%	59.70%	37.13%
	13-Week	8/7/2023	11/9/2023	5.29%	2.83	4.93%	58.06%	37.02%
	26-Week	8/7/2023	2/8/2024	5.27%	2.92	5.02%	63.92%	31.06%

Source: BofA Global Research, US Treasury. Note: green highlight represents higher than the avg over the last 3 months, red highlight is lower than the avg over the last 3 months

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Exhibit 9: Cumulative growth in FHLB debt since March 1 (\$bn)

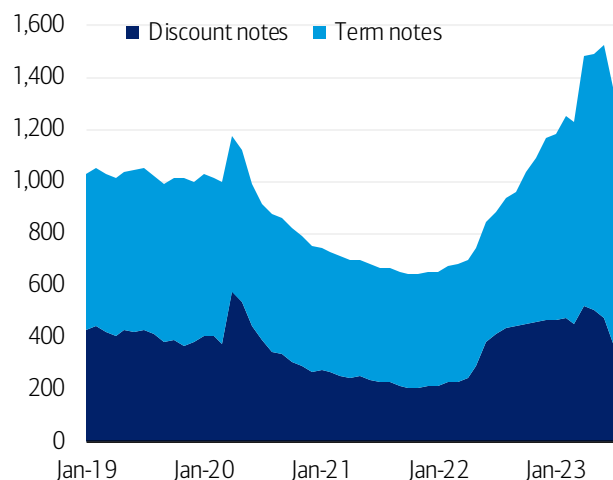
Daily FHLB cumulative debt is now \$63bn lower than the level on Mar 1



Source: Bloomberg, FHLB Office of Finance. Note: we use estimates of daily net issuance
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Exhibit 10: FHLB debt issuance (\$bn)

Higher FHLB debt issuance leading to more MMF investment

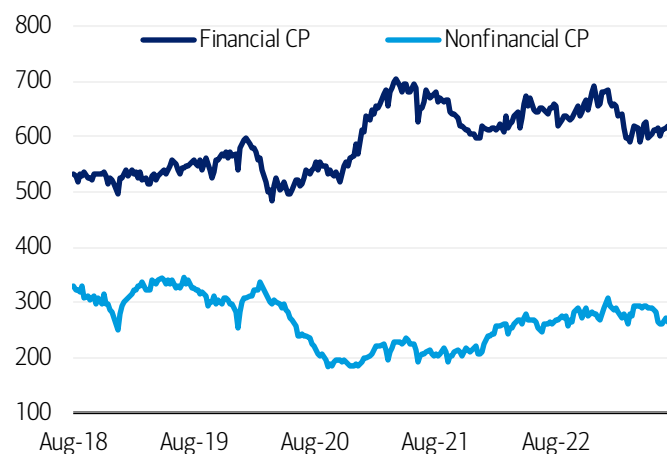


Source: BofA Global Research, FHLB Office of Finance

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Exhibit 11: Commercial paper (\$bn)

Financial CP is \$12.5b higher WoW, nonfin is \$4.6b lower WoW



Source: Bloomberg

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Exhibit 12: Primary dealer holdings (\$mn)

PD holdings of UST has declined for all security types except coupons over the month ending Aug 2

	Total	US Treasuries					Agency ex MBS	MBS	Corporates	Commercial Paper	State & Munis	ABS	Variable Rate Notes
		Bills	Coupons	FRNs	TIPS								
8/2/2023	325,113	189,384	54,761	117,098	3,668	13,857	13,139	82,883	18,608	8,113	12,579	6,754	1,766
1w Chg	-27,717	-23,658	-12,506	-5,403	-4,509	-1,240	-825	-2,582	4,064	392	-2,556	162	-2,322
1m Chg	-40,935	-41,181	-52,064	16,805	-1,823	-4,099	-808	-6,835	4,781	751	2,345	-54	817
YTD Chg	66,556	39,575	26,131	19,245	-3,234	-2,567	-112	10,596	13,173	4,573	1,369	934	1,021

Source: BofA Global Research, Bloomberg

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Exhibit 13: US Treasuries as a % of overall PD holdings

USTs as a % of PD holdings have declined from a recent peak of 67% to 58%



Source: BofA Global Research, Bloomberg

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Exhibit 15: SOFR volumes (\$bn)

SOFR volumes decreased -\$22bn on the week ending Fri Aug 11



Source: FRBNY

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Exhibit 14: PD UST holdings by security type (\$mn)

PD holdings of bills are still higher than avg but declining

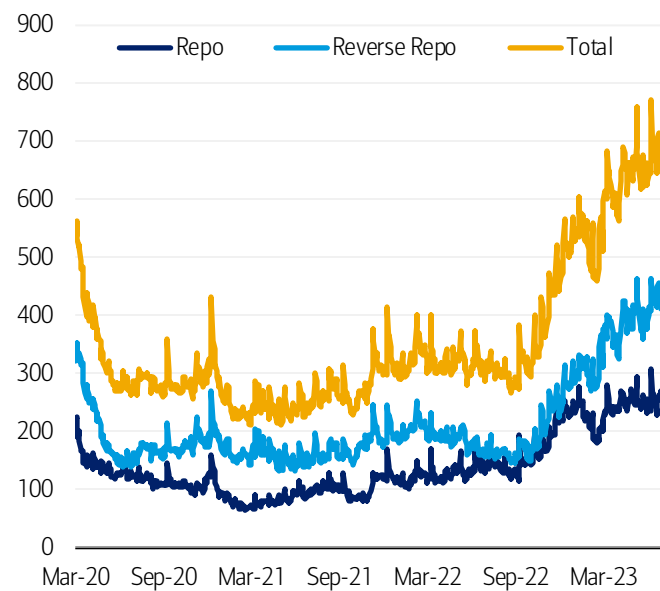
	Bills	Coupons	FRNs	TIPS	Total
7/26/2023	67,267	122,501	8,177	15,097	213,042
8/2/2023	54,761	117,098	3,668	13,857	189,384
1w Change	(12,506)	(5,403)	(4,509)	(1,240)	(23,658)
Change Z-score	(1.04)	(0.50)	(1.46)	(0.84)	(1.31)
Level Z-score	0.97	0.33	(0.77)	0.87	0.60

BofA Global Research, Bloomberg. Note: Level Z-score is as of Aug 2 vs last 10yrs; change Z-score is based on the 1w change vs weekly change over the last 10yrs

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Exhibit 16: Sponsored Repo Volumes (\$bn)

Sponsored repo volumes have risen \$119b YTD



Source: OFR

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Appendix

Exhibit 17: Daily FHLB debt issuance estimates (\$mn)

We estimate daily issuance from Bloomberg and FHLB Office of Finance website. Data is subject to revisions

	O/N	Term DN	Auction	Maturing DN	FRNs	Callable	Bullets	Maturing	Called	Total
3/1/2023	14,450	6,550	-	(21,685)	1,500	1,317	603	(2,794)	-	(59)
3/2/2023	17,964	4,656	5,650	(17,127)	530	114	789	(6,685)	(15)	5,876
3/3/2023	14,476	3,414	-	(30,161)	1,000	120	2,035	(1,949)	-	(11,065)
3/6/2023	14,930	4,704	-	(18,998)	3,790	754	1,023	(2,335)	-	3,868
3/7/2023	14,439	3,751	4,915	(17,260)	-	170	284	(1,000)	-	5,298
3/8/2023	13,485	7,293	-	(31,073)	-	5,095	212	-	-	(4,989)
3/9/2023	15,250	3,552	3,360	(16,869)	-	585	1,135	(3,980)	-	3,032
3/10/2023	16,799	3,740	-	(28,651)	2,000	547	58	(5,206)	-	(10,714)
3/13/2023	67,500	23,039	-	(22,798)	2,810	2,035	347	(2,750)	-	70,183
3/14/2023	50,200	61,770	6,445	(71,183)	91,819	495	-	(3,450)	-	136,096
3/15/2023	24,100	40,529	-	(65,448)	21,052	1,685	677	(1,889)	-	20,705
3/16/2023	14,600	9,988	3,500	(29,369)	10,850	636	132	(830)	-	9,507
3/17/2023	11,585	7,880	-	(24,676)	11,500	175	39	(4,583)	-	1,920
3/20/2023	12,400	7,341	-	(16,852)	21,712	413	31	(3,650)	-	21,395
3/21/2023	9,604	5,301	3,675	(15,224)	7,312	227	31	(3,545)	-	7,381
3/22/2023	11,250	5,916	-	(24,402)	2,500	237	32	(1,000)	-	(5,468)
3/23/2023	9,780	3,456	5,115	(16,546)	-	105	81	(6,400)	-	(4,409)
3/24/2023	18,355	1,650	-	(23,633)	4,900	30	74	(1,580)	-	(204)
3/27/2023	24,070	1,464	-	(33,130)	9,150	4,188	295	(6,323)	-	(285)
3/28/2023	19,223	4,277	280	(23,576)	2,200	8,744	75	(3,247)	(60)	7,917
3/29/2023	17,095	1,957	-	(29,865)	1,000	9,924	162	(1,881)	(30)	(1,639)
3/30/2023	15,250	4,213	4,700	(20,936)	-	3,498	129	(3,202)	(210)	3,442
3/31/2023	8,000	964	-	(32,122)	-	-	-	-	-	(23,158)
4/3/2023	9,620	2,421	-	(16,456)	-	7,642	96	(6,175)	(110)	(2,962)
4/4/2023	11,440	1,453	4,120	(12,553)	-	15	20	(5,681)	-	(1,186)
4/5/2023	9,800	2,712	-	(23,492)	-	492	144	(2,172)	-	(12,516)
4/6/2023	9,300	3,140	4,275	(12,694)	-	1,030	44	(3,011)	(10)	2,073
4/10/2023	9,600	6,010	-	(19,286)	-	5,213	520	(1,485)	-	572
4/11/2023	9,600	7,455	5,255	(11,553)	-	2,350	258	(200)	-	13,166
4/12/2023	16,155	5,059	-	(23,974)	50	1,723	149	(330)	-	(1,168)
4/13/2023	2,750	3,625	2,935	(10,918)	-	751	126	(1,100)	(190)	(2,021)
4/14/2023	11,041	3,882	-	(24,032)	378	1,040	55	(3,690)	-	(11,327)
4/17/2023	11,896	5,142	-	(19,320)	-	3,605	428	(1,400)	(120)	231
4/18/2023	13,127	4,043	3,935	(16,850)	500	2,502	151	(1,722)	-	5,686
4/19/2023	16,014	8,047	-	(25,694)	1,000	5,460	187	-	-	5,014
4/20/2023	18,737	6,788	7,240	(22,421)	1,000	6,882	460	(1,317)	-	17,368
4/21/2023	15,984	2,654	-	(30,101)	2,000	3,137	84	(7,225)	(170)	(13,637)
4/24/2023	17,600	5,499	-	(23,041)	-	4,645	30	(6,005)	(434)	(1,706)
4/25/2023	15,850	6,807	11,335	(19,746)	2,550	1,253	130	(6,713)	-	11,466
4/26/2023	26,838	6,482	-	(27,442)	-	5,780	224	-	(335)	11,548
4/27/2023	19,800	6,206	7,000	(21,528)	6,480	4,140	80	(3,600)	(620)	17,958
4/28/2023	15,512	3,584	-	(44,794)	911	3,430	80	(1,424)	(130)	(22,831)
5/1/2023	18,904	2,879	-	(27,040)	11,497	1,047	148	(7,853)	-	(419)
5/2/2023	19,801	4,857	3,185	(24,907)	-	57	165	(6,105)	-	(2,946)
5/3/2023	23,273	4,378	-	(38,071)	5,913	5,208	261	(6,020)	-	(5,059)
5/4/2023	23,721	5,373	6,930	(31,128)	5,950	1,955	255	(6,989)	-	6,067
5/5/2023	18,400	2,790	-	(31,772)	1,677	55	124	(2,072)	-	(10,798)
5/8/2023	18,857	6,822	-	(31,657)	3,655	832	210	(3,275)	(15)	(4,572)
5/9/2023	20,018	4,320	7,200	(23,834)	4,505	110	370	(2,650)	(40)	9,999
5/10/2023	21,769	2,506	-	(29,880)	9,708	1,521	239	(1,417)	(80)	4,367
5/11/2023	19,532	2,132	5,050	(26,533)	1,400	80	115	(1,540)	(15)	221
5/12/2023	18,555	5,628	-	(30,524)	7,825	6,165	20	(130)	-	7,539
5/15/2023	18,014	7,593	-	(24,965)	3,000	411	138	(100)	-	4,091
5/16/2023	16,384	10,516	7,595	(29,449)	2,905	315	115	(100)	(45)	8,236
5/17/2023	15,800	6,278	-	(24,935)	10,720	143	60	(1,545)	-	6,521
5/18/2023	13,206	4,494	6,110	(19,859)	2,054	1,105	186	(1,938)	-	5,357
5/19/2023	11,776	2,766	-	(26,366)	9,824	1,380	145	(850)	(25)	(1,350)
5/22/2023	11,935	6,178	-	(16,931)	1,400	3,405	20	(5,570)	(20)	417
5/23/2023	13,825	7,034	7,085	(16,926)	2,845	298	220	(6,100)	(85)	8,195



Exhibit 17: Daily FHLB debt issuance estimates (\$mn)

We estimate daily issuance from Bloomberg and FHLB Office of Finance website. Data is subject to revisions

	O/N	Term DN	Auction	Maturing DN	FRNs	Callable	Bullets	Maturing	Called	Total
5/24/2023	16,049	9,590	-	(24,231)	-	287	33	(4,780)	(238)	(3,291)
5/25/2023	15,050	8,877	8,605	(26,328)	6,257	135	88	(2,478)	(3)	10,203
5/26/2023	14,857	2,792	-	(26,090)	12,890	155	70	(8,010)	(420)	(3,757)
5/30/2023	17,144	9,610	2,020	(24,663)	397	2,039	258	(811)	-	5,995
5/31/2023	11,178	5,373	-	(29,638)	-	-	-	-	-	(13,087)
6/1/2023	14,922	6,811	2,260	(24,577)	5,396	915	1,189	(1,475)	(15)	5,426
6/2/2023	17,653	1,818	-	(28,221)	-	305	-	(9,579)	(15)	(18,038)
6/5/2023	19,670	462	-	(28,507)	921	31	251	(4,640)	-	(11,811)
6/6/2023	16,983	770	1,725	(27,463)	-	120	50	(1,562)	(29)	(9,406)
6/7/2023	15,315	2,005	-	(28,488)	-	245	45	(2,265)	(45)	(13,188)
6/8/2023	17,823	3,135	1,300	(23,002)	-	20	260	(32)	-	(496)
6/9/2023	17,431	2,386	-	(25,225)	-	20	135	(7,942)	-	(13,196)
6/12/2023	21,127	1,240	-	(32,701)	800	270	1,145	(415)	-	(8,535)
6/13/2023	18,671	1,951	2,235	(24,361)	-	5,260	50	(1,880)	-	1,927
6/14/2023	19,374	4,696	-	(24,379)	250	428	105	(39,009)	-	(38,535)
6/15/2023	18,833	3,083	650	(25,585)	-	1,349	70	(946)	-	(2,545)
6/16/2023	19,002	743	-	(29,802)	-	50	25	(3,742)	(70)	(13,794)
6/20/2023	19,087	2,952	960	(28,032)	-	1,210	31	(2,650)	-	(6,443)
6/21/2023	18,100	4,070	-	(29,290)	-	1,251	785	(1,185)	-	(6,270)
6/22/2023	16,145	3,101	655	(22,357)	270	300	33	(7,577)	(50)	(9,479)
6/23/2023	16,909	1,108	-	(26,673)	-	1,533	62	(2,410)	-	(9,470)
6/26/2023	18,864	2,297	-	(22,675)	520	797	12	(345)	-	(530)
6/27/2023	18,578	1,838	1,555	(22,839)	-	338	197	(8,130)	(280)	(8,743)
6/28/2023	17,274	2,759	-	(24,193)	-	555	61	(3,780)	(615)	(7,939)
6/29/2023	18,550	2,202	700	(19,653)	500	310	200	(1,014)	(90)	1,705
6/30/2023	11,934	3,046	-	(30,171)	-	500	73	(5,237)	(110)	(19,966)
7/3/2023	14,953	346	900	(40,698)	1,050	1,314	102	(15,020)	(50)	(37,104)
7/5/2023	17,558	1,166	-	(45,838)	500	15	125	(5,484)	-	(31,958)
7/6/2023	15,330	1,115	925	(19,984)	500	-	105	(2,870)	-	(4,879)
7/7/2023	17,447	2,627	-	(45,887)	-	30	222	(450)	-	(26,011)
7/10/2023	18,791	868	-	(20,859)	1,000	80	1,073	(1,650)	-	(699)
7/11/2023	18,266	843	995	(21,480)	-	55	518	(250)	-	(1,054)
7/12/2023	18,116	922	-	(23,397)	-	191	115	(1,455)	-	(5,507)
7/13/2023	21,184	955	1,840	(20,796)	-	1,085	15	(2,090)	-	2,193
7/14/2023	19,334	2,022	-	(28,033)	1,000	58	1,170	(26,469)	(343)	(31,260)
7/17/2023	18,691	2,095	-	(22,972)	-	3,698	-	(5,400)	-	(3,888)
7/18/2023	18,350	2,090	2,350	(20,711)	-	33	86	(3,359)	-	(1,161)
7/19/2023	18,804	7,592	-	(24,094)	-	61	16	(176)	-	2,204
7/20/2023	20,837	3,280	1,655	(20,851)	610	1,593	75	(3,995)	-	3,203
7/21/2023	20,550	2,956	-	(30,909)	2,101	30	100	(3,586)	-	(8,758)
7/24/2023	21,129	2,225	-	(26,277)	1,441	540	114	(4,660)	-	(5,489)
7/25/2023	22,254	2,647	6,065	(31,151)	3,850	205	-	(535)	-	3,335
7/26/2023	22,467	1,292	-	(31,339)	3,750	532	145	(3,604)	-	(6,757)
7/27/2023	21,962	4,784	3,195	(28,375)	2,070	5,035	240	(3,543)	-	5,368
7/28/2023	20,385	1,982	-	(31,150)	1,050	595	383	(1,357)	-	(8,112)
7/31/2023	17,350	2,909	-	(25,569)	-	-	-	-	-	(5,310)
8/1/2023	26,022	5,900	2,685	(23,791)	-	355	378	(3,887)	-	7,661
8/2/2023	23,038	2,049	-	(34,357)	3,895	77	133	(1,215)	-	(6,381)
8/3/2023	23,669	6,613	4,245	(25,599)	2,660	20	75	(2,288)	(15)	9,380
8/4/2023	22,997	5,471	-	(32,987)	-	15	131	(489)	-	(4,861)
8/7/2023	20,879	5,190	-	(29,036)	305	407	155	(2,080)	-	(4,179)
8/8/2023	23,317	3,152	3,030	(24,463)	4,540	120	125	(1,680)	-	8,140
8/9/2023	22,280	4,550	-	(30,592)	2,650	139	43	-	-	(930)
8/10/2023	21,250	1,937	2,950	(25,076)	250	335	18	(1,743)	-	(79)
8/11/2023	19,031	717	-	(32,099)	1,850	50	90	(275)	-	(10,636)

Source: Bloomberg, FHLB Office of Finance. Note: We use estimates of daily FHLB debt issuance

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