

Municipals Weekly

More tax-exempt bonds due to BABs refunding

Industry Overview

Key takeaways

- Muni market is more constructive, but moves will be limited and slow. Ratios should tick up in Mar/Apr if Treasuries decline.
- BABs issuers may use sequestration as ERP event. We see a \$35bn of BABs can be refunded at substantial savings currently.
- First-time payment defaults totaled \$17mn in Feb and first-time distressed \$186mn.

More constructive, but still range bound

January PCE should put a closure on a stream of strong economic data. Munis look more constructive, but the ranges should remain much narrower than Treasuries. Ratios likely will rise some entering March/April if Treasury rates decline. We see \$32bn of issuance in March and a total of \$39bn from maturing bonds and coupon payments.

Refunding BABs with tax-exempt muni issuance

A federal claims court ruling in *Indiana Municipal Power Agency vs US* supports the conclusion that issuers may use sequestration as an extraordinary redemption event. In the current environment, that makes it possible to sell tax-exempt munis to refund outstanding BABs with ERPs. We estimate that the pool of refunding candidates currently stands at \$75bn currently. At current prevailing market rates, approximately \$35bn of these candidates can be refunded with substantial savings for issuers. A-rated and BBB-rated BABs with ERPs, depending on language used in governing bond documents, can be refunded with substantial savings due to credit spread collapse since 2009/2010. Also, there are concentration of profitable refunding candidates with maturities less than 13 years. These refundings will preempt a possible significant rally of the BABs with ERPs, and add to the supply of tax-exempt munis.

February 2024 default & distress

First-time payment defaults totaled \$17mn in February, bringing the YTD total to \$250mn, down 64% y/y. First-time distressed debt totaled \$186mn in February, bringing the YTD total to \$309mn, up 22% y/y. We continue to expect \$1.9bn-\$2.3bn of first-time defaults in 2024.

Key figures: issuance, returns, spreads & trade activity

Supply: YTD issuance through 28 February totals \$58.6bn, up 27% y/y. YTD issuance is 95% tax-exempt and 5% taxable; 72% is new money and 28% is refundings. **Returns:** The Muni Master index (UOA0) returned -0.04% MTD through 28 Feb, outperforming govies, corporates and taxable munis. The Muni High Yield index (UOHY) returned 0.52% MTD. Among IG indexes, BBBs' MTD returns strongest at 0.23%, as are the 1-3yr maturities' 0.09%. **Spreads:** For the week ending 28 February, IG spreads were flat w/w at 21bp, while HY spreads tightened 2bp to 199bp. **Trade activity:** MTD in February, \$184.2bn of muni par value traded in the secondary, with a daily avg of \$9.7bn. That avg is down 8% m/m and 18% y/y.

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Refer to important disclosures on page 18 to 19.

12665992

Timestamp: 01 March 2024 07:30AM EST

01 March 2024

Municipals
United States

Table of Contents

Market views & strategies	2
Performance	4
Supply & demand	6
Curve	7
Relative value	8
Trade activity	10
Credit corner	11
Defaults, distress & HY	14
Cross currency equivalent yields	16
Acronyms	16
Research Analysts	20

Yingchen Li
Municipal Research Strategist
BofAS
yingchen.li@bofa.com

Ian Rogow
Municipal Research Strategist
BofAS
ian.rogow@bofa.com

John Lombardi
Municipal Research Strategist
BofAS
jlombardi3@bofa.com

Sophie Yan
Municipal Research Strategist
BofAS
sophie.yan@bofa.com

John Reilly
Municipal Research Strategist
BofAS
john.reilly2@bofa.com

See Team Page for List of Analysts

Recent Municipals Research

[Monthly Municipal ESG Monitor: January 2024 27 February 2024](#)

[Municipals Weekly: Hedging difficulties pressures down dealer inventories 23 February 2024](#)

[Municipals Educational Series: Market discount taxes 21 February 2024](#)

[Municipals Weekly: Counting votes: General Elections & muni rates, issuance and returns 16 February 2024](#)

[Municipals Weekly: Collapsing vol supports narrowing spreads 09 February 2024](#)

Exhibit 1: Strategic and tactical views & key forecasts

Buy long duration high grade bonds, especially 4% coupons

Strategic views

- (1) 15-30yr part of the curve, particularly 4% coupon bonds; (2) AMT bonds*: overweight
- BBBs and high yield: neutral
- (1) Territories; (2) small private colleges; (3) rural, single-facility hospitals: underweight

Tactical views

- Position for ratios to reach historically-rich levels
- 4% coupon bracket to benefit more in a rally
- Swap long-end muni taxables for long-end tax-exempts

Key forecasts

- 2024 issuance to total \$400bn; \$300bn of new money and \$100bn of refundings
- 2024 principal redemptions to total \$416bn and coupon payments \$158bn. Cumulative fund inflows positive
- 1s10s slope to stay inverted in 2024; 10s30s to steepen, then flatten; 10s30s max slope of 110bp in 2024
- 10yr muni/Tsy ratio range of 55%-80% and 30yr 75%-92%
- Stable credit spreads in 2024 given non-recessionary environment; any material widening is an opportunity

Note: *If the holder is certain they are not subject to the AMT under current tax law.

Source: BofA Global Research

BofA GLOBAL RESEARCH

Market views & strategies

Market is more constructive, but still range bound

With the release of January PCE data, the stream of strong economic data is coming to a close. While there are some minor data releases for the month of February, by and large, the market still needs to wait until next week's employment report to get a real directional clue for the next several weeks, and a decline of macro vols should continue to dictate what is to unfold in March.

This week, the Treasury market was impacted more by month-end pension rebalancing flows (see report: [BofA - US Rates Watch](#)), but also the possibility of a partial government shutdown. On Wednesday, Congressional leaders announced an agreement for a short-term extension of funding, which the House passed Thursday. As of this writing, the Senate has yet to vote on the legislation, though we ultimately expect it to pass and make its way to the president's desk.

While we turned more constructive on market direction due to macro volatility trends, we believe muni market moves will still be quite limited and slow, while Treasuries' moves are likely to be faster and the ranges wider. Hedging issues we highlighted in our [last Municipals Weekly report](#) should continue to be an issue for the time being. At the root of it are near record low muni/Treasury ratios. Cautious trading remains in order, but long term bond investors have better prospects if Treasuries lead the way.

In March, we expect new issuance volume of \$32bn, while principal redemptions and coupon payments should total \$39bn. As such, the supply/demand environment still favors buyers, though the large imbalances in the first two months that gripped muni ratios will loosen some.

Refunding BABs with tax-exempt munis

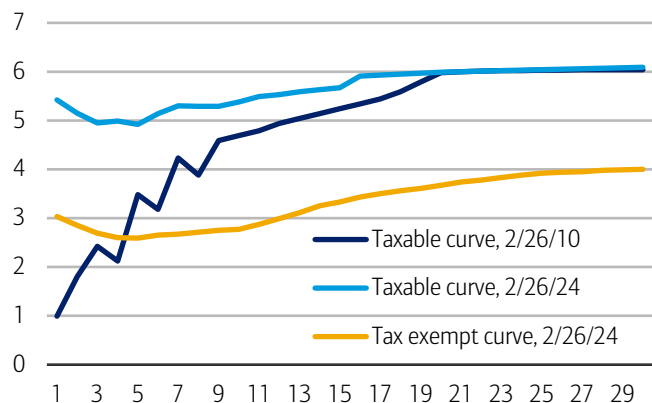
Year-to-date refunding volumes are up 52% y/y to \$16.4bn, and account for 28% of the \$58.6bn YTD-24 total issuance. Some of these refundings are Build America Bonds (BABs) that carry extraordinary redemption provisions (ERPs) with tax-exempt bonds. As reported in the media, a federal claims court ruling in *Indiana Municipal Power Agency vs US* supports the conclusion that sequestration constitutes an ERP event. While a recent post by Orrick suggests that specific language in each governing document must be reviewed, sequestration-based ERPs are likely "available for issuers of BABs in most cases." In the current environment, issuers may find that they could refund these bonds by issuing a tax-exempt bonds and generate substantial savings.

Back in 2009-2010 when BABs were issued, the municipal market was still recovering from the ashes of the Great Recession. Although Treasury rates were somewhat lower than today's, OAS and credit spreads were generally much wider, especially for long

maturity taxable muni bonds issued at par. Exhibit 2 shows A-rated taxable muni curves in February 2010 and 2024, as well as the A-rated tax-exempt curve in February 2024. Exhibit 3 shows the ICE BofA BABs index's (BABs) OAS history since early 2009.

Exhibit 2: A-rated muni curves in 2010 and 2024 (%)

Current long term taxable munis rates at same levels as 2010



Source: Refinitiv

BofA GLOBAL RESEARCH

Exhibit 3: OAS of ICE BofA BABs index (bp)

OAS was much wider back in 2010



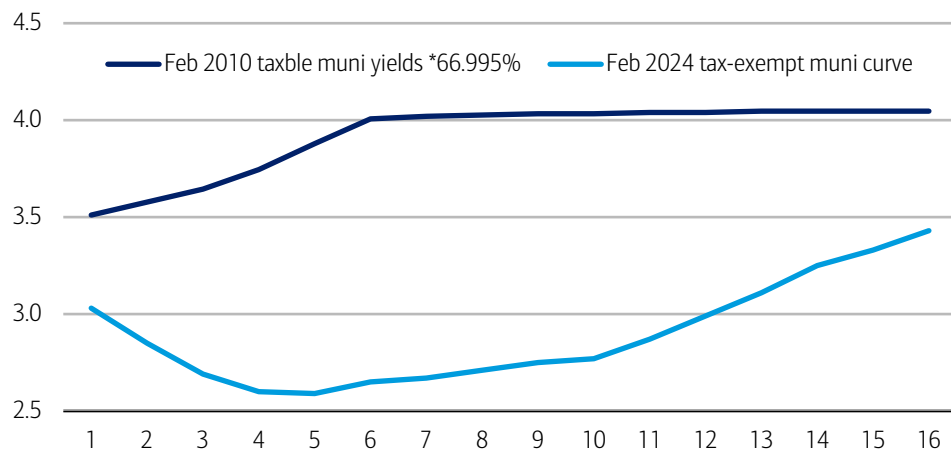
Source: ICE Data Indices, LLC

BofA GLOBAL RESEARCH

To see if a taxable bond issued in 2010 should be refunded by issuing a tax-exempt bond, we need to look at the issuer's net payment after sequestration. The current sequestration rate is 5.7%, so the Federal government subsidy of BABs are 33.005% ($= 35\% \times (1 - 5.7\%)$). Issuers pay 66.995% ($= 100\% - 33.005\%$) of the BAB's coupon rate. So, today's tax-exempt muni yields (after coupon adjustments) should be compared to the 66.995%*taxable muni yields in 2010. Exhibit 4 shows 1-16yr maturity yields from February 2010 and February 2024; keep in mind that the tax-exempt yields shown here are really 5% coupon yields.

Exhibit 4: Feb 2010 A-rated taxable munis adjusted by sequestration vs Feb 2024 tax-exempt munis

Note that tax-exempt munis is a 5% coupon curve



Source: Refinitiv

BofA GLOBAL RESEARCH

Bloomberg's database shows that there are currently \$104bn of direct pay BABs outstanding, \$102.5bn of which carry ERP provisions. Approximately 20% of these BABs have ERP exercise prices at par, while other 80% have premium ERP exercise prices at an exercise yield of Treasury +100bp or premium issuing prices. Of all the \$104bn direct pay BABs, there are about \$10bn of such bonds trading below par and another \$17bn trading at over 100bp spreads to comparable Treasuries. Those are clearly not the candidates for refundings. What's left is a pool of about \$75bn bonds currently which are potential candidates. How much of these BABs may be called in 2024 depends on

market conditions: if taxable muni spreads to Treasuries narrow significantly, we would expect some of those with T+100 ERP prices to be called. For par ERP calls, clearly if tax-exempt market rallies, more BABs may be called. At current prevailing market yields, approximately \$6bn BABs with par ERP exercise price can be refunded with substantial savings. Among BABs with T+100 ERP calls, approximately \$29bn can be refunded with substantial savings. Together there are approximately \$35bn of BABs with ERP can be called with substantial savings.

Our data dive shows that there are refunding candidates across most maturities. Savings for high grade candidates may be much less than lower rated ones since credit spreads have compressed greatly since 2009-2010. Also, there are concentration of candidates such candidates in maturities less than 13 years.

In a market with light new issuance of taxable munis, the impact of these BABs refundings would further reduce an available pool of bonds. For investors holding these bonds, these ERP provisions now become restraints which would preempt a possible significant price rally above their ERP exercises should Treasury market yields decline substantially.

An additional consequence of this is it will put our issuance forecast further at risk. At this point, YTD issuance is already tracking higher than our forecast while BABs refunding deals are still few. We will revisit the issuance picture and revise our forecast at an appropriate time later this year.

Performance

Taxable indexes can't keep pace with exempt IG

While 10yr Treasury rates rose 30bp or so MTD through 28 February, 10yr AAA muni rates moved just 8bp or so. While that certainly pressured muni/Treasury ratios richer, the more modest move in muni rates helped them outperform their taxable counterparts. In fact, while exempt IG returned -4bp MTD through 28 February, as Exhibit 5 shows, that is enough to outperform govies, corporates and taxable munis by 100bp+. Still, exempt IG is underperforming HY munis by 56bp for the MTD and unrated munis by 98bp as credit spreads narrow. Among IG rating brackets, BBBs' returns are still strongest MTD, with their 23bp of total returns; AAAs' -17bp are weakest. GOs are modestly underperforming revenue bonds for the MTD by 5bp, though both AA and BBB GOs are outperforming their revenue bond counterparts. We continue to see the shorter maturity indexes have the strongest returns: for the MTD, the 1-3yr index is outperforming the 22+yr index by 33bp.

Exhibit 5: Municipal total returns (%) monitor, as of 28 February 2024

While underperforming muni HY MTD, exempt IG outperforming govies, corporates & taxables by 100bp+

Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
Govt Master	GOAO	0.270	0.412	-1.523	-0.385	1.706	-1.686	2.020
Corporate Master	COAO	0.159	0.215	-1.480	-0.540	3.046	-1.334	6.037
IG munis	U0A0	0.037	0.078	-0.038	0.748	3.133	-0.261	5.618
AAA	U0A1	0.034	0.052	-0.169	0.621	2.792	-0.541	4.942
AA	U0A2	0.020	0.066	-0.072	0.692	2.949	-0.336	5.242
A	U0A3	0.057	0.082	0.044	0.852	3.484	-0.061	6.306
BBB	U0A4	0.127	0.237	0.226	1.119	4.135	0.215	7.524
1-3yr	U1A0	0.004	0.048	0.090	0.343	1.144	0.083	3.500
3-7yr	U2A0	0.015	0.084	0.076	0.496	2.087	-0.197	4.096
7-12yr	U3A0	0.037	0.125	0.016	0.596	3.013	-0.295	4.622
12-22yr	U4A0	0.045	0.090	-0.021	0.818	3.620	-0.248	6.571
22+yr	U5A0	0.061	0.047	-0.236	1.138	4.387	-0.471	7.213
HY munis	U0HY	0.112	0.267	0.518	1.547	5.127	1.507	6.728
Non-rated	U0NR	0.115	0.540	0.939	2.184	5.757	1.508	9.024
General Obligation	U0AG	0.019	0.056	-0.074	0.643	2.692	-0.372	5.034
AAA	UGA1	0.009	0.018	-0.175	0.627	2.626	-0.618	4.664
AA	UGA2	0.023	0.065	-0.062	0.637	2.692	-0.355	4.980
A	UGA3	0.020	0.076	0.030	0.709	2.800	-0.002	5.278
BBB	UGA4	0.014	0.153	0.271	0.766	3.064	0.398	7.649

Exhibit 5: Municipal total returns (%) monitor, as of 28 February 2024

While underperforming muni HY MTD, exempt IG outperforming govies, corporates & taxables by 100bp+

Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
State	UOAA	0.021	0.067	-0.022	0.576	2.434	-0.270	4.675
Local	UOAB	0.017	0.044	-0.135	0.720	2.986	-0.489	5.450
Revenue	UOAR	0.043	0.086	-0.026	0.782	3.276	-0.225	5.807
AAA	URA1	0.052	0.076	-0.165	0.617	2.905	-0.488	5.134
AA	URA2	0.018	0.067	-0.077	0.715	3.058	-0.328	5.353
A	URA3	0.060	0.082	0.045	0.864	3.541	-0.066	6.400
BBB	URA4	0.136	0.243	0.222	1.147	4.223	0.200	7.330
Airport	UOAV	0.023	0.105	0.144	0.932	3.246	-0.057	5.967
Education	UOAE	0.038	0.048	-0.118	0.719	3.351	-0.359	5.648
Health	UOHL	0.348	0.515	0.633	1.784	6.517	1.202	8.827
Hospital	UOAH	0.067	0.063	-0.086	0.978	4.046	-0.233	6.467
Industrial Development Rev	UOID	0.062	0.173	0.339	1.282	4.426	0.296	7.356
Leases, COPs & Appropriations	UOAL	0.031	0.088	0.031	0.721	3.021	-0.241	5.257
Miscellaneous	UOAM	0.018	0.205	-0.186	0.500	2.776	-0.586	4.632
Multi-family Housing	UOAU	0.031	0.084	-0.021	0.845	3.304	-0.380	5.761
Pollution Control	UOAQ	0.026	0.088	0.178	0.746	3.066	0.041	4.792
Power	UOAP	0.028	0.059	-0.017	0.644	2.830	-0.168	4.842
Single-family Housing	UOAS	0.068	0.123	0.043	0.783	2.960	-0.337	4.878
Tax Revenue	UOTX	0.025	0.075	-0.179	0.619	3.048	-0.525	5.699
Tobacco	UOTB	0.050	0.208	0.366	1.001	3.574	0.690	5.916
Toll & Turnpike	UOTL	0.033	0.099	0.019	0.765	3.096	-0.086	5.806
Transportation - other	UOAT	0.092	0.093	0.083	0.899	3.390	-0.159	6.666
Utilities - other	UOUT	0.059	0.093	0.053	0.751	3.193	0.080	5.660
Water & Sewer	UOAW	0.025	0.067	-0.067	0.701	2.917	-0.216	5.203
Taxable	TXMB	0.290	0.552	-1.364	-0.122	3.438	-1.086	4.135
Build America Bonds	BABS	0.227	0.402	-1.779	-0.486	3.087	-1.398	3.177
VRDOs	VRDO	0.009	0.059	0.240	0.298	0.799	0.488	3.237
Daily reset	VRDD	0.009	0.056	0.211	0.264	0.713	0.407	3.038
Weekly reset	VRDW	0.009	0.060	0.257	0.318	0.849	0.536	3.351

Source: ICE Data Indices, LLC

BofA GLOBAL RESEARCH

IG spreads flat w/w overall; HY spreads 2bp tighter

IG muni spreads were flat w/w overall at 21bp and are at the 12th percentile of their 52-week range. Muni HY spreads tightened 2bp to 199bp or the 12th percentile. Non-rated spreads tightened 5bp w/w to 205bp. GO spreads were flat w/w; Revenue Bond spreads tightened 1bp. Among IG muni revenue bond sectors, the Health sector narrowed the most by 4bp. The Power sector saw the most widening at 1bp for the week.

Exhibit 6: Muni YTW spread monitor as of 28 February 2024

IG muni spreads were flat w/w overall while HY spreads tightened 2bp

	52wk		T-1wk	T-1d	Current 2/28/24	Change from				Current as % of 52wk range	Price	Yield
	Tights	Wides				Tights	Wides	T-1wk	T-1d			
Investment Grade	19	35	21	22	21	2	-14	0	-1	12	102	3.52
AA	2	12	5	5	5	3	-7	0	0	30	103	3.36
A	49	77	50	51	50	1	-27	0	-1	4	100	3.81
BBB	94	142	105	104	103	9	-39	-2	-1	19	97	4.34
High Yield	178	350	201	200	199	21	-151	-2	-1	12	95	5.30
Non-rated	174	247	206	201	201	27	-46	-5	0	37	66	5.32
General Obligation	-12	-4	-10	-10	-10	2	-6	0	0	25	102	3.21
AA	-19	-9	-16	-16	-16	3	-7	0	0	30	102	3.15
A	-15	29	4	4	4	19	-25	0	0	43	105	3.35
BBB	50	115	77	75	75	25	-40	-2	0	38	97	4.06
State	-30	-20	-28	-28	-28	2	-8	0	0	20	106	3.03
Local	7	17	12	12	12	5	-5	0	0	50	98	3.43
Revenue	30	49	32	32	31	1	-18	-1	-1	5	102	3.62
AA	10	22	13	13	13	3	-9	0	0	25	103	3.44
A	53	81	54	55	54	1	-27	0	-1	4	99	3.85
BBB	96	147	107	107	105	9	-42	-2	-2	18	97	4.36
Airport	52	84	55	55	55	3	-29	0	0	9	104	3.86
Education	9	30	13	13	13	4	-17	0	0	19	104	3.44
Health	135	174	147	146	143	8	-31	-4	-3	21	95	4.74



Exhibit 6: Muni YTW spread monitor as of 28 February 2024

IG muni spreads were flat w/w overall while HY spreads tightened 2bp

	52wk		T-1wk	T-1d	Current 2/28/24	Change from				Current as % of 52wk range	Price	Yield
	Tights	Wides				Tights	Wides	T-1wk	T-1d			
Hospital	60	89	63	63	63	3	-26	0	0	10	100	3.94
Industrial Development Rev	67	123	77	77	76	9	-47	-1	-1	16	101	4.07
Leases, COPs & Appropriations	-4	13	1	1	1	5	-12	0	0	29	104	3.32
Miscellaneous	-3	17	17	16	16	19	-1	-1	0	95	103	3.47
Multi-family Housing	54	89	64	64	64	10	-25	0	0	29	95	3.95
Pollution Control	30	64	59	59	58	28	-6	-1	-1	82	98	3.89
Power	22	39	23	24	24	2	-15	1	0	12	105	3.55
Single-family Housing	69	89	88	88	86	17	-3	-2	-2	85	98	4.17
Tax Revenue	3	16	4	4	4	1	-12	0	0	8	101	3.35
Tobacco	-22	37	-1	-2	-3	19	-40	-2	-1	32	102	3.28
Toll & Turnpike	23	49	29	29	29	6	-20	0	0	23	98	3.60
Transportation - other	24	51	28	28	27	3	-24	-1	-1	11	100	3.58
Utilities - other	65	105	69	69	68	3	-37	-1	-1	8	104	3.99
Water & Sewer	3	20	13	12	12	9	-8	-1	0	53	103	3.43

Note: YTW spread to the ICE BofA AAA US Municipal Securities Index (U0A1).

Source: BofA Global Research, ICE Data Indices, LLC

BofA GLOBAL RESEARCH

Supply & demand

YTD issuance totals \$58.6bn, up 27% y/y

YTD issuance as of 28 February 2024 totaled \$58.6bn, up 27% y/y. 72% of YTD issuance is new money and 28% is refundings. New money volumes are up 20% y/y while refunding volumes are up 52% y/y. MTD issuance totals \$27.6bn, which is up 25% y/y. Refunding volumes MTD are up 47% y/y while new money volumes are up 20%.

Exhibit 7: Issuance summary (\$mn)

YTD-24 issuance of \$58.6bn was up 27% y/y; new money up 20% y/y while refundings up 52% y/y

	Month-to-date			Year-to-date		
	2/28/24	2/28/23	y/y % Δ	2/28/24	2/28/23	y/y % Δ
Total	27,606.9	22,010.7	25%	58,567.5	46,066.8	27%
New Money	21,435.2	17,822.9	20%	42,179.8	35,254.9	20%
Total Refunding	6,171.7	4,187.9	47%	16,387.8	10,811.9	52%
Advanced refunding	134.0	5.4	2363%	5,526.2	1,380.9	300%
Unknown refunding	5,720.7	4,093.3	40%	10,543.0	8,187.0	29%
Current & Forward refunding	317.0	89.1	256%	318.6	1,243.9	-74%
Insured	2,106.7	1,737.6	21%	4,227.8	3,996.4	6%
Fixed Rate	24,695.6	18,534.4	33%	51,561.2	39,718.1	30%
Variable Rate Long	1,142.5	2,143.9	-47%	4,412.8	4,415.6	0%
Variable Rate Short	1,085.1	1,223.3	-11%	1,616.5	1,755.9	-8%
Linked Rate	615.3	0.0	-	615.3	50.0	1131%
Zero Coupon	68.4	109.2	-37%	361.7	123.1	194%
Convertible	0.0	0.0	-	0.0	4.1	-100%
Variable rate no put	0.0	0.0	-	-	-	-
Tax Exempt	25,661.3	19,939.7	29%	55,440.8	40,147.4	38%
Taxable	1,882.3	1,722.8	9%	3,037.8	5,014.5	-39%
Alternate Minimum Tax	63.3	348.2	-82%	88.9	905.0	-90%
Education	9,562.9	8,942.7	7%	17,831.8	17,344.6	3%
General Purpose	5,436.5	4,535.8	20%	10,905.7	8,151.4	34%
Transportation	3,537.5	350.2	910%	6,155.4	3,785.5	63%
Housing	3,338.2	2,053.0	63%	5,447.7	3,999.0	36%
Utilities	3,154.4	2,472.6	28%	9,502.6	5,788.7	64%
Healthcare	944.4	1,373.5	-31%	4,411.3	1,953.2	126%
Development	729.8	540.6	35%	1,171.3	1,259.1	-7%
Public Facilities	387.3	243.5	59%	615.0	491.1	25%
Environmental Facilities	273.0	0.0	-	308.1	150.0	105%
Electric Power	243.0	1,498.8	-84%	2,218.9	3,144.3	-29%
Muni-backed corporates	0.0	88.7	-100%	0.0	88.7	-100%

Note: Long-term bonds only. Reflects any data revisions by LSEG or Bloomberg.

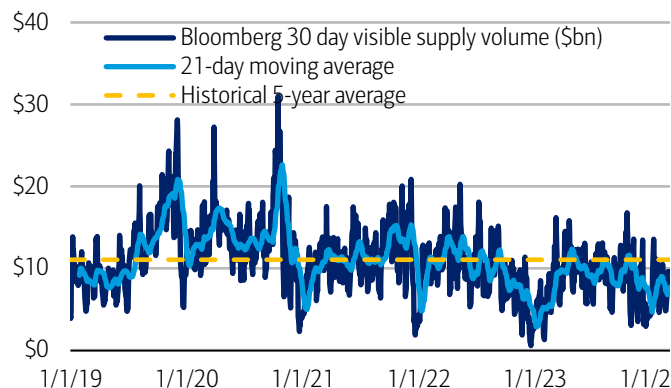
Source: BofA Global Research, LSEG, Bloomberg

BofA GLOBAL RESEARCH



Exhibit 8: Bloomberg 30-day visible supply (\$bn)

30-day visible supply was \$7.7bn as of 29 February 2024



Source: Bloomberg

BofA GLOBAL RESEARCH

Exhibit 9: 2024 gross issuance, redemption forecasts vs actuals (\$bn)

Gross issuance forecast of \$400bn vs \$574bn of prin. & cpn. redemptions

Month	Issuance		Prin. & cpn redemptions	
	Forecast	Actual	Forecast	Actual
January	\$26	30	\$46	\$45
February	27	28*	49	
March	32		39	
April ¹	31		31	
May	32		39	
June	39		63	
July	30		63	
August	38		66	
September	34		37	
October	42		45	
November	33		43	
December	36		52	

Note: Totals may not add up due to rounding. Data as of 28 February 2024.

Source: BofA Global Research, LSEG, Bloomberg

BofA GLOBAL RESEARCH

Curve

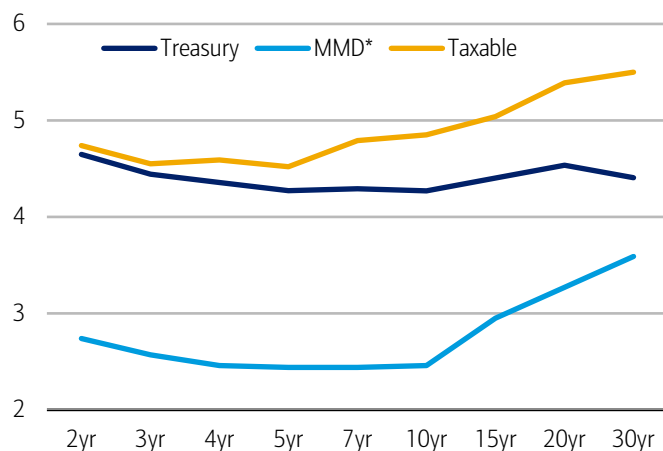
Curve stays flat w/w on avg and down 1bp m/m

The AAA MMD curve was flat w/w on average, and richened 1bp m/m. For the week, the 1s5s slope inverted a further 2bp to -54bp, 15bp more inverted y/y; the 5s10s was unchanged w/w at 2bp, but is 7bp steeper y/y; the 10s20s slope was flat w/w at 81bp and is 2bp steeper y/y; the 20s30s was unchanged w/w at 32bp but is 14bp steeper y/y.

We expect the 1s10s muni AAA curve to stay lightly inverted throughout 2024 unless the Fed's rate cutting becomes more aggressive than currently anticipated. The 10s30s should steepen mildly during the start of the year, and then flatten some when the 30-year AAA yield crosses a key level to alleviate the fear for the long end.

Exhibit 10: AAA GO muni, Treasury and taxable yield curves (%)

On average, Tsy and Taxable richened while MMD was flat w/w



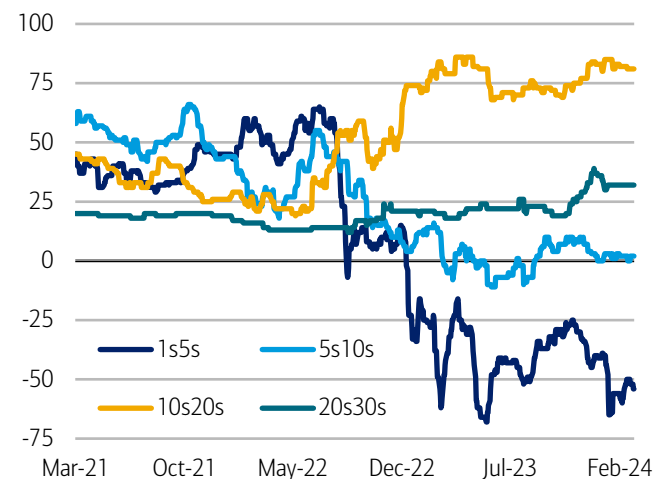
Note: *MMD AAA GO yield curve. As of 28 February 2024.

Source: BofA Global Research, Refinitiv, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 11: Curve slope (bp)

All slopes but the 1s5s remained unchanged w/w

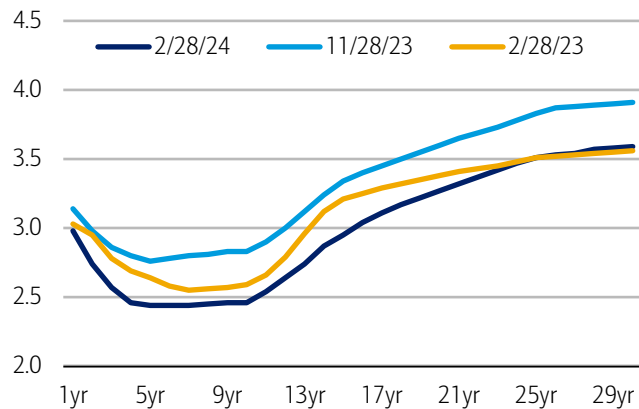


Source: Refinitiv

BofA GLOBAL RESEARCH

Exhibit 12: AAA GO municipal curve movement (%)

AAA is richer than three months ago across the curve



Source: Refinitiv

BofA GLOBAL RESEARCH

Relative value

At 7-12yr maturities, AA and Single-A Utilities-other's OAS are very cheap, while AA Water & Sewer and AA Higher Education are cheap. AAA Pollution Control and AAA Power are rich. At 22+yr maturities, BBB State GO and Utilities-other are very rich, while AAA State & Local GO and AA Hospital are cheap among others.

Exhibit 13: Rich/cheap analysis of 7-12yr indexes' OAS (bp)

AA Utilities - Other's current OAS of 96bp at 7-12yrs is currently very cheap against its 3yr OAS average of 10bp

Sector	Current OAS				Rich/cheap analysis				3yr OAS average			
	AAA	AA	A	BBB	AAA	AA	A	BBB	AAA	AA	A	BBB
Airports		36	30	71		N	N	N		32	30	54
Higher Education	-12	-11	44		N	C	N		-8	-4	39	
GO Local	-1	4	50	104	N	N	N	N	-2	7	43	110
GO State	-5	-8	45	0	N	N	N	R	-7	-5	43	94
Health		23	73	109		N	N	N		19	71	107
Hospital		13	38	84		N	N	N		16	37	96
IDR		57	63	85		N	N	N		37	53	79
Leases COPs & Appr.		7	19	111		N	N	N		10	34	110
Pollution Control	49		3		VR		N		-1		73	
Power	143	-8	-6		VR	N	R		-5	-5	27	
Tax Revenues	0	0	55	108	R	R	N	N	2	5	55	115
Tobacco			26				N				48	
Toll & Turnpike		17	16	69		N	N	N		20	17	80
Transportation - Other	0	14	40	69	R	N	N	N	4	12	53	86
Utilities - Other	0	96	140		R	VC	VC		-3	10	45	
Water & Sewer	-11	-14	14	9	N	C	N	N	-6	-7	12	102

Note: Data as of 27 February 2024. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.

Source: ICE Data Indices, LLC

BofA GLOBAL RESEARCH

Exhibit 14: Rich/cheap analysis of 22yr+ indexes' OAS (bp)

BBB Utilities - Other's current OAS of 0bp at 22yr+ is currently very rich against its 3yr OAS average of 53bp

Sector	Current OAS				Rich/cheap analysis				3yr OAS average			
	AAA	AA	A	BBB	AAA	AA	A	BBB	AAA	AA	A	BBB
Airports		41	35	-1		N	N	N		26	25	10
Higher Education	46	10	30	98	C	N	N	N	25	-8	18	75
GO Local	20	15	24	82	C	N	N	N	-8	2	21	75
GO State	-1	13		0	C	C		VR	-25	-19		80
Health		-26	61	168		N	N	N		-17	38	113
Hospital		24	36	79		C	N	N		7	25	56
IDR			66	80			N	N			54	69
Leases COPs & Appr.	27	11	24	55	C	N	N	N	-5	-5	29	47
Pollution Control			37				N				17	

Exhibit 14: Rich/cheap analysis of 22yr+ indexes' OAS (bp)

BBB Utilities – Other's current OAS of 0bp at 22yr+ is currently very rich against its 3yr OAS average of 53bp

Sector	Current OAS				Rich/cheap analysis				3yr OAS average			
	AAA	AA	A	BBB	AAA	AA	A	BBB	AAA	AA	A	BBB
Power		13	26	45		N	N	N		-5	16	44
Tax Revenues	36	18	62	68	VC	N	N	N	8	3	49	72
Tobacco				89				N				85
Toll & Turnpike			19	44			N	N			11	41
Transportation - Other		0	24	76		N	N	C		10	31	49
Utilities - Other		23	41	0		C	N	VR	-8	-7	22	53
Water & Sewer	7	4	16		C	N	N		-18	-14	-3	

Note: Data as of 27 February 2024. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.

Source: ICE Data Indices, LLC

BofA GLOBAL RESEARCH

Cross sector rich/cheap**Exhibit 15: Cross sector rich/cheap analysis of YTW spreads (bps; as of 28 February 2024)**

MISC's, SFH's and GO-L's spreads to other sectors are cheap, while AIR's, HOSP's, IDR's and UTL's skew more rich

	Market	GO	GO-S	GO-L	REV	AIR	EDU	HLTH	HOSP	IDR	LCA	MISC	MFH	PC	PWR	SFH	TAX	TBCO	T&T	TRAN	UTL	W&S
GO	-31		18	-22	-41	-65	-23	-153	-73	-86	-11	-26	-74	-68	-34	-96	-14	-7	-39	-37	-78	-22
GO-S	-49	-18		-40	-59	-83	-41	-171	-91	-104	-29	-44	-92	-86	-52	-114	-32	-25	-57	-55	-96	-40
GO-L	-9	22	40		-19	-43	-1	-131	-51	-64	11	-4	-52	-46	-12	-74	8	15	-17	-15	-56	0
REV	10	41	59	19		-24	18	-112	-32	-45	30	15	-33	-27	7	-55	27	34	2	4	-37	19
AIR	34	65	83	43	24		42	-88	-8	-21	54	39	-9	-3	31	-31	51	58	26	28	-13	43
EDU	-8	23	41	1	-18	-42		-130	-50	-63	12	-3	-51	-45	-11	-73	9	16	-16	-14	-55	1
HLTH	122	153	171	131	112	88	130		80	67	142	127	79	85	119	57	139	146	114	116	75	131
HOSP	42	73	91	51	32	8	50	-80		-13	62	47	-1	5	39	-23	59	66	34	36	-5	51
IDR	55	86	104	64	45	21	63	-67	13		75	60	12	18	52	-10	72	79	47	49	8	64
LCA	-20	11	29	-11	-30	-54	-12	-142	-62	-75		-15	-63	-57	-23	-85	-3	4	-28	-26	-67	-11
MISC	-5	26	44	4	-15	-39	3	-127	-47	-60	15		-48	-42	-8	-70	12	19	-13	-11	-52	4
MFH	43	74	92	52	33	9	51	-79	1	-12	63	48		6	40	-22	60	67	35	37	-4	52
PC	37	68	86	46	27	3	45	-85	-5	-18	57	42	-6		34	-28	54	61	29	31	-10	46
PWR	3	34	52	12	-7	-31	11	-119	-39	-52	23	8	-40	-34		-62	20	27	-5	-3	-44	12
SFH	65	96	114	74	55	31	73	-57	23	10	85	70	22	28	62		82	89	57	59	18	74
TAX	-17	14	32	-8	-27	-51	-9	-139	-59	-72	3	-12	-60	-54	-20	-82		7	-25	-23	-64	-8
TBCO	-24	7	25	-15	-34	-58	-16	-146	-66	-79	-4	-19	-67	-61	-27	-89	-7		-32	-30	-71	-15
T&T	8	39	57	17	-2	-26	16	-114	-34	-47	28	13	-35	-29	5	-57	25	32		2	-39	17
TRAN	6	37	55	15	-4	-28	14	-116	-36	-49	26	11	-37	-31	3	-59	23	30	-2		-41	15
UTL	47	78	96	56	37	13	55	-75	5	-8	67	52	4	10	44	-18	64	71	39	41		56
W&S	-9	22	40	0	-19	-43	-1	-131	-51	-64	11	-4	-52	-46	-12	-74	8	15	-17	-15	-56	

Note: Dark blue shaded cells are very cheap; light blue shaded cells are cheap; unshaded cells are neutral; yellow shaded cells are rich; orange shaded cells are very rich. Based on z-scores over the last 12 months. If a z-score is >2, then we view it as "very cheap"; if it is >1 but <2, then we view it as "cheap"; if it is between -1 and 1, then we view it as "neutral"; if it is <-1 but >-2, then we view it as "rich"; lastly, if it is <-2, then we view it as "very rich". Read horizontally. For example, while Power's current 12bp spread to GO-L is rich, it's -52bp spread to IDR is nonetheless cheap. See Exhibit 28 for sector definitions.

Source: BofA Global Research, ICE Data Indices, LLC

BofA GLOBAL RESEARCH

MWIs stayed relatively stable in the overpriced space

Our market width indicator (MWI) – which measures muni sectors' recent market momentum by calculating the percentage of a sectors' CUSIPs whose current YTW are below their moving 20-week average – shows that most sectors' MWIs stayed relatively stable in the overpriced space w/w, with Industrial Development Rev, Multi-Family Housing and Tobacco increasing the most. Multi-Family Housing's MWI is the lowest.

Exhibit 16: MWIs – sector momentum (%) as of 27 February 2024

Most sectors' MWIs had small decreases over the past week

Sector	MWI	m/m Δ	Sector	MWI	m/m Δ
UOAO Index	99.3%	0.1%	Miscellaneous	99.6%	-0.4%
ETM	96.5%	0.0%	Multi-Family Housing	96.0%	1.0%
GO - Local	99.3%	-0.1%	Pollution Control	98.6%	0.0%
GO - State	99.3%	0.1%	Power	97.6%	-0.4%
Pre-Re	100.0%	0.0%	Single Family Housing	97.0%	0.2%
Airport	99.9%	0.7%	Tax revenue	99.8%	0.0%
Education	99.2%	-0.4%	Tobacco	97.5%	1.3%
Health	100.0%	0.0%	Toll & Turnpike	100.0%	0.1%
Hospitals	99.4%	-0.1%	Transportation	99.6%	0.0%
Industrial Development Rev	98.6%	1.5%	Utilities - Other	97.9%	0.3%



Exhibit 16: MWIs – sector momentum (%) as of 27 February 2024

Most sectors' MWIs had small decreases over the past week

Sector	MWI	m/m Δ	Sector	MWI	m/m Δ
Leasing COPS & Appropriations	99.4%	0.0%	Water & Sewer	99.6%	0.3%

Source: BofA Global Research, ICE Data Indices, LLC

BofA GLOBAL RESEARCH

Trade activity

Most actively traded CUSIPs for the week

The most actively traded CUSIP over the last week by total volume was 13034A5B2, totaling \$253.6mn. Those are California Academy of Sciences revenue bonds due in 2029. By number trades it was 225472BV0, totaling 370 trades. These are Creek County Oklahoma Education Facilities lease revenue bonds due in 2048.

Exhibit 17: Most actively traded muni CUSIPs over the week ending 28 February 2024225472BV0 was the most frequently traded CUSIP. ¹Last trade

CUSIP	Short name	ST	Coupon/Maturity	Yield ¹	Spread	# of trades	Avg Vol (\$mn)
13034A5B2	CA INFRA & ECON DEV-A	CA	3.25s of '29	3.03	58	101	2.51
646067GX0	NEW JERSEY EDUCNL-B	NJ	4s of '53	4.01	36	368	0.40
225472BV0	CREEK CO EDUCNL FACS	OK	4.125s of '48	4.28	72	370	0.33
74529JQG3	PR SALES TAX FING-A1	PR	0s of '46	6.12	264	59	1.82
402207AD6	GULF COAST INDL DEV	TX	2.55s of '41	--	4	24	3.92
13057EBE3	CA PUB FIN AUTH-C	CA	2.9s of '52	--	45	18	3.78
896035DH2	TRIBOROUGH BRIDGE-A-1	NY	5.25s of '64	4.01	35	96	0.71
13063A5G5	CA TXB-VAR PURP	CA	7.55s of '39	5.59	132	97	0.63
92812WNY6	VA HSG DEV AUTH-A	VA	4.9s of '65	4.41	75	249	0.24
896035DD1	TRIBOROUGH BRIDGE-A-1	NY	4s of '54	4.20	55	330	0.18
59335KFS1	MIAMI DADE-REV-TXBL	FL	6.224s of '55	5.41	149	11	5.00
072024YE6	BAY AREA TOLL AUTH-A	CA	2.75s of '55	--	-40	22	2.37
57582R5Q5	MASSACHUSETTS ST-A	MA	5s of '49	3.78	20	29	1.79
225472BU2	CREEK CO EDUCNL FACS	OK	4s of '44	4.17	77	91	0.56
59261AM53	MET TRANSP AUTH-E1	NY	2.95s of '50	--	-16	12	4.24
414009PV6	HARRIS ED-VAR-B-REF	TX	2.7s of '59	--	-30	25	2.02
452151LF8	IL ST TXB-PENSION	IL	5.1s of '33	5.35	122	27	1.79
65830RDA4	N CAROLINA TPK AUTH-A	NC	5s of '58	4.14	49	45	1.00
74529JPX7	PR SALES TAX FING-A1	PR	5s of '58	5.42	176	65	0.69
92812WNY8	VA HSG DEV AUTH-A	VA	4.8s of '59	4.73	108	132	0.33

Source: Bloomberg

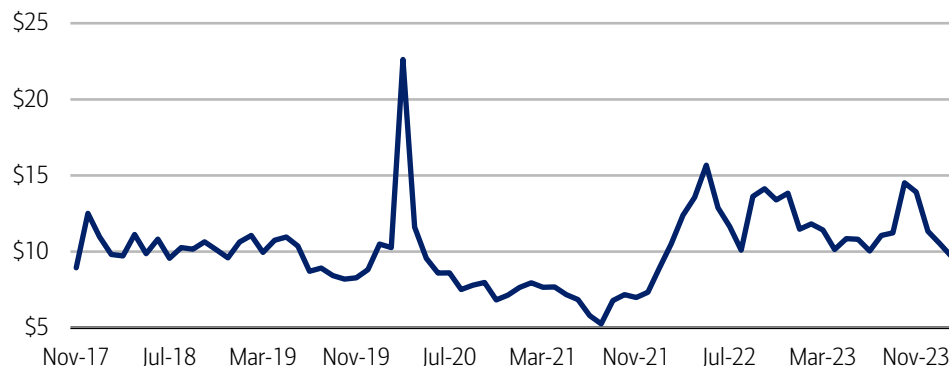
BofA GLOBAL RESEARCH

Feb-24's avg daily secondary trading holds at \$9.7bn

Bloomberg data shows average daily secondary trading volume in Feb-24 of \$9.7bn – an 8% decrease on a m/m basis and 18% decrease y/y. Note that, for the MTD, a total of \$184.2bn of muni bond par value traded.

Exhibit 18: Daily avg secondary trading volume (\$bn)

Feb-24 daily avg volume of \$9.7bn down roughly 8% m/m



Note: Data as of 28 February 2024.

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Credit corner

State & local governments

BEA revises 4Q23's estimate of S&L PIT receipts; y/y growth medians moderate

Updated Bureau of Economic Analysis data released in conjunction with the second estimate of 4Q23 GDP shows lower state and local government personal income tax receipts at seasonally adjusted annual rates: under the second estimate, those receipts totaled \$524.0bn vs the advance estimate of \$529.4bn. As a result, the y/y change fell to -5.9% from the earlier estimate of -5.0%. Sales tax and property tax collection estimates were largely unchanged, and still reflect 2.4% and 2.5% increases, respectively, vs 4Q22. Excise tax collections were moderately lower under the second estimate; y/y growth now stands at 2.6% vs the earlier 2.8%. See our [26 January Municipals Weekly](#). Again, these estimates are largely consistent with our surveys.

As a few more states reported January collections, median growth moderated some though they still held, overall, in positive territory. For the 40 states reporting collections for the month thus far, we see median year-over-year growth of 2.3%. Personal income and sales tax collections median growth among these states is 0.5% and 1.5% year-over-year, respectively. Corporate collections growth medians are -1.4% on median.

Statewide pensions' saw avg 5ppt funded ratio improvement from 2017-2022

On average, statewide pension plans' funded ratios improved 5ppt from 2017-2022 to 75% from 70% driven by improved pension funding discipline. That is according to a 28 February S&P report that detailed changes in state debt and liabilities over that time frame: overall, debt and liabilities declined 12% per capita, with debt climbing 1% per capita, net other post-employment benefits declining 25% and net pension liabilities falling 10%. Per S&P, UT's statewide pension funded ratio experienced the largest improvement from 2017-2022 at 19.3%, followed by NE's 19.2% and CO's 18.7%; the largest declines in funded ratios were GA's -6.9%, AL's -6.6% and NC's -6.5%. While the rating agency expects improved funding discipline to continue, higher real return assumptions for "and the associated market volatility could lead to contribution escalation" and aging populations can increase risk for some poorly funded plans.

Meanwhile, Milliman's most recent PPFI report shows the funded ratio for the 100-largest US public pension plans decreased 0.5ppt m/m to 77.7% in January. Milliman also projects that should plans' investment returns match their assumptions, they should end Jan-25 with a 79% funded ratio; better returns could result in a funded ratio on the order of 84% while weaker returns could result in funded ratios declining back to around 74%. Per Milliman's data, unfunded liabilities (the deficit between assets and liabilities) increased roughly \$33bn from the end of December to the end of January to \$1.39tn. This is largely the result of "lackluster" market performance, with Milliman estimating a 0.0% aggregate investment return for the month following a 3.3% return in December.

NJ's gov releases FY25 budget proposal; fully funds pensions

One of the states that S&P noted in the report we discuss above that improved its pension funding discipline was New Jersey. According to the rating agency, NJ's "contributions increased to 84% of [S&P's minimum funding progress metric] in 2022 from 34% in 2017 as the state ramped up to full funding of the actuarially recommended contribution." As part of the governor's proposed spending plan for FY25, the governor proposed making a full \$7.2bn pension payment, which would mark the fourth year in a row that the state would reach or exceed 100% of the actuarially determine contribution amount and bring the four-year total contribution to almost \$40bn. The proposed budget estimates the state's pension funded ratio will increase to 52.4% in FY25 from its 49.8% ratio in FY22. The \$56bn FY25 budget proposal would increase spending by 0.9% y/y. Revenue collections are expected to increase by 3.6%, with income and sales tax growth of 3.5% and 3.7%, respectively. Corporation taxes are set to decline by \$771mn, or 15%, but a new Corporate Transit Fee would bring in over \$1bn in its first year of implementation, and would be additional dedicated funding for



NJ TRANSIT paid for by corporations with net incomes of \$10bn+. NJ's largest budget items, Education and Human Services, will see spending increases of 6.2% and 5.4%, respectively. The proposal has the state ending the year with a \$6.1bn surplus.

TX gov issues disaster declaration for Smokehouse Creek Fire

In response to the Smokehouse Creek wildfire burning in the Texas panhandle – which as of this writing has burned over 1 million acres, becoming the largest wildfire in the state's history – Texas' governor issued a disaster declaration for 60 counties in the state. These areas are not heavily populated, and do not have a substantial amount of muni debt outstanding according to Bloomberg data. While it may take some time to fully assess the damage, we do anticipate that federal disaster relief will be brought to bear. Already, TX's governor announced that FEMA approved TX's request for a Fire Management Assistance Grant; that means that "Texas will be eligible for 75% reimbursement from the federal government for costs associated with fighting" the Smokehouse Creek fire, as well as the Windy Deuce fire that is also still burning. We will continue to monitor these fires as they are not well contained.

PREPA confirmation hearings to begin next Monday

Confirmation hearings for PREPA's plan of adjustment will get started next Monday, 4 March and continue, as needed, through 19 March. In advance of the start of the hearings, parties during this week's pretrial conference sought to address procedural issues as well as motions on which party (and when) could file findings of fact and conclusions of law. Meanwhile, we note that in its letter to Puerto Rico officials detailing the budget schedule for FY25, it forecasted General Fund revenues of nearly \$13.1bn, along with \$5.2bn of "other revenues." Otherwise, we highlight: (a) total sales and use tax (SUT) collections FYTD through January of \$2.14bn that are up 6.6% y/y and 5.5% SUT collections of \$1.07bn that are up 5.1% y/y; (b) TSA balances of \$9.3bn as of 16 February that were up \$89mn w/w, but for the YTD are up 33.1% above adopted liquidity plan (LP) estimates; and, (c) FY24 General Fund collections through 16 February of \$8.6bn that were up 8.5% vs collections LP estimates.

Healthcare

CommonSpirit Health upgraded to A3 by Moody's

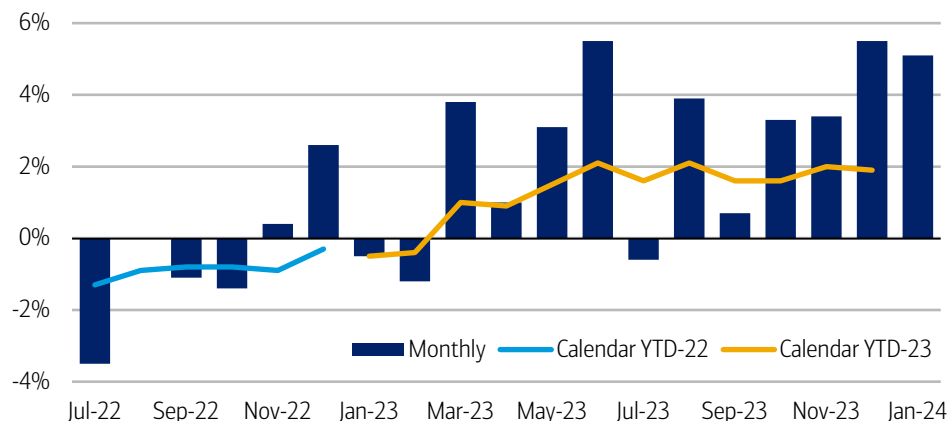
This week, Moody's upgraded CommonSpirit Health's revenue bonds to A3 from Baa1 and assigned a stable outlook. The upgrade reflects "the achievement of integration goals that will lead to continued improvement of operating performance." Dignity Health and Catholic Health Initiatives merged in February 2019 to form CommonSpirit. Including the proposed \$2.8bn Series 2024 bonds, total debt outstanding will be approximately \$18.4bn. Through the first six months of FY24, normalized operating cash flow (OCF) was 2.9%, excluding the 340B settlement and normalizing the California State provider fee. The FY24 OCF margin is expected to exceed 5%, including one-time items. Management expects normalized OCF margins to surpass 5% in FY25 and 6% in FY26. Moody's noted that relative to its A3 rated peers, CommonSpirit is highly leveraged while its liquidity levels are generally in line. S&P and Fitch both rate CommonSpirit's revenue bonds at A- with a stable outlook.

Relatively strong start to the year for hospital operating margins

Kaufman Hall's (KH) latest National Hospital Flash Report indicated a relatively strong start to the year for hospital operating margins with the median coming in at 5.1%. While that is down on a monthly basis from 5.5% in December, it is higher than the month of January in the previous two years. The median change in operating margin was -11% m/m and 25% y/y. Net operating revenue per calendar day was up 10% y/y and beat out total expense per calendar day which was up 6%. Inpatient revenue was up 9% and outpatient 10% y/y, as labor expense was up 4% and non-labor expense 7%. KH noted that net revenue has not kept pace with gross revenue and might reflect "payers negotiating more aggressively and a shift to value-based payment models." Also, cost pressure has eased a bit as total expenses on a volume-adjusted basis have improved.

Exhibit 19: Kaufman Hall's operating margin index, monthly and YTD medians

January 2024 median operating margin came in at 5.1%

**Note:** Figures are medians. Reflects any changes to historical data by the source.**Source:** Kaufman Hall & Associates

BofA GLOBAL RESEARCH

Higher Education

NSCRC Transfer Report highlights rising transfer enrollments

The National Student Clearinghouse Research Center (NSCRC) released its annual transfer progress report covering nearly 12 million undergraduate students across fall 2023 enrollments. Transfers were up 5.3% in fall 2023, with transfer students making up 13.2% of all continuing and returning undergraduate students, up from 12.5% in Fall 2022. Upward transfer enrollment, where a student transfers from a two-year college to a four-year school, was up 7.7% y/y, after dropping 4.3% in fall 2022. Schools classified as “Highly Selective” and “Very Competitive” saw the steepest rise in upward transfer, up 7.8% and 13.1% respectively y/y. Among institution types, public four-year schools saw upward transfer enrollment rise by 6.4% in fall 2023, while private non-profit four-year schools rose 11.8% y/y. Four-year for-profit schools rose the most, up 15.5%. Both public and private four-year institutions saw declines last year, 6.5% and 5.3% respectively, while private for-profit four-year schools were up 8.0% in fall 2022.

Ports

Port of LA and Port of Long Beach kickstart 2024 with near record January

The Port of Los Angeles and the Port of Long Beach both posted near record January's, falling just shy of the January 2022 post pandemic cargo surge. The Port of Los Angeles processed 856K TEUs, up 18% on January 2023, with January 2024 the second best January on record. This continues the trend as the sixth consecutive month of y/y increases to cargo volume. The Port of Long Beach processed 674K TEUs, up 17.5% y/y, the fifth consecutive month of increases in TEU processing. With heavy cargo volume from Asia, these January increases can be expected given the Lunar New Year and the slowing of activity during that time frame.

Airports

Orlando International Airport's outlook revised to positive by Moody's

Moody's revised Greater Orlando Aviation Authority, FL's (Orlando International Airport, MCO) outlook to positive from stable and affirmed its Aa3/A1 ratings on 28 February 2024. The positive outlook reflects Moody's “expectation of continued strong performance, which supports maintenance of strong financial metrics even through the implementation of the airport's capital improvement program.” Compared to peers, MCO is among the lowest in terms of leverage, even factoring in \$1.3bn of new debt to be issued as part of the FY23-28 capital plan. MCO's adjusted debt per O&D was \$130 in FY22 and is not expected to grow significantly with expected enplanement growth.

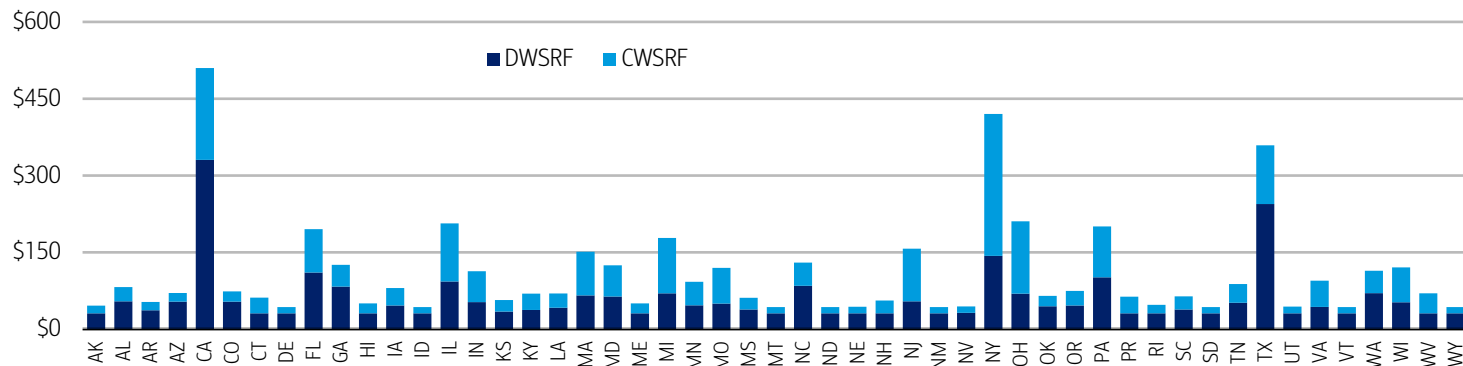
Water & sewer

EPA announces \$5.8bn of funding to State Revolving Funds for FY24

Earlier this month, the Environmental Protection Agency (EPA) announced a \$5.8bn investment through the Clean Water and Drinking Water State Revolving Funds (SRF). These state-run programs allow for low-interest loan programs to address key challenges. Of the \$5.8bn for FY24, \$2.6bn will go to the Clean Water SRF for wastewater and stormwater infrastructure and \$3.2bn will go to the Drinking Water SRF for drinking water infrastructure. The funding is part of the \$50bn+ investment in water infrastructure upgrades from the Bipartisan Infrastructure Law (BIL). Since 2022, the BIL has provided nearly \$22bn into water infrastructure projects across the country.

Exhibit 20: FY24 Bipartisan Infrastructure Law allocations to SRFs (\$mn) by state

States are set to receive at least \$43mn each in FY24



Note: DWSRF = Drinking Water State Revolving Fund, CWSRF = Clean Water State Revolving Fund.

Source: United States Environmental Protection Agency

BofA GLOBAL RESEARCH

Defaults, distress & HY

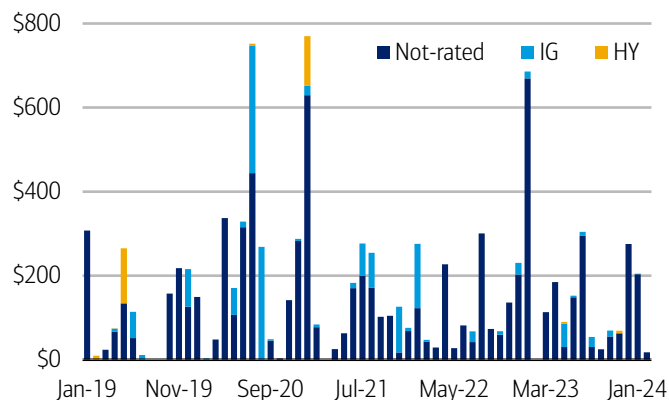
February 2024 default & distress

First-time payment defaults of \$17mn in Feb; YTD down 64% y/y

First-time payment defaults totaled \$17mn in Feb-24, bringing YTD defaults to \$250mn, down 64% y/y. The defaults in Feb-24 came from unrated Entsorga West Virginia LLC in the Industrial Development sector. For the YTD, defaults come from the Nursing Home/Senior Living, Hospital and Industrial Development sectors. See Exhibit 22. 53% of the YTD's defaults are within 2 years from when the first-time distress event was reported.

Exhibit 21: Monthly first-time defaults (\$mn) by avg rating at issue

Feb-24 first-time defaults \$17mn; YTD defaults \$250mn, down 64% y/y



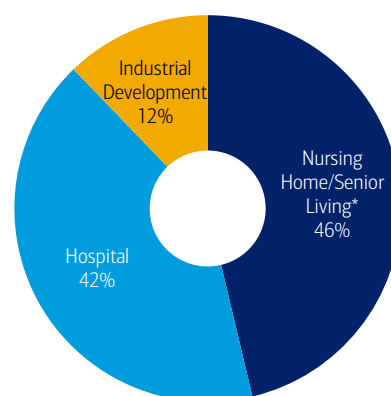
Note: We may revise data if Bloomberg revises its data.

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 22: YTD-24 total first-time defaults by sector

YTD defaults from Nursing Home/Snr Living*, Hospital & Ind. Dev. sectors



Note: *Includes CCRC, ASST Living, Nursing Home, and Independent Living Facilities.

Source: BofA Global Research, Bloomberg

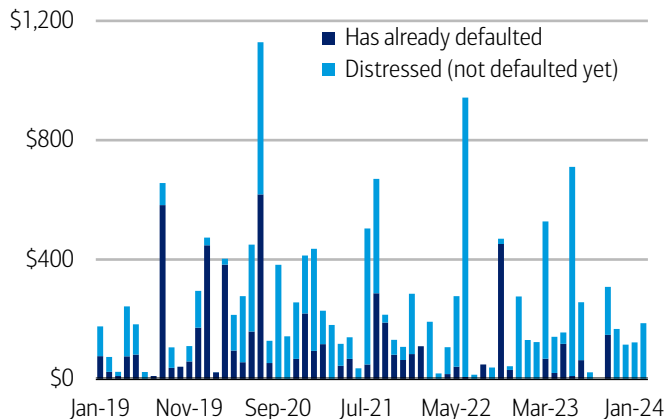
BofA GLOBAL RESEARCH

First-time distressed debt \$186mn in Feb; YTD up 22% y/y

First-time distressed debt (when the first distressed event that is not a payment default occurs) totaled \$186mn in February, bringing YTD first-time distress to \$309mn, up 22% y/y. The total cumulative first-time distressed debt since 2019 totals \$14.8bn; of that, 37.1% defaulted while 6% exited distressed status and 7% is no longer outstanding.

Exhibit 23: Monthly first-time distressed debt (\$mn)

Feb-24 first-time distress \$186mn; YTD distress \$309mn, up 22% y/y



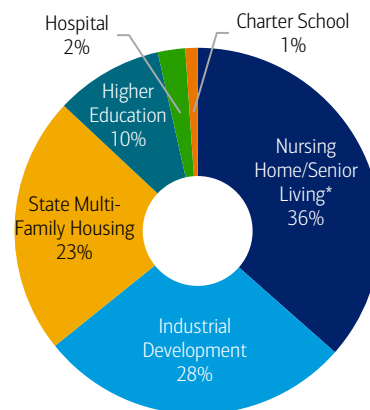
Note: We may revise data if Bloomberg revises its data.

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 24: YTD-24 total first-time distressed debt by sector

YTD distress from Nursing Home/Snr Living, Ind. Dev. & Multi-Family sectors



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

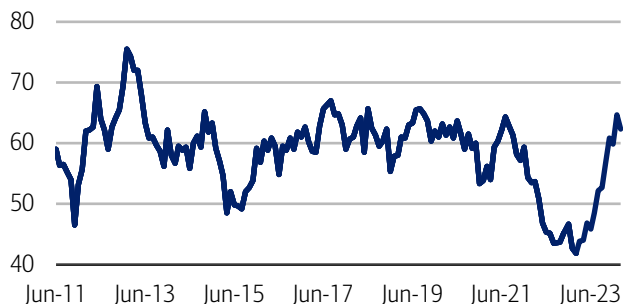
As a reminder, total defaults in 2023 were \$2.0bn – hitting our estimate. Our forecast for first time payment defaults in 2024 is \$1.9bn-\$2.3bn. See our [Municipals Year Ahead 2024 report](#). We expect defaults emanating from this distress to be concentrated in the Nursing Home, Hospital, and Industrial Development sectors.

Tracking: material credit events and Ch. 9 filings

For the week ending 28 February, our tracking of those Moody's-defined material credit events (MCEs) shows 8 postings, up 3 on a w/w basis, with the MTD total of 34 as of 28 February. See Exhibit 25. There were no new Chapter 9 bankruptcy petitions filed for the week ending on 28 February; it has now been 281 days since the last bankruptcy petition was filed by Hazel Hawkins Memorial Hospital on 23 May 2023 – that is the 3rd longest period since July 1987 between Chapter 9 filings. Note that the only longer periods – 346 days and 447 days – began in the post-pandemic period.

Exhibit 25: 6-mo mov avg of material credit events posted to EMMA

Filings posted to EMMA down w/w and continue slow month



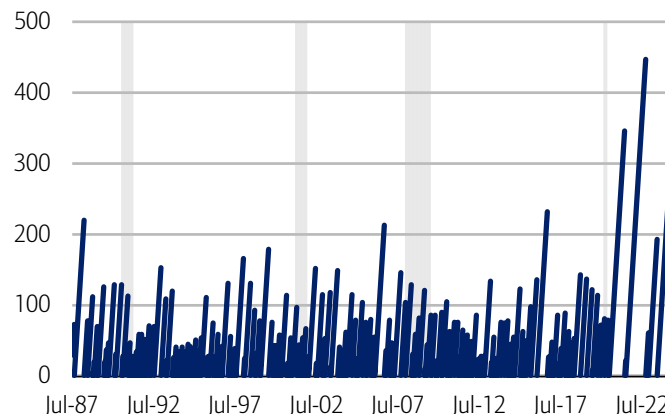
Note: Data as of 28 February 2024. Material credit events (MCE) reflect: 1. Bankruptcy, insolvency, receivership or similar event, 2. Financial obligation-event reflecting financial difficulties, 3. Nonpayment related default, 4. Principal/interest payment delinquency, 5. Unscheduled draw on credit enhancement reflecting financial difficulties, and 6. Unscheduled draw on debt service reserve reflecting financial difficulties.

Source: EMMA

BofA GLOBAL RESEARCH

Exhibit 26: Calendar days since last Chapter 9 petition filed

281 days since Hazel Hawkins Memorial Hosp. filed Ch. 9 petition



Source: BofA Global Research, PACER, US Courts

BofA GLOBAL RESEARCH

Cross currency equivalent yields

Taxable munis look attractive for most countries on a cross-currency equivalent basis, with only a few exceptions: 5yr and 10yr taxable munis are less attractive for Italy; 5yr taxable munis are less attractive for South Korea.

Exhibit 27: Cross currency equivalent yields as of 29 February 2024

Taxable munis are generally attractive for foreign investors with a few exceptions

Country	Government bond yield (in investor country's currency)			Cross currency equivalent yield*						Can foreign investors buy?					
	5 yr	10 yr	30 yr	US Treasury			US AAA taxable muni			US Treasury			US AAA taxable muni		
				5 yr (4.238)	10 yr (4.248)	30 yr (4.374)	5 yr (4.52)	10 yr (4.85)	30 yr (5.5)	5 yr	10 yr	30 yr	5 yr	10 yr	30 yr
Canada	3.579	3.494	3.363	3.758	3.797	4.156	4.031	4.397	5.270	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom	4.032	4.119	4.561	4.112	4.030	4.270	4.385	4.628	5.392	Yes			Yes	Yes	Yes
France	2.731	2.883	3.332	2.697	2.776	3.671	2.972	3.374	4.762			Yes	Yes	Yes	Yes
Germany	2.428	2.408	2.535	2.697	2.776	3.671	2.972	3.374	4.762	Yes	Yes	Yes	Yes	Yes	Yes
Italy	3.357	3.836	4.385	2.697	2.776	3.671	2.972	3.374	4.762						Yes
Spain	2.958	3.284	3.815	2.697	2.776	3.671	2.972	3.374	4.762				Yes	Yes	Yes
Portugal	2.657	3.105	3.499	2.697	2.776	3.671	2.972	3.374	4.762	Yes		Yes	Yes	Yes	Yes
Netherlands	2.594	2.723	2.738	2.697	2.776	3.671	2.972	3.374	4.762	Yes	Yes	Yes	Yes	Yes	Yes
Switzerland	0.738	0.703	0.683	2.697	2.776	3.671	2.972	3.374	4.762	Yes	Yes	Yes	Yes	Yes	Yes
Japan	0.352	0.704	1.733	0.098	0.490	2.602	0.361	1.079	3.642			Yes	Yes	Yes	Yes
Australia	3.744	4.132	4.473	4.244	4.729	4.604	4.521	5.330	5.736	Yes	Yes	Yes	Yes	Yes	Yes
South Korea	3.385	3.448	3.362	2.561	3.322	3.930	2.841	3.919	5.027			Yes		Yes	Yes
China	2.200	2.348	2.458	4.700	4.506	4.497	4.983	5.107	5.623	Yes	Yes	Yes	Yes	Yes	Yes
Taiwan	1.173	1.220	1.508	1.245	2.597	3.587	1.523	3.190	4.661	Yes	Yes	Yes	Yes	Yes	Yes
Singapore	3.015	3.076	2.949	3.611	3.904	4.208	3.892	4.503	5.320	Yes	Yes	Yes	Yes	Yes	Yes

Note: Cross currency equivalent yield is the yield for an international buyer to purchase US bond in dollar and convert back to its own country's currency.

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Acronyms

Exhibit 28: Common acronyms used in our Municipals reports

This list is subject to change

Acronym	Definition	Acronym	Definition	Acronym	Definition
1Q	First Quarter	HOSP	Hospital	PA	Pennsylvania
2Q	Second Quarter	HY	High Yield	PC	Pollution Control
3Q	Third Quarter	IA	Iowa	PL	Plains
4Q	Fourth Quarter	ICE	Intercontinental Exchange	PPFI	Milliman's Public Pension Funding Index
AIR	Airport	ICMA	International Capital Market Association	Ppt	Percentage point
AK	Alaska	ID	Idaho	PR	Puerto Rico
AL	Alabama	IDR	Industrial Development Revenue	PRE-RE	Pre-refunded
AMT	Alternative Minimum Tax	IG	Investment Grade	PREPA	Puerto Rico Electric Power Authority
Apr	April	IL	Illinois	PROMESA	Puerto Rico Oversight, Management, and Economic Stability Act
AR	Arkansas	IN	Indiana	PWR	Power
ARPA	American Rescue Plan Act	INT	Intermediate term	Q/Q	Quarter-over-quarter
Aug	August	Jan	January	QTD	Quarter-to-date
Avg	Average	Jun	June	R	Rich
AZ	Arizona	KS	Kansas	RI	Rhode Island
BEA	Bureau of Economic Analysis	KY	Kentucky	RM	Rocky Mountain
BLS	Bureau of Labor Statistics	LA	Louisiana	S&L	State and Local
BofA	Bank of America	LCA	Leases, COPs & Appropriations	S&P	Standard & Poor's
Bp	Basis points	LT	Long term	SC	South Carolina
BTN	Back-to-Normal Index	M	Mideast	SD	South Dakota
C	Cheap	M/M	Month-over-month	SE	Southeast
CA	California	MA	Massachusetts	Sep	September
CARES	Coronavirus Aid, Relief, and Economic Security Act	Mar	March	SFH	Single Family Housing
CB	Census Bureau	MD	Maryland	ST	Short term
CO	Colorado	ME	Maine	SA	Seasonally adjusted
COPs	Certificates of Participation	MFH	Multi-Family Housing	T&T	Toll & Turnpike
CPI	Consumer Price Index	MI	Michigan	TAX	Tax Revenue
CT	Connecticut	MISC	Miscellaneous	TBCO	Tobacco
CUSIP	Committee on Uniform Security Identification Procedures	MMD	Municipal Market Data	TEU	Twenty-Foot Equivalent Units

Exhibit 28: Common acronyms used in our Municipals reports

This list is subject to change

Acronym	Definition	Acronym	Definition	Acronym	Definition
DC	District of Columbia	MN	Minnesota	TN	Tennessee
DE	Delaware	MO	Missouri	TRAN	Transportation - other
Dec	December	MS	Mississippi	TSA	For Puerto Rico, Treasury Single Account; otherwise, Transportation Security Administration
EAI	Puerto Rico Economic Activity Index	MSA	Metropolitan Statistical Area	TX	Texas
EDU	Education	MT	Montana	US	United States
ESG	Environmental, Social, Governance	MTD	Month-to-date	USVI	US Virgin Islands
ETF	Exchange Traded Fund	N	Neutral	UT	Utah
ETM	Escrowed to Maturity	NASBO	National Association of State Budget Officers	UTL	Utilities - other
Feb	February	NC	North Carolina	VA	Virginia
Fed	Federal Reserve	ND	North Dakota	VC	Very Cheap
FEMA	Federal Emergency Management Agency	NE	Nebraska	VPIP	Value of construction put in place
FL	Florida	NED	New England	VR	Very Rich
FOMB	Financial Oversight & Management Board for Puerto Rico	NH	New Hampshire	VRDO	Variable Rate Demand Obligation
FW	Far West	NJ	New Jersey	VT	Vermont
FY	Fiscal year	NM	New Mexico	W&S	Water & Sewer
GA	Georgia	Nov	November	W/W	Week-over-week
GDP	Gross Domestic Product	NV	Nevada	WA	Washington
GL	Great Lakes	NY	New York	WI	Wisconsin
GO	General Obligation	OAS	Option Adjusted Spread	WV	West Virginia
GO-L	Local GO	Oct	October	WY	Wyoming
GO-S	State GO	OH	Ohio	Y/Y	Year-over-year
Govt	Government	OK	Oklahoma	YTD	Year-to-date
HI	Hawaii	OR	Oregon	YTM	Yield to Maturity
HLTH	Healthcare	P&C	Property & Casualty insurance company	YTW	Yield to Worst

Source: BofA Global Research

BofA GLOBAL RESEARCH



Disclosures

Important Disclosures

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible. BofA Securities fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

Other Important Disclosures

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities or other financial instruments that may not be offered or sold in one or more states or jurisdictions, or to certain categories of investors, including retail investors. Readers of this report are advised that any discussion, recommendation or other mention of such instruments is not a solicitation or offer to transact in such instruments. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor for information relating to such instruments.

Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended. SECURITIES OR OTHER FINANCIAL INSTRUMENTS DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

The securities or other financial instruments discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these instruments are exempt from registration or have been qualified for sale.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

This report, and the securities or other financial instruments discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors, including retail investors.

Refer to [BofA Global Research policies relating to conflicts of interest](#).

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofam.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to "Wholesale" clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security

discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2024 Bank of America Corporation. All rights reserved. iQDatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities.

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS or any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

Research Analysts

Yingchen Li
Municipal Research Strategist
BofAS
yingchen.li@bofa.com

Ian Rogow
Municipal Research Strategist
BofAS
ian.rogow@bofa.com

John Lombardi
Municipal Research Strategist
BofAS
jlombardi3@bofa.com

Sophie Yan
Municipal Research Strategist
BofAS
sophie.yan@bofa.com

John Reilly
Municipal Research Strategist
BofAS
john.reilly2@bofa.com

