

US Rates Watch

Follow the money: cash & collateral trends August 22 update

Money map: shift from stress onto cash / collateral

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. To understand collateral dynamics, we consider UST issuance, FHLB debt growth, CP outstanding, and dealer holdings. Overall, collateral issuance outweighed growth in cash but repo volumes continued to decline.

Cash: TGA took brunt of QT drain, MMF inflows continue

Fed balance sheet data from the Fed's H.4.1, for the week ending Aug 16, show a \$42b decline in securities holdings from QT in addition to a \$4b decline in loans to the FDIC bridge bank. On the liabilities side, ON RRP and reserve balances were flat while the TGA (-\$47b) took the brunt of the QT drain. 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, respectively. We expect TGA growth to drain from Fed ON RRP rather than reserves, driven by bill issuance. **MMF AUM** grew \$40b on the week ending Aug 16 according to ICI, but with the Fed's ON RRP unchanged, this implies that MMFs likely placed inflows into bills and commercial paper. **Bank balance sheet data** shows banking system assets have grown \$7b over the week ending Aug 9, with foreign banks growing \$22b but domestic banks shrinking \$15b. The growth in foreign banks was seen in cash and Treasury securities on the asset side and increases in deposits and borrowing on the liabilities side. For domestic banks, deposit outflows were partially offset by higher borrowing and an increase in net due to related foreign offices. **Cash bottom line:** increase with lower TGA, MMF inflows, & higher bank cash holdings.

Collateral: UST growth picking up, FHLB issuance flat

UST issuance grew \$79b on the week ending Aug 16 and is up \$1,069b since the debt limit resolution. Most of that issuance has come from bills, which are up \$932b over that period. Coupon supply has grown \$137b 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.

22 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: 22 August 2023 07:00AM EDT

FHLB debt was little changed on the week. Some FHLBs noted a pickup in bank funding needs but others pointed to large upcoming maturities as driving some of the issuance seen in the last week after several weeks of net paydowns (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 over \$10b on the week ending Aug 16, in financial CP (Exhibit 11).

Collateral bottom line: increase with higher UST settlements, flat FHLB debt, and more CP outstanding.

Funding: Repo volume declining despite collateral > cash

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: SOFR volumes have declined in recent weeks, including \$33b on the week ending Aug 18 (Exhibit 15). Conversely sponsored repo volumes are up \$21b over the same week (Exhibit 16).

Funding bottom line: dealer holdings & repo volumes have dropped despite collateral outweighing cash.

Key takeaway: funding markets have been stable with increased cash in the system via MMF inflows but collateral outweighed cash this week with \$79b in UST issuance, \$8b in FHLB, and \$38b in CP/CD. Despite higher issuance, PD holdings of UST debt continues to decline and repo volumes continue to drop.

We do not expect recent trends to hold and look for them to reverse in coming weeks / months. Fed QT likely will continue, TGA likely will continue to grow, ON RRP likely will decline and reserves should modestly fall. Cash is likely to be removed from the system while UST collateral builds and FHLB supply likely ceases its recent decline. This should put upwards pressure on dealer holdings and repo volumes. We expect greater funding pressure in coming months and quarters as collateral slowly overwhelms cash. We discussed our outlook for year-end recently in: [Year-end USD funding: overly complacent](#).

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

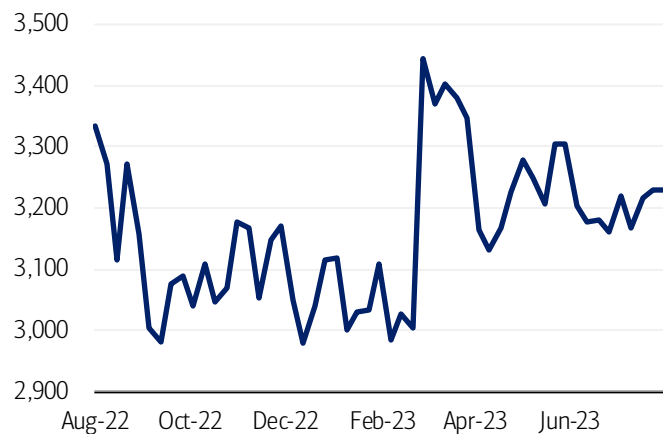
Dates	Assets							Liabilities					Total
	Securities	Repo	Discount Window	BTFP	FDIC bank credit extension	CB Liquidity Swaps		Currency	Foreign RRP	ON RRP	TGA	Reserves	
5/31/2023	7,725	0		4	94	188	0	2,344	361	2,255	49	3,206	8,435
8/9/2023	7,568	0		2	107	145	0	2,333	300	1,797	432	3,229	8,259
8/16/2023	7,526	0		2	107	142	0	2,331	300	1,797	385	3,229	8,197
Change since debt limit	-199	0		-2	14	-46	0	-14	-61	-458	336	23	-239
WoW Change	-42	0		0	0	-4	0	-3	0	0	-47	0	-62

Source: BofA Global Research, Federal Reserve

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

Reserve balances were unchanged from the prior week as of 8/16



Source: Federal Reserve

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

ON RRP take-up was unchanged WoW as of 8/16



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

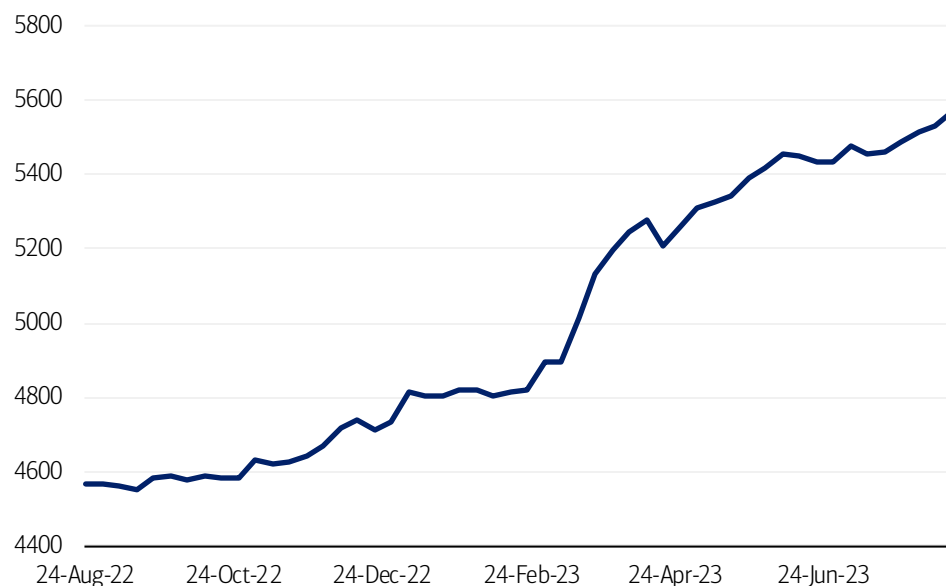
Dates	Total	Prime	Gov't	Tax exempt	Retail	Institutional	Prime Institutional	Gov't Institutional	Prime Retail	Gov't Retail
12/30/2022	5,073	1,077	3,996	0	1,584	3,489	655	2,834	421	1,163
8/10/2023	5,937	1,230	4,584	124	2,000	3,813	637	3,177	593	1,407
8/17/2023	5,959	1,239	4,599	120	2,016	3,822	639	3,183	600	1,416
WoW change	22	9	16	-3	16	9	2	6	7	9
YTD Change	886	163	603	120	433	333	-17	349	179	254

Source: Crane Data

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Exhibit 5: MMF AUM (\$bn)

MMFs saw \$39.7bn in flows from prior week as of Aug 16



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
All Banks	8/9/2023	22818	3315	1505	2565	596	12126	2712	17314	2237	291	2976
	1w Chg	7	25	6	-4	-11	-20	12	-11	17	-10	11
	1m Chg	24	62	-5	-6	1	37	-64	56	-42	35	-24
	YTD Chg	-157	220	-148	-208	-5	21	-36	-631	383	20	71
Domestic Banks	8/9/2023	19721	1964	1391	2540	240	11110	2475	16014	1245	-336	2798
	1w Chg	-15	-4	2	-4	2	-15	3	-32	9	13	-5
	1m Chg	-33	3	-2	-5	-3	40	-66	39	-41	3	-33
	YTD Chg	-280	96	-156	-197	-73	63	-13	-616	261	3	72
Large Banks	8/9/2023	13190	1506	1101	1934	203	6732	1714	10756	792	-366	2009
	1w Chg	-11	2	2	-4	-3	-11	4	-34	11	15	-3
	1m Chg	-75	-2	-1	-2	-8	6	-68	-23	-20	7	-38
	YTD Chg	-155	66	-127	-30	-65	-12	14	-422	197	9	61
Small Banks	8/9/2023	6531	458	290	606	37	4378	761	5258	453	30	789
	1w Chg	-4	-5	0	1	5	-4	-1	2	-2	-2	-2
	1m Chg	42	5	-2	-3	5	34	2	62	-21	-4	5
	YTD Chg	-125	30	-28	-167	-8	75	-27	-194	64	-7	11
Foreign Banks	8/9/2023	3098	1351	113	25	356	1016	237	1300	993	627	178
	1w Chg	22	28	3	0	-13	-5	9	21	8	-23	16
	1m Chg	57	59	-3	-1	4	-4	1	17	-1	32	9
	YTD Chg	123	124	7	-11	68	-42	-23	-15	122	18	-2

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	188,083	169,116	18,967	1,229,000	1,126,000	103,000	1,040,917	956,884	84,033
YTD	1,810,299	1,273,774	536,525	12,322,000	10,242,000	2,080,000	10,511,701	8,968,226	1,543,475
FYTD	2,183,549	1,346,923	836,626	16,254,000	13,508,000	2,746,000	14,070,451	12,161,077	1,909,374

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	Offering amount (\$mn)	High rate	Bid to Cover ratio	% Direct bidders	% Indirect bidders	% Primary Dealers
Upcoming bill auctions	42-Day	8/22/2023	10/5/2023	60,000					
	13-Week	8/21/2023	11/24/2023	69,000					
	26-Week	8/21/2023	2/22/2024	62,000					
Last week's bill auctions	7-Day	8/17/2023	8/29/2023	25	5.22%	5.34	0.00%	0.00%	100.00%
	4-Week	8/17/2023	9/19/2023	80,000	5.28%	2.67	3.22%	54.50%	42.27%
	8-Week	8/17/2023	10/17/2023	70,000	5.28%	2.89	9.88%	52.13%	38.00%
	17-Week	8/16/2023	12/19/2023	50,000	5.31%	3.02	3.40%	48.10%	48.50%
	42-Day	8/15/2023	9/28/2023	60,000	5.29%	3.01	3.89%	54.93%	41.18%
	13-Week	8/14/2023	11/16/2023	69,000	5.30%	3.12	4.56%	57.32%	38.12%
	26-Week	8/14/2023	2/15/2024	62,000	5.29%	2.78	4.85%	59.02%	36.13%

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)

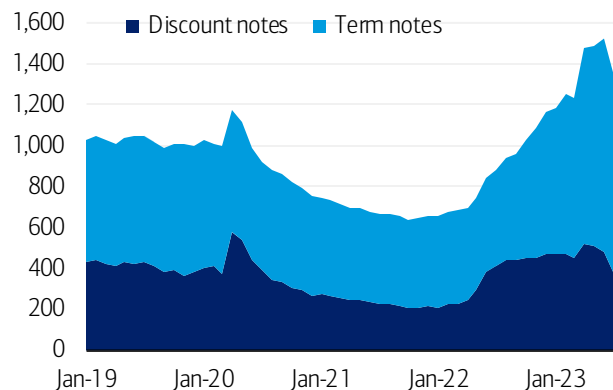
Daily FHLB cumulative debt is roughly \$-62.85bn higher since March 1



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

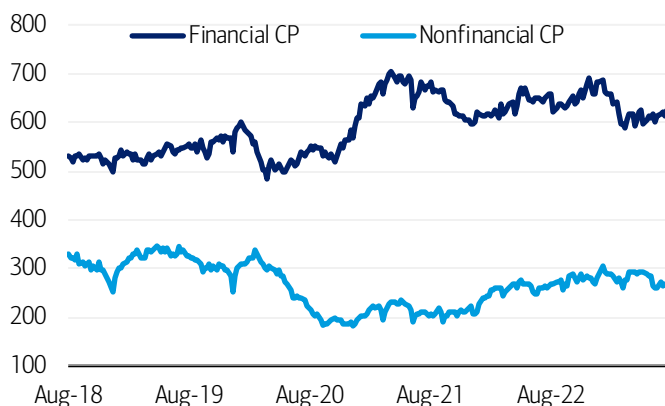


Source: BofA Global Research, FHLB Office of Finance

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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 bills, FRNs, and TIPS over the month ending Aug 9

	Total	US Treasuries					Agency ex MBS	MBS	Corporates	Commercial Paper	State & Munis	ABS	Variable Rate Notes
		Bills	Coupons	FRNs	TIPS								
8/9/2023	312,638	176,431	44,676	115,123	2,249	14,383	13,284	84,320	17,893	7,957	11,135	8,004	1,571
1w Chg	-12,475	-12,953	-10,085	-1,975	-1,419	526	145	1,437	-715	-156	-1,444	1,250	-195
1m Chg	-68,739	-77,635	-71,495	635	-3,373	-3,402	-428	4,283	2,931	-284	745	1,012	353
YTD Chg	54,081	26,622	16,046	17,270	-4,653	-2,041	33	12,033	12,458	4,417	-75	2,184	826

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 56%

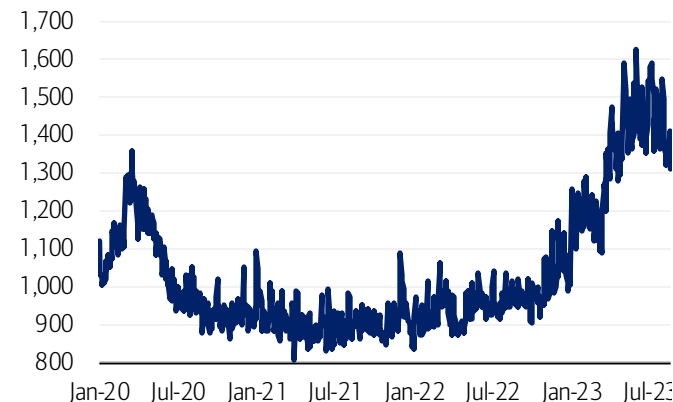


Source: BofA Global Research, Bloomberg

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Exhibit 15: SOFR volumes (\$bn)

SOFR volumes decreased -\$33bn on the week ending Fri Aug 18



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

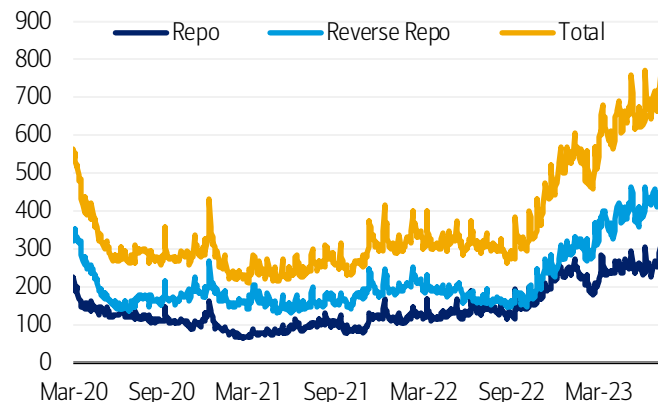
	Bills	Coupons	FRNs	TIPS	Total
8/2/2023	54,761	117,098	3,668	13,857	189,384
8/9/2023	44,676	115,123	2,249	14,383	176,431
1w Change	(10,085)	(1,975)	(1,419)	526	(12,953)
Change Z-score	(0.84)	(0.20)	(0.46)	0.33	(0.72)
Level Z-score	0.55	0.29	(1.13)	0.99	0.41

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

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Exhibit 16: Sponsored Repo Volumes (\$bn)

Sponsored repo volumes have risen \$140 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
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	381	(3,887)	-	7,664
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	77	(2,288)	(15)	9,382
8/4/2023	22,997	5,471	-	(32,987)	-	15	157	(489)	-	(4,835)
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)
8/14/2023	20,450	2,141	-	(25,090)	932	525	570	(55)	-	(528)
8/15/2023	20,694	2,124	5,785	(24,776)	-	1,520	130	(2,901)	(15)	2,560
8/16/2023	18,906	1,521	-	(28,720)	-	360	125	(403)	-	(8,211)
8/17/2023	19,496	3,940	5,080	(19,807)	5,350	1,646	110	(3,290)	-	12,524
8/18/2023	17,039	2,771	-	(26,570)	5,450	70	68	(4,804)	-	(5,976)

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

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