

US Rates Watch

Follow the money: cash & collateral trends September 5 update

Money map: secured funding ticks higher on month-end

Overall funding markets were relatively stable over month-end. \$77b in net new UST issuance on month-end was met with a \$238b increase in SOFR volumes, primarily in bilateral sponsored repo, and a 1bp increase in SOFR. Sponsored repo volumes also reached historic highs on month-end, led by a higher reverse repo activity. ON RRP take-up declined on month-end, which is a reversal of the spike we typically see on month-end and reflective of higher secured funding volumes. We expect the trend in collateral outweighing cash to continue which should lead to upward pressure in funding.

Cash: ON RRP lower; MMF AUM, TGA & reserves higher

Fed balance sheet data for the week ending Aug 30, show a \$14b decline in securities holdings from QT in addition to a \$3b decline in loans to the FDIC bridge bank (Exhibit 1). On the liability side, reserves reversed some of their declines seen in the prior week while ON RRP fell \$120b WoW. The \$85b in growth in the TGA was driven by Treasury debt issuance which appears to have primarily drained from ON RRP. Over the same week, **MMF AUM** grew \$14b, primarily into gov't institutional funds (Exhibit 5). These inflows alongside the \$120b decline in Fed ON RRP implies those inflows went into other MMF holdings, such as repo or Treasury / agency debt. **Bank balance sheet data**, which is lagged an additional week compared to Fed balance sheet data, shows banking system assets declined \$51b over the week ending Aug 23 (Exhibit 6). Domestic banks saw cash holdings decline \$47b driven by deposit outflows. At the same time borrowing increased as did investments into Treasuries, agencies, and MBS. **Cash bottom line:** higher reserve balances offset by lower ON RRP and higher TGA. MMF inflows stayed out of ON RRP & may have supported higher dealer or sponsored repo.

Collateral: UST outstanding higher, FHLB & CP lower

UST issuance grew \$394b in August, including \$94b on the week ending Aug 30 (Exhibit 7). Most of that issuance has come from bills, which grew \$70b last week. 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 bill auctions include \$233b in new issues (Exhibit 8), which will bring net new bill issuance up \$70b over the week. Large UST settlements of \$77b on month end & a total of \$111b last week likely supported higher repo volumes & a slight uptick in repo rates.

05 September 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
PD: Primary Dealer
UST: US Treasury
FRN: Floating rate note

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FHLB debt declined \$7b on the week ending Aug 30 primarily due to large debt maturities (Exhibit 9).

CP issuance: Data from the Federal Reserve shows that CP outstanding declined on the week ending Aug 30, with \$6.6b decline in financial CP and a \$4b decline in non-financial CP (Exhibit 11). We are tracking commercial paper issuance in detail in a monthly report, see the latest here: [CP monitor: stability now but watch supply](#).

Collateral bottom line: lower FHLB debt and lower CP outstanding offset by higher UST settlements. The large UST settlements last week likely supported higher repo volumes & a slight uptick in repo rates.

Funding: Repo volume spikes on month-end

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

Dealer holdings, which are lagged, show an increase in Treasury holdings on the week ending Aug 23 (Exhibit 12, Exhibit 13), despite lower UST auction takedown relative to the prior 3m average (Exhibit 8). MTD, PD holdings of USTs are still lower. We suspect that dealer UST holdings increased on month end, which helped drive up repo volumes.

Repo volumes: SOFR volumes spiked higher than normal on month-end, driven by higher bilateral repo (Exhibit 15). Sponsored repo volumes also showed a large jump on month-end and are now \$31b higher on the week (Exhibit 16). Upward pressure in the 75th and 99th percentile of SOFR continued last week but has slowed down from the pace seen in the prior week.

Funding bottom line: dealer holdings & repo volumes increased as UST issuance continued to move higher.

Key takeaway: funding markets were relatively stable over month-end but are starting to show clearer impact of large UST issuance. On month-end repo volumes spiked considerably while the SOFR increased 1bp. We have since seen repo volumes reverse some of this increase but the rate on SOFR remains elevated. We expect this trend to be similar to last month and for SOFR to return back down to the rate on ON RRP within the week. Fed balance sheet data shows the increase in ON RRP seen in the prior week was indeed temporary (likely due to GSE float) and take-up is now below \$1.6tn for the first time since March 2022. The higher UST issuance is starting to show in dealer holdings, but dealer take-down at auction remains below the prior 3m average.

Going forward, we expect Fed QT will continue to drain cash from the system alongside a higher TGA from debt issuance. As a result of this, ON RRP will decline & reserves should modestly fall. This should continue to put upward 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)

QT drained securities while the increase in TGA and reserves drew from ON RRP take-up

Dates	Assets								Liabilities						
	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	451		2,307	334	2,293	410	2,980	277	8,601
8/23/2023	7,522	0		2	107	137	0	421	2,328	296	1,817	416	3,177	156	8,190
8/30/2023	7,508	0		3	108	134	0	418	2,332	302	1,697	501	3,197	144	8,171
WoW Change	-14	0		1	0	-3	0	-2	3	6	-120	85	19	-11	-18
YTD Change	-637	0		-2	108	134	0	-33	24	-33	-596	91	217	-132	-429

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 \$19.16bn



Source: Federal Reserve

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

ON RRP take-up declined \$113.31bn from prior week



Source: FRBNY

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

MMF AUM increased \$55b WoW as of Sep 1, with inflows primarily into gov't institutional funds

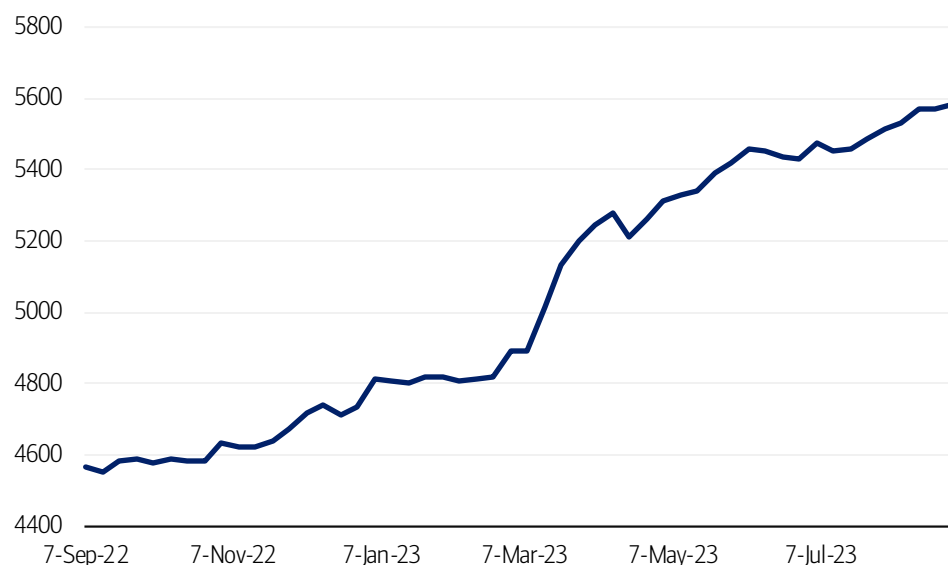
Dates	Total	Prime	Gov't	Tax exempt	Retail	Institutional	Prime Institutional	Gov't Institutional	Prime Retail	Gov't Retail
12/30/2022	5,073	1,077	3,996	0	1,584	3,489	655	2,834	421	1,163
8/25/2023	5,955	1,237	4,597	120	2,027	3,807	630	3,177	607	1,420
9/1/2023	6,010	1,247	4,639	123	2,036	3,850	635	3,215	612	1,424
WoW change	55	10	42	3	9	43	4	38	5	4
YTD Change	937	171	643	123	452	361	-21	382	191	261

Source: Crane Data

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Exhibit 5: MMF AUM (\$bn)

MMFs saw \$14.37bn in flows from prior week



Source: ICI, Bloomberg

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

Domestic banks saw cash decline largely due to deposit outflows, partially offset by higher borrowing

		Total	Assets						Liabilities			
			Cash	UST & Agy	MBS	Repo & FF	Loans & Leases	Other	Deposits	Borrowings	Net due to related foreign offices	Other
All	8/23/2023	22773	3264	1503	2578	590	12131	2708	17245	2263	276	2988
Banks	1w Chg	-51	-45	4	13	-14	-1	-7	-62	34	-23	0
	1m Chg	20	18	-5	1	-16	23	-2	42	5	-35	8
	YTD Chg	-205	167	-151	-196	-11	26	-41	-700	408	6	81
Domestic	8/23/2023	19733	1962	1394	2553	244	11111	2470	15964	1280	-332	2821
Banks	1w Chg	-45	-47	3	13	-1	2	-15	-66	20	2	-1
	1m Chg	53	29	-2	2	8	27	-10	52	15	-21	8
	YTD Chg	-269	91	-153	-184	-70	65	-19	-667	297	7	94
Large	8/23/2023	13210	1514	1104	1952	207	6724	1709	10719	829	-360	2022
Banks	1w Chg	-34	-34	3	15	0	-3	-15	-51	17	3	-3
	1m Chg	19	35	-1	4	2	-9	-13	10	27	-16	-3
	YTD Chg	-215	43	-117	-27	-62	-44	-9	-511	235	16	45
Small	8/23/2023	6523	448	290	601	37	4387	761	5245	452	28	799
Banks	1w Chg	-11	-13	0	-2	-1	5	0	-15	4	-1	2
	1m Chg	35	-6	-1	-2	6	36	3	42	-12	-5	10
	YTD Chg	-55	48	-37	-157	-8	109	-10	-156	62	-9	49
Foreign	8/23/2023	3039	1302	109	25	346	1019	238	1282	982	608	167
Banks	1w Chg	-6	1	1	0	-13	-3	8	4	14	-25	1
	1m Chg	-34	-11	-3	-1	-23	-4	8	-11	-9	-14	1
	YTD Chg	65	76	3	-12	58	-39	-22	-33	112	-1	-13

Source: Federal Reserve H8

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

Treasury issuance has grown \$394b in Aug as of Aug 31, 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	393,503	303,549	89,954	2,186,025	1,908,025	278,000	1,792,522	1,604,476	188,046
YTD	2,015,719	1,408,207	607,512	13,279,025	11,024,025	2,255,000	11,263,306	9,615,818	1,647,488
FYTD	2,388,969	1,481,356	907,613	17,211,025	14,290,025	2,921,000	14,822,056	12,808,669	2,013,387

Source: BofA Global Research, Haver Analytics

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Exhibit 8: Treasury bill auctions

Treasury bill auction data are showing lower than avg take-down from primary dealers 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	9/5/2023	10/19/2023	60,000					
	13-Week	9/5/2023	12/7/2023	69,000					
	26-Week	9/5/2023	3/7/2024	62,000					
	52-Week	9/5/2023	9/5/2024	42,000					
Last week's bill auctions	4-Week	8/31/2023	10/3/2023	80,000	5.28%	2.95	1.73%	61.07%	37.19%
	8-Week	8/31/2023	10/31/2023	70,000	5.29%	2.77	2.29%	60.10%	37.61%
	17-Week	8/30/2023	1/2/2024	50,000	5.33%	3.12	5.70%	53.96%	40.34%
	42-Day	8/29/2023	10/12/2023	60,000	5.29%	2.81	2.59%	56.26%	41.15%
	7-Year	8/29/2023	8/31/2030	36,000	0.00%	2.66	14.97%	75.25%	9.77%
	13-Week	8/28/2023	11/30/2023	69,000	5.34%	3.04	2.89%	51.07%	46.03%

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)

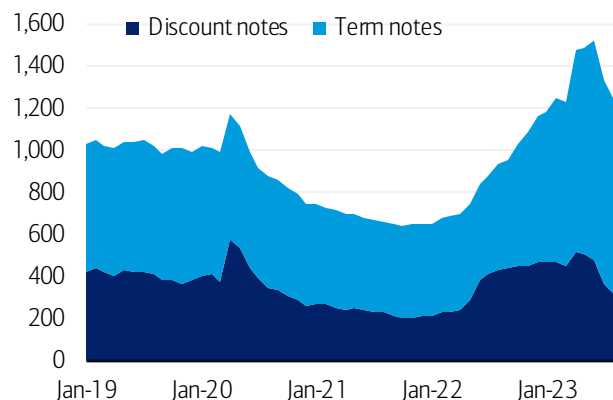
FHLB debt is roughly flat since August 1



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 net new issuance was relatively flat in August

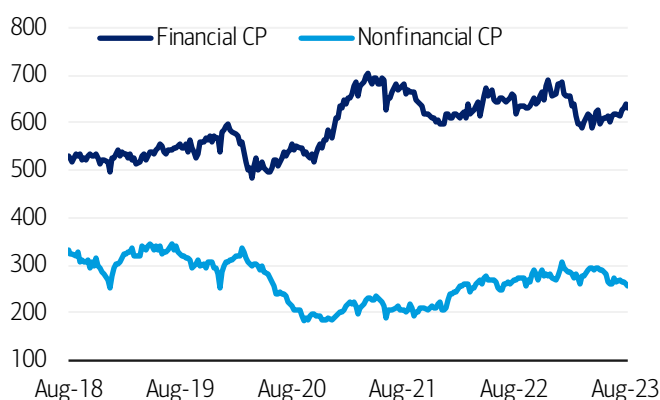


Source: BofA Global Research, FHLB Office of Finance

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Exhibit 11: Commercial paper (\$bn)

Financial CP is \$6.6b lower WoW, nonfin is \$4b lower WoW as of Aug 30



Source: Bloomberg

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Exhibit 12: Primary dealer holdings (\$mn)

PD holdings of UST has declined over the month ending Aug 23

	Total	US Treasuries					Agency ex MBS	MBS	Corporates	Commercial Paper	State & Munis	ABS	Variable Rate Notes
		Bills	Coupons	FRNs	TIPS								
8/23/2023	337,881	194,010	59,098	112,416	8,289	14,207	16,619	87,376	13,177	7,252	14,315	8,707	3,677
1w Chg	19,467	22,575	7,380	8,017	7,291	-113	1,397	1,117	-4,457	-515	-396	136	-905
1m Chg	-14,949	-19,032	-8,169	-10,085	112	-890	2,655	1,911	-1,367	-469	-820	2,115	-411
YTD Chg	79,324	44,201	30,468	14,563	1,387	-2,217	3,368	15,089	7,742	3,712	3,105	2,887	2,932

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 57%

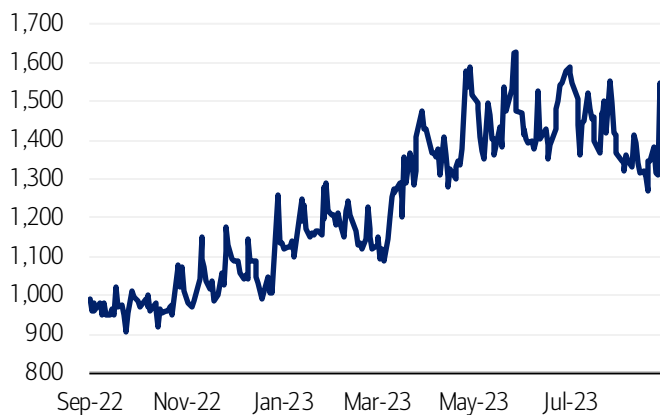


Source: BofA Global Research, Bloomberg

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Exhibit 15: SOFR Volumes (\$bn)

SOFR increased \$114bn from prior week



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

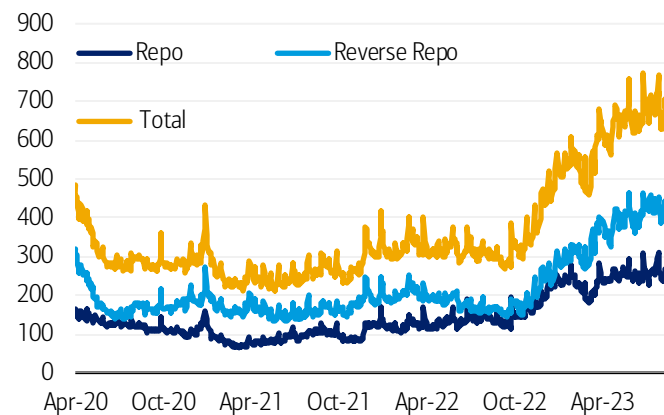
	Bills	Coupons	FRNs	TIPS	Total
8/16/2023	51,718	104,399	998	14,320	171,435
8/23/2023	59,098	112,416	8,289	14,207	194,010
1w Change	7,380	8,017	7,291	(113)	22,575
Change Z-score	0.60	0.68	2.36	(0.09)	1.21
Level Z-score	1.14	0.24	0.40	0.94	0.66

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 \$190 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
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	1,088	(1,650)	-	(683)
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	387	(3,887)	-	7,670
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	639	(489)	-	(4,354)
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	61	(1,743)	-	(36)
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	143	(403)	-	(8,192)
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	(10,630)	(95)	(4,081)
8/29/2023	17,660	4,927	2,825	(21,753)	1,220	1,000	125	(5,254)	-	750
8/30/2023	16,318	3,492	-	(25,601)	6,440	320	140	(720)	-	388
8/31/2023	16,123	3,117	2,700	(19,418)	-	-	-	-	-	2,521
9/1/2023	16,950	5,880	-	(30,902)	600	53	31	(2,736)	(27)	(10,152)

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

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