

US Rates Watch

Follow the money: cash & collateral trends Dec 12 update

Money map: ON RRP & TGA outflows move into reserves

Reserve balances continued to move higher, offset by lower ON RRP & TGA. Looking ahead, ON RRP may be elevated due to MMF inflows as well as dealer balance sheet constraints leading to less tri-party repo with MMFs. Foreign banks likely took advantage of repo rates > IORB, which is reflected in higher repo lending in the Fed's H8 data and SOFR's 75th percentile > IORB. We will continue to track bank lending in repo especially around periods where more SOFR transactions are occurring at rates above IORB to assess whether banks are willing to reduce some of their cash holdings (reserves) to take advantage of higher rates in repo.

Cash: reserve balances see significant increase

Fed balance sheet data (Exhibit 1) for the week ending Dec 6 showed the final repayment of \$34b in the FDIC bank credit extension loan which the Fed issued following bank failures in March '23 that were put into receivership. The Fed stated these loans would likely be repaid in full by year-end 2023 and therefore this repayment is in line with expectations. Conversely, borrowing increased \$8b from the Bank Term Funding Program, this may reflect banks taking advantage of borrowing at 1y OIS + 10bps as cuts get priced in. Fed securities from QT also declined \$30b reflecting month-end settlements. On the liability side, the Fed's RRP facilities appear to have faced the brunt of the decline from QT and the FDIC loan (Exhibit 3). The TGA declined \$86b, in part driven by \$61b in net Treasury redemptions, all from smaller T-bill auction sizes. Conversely, bank reserve balances grew an impressive \$101b (Exhibit 2), due to the higher BTFP and declines in TGA & RRP.

Cash: MMF inflows risk elevated ON RRP use

Over the week ending Dec 8, MMF AUM increased \$46b according to Crane Data (Exhibit 4). The inflows were primarily into gov't institutional MMFs, with some inflows into prime & gov't retail. This trend in MMF flows risks elevated ON RRP use if inflows continue, which is likely as long as the curve is inverted and the Fed stays on hold.

Cash: Banks see deposit inflows, higher repo lending

Bank balance sheet data, which is lagged an additional week compared to Fed balance sheet data, shows banking system assets grew \$96b on the week ending Nov 29, with foreign bank assets up \$35b and domestic bank assets up \$61b (Exhibit 7). On the asset side, bank lending was up across the board and foreign banks increasing their repo and FF lending increase \$25b. This lines up with a week where SOFR's 75th percentile was at or above IORB. On the liability side, domestic banks saw \$37b in deposit inflows and increased borrowing from related foreign offices by \$17b. At the same time, foreign banks saw \$10b in deposit outflows and \$8b decline in other borrowing but increased borrowing from their foreign parent by \$36b to offset these declines.

12 December 2023

Rates Research
United States

Katie Craig
Rates Strategist
BofAS
+1 646 743 7016
katie.craig@bofa.com

Mark Cabana, CFA
Rates Strategist
BofAS
+1 646 743 7013
mark.cabana@bofa.com

US Rates Research
BofAS
+1 646 855 8846

[See Team Page for List of Analysts](#)

Abbreviations:

BTFP: bank term funding program
ME: month-end
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
FF: Fed funds
IORB: interest rate on reserve balances
OIS: overnight index swap

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Timestamp: 12 December 2023 07:00AM EST

Cash bottom line: Reserve balances continue to move higher, offset by lower ON RRP and TGA. Despite lower ON RRP, MMFs saw large inflows into government institutional funds continue. The week prior, large domestic banks saw deposit inflows and an increase in borrowing from foreign offices lead to an increase in cash holdings. The large increase in reserve balances last week implies banks likely continued to build their cash holdings.

Collateral: UST & FHLB collateral declined , CP increased

UST issuance has declined \$6b MTD as of Dec 12 from net T-bill paydowns as auction sizes have declined (Exhibit 8). We forecast \$68b in net new UST supply to the public in December with \$173b in net issuance from coupons and \$105b in net paydowns of bills.

FHLB debt declined \$16b on the week ending Dec 8 (Exhibit 9) according to our estimates. As we recently noted in our [FHLB supply outlook](#), FHLB supply is likely to be limited going forward as banks diversify their borrowing away from FHLB advances.

CP issuance: Data from the Federal Reserve shows that on the week ending Dec 6, CP outstanding increased \$7b, a \$1b decline for financial CP but \$8b increase for non-fin CP (Exhibit 11).

Collateral bottom line: UST issuance of bills is finally trending lower but expect a large coupon settlement of \$64b on Friday. FHLB debt issuance declined further on the week. CP issuance increased but remains well below levels pre-bank stress events as banks have diversified their sources of funding.

Funding: SOFR volatile last week, has since normalized

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

Dealer holdings, which are lagged, show a \$10b decline in Treasury holdings on the week ending Nov 29 (Exhibit 12) from a \$26b decline in T-bill holdings offset by higher coupon and TIPS. Dealers need to finance their Treasury holdings in repo, large settlements often put upward pressure on repo rates and reduce ON RRP take-up. However, due to elevated GSIB scores and elevated triparty balances, dealers may try to instead borrow in interdealer repo to net down balance sheet. Lower borrowing from MMFs could lead to higher ON RRP take-up on Friday.

Repo volumes: SOFR volumes declined \$40b on the week ending Dec 6th (Exhibit 15), after peaking at an all-time high on November month-end. Sponsored volumes, also peaking on month-end, declined \$37b on the week with \$39b coming from bilateral repo transactions (Exhibit 16). The rate on SOFR was volatile last week, peaking at 5.39% the day after month-end but now normalizing back to 5.32%. The 75th percentile for SOFR was briefly above IORB over the last two weeks. As mentioned above we see the foreign banks increased their repo & FF lending. As SOFR trends higher relative to IORB, banks may shift more holdings out of cash and into repo.

Funding bottom line: repo volumes peaked on month-end, likely due to large Treasury settlements. After some volatility last week, repo volumes and rates have moved back to levels prior to month-end. Dealer balance sheet constraints in December may temporarily shift repo from tri-party with MMFs into interdealer repo, which could lead MMFs to invest more cash in the Fed's ON RRP. Friday's coupon settlement will be a good test of this theory.

Key takeaway: Last week, cash continued to shift from ON RRP and TGA, into reserve balances. MMFs are still seeing significant inflows. Looking ahead, ON RRP may be elevated due to MMF inflows as well as dealer balance sheet constraints around year-end leading to less tri-party repo with MMFs. Collateral was lower on the week with net bill paydowns and FHLB debt continuing to decline but coupon settlements on Friday risk upward pressure on repo, especially interdealer GCF and sponsored repo.

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

The FDIC bank credit extension has fallen to \$0, meanwhile QT drained \$30b from securities. RRP appears to have faced this drain on the liabilities side

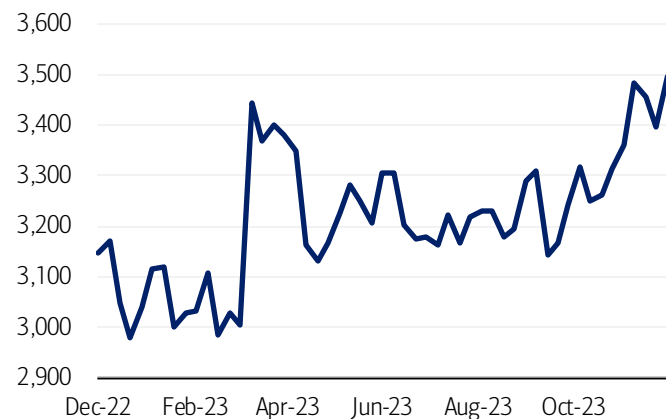
Dates	Assets								Liabilities							Total
	Securities	Repo	Discount Window	BTFP	FDIC bank credit extension	FX Swaps	Other		Currency	Foreign RRP	ON RRP	TGA	Reserves	Other		
12/28/2022	8,145	0		5	0	0	0	452	2,307	334	2,293	410	2,980	277		8,601
11/29/2023	7,293	0		2	114	34	0	404	2,333	340	914	754	3,395	111		7,846
12/6/2023	7,262	0		2	122	0	0	402	2,332	338	846	668	3,497	107		7,788
WoW Change	-30	0		0	8	-34	0	-2	-1	-2	-68	-86	101	-4		-59
YTD Change	-882	0		-3	122	0	0	-50	25	4	-1,447	258	517	-171		-814

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 \$101bn as of Dec 6



Source: Federal Reserve

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

ON RRP take-up increased \$52.9bn from prior week as of Dec 8



Source: FRBNY

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

MMF AUM increased \$46b WoW as of Dec 8, 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
12/1/2023	6,253	1,303	4,818	131	2,192	3,930	625	3,305	679	1,513
12/8/2023	6,299	1,309	4,860	130	2,200	3,969	626	3,344	684	1,516
WoW change	46	6	41	-1	8	39	1	38	5	3
YTD Change	1,226	233	863	130	616	480	-30	510	263	353

Source: Crane Data

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Exhibit 5: MMF AUM (\$bn)

MMFs saw \$61.65bn in flows from prior week as of Dec 6

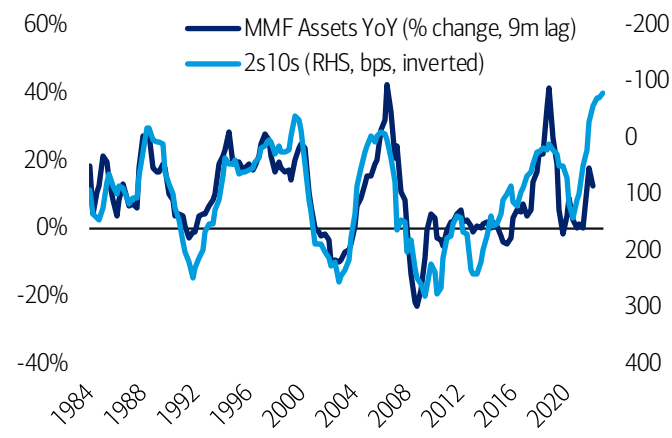


Source: ICI, Bloomberg

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Exhibit 6: MMF assets and 2s10s curve

MMF assets are typically negatively correlated to the yield curve with a lag



Source: BofA Global Research, Federal Reserve, Haver

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Exhibit 7: US Commercial Bank balance sheets, selected assets & liabilities (\$bn)

Domestic bank cash holdings increased, primarily through net due to related foreign offices and deposits. Banks reduced borrowing across the board

		Total	Assets						Liabilities					
			Cash	UST & Agy	MBS	Repo & FF	Loans & Leases	Other	Deposits	Large	Small	Borrowings	Net due to related foreign offices	Other
All Banks	11/29/2023	23210	3525	1525	2548	622	12308	2682	17396	2257	15139	2332	418	3064
	1w Chg	96	0	-4	8	27	45	20	27	3	24	-10	53	26
	1m Chg	226	124	-16	30	13	56	18	42	31	11	9	93	17437
	YTD Chg	234	428	-128	-226	22	204	-65	-548	606	-1154	478	148	18100
Domestic Banks	11/29/2023	20028	2164	1415	2521	256	11238	2436	16110	1455	14655	1348	-298	2868
	1w Chg	61	14	-6	8	2	39	4	37	10	26	-2	17	9
	1m Chg	93	47	-18	29	-2	28	9	6	25	-19	-17	46	16162
	YTD Chg	26	294	-133	-217	-57	190	-51	-521	639	-1160	365	41	16771
Large Banks	11/29/2023	13468	1712	1121	1948	218	6786	1683	10804	800	10004	932	-327	2059
	1w Chg	44	12	-4	7	1	29	-1	32	9	24	-2	16	-2
	1m Chg	68	37	-17	29	-3	15	8	-1	16	-17	-10	44	10839
	YTD Chg	43	240	-100	-30	-50	18	-35	-427	413	-839	338	49	11312
Small Banks	11/29/2023	6560	452	294	572	38	4452	752	5307	655	4651	416	30	808
	1w Chg	17	2	-2	1	0	10	5	4	2	3	0	1	11
	1m Chg	24	10	-1	0	1	13	1	7	9	-3	-8	2	5323
	YTD Chg	-18	54	-33	-187	-7	172	-17	-94	227	-321	26	-8	5459
Foreign Banks	11/29/2023	3182	1361	110	28	366	1071	246	1286	803	483	983	715	197
	1w Chg	35	-14	2	0	25	5	16	-10	-7	-3	-8	36	17
	1m Chg	133	77	2	1	15	29	9	36	5	30	26	47	1274
	YTD Chg	209	134	4	-9	79	14	-14	-27	-34	6	114	107	1329

Source: Federal Reserve H8

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Exhibit 8: Treasury bill and coupon issuance (\$000s)

Treasury issuance has declined \$6b MTD in December, due to smaller bill auction sizes

	Net total	Net bills	Net coupons	Gross new issue	Gross bill issue	Gross coupon issue	Gross maturing	Gross bill maturing	Gross coupon maturing
MTD (5,987)	(5,987)	-	645,000	645,000	-	650,987	650,987	-	
YTD 2,966,951	2,027,809	939,142	20,570,025	17,410,025	3,160,000	17,603,074	15,382,216	2,220,858	
FYTD 606,614	412,404	194,210	5,400,000	4,780,000	620,000	4,793,386	4,367,596	425,790	

Source: BofA Global Research, Haver Analytics

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

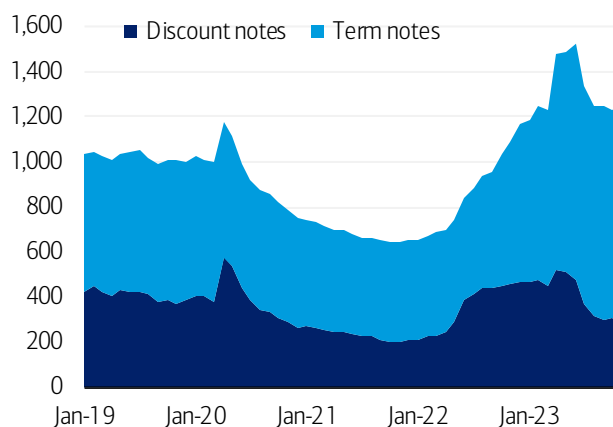
Daily FHLB cumulative debt is roughly \$76bn lower since March 1



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 term debt declined \$29b but DN rose \$18b in November

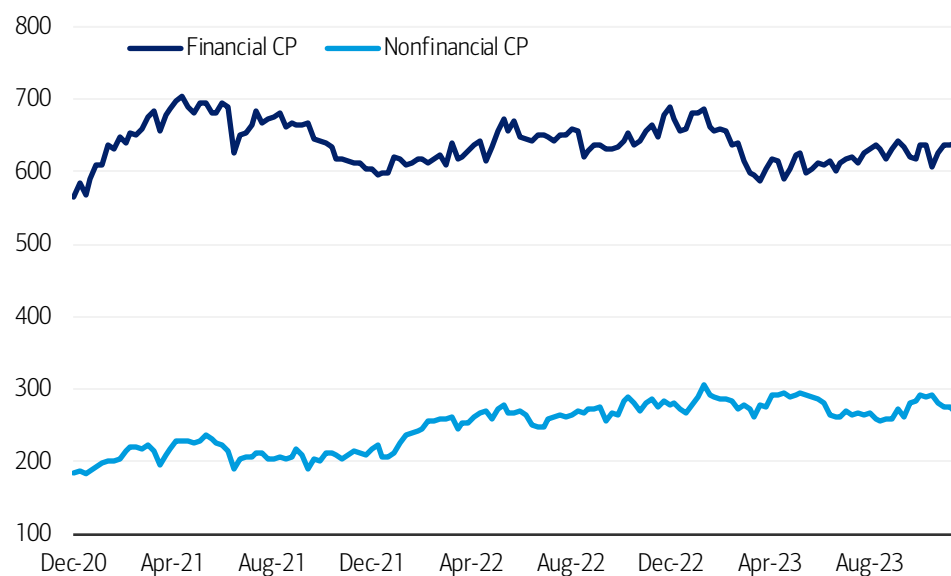


Source: BofA Global Research, FHLB Office of Finance

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Exhibit 11: Commercial paper (\$bn)

Financial CP is \$3b higher WoW, nonfin is \$8b lower WoW as of Dec 1



Source: Bloomberg

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Exhibit 12: Primary dealer holdings (\$mn)

PD holdings are \$55b higher WoW, primarily from higher UST T-bill holdings

	Total	US Treasuries					Agency ex MBS	MBS	Corporates	Commercial Paper	State & Munis	ABS	Variable Rate Notes
		Bills	Coupons	FRNs	TIPS								
11/29/2023	392,206	243,558	75,976	129,304	7,326	17,993	14,576	90,043	18,503	7,812	14,094	8,301	3,131
Chg WoW	-9,736	-11,708	-25,895	959	-826	1,095	-441	1,502	273	-1,902	536	-290	392
Chg MoM	35,897	31,565	18,847	-1,965	1,501	223	-2,128	4,177	-1,508	-1,925	2,228	-382	1,945
Chg since DL	7,495	370	-11,277	545	1,931	-3,788	-1,951	9,198	361	-1,758	-783	1,182	-882

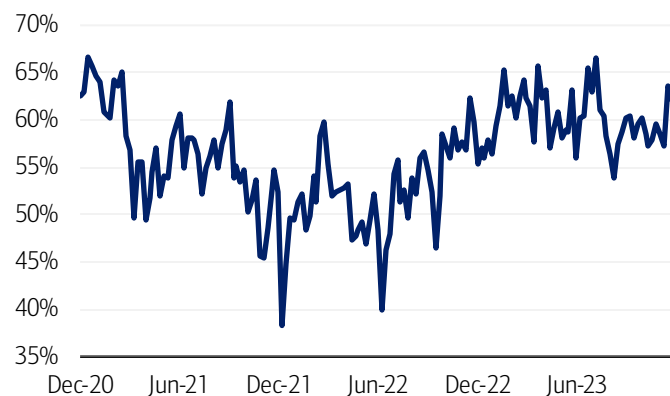
Source: BofA Global Research, Bloomberg

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Exhibit 13: PD UST holdings as a % of total holdings

Latest level 62% as of Nov 29

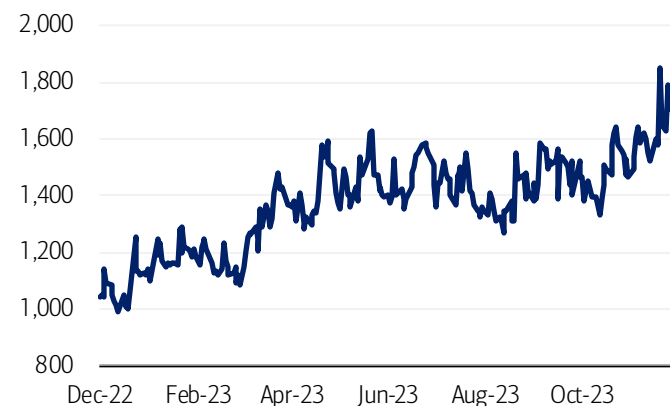


Source: BofA Global Research, Bloomberg

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Exhibit 15: SOFR volumes (\$bn)

SOFR volumes decreased -\$40bn from prior week as of Dec 8



Source: FRBNY

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

PD holdings of bills are still higher than average but declining

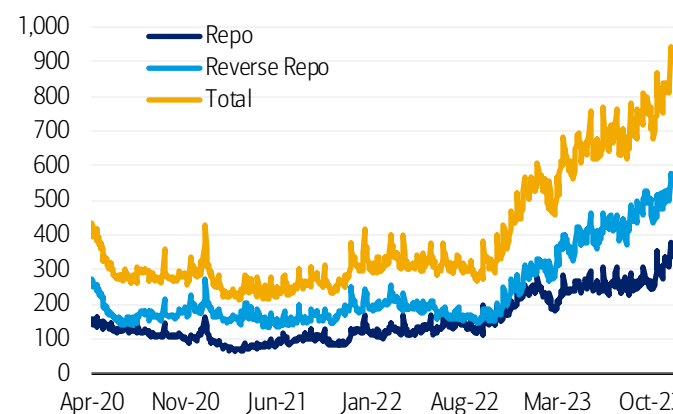
	Bills	Coupons	FRNs	TIPS	Total
11/1/2023	57,129	131,269	5,825	17,770	211,993
11/29/2023	75,976	142,263	7,326	17,993	243,558
MoM Change	18,847	10,994	1,501	223	31,565
Level Z-score	1.38	0.41	(0.09)	1.45	1.07

Source: BofA Global Research, Bloomberg

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Exhibit 16: Sponsored Repo Volumes (\$bn)

Sponsored repo volumes have declined \$36b on the week ending Dec 8



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
11/1/2023	17,154	2,628	-	(20,411)	2,305	50	80	(5,916)	-	(4,110)
11/2/2023	18,550	1,273	5,995	(21,039)	4,060	15	-	(1,256)	-	7,599
11/3/2023	17,400	2,923	-	(25,877)	2,058	60	420	(6,661)	-	(9,677)
11/6/2023	18,077	2,108	-	(22,131)	545	156	80	(1,880)	-	(3,045)
11/7/2023	18,516	2,082	3,035	(20,126)	135	90	237	(1,200)	-	2,769
11/8/2023	14,930	2,162	-	(24,276)	800	1,063	150	(1,255)	-	(6,426)
11/9/2023	17,023	3,842	3,150	(15,886)	-	-	5	(3,452)	-	4,682
11/10/2023	17,288	2,290	-	(21,158)	2,000	1,002	-	(5,273)	-	(3,851)
11/13/2023	16,141	4,361	-	(21,843)	1,555	150	95	(2,500)	(25)	(2,066)
11/14/2023	17,763	3,150	2,890	(17,941)	1,000	610	139	(6,025)	-	1,586
11/15/2023	16,297	3,233	-	(27,163)	1,000	197	1,560	(3,078)	(15)	(7,969)
11/16/2023	17,275	4,277	4,330	(17,983)	-	2,104	264	(1,235)	(55)	8,978
11/17/2023	14,741	3,588	-	(24,977)	7,000	1,035	1,400	(10,862)	(570)	(8,645)
11/20/2023	16,814	8,011	-	(20,282)	1,055	190	1,270	-	(45)	7,013
11/21/2023	16,231	4,621	5,805	(18,366)	100	75	1,500	(4,090)	(25)	5,851
11/22/2023	14,848	2,280	2,555	(24,864)	1,000	3,680	43	(1,999)	(15)	(2,472)
11/24/2023	17,099	1,868	-	(20,479)	500	70	850	(6,465)	(77)	(6,633)
11/27/2023	18,043	5,384	-	(21,471)	-	382	40	(4,291)	(53)	(1,966)
11/28/2023	18,227	5,331	7,575	(18,535)	1,200	520	210	(4,116)	(551)	9,861
11/29/2023	16,353	3,814	-	(22,783)	300	1,817	400	(1,871)	-	(1,970)
11/30/2023	9,370	5,057	7,510	(18,276)	350	550	131	(2,750)	(35)	1,907
12/1/2023	18,944	1,433	-	(18,581)	1,000	25	9	(4,330)	-	(1,500)
12/4/2023	18,659	1,203	-	(21,129)	-	55	100	(5,500)	-	(6,612)
12/5/2023	19,986	1,753	4,345	(21,121)	305	85	50	(2,284)	(223)	2,896
12/6/2023	15,677	989	-	(23,941)	-	2,830	70	(1,223)	-	(5,598)
12/7/2023	16,366	1,490	2,455	(17,114)	700	35	102	(548)	(55)	3,431
12/8/2023	13,541	3,173	-	(22,424)	3,000	5,170	340	(9,723)	(3,010)	(9,933)

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

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Research Analysts

Ralph Axel

Rates Strategist
BofAS
ralph.axel@bofa.com

Bruno Braizinha, CFA

Rates Strategist
BofAS
bruno.braizinha@bofa.com

Mark Cabana, CFA

Rates Strategist
BofAS
mark.cabana@bofa.com

Katie Craig

Rates Strategist
BofAS
katie.craig@bofa.com

Meghan Swiber, CFA

Rates Strategist
BofAS
meghan.swiber@bofa.com

Anna (Caiyi) Zhang

Rates Strategist
BofAS
cai yi.zhang@bofa.com

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