

US Rates Watch

Follow the money: cash & collateral trends
August 29 update**Money map: collateral outstanding higher, cash lower**

Overall funding markets have been stable. Collateral grew over the week ending Aug 23 while cash in the system declined. The decline in reserves was offset by growth in ON RRP and TGA. The growth in RRP was likely due to FHLB float while TGA was driven by UST debt issuance. Despite continued increases in UST issuance, primary dealer holdings continue to decline as have UST repo volumes. We expect the trend in collateral outweighing cash to continue in the coming months which should lead to upward pressure in funding.

Cash: reserves drained into TGA and ON RRP, MMF flat

Fed balance sheet data from the Fed's H.4.1, for the week ending Aug 23, show a \$4b 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 TGA grew just over \$50bn which was offset by a \$52b decline in reserves. The growth in the TGA was driven by Treasury debt issuance which appears to have primarily drained cash from reserves. Over the same week, **MMF AUM** declined \$1b, but with the Fed's ON RRP \$20b higher over that period, this implies the higher take-up may have been driven by GSE float. The GSE float period refers to the days ahead of Fannie and Freddie's principal and interest payments on their MBS securities where they build up their cash reserves and invest in safe liquid assets such as the Fed's RRP. This is reflected in the \$44b drop in ON RRP take-up on Aug 25th which corresponds with Fannie Mae's payment date. **Bank balance sheet data**, which is lagged an additional week compared to Fed balance sheet data, shows banking system assets grew \$3b over the week ending Aug 16. Large domestic banks grew \$57b driven by increases in deposits, borrowing and other liabilities. On the asset side large domestic banks saw their cash holdings grow \$44b on the week and repo & FF grew \$5b. Declines in foreign bank cash asset offset the growth in domestic banks. **Cash bottom line:** lower due to higher TGA & RRP.

Collateral: UST & FHLB issuance higher, CP flat

UST issuance grew \$70b on the week ending Aug 23 and is up \$1,051b since the debt limit resolution. Most of that issuance has come from bills, which are up \$914b 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 \$64b in bills & \$47b in coupons.

29 August 2023

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[See Team Page for List of Analysts](#)**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
QT: Quantitative Tightening
FDIC: Federal Deposit Insurance Corporation

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Timestamp: 29 August 2023 07:59AM EDT

FHLB debt was up \$12b on the week ending Aug 23. Some FHLBs noted a pickup in bank funding needs but others pointed to large upcoming maturities as driving some of the issuance (Exhibit 9).

CP issuance: We are tracking commercial paper issuance in detail in a monthly report, see the latest here: [CP monitor: stability now but watch supply](#). Data from the Federal Reserve shows that CP outstanding was flat on the week ending Aug 23, with growth in financial CP being offset by declines in non-financial CP (Exhibit 11).

Collateral bottom line: increased with higher UST settlements & FHLB debt. CP outstanding flat.

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 (Exhibit 8). PD holdings of bills grew the week ending Aug 16 but was offset by declines in other Treasury securities.

Repo volumes: SOFR volumes have declined in recent weeks, including \$121b on the week ending Aug 23 (Exhibit 15). At the same time, sponsored repo volumes are down \$51b (Exhibit 16). We have also noted upward pressure in the 75th and 99th percentile of SOFR in the last week, which is likely a result of the cash / collateral balance shifting.

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

Key takeaway: funding markets have been stable despite lower cash in the system via higher TGA and ON RRP. Bank assets showed foreign bank cash assets declining and outweighing the increase in domestic bank cash assets. Collateral largely outweighed cash on the week ending Aug 23 with \$70b in UST issuance, \$12b in FHLB, and CP issuance flat. Despite higher issuance, PD holdings of UST debt continues to decline and repo volumes continue to drop.

We continue to expect these trends 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. As a reminder, 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)

Decline in reserves was offset by higher ON RRP and TGA. Increase in RRP was temporary due to GSE float

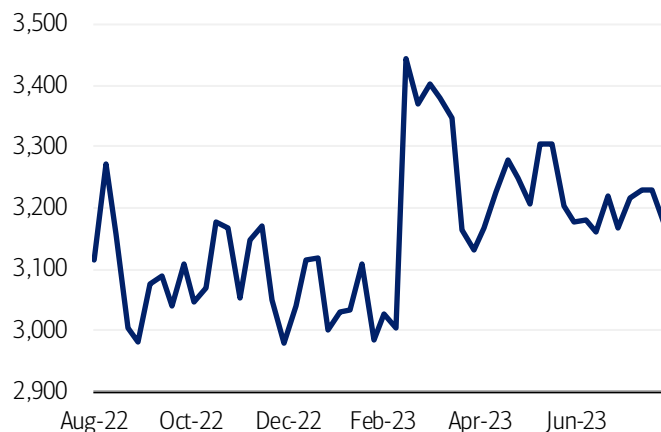
Assets								Liabilities						
Dates	Securities	Repo	Discount Window	BTFF	FDIC bank credit extension	FX Swaps	Other	Currency	Foreign RRP	ON RRP	TGA	Reserves	Other	Total
12/28/2022	8,145	0	5	0	0	0	451	2,307	334	2,293	410	2,980	277	8,601
8/16/2023	7,526	0	2	107	142	0	420	2,330	300	1,797	385	3,229	156	8,196
8/23/2023	7,522	0	2	107	137	0	421	2,328	296	1,817	416	3,177	156	8,190
WoW Change	-4	0	0	0	-4	0	1	-2	-4	20	31	-52	0	-7

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 -\$51.57bn as of Aug 23



Source: Federal Reserve

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

ON RRP take-up increased \$20b on week ending Aug 23 but declined \$44b on Aug 25 likely due to GSE float period ending



Source: FRBNY

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

MMF AUM increased \$25b WoW as of Aug 25, with inflows primarily into gov't institutional funds

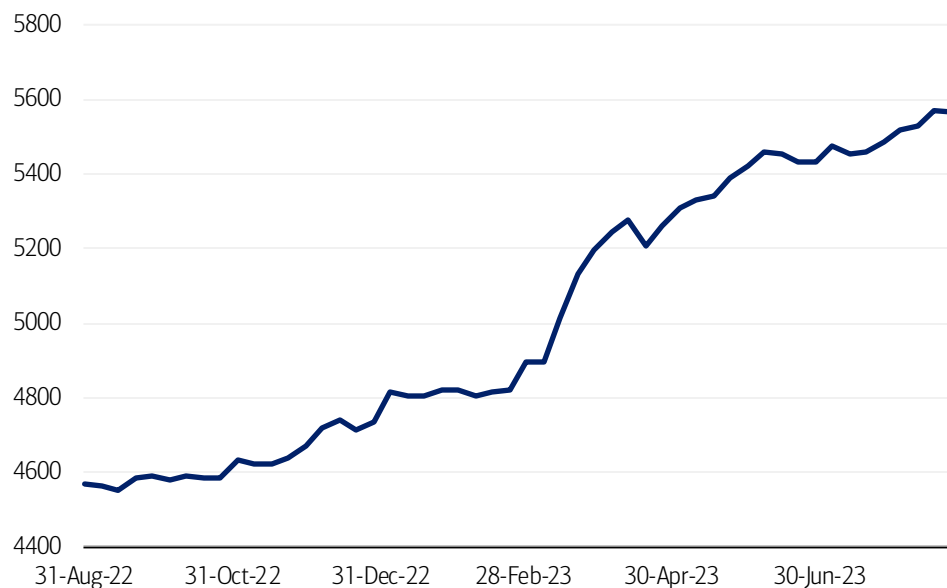
Dates	Total	Prime	Gov't	Tax exempt	Retail	Institutional	Prime Institutional	Gov't Institutional	Prime Retail	Gov't Retail
12/30/2022	5,073	1,077	3,996	0	1,584	3,489	655	2,834	421	1,163
8/18/2023	5,930	1,234	4,576	120	2,018	3,792	632	3,160	602	1,416
8/25/2023	5,955	1,237	4,597	120	2,027	3,807	630	3,177	607	1,420
WoW change	25	3	21	0	9	15	-2	17	5	4
YTD Change	882	161	600	120	443	318	-25	343	186	257

Source: Crane Data

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Exhibit 5: MMF AUM (\$bn)

MMFs saw -\$1.09bn in flows from prior week as of Aug 23



Source: ICI, Bloomberg

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

Domestic banks saw cash increase largely due to higher deposits, borrowing and other, this was offset by declined in cash at foreign banks

		Total	Assets						Liabilities			
			Cash	UST & Agy	MBS	Repo & FF	Loans & Leases	Other	Deposits	Borrowings	Net due to related foreign offices	Other
All Banks	8/16/2023	22821	3309	1498	2565	603	12132	2714	17306	2227	299	2990
	1w Chg	3	-7	-6	0	8	6	2	-8	-10	8	13
	1m Chg	16	3	-9	-19	13	42	-15	73	-73	-2	19
	YTD Chg	-156	212	-155	-209	3	28	-34	-640	373	28	82
Domestic Banks	8/16/2023	19778	2008	1391	2540	245	11110	2485	16029	1260	-334	2822
	1w Chg	57	44	-1	0	5	0	9	15	15	2	24
	1m Chg	35	28	-5	-18	7	41	-18	80	-35	-20	10
	YTD Chg	-224	138	-157	-197	-68	64	-4	-601	277	5	96
Large Banks	8/16/2023	13244	1548	1101	1936	207	6729	1723	10770	812	-363	2026
	1w Chg	54	41	0	3	4	-3	9	14	20	3	17
	1m Chg	-13	18	-3	-14	0	7	-19	15	-11	-15	-3
	YTD Chg	-180	76	-120	-42	-61	-39	5	-461	218	13	49
Small Banks	8/16/2023	6534	461	289	603	38	4382	761	5260	448	29	797
	1w Chg	3	2	-1	-3	1	3	0	1	-5	-1	8
	1m Chg	48	11	-2	-4	8	34	2	65	-25	-4	12
	YTD Chg	-44	62	-37	-155	-7	103	-9	-141	58	-8	47
Foreign Banks	8/16/2023	3043	1300	108	25	359	1022	230	1276	967	632	167
	1w Chg	-55	-51	-6	0	3	6	-7	-23	-26	6	-11
	1m Chg	-19	-25	-3	0	6	1	3	-8	-38	17	10
	YTD Chg	68	74	2	-11	71	-36	-30	-38	96	23	-13

Source: Federal Reserve H8

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

Treasury issuance has grown \$316b in Aug MTD as of Aug 29, primarily 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	316,469	273,502	42,967	1,844,025	1,717,025	127,000	1,527,556	1,443,523	84,033
YTD	1,938,685	1,378,160	560,525	12,937,025	10,833,025	2,104,000	10,998,340	9,454,865	1,543,475
FYTD	2,311,935	1,451,309	860,626	16,869,025	14,099,025	2,770,000	14,557,090	12,647,716	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 indirect direct bidders vs 3mo avg 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	8/29/2023	10/12/2023	60,000					
This week's bill auctions	13-Week	8/28/2023	11/30/2023	69,000	5.34%	No	2.89%	51.07%	46.03%
	26-Week	8/28/2023	2/29/2024	62,000	5.35%	No	2.26%	65.59%	32.15%
Last week's bill auctions	4-Week	8/24/2023	9/26/2023	80,000	5.29%	No	2.35%	61.51%	36.14%
	8-Week	8/24/2023	10/24/2023	70,000	5.29%	No	2.11%	60.73%	37.16%
	17-Week	8/23/2023	12/26/2023	50,000	5.32%	No	4.22%	53.97%	41.81%
	42-Day	8/22/2023	10/5/2023	60,000	5.28%	Yes	2.51%	60.45%	37.04%
	13-Week	8/21/2023	11/24/2023	69,000	5.30%	No	3.93%	57.15%	38.91%
	26-Week	8/21/2023	2/22/2024	62,000	5.30%	No	2.75%	62.12%	35.13%

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)

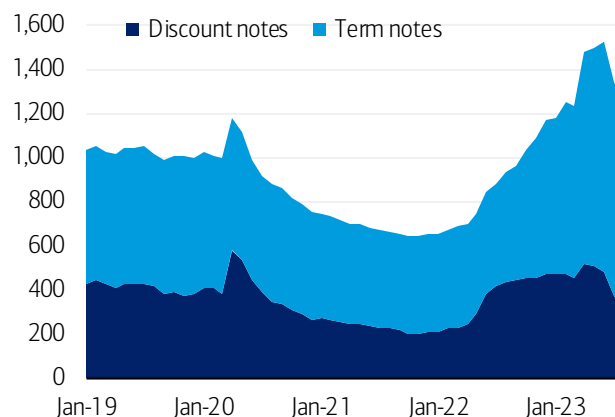
Daily FHLB cumulative debt is roughly \$62.7bn lower since March 1



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

FHLB debt paydowns in July partially offset increases in UST bill issuance

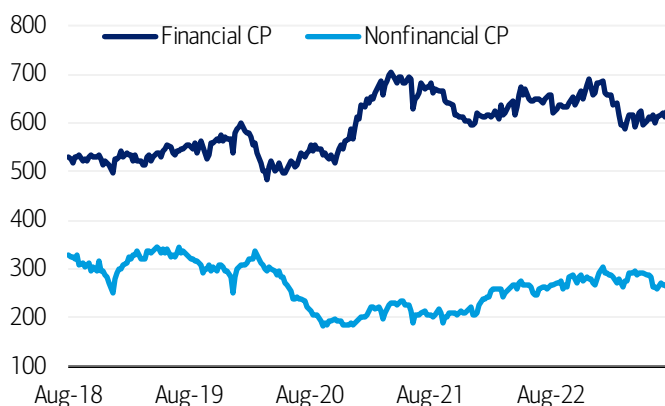


Source: BofA Global Research, FHLB Office of Finance

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Exhibit 11: Commercial paper (\$bn)

Financial CP is \$6.1 higher WoW, nonfin is \$6b lower WoW as of Aug 23



Source: Bloomberg

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Exhibit 12: Primary dealer holdings (\$mn)

PD holdings of UST has declined over the month ending Aug 16

	Total	US Treasuries					Agency ex MBS	MBS	Corporates	Commercial Paper	State & Munis	ABS	Variable Rate Notes
		Bills	Coupons	FRNs	TIPS								
8/16/2023	318,414	171,435	51,718	104,399	998	14,320	15,222	86,259	17,634	7,767	14,711	8,571	4,582
1w Chg	5,776	-4,996	7,042	-10,724	-1,251	-63	1,938	1,939	-259	-190	3,576	567	3,011
1m Chg	-46,078	-51,395	-38,118	-11,011	-2,508	242	1,054	-1,354	2,444	844	1,185	1,399	589
YTD Chg	59,857	21,626	23,088	6,546	-5,904	-2,104	1,971	13,972	12,199	4,227	3,501	2,751	3,837

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 54%

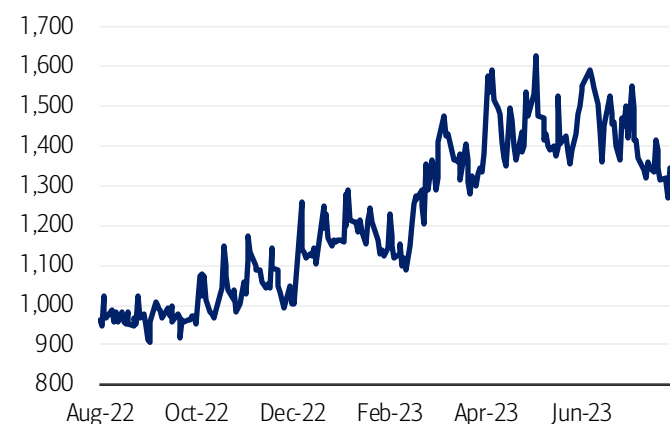


Source: BofA Global Research, Bloomberg

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Exhibit 15: SOFR Volumes (\$mn)

SOFR volumes declined \$121bn from prior week as of Aug 23



Source: FRBNY

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

PD holdings of bills grew but declined for other UST

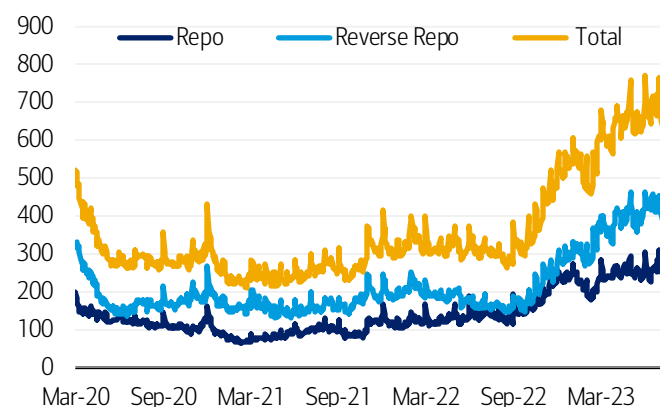
	Bills	Coupons	FRNs	TIPS	Total
8/9/2023	44,676	115,123	2,249	14,383	176,431
8/16/2023	51,718	104,399	998	14,320	171,435
1w Change	7,042	(10,724)	(1,251)	(63)	(4,996)
Change Z-score	0.58	(0.97)	(0.40)	(0.06)	(0.29)
Level Z-score	0.84	0.08	(1.44)	0.97	0.34

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 declined \$51b on the week ending Aug 23



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
7/3/2023	14,953	346	900	(40,698)	1,050	1,314	117	(15,020)	(50)	(37,089)
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	1,083	(1,650)	-	(689)
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	84	(2,288)	(15)	9,389
8/4/2023	22,997	5,471	-	(32,987)	-	15	493	(489)	-	(4,499)
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	60	(1,743)	-	(37)
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	130	(403)	-	(8,206)
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)
8/21/2023	17,619	1,620	-	(19,461)	5,240	105	217	(2,565)	(20)	2,755
8/22/2023	18,072	4,555	6,290	(18,438)	2,750	130	115	(3,500)	-	9,974
8/23/2023	17,950	1,439	-	(28,044)	3,600	601	20	(3,115)	-	(7,549)
8/24/2023	19,101	2,868	7,805	(22,919)	4,370	125	245	(4,714)	(20)	6,862
8/25/2023	18,318	2,311	-	(30,338)	1,420	50	550	(3,088)	(15)	(10,793)
8/28/2023	15,838	2,798	-	(20,438)	5,020	2,888	539	(5,315)	(95)	1,235

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

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