

## Municipals Weekly

## March's gravitational pull is strong

## Industry Overview

## Key takeaways

- Given a profound new issue/redemption imbalance, we expect muni yield rise in January to be mild.
- A 30bp selloff in high grades would be a good entry. The 10yr AAA should move to 1.80% or lower in 2024.
- First-time payment defaults totaled \$2bn in 2023; newly-distressed debt totaled \$2.7bn.

## It's all about March

Rich muni/Treasury ratios and macro pushback against an early Fed rate cut should result in some yield rise in January. We expect any rise in muni yields to be mild, even if Treasuries' selloff turns out to be sizeable. New issuance/redemption imbalance in January/February is profound.

## 10yr AAA should move to 1.80% or lower in 2024

We expect the 10yr AAA to reach 1.80% or lower in 2024. High grade muni investors should begin to look for new entries if the 10yr AAA yield rises more than 30bp from 2023's closing level. 4Q23 credit spread widening in munis appears inconsistent with economic fundamentals given the equity market's strength and the lighter widening in corporate IG and high yields.

## Americans headed South and West again last year

2023 Census population data shows that net domestic migration – or data which isolates Americans' conscious decisions of where to live – continues to be strongest in the South and West and weakest in the Northeast. FL and TX were the biggest draw for migrating Americans, while CA and NY experienced the largest net outmigration.

## Default &amp; distress

First-time payment defaults in December totaled \$275m, bringing 2023's total to \$2.0bn, as we expected. Newly-distressed debt in December totaled \$115mn, bringing 2023's total to \$2.7bn. In 2024, we expect \$1.9bn-\$2.3bn of first-time payment defaults.

## Key figures: issuance, returns, spreads &amp; trade activity

**Supply:** December 2023 issuance totaled \$24.1bn, up 19% y/y; 2023 total issuance of \$380.4bn was down 3% y/y. 2023 issuance was 86% tax-exempt and 10% taxable; 78% is new money and 22% is refundings. **Returns:** The Muni Master index (UQAO) returned 6.50% in 2023, outperforming govies and taxable munis, but underperforming corporates on a non-tax adjusted basis. The Muni High Yield index (UOHY) returned 6.20% in 2023. For the year, BBBs' returns strongest at 8.38%, as were the 22+yr maturities' 8.85%. **Spreads:** For the week ending 3 January, IG spreads widened 1bp w/w to 26bp, while HY spreads widened 2bp to 229bp. **Trade activity:** 2023's daily average of muni par value traded in the secondary of \$11.5bn was down 8.3% y/y.

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## Recent Municipals Research

[Municipals Quarterly: 4Q23 in review 03 January 2024](#)

[Monthly Municipal ESG Monitor: November 2023 19 December 2023](#)

[Municipals Weekly: Fed to markets: "Happy Holidays!" 15 December 2023](#)

[Municipals Weekly: Ratios to retest record lows 08 December 2023](#)

[Municipals Year Ahead 2024: Run it back 01 December 2023](#)

**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

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## Market views & strategies

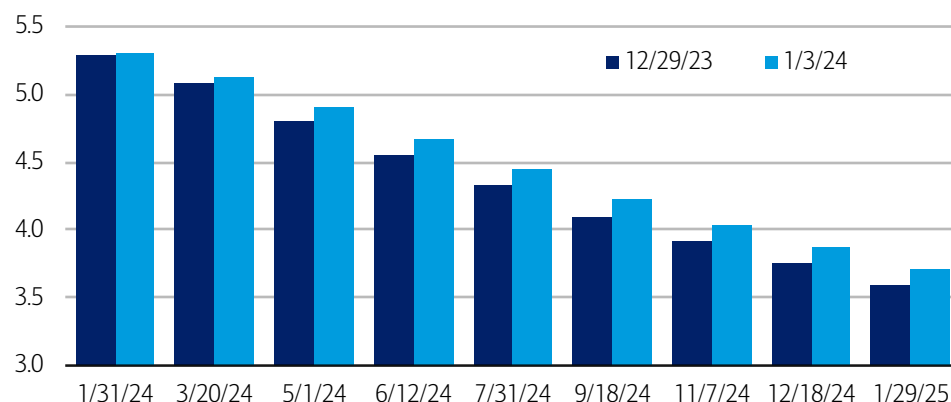
### It's all about March

The 10-year AAA rallied a total of 133bp from its peak yield at the end of October 2023, the exact same magnitude as it did from late October 2022 to early April 2023. The rally in December 2023 is particularly surprising as it ignored resilient economic data and the Fed's messaging. 2023 total returns for the ICE BofA Muni Master Index turned out to be a pleasant 6.5% after a rollercoaster year. The 4% coupon bucket in the 22+ year muni index (U5A0) delivered a stellar 11.1% total return (see Exhibit 9 on page 7).

By the close of 2023, the Fed Funds futures fully priced in the first Fed rate cut in March 2024 and a total of 150bp of rate cuts in 2024. That pricing appears to be aggressive. Rising yields this week were well-expected, especially in the Treasury market. Given the Fed minutes released on Wednesday, the pushback against the bond market rally may very well extend beyond January if economic data for December overall meets or beats expectations. The futures market's pricing of a March Fed rate cut probability may need to fall to a level in line with existing and upcoming economic data. At this point, the probability of the first rate cut in March is still quite overwhelming at 75%+. For yield curve dynamics – especially long term rates – the timing of the first rate cut should matter a lot more than the total number of rate cuts in 2024 because the Fed signaled repeatedly its objective of a 2.50% Fed target rate at the end of the easing cycle. A more patient approach would give the economy less room to breathe and inflation less chance to come back, though it would raise the risk of recession.

**Exhibit 2: Fed funds rates implied by futures pricing on 12/29/23 and 1/3/24 (%)**

It's all about March

**Source:** Bloomberg

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For munis, the retracement in tax-exempt yields will likely be quite limited, even if Treasuries' selloff turns out to be sizeable. Rich muni ratios are a negative factor, but demand/supply conditions are way too imbalanced. We forecasted \$26bn and \$27bn of new long term bond issuance for January and February, respectively, but principal redemptions and coupon payments are expected to be \$46bn and \$49bn for January and February, respectively (see our [Municipals Year Ahead 2024](#)). A 25bp-30bp selloff would be reasonable after a 133bp rally, but we doubt the retracement will be significantly more than that.

### Next target for the 10yr AAA is 1.80%

At this point, high grade muni investors need to take a pause for several weeks so that the market can work off the extreme bullish sentiment from the end of 2023. As discussed above, **if the selloff is more than 30bp for high grades**, we think **investors should begin to look for new entries and play for the next target of 1.80% or lower for the 10-year AAA MMD in 2024**. For better returns, investors should then focus on 4% coupons in the longer part of the curve.

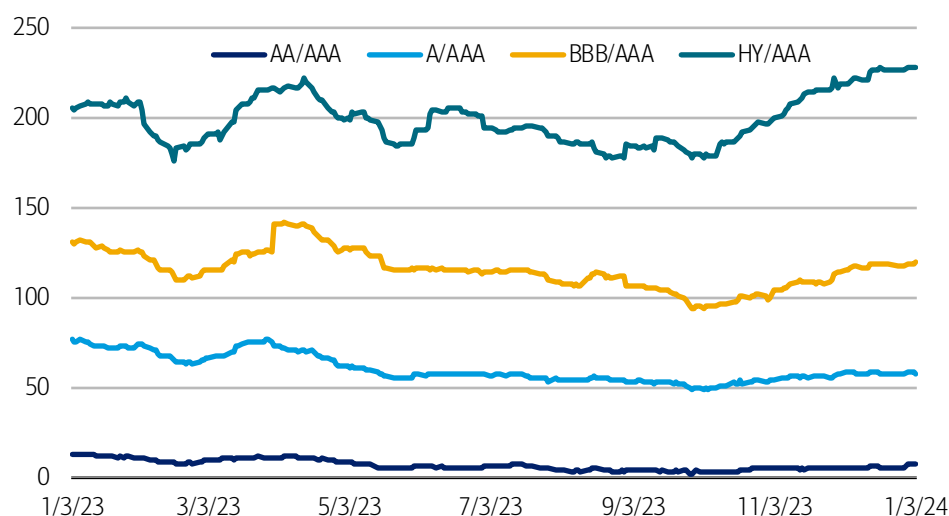
At this point, opportunities can be found in investment grade credit spreads as they widened quite a bit during the November/December period. Exhibit 3 shows that the A-rated ICE muni index (UOA3) widened 10bp against the AAA-rated index (UOA1), and the BBB-rated index (UOA4) widened 26bp. The high yield muni index (UOHY) spread widened 50bp.

It should be noted that AA-rated and BBB-rated credit spread gave back more than 50% of their April 2023 to September 2023 narrowing, while the high yield muni spread exceeded its April 2023 wide and set a new high since January 2022 (Exhibit 3). These spread widenings appear excessive and are mostly attributable to the strength of AAA-rated munis, not meaningful weakness in muni credit products. For example, stock market strength and much smaller widening in corporate IG and high yield spreads are evidence that muni credit spread widening is inconsistent with the current economic backdrop. In the new year, these spreads should compress if economic data for December continues to show resilience.

As a reminder, we are neutral on high yield in 2024, but would consider any sizeable widening of investment grade munis as an opportunity.

#### Exhibit 3: ICE muni credit index spreads over AAA-rated index (bp)

Muni credit spread widenings appear to be excessive



Source: ICE Data Indices, LLC

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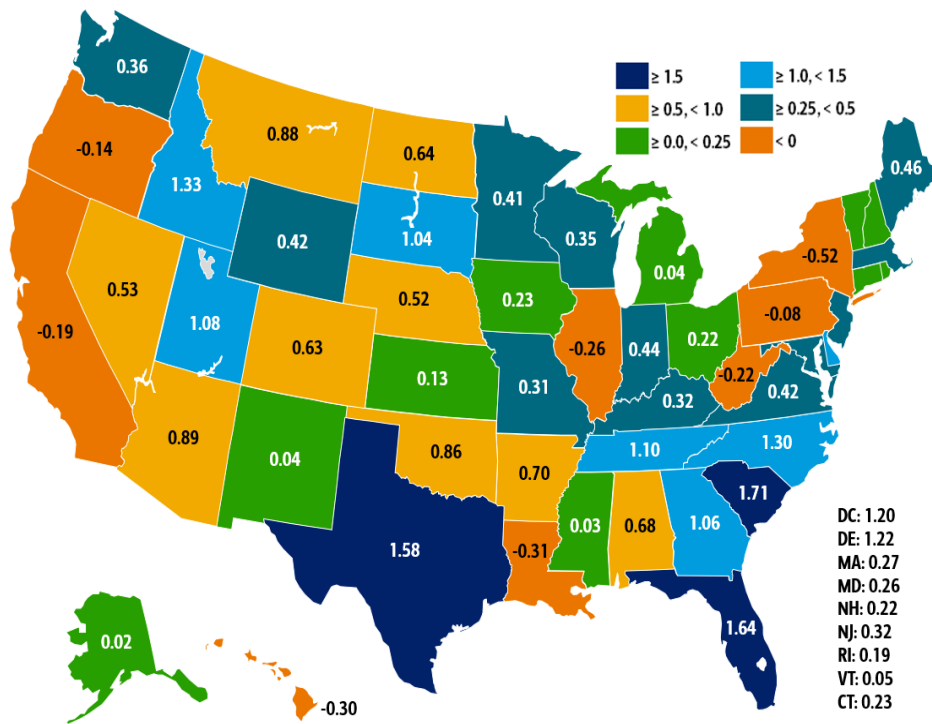
## Americans still headed South & West in 2023

In late December, the US Census Bureau released 2023 state population estimates. At the national level, population growth continued to rebound from rates in 2020 and 2021, though is still historically low at just 0.5%, or about 1.6mn more than in 2022 per the Census Bureau. 2023's growth was driven by materially "fewer deaths paired with rebounding immigration." Regionally, the South's population grew the fastest, increasing 1.1% with migration – both domestic and international – driving the region's growth. Only the Northeast saw population decline in 2023; both the Midwest and West regions' populations grew 0.2% y/y in 2023.

As Exhibit 4 shows, South Carolina's growth was fastest in 2023 at 1.71%. South Carolina was followed by Florida at +1.64% and Texas at +1.58%. Meanwhile, New York's population declined the most in 2023, falling 0.52%, followed by Louisiana's -0.31% and Hawaii's -0.30%. In total, 42 states' and DC's populations increased y/y in 2023 while 8 states' populations declined.

### Exhibit 4: State population change, 1 July 2022 to 1 July 2023 (%)

SC's 1.71% change strongest among the states, while NY's -0.52% weakest



Source: BofA Global Research, US Census Bureau

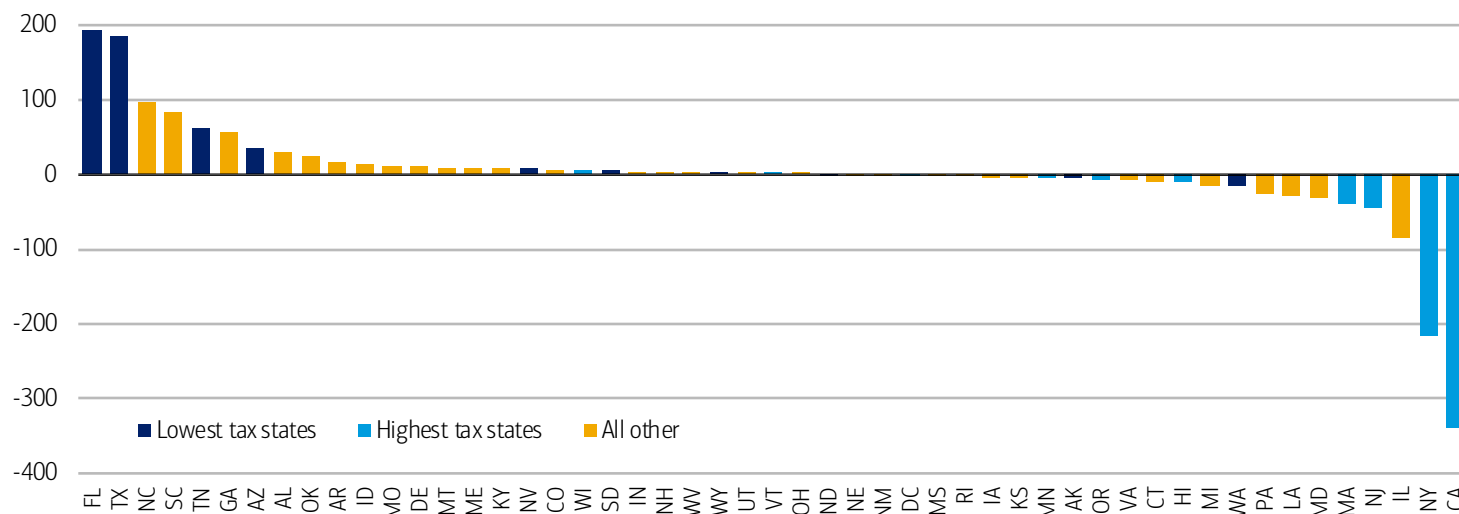
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2023 data shows that net domestic migration – or data which isolates Americans' conscious decisions of where to live – continues to be strongest in the South and West and weakest in the Northeast. Again, we note that the primary beneficiaries of domestic migration tend to be low or lower income tax states.

That is, the 10 lowest tax states (which include the eight 0% income tax states) had aggregate net domestic migration of +475,443 while the 10 highest tax states had -655,911; all other states' net domestic migration totaled 180,468 in 2023. We continue to view demographics as destiny: that is, population shifts affect tax revenues, economic output and growth, but also the flow of billions of federal dollars to state and local coffers under federal population-formula-based programs.

**Exhibit 5: Net domestic migration in 2023, by state (000s)**

Lowest income tax states<sup>1</sup> had positive net migration of 475.4K while the highest income tax states had negative net migration of -655.9K



**Note:** <sup>1</sup>Based on top marginal tax rate for 2022.

**Source:** BofA Global Research, US Census Bureau, Tax Foundation

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## Performance

### Strong performance in 2023 following YE rally

2023 will be a year remembered as a volatile year, but one that delivered stellar returns for munis. On a pretax basis, the ICE BofA Muni Master index (UOA0) returned 6.50% – the strongest annual return since 2019's 7.73%. While that compares favorably to the Treasury & Agency Index's (GOA0) 3.89% return, the Corporate Index (COA0) outperformed UOA0 by 190bp.

Of course, one needs to take into account the powerful effects of munis' tax exemption. UOA0's total return is made up of its 1.99% price return and its 4.50% coupon return. Tax-adjusting the coupon return using only the top federal tax rate of 37.0% and the Medicare surtax of 3.8% ( $4.50\% / (1 - 40.8\%)$ ) brings UOA0's total return in 2023 to 9.60%, or 571bp better than GOA0's and 120bp better than COA0's.

Exhibit 6 shows the tax-equivalent returns for the six largest states by population. Tax-equivalent total returns range from 9.19% in Texas (where this is no income tax) to 12.05% in New York, which had a top state tax rate of 10.9% in 2023. The Exhibit shows that, after taking into account both federal and state tax rates, New York munis outperformed govies by over 800bp in 2023 and corporates by 365bp.

**Exhibit 6: 2023 muni tax-equivalent total returns vs govies & corporates for different states (%)**

After adjusting for taxes, munis outperformed corporates by 246bp on average for 6 largest states

State	Top state tax	Full tax rate by state	Tax-equivalent muni total return	Munis less Govs* (bp)	Munis less Corps (bp)
CA	13.30%	54.10%	11.36%	733	296
TX	0.00%	40.80%	9.19%	516	79
FL	0.00%	40.80%	10.53%	650	214
NY	10.90%	51.70%	12.05%	802	365
PA	3.07%	43.87%	10.21%	618	181
IL	4.95%	45.75%	11.78%	775	338

**Note:** \*Govs' return adjusted using generic 5% state tax rate

**Source:** BofA Global Research, ICE Data Indices, LLC

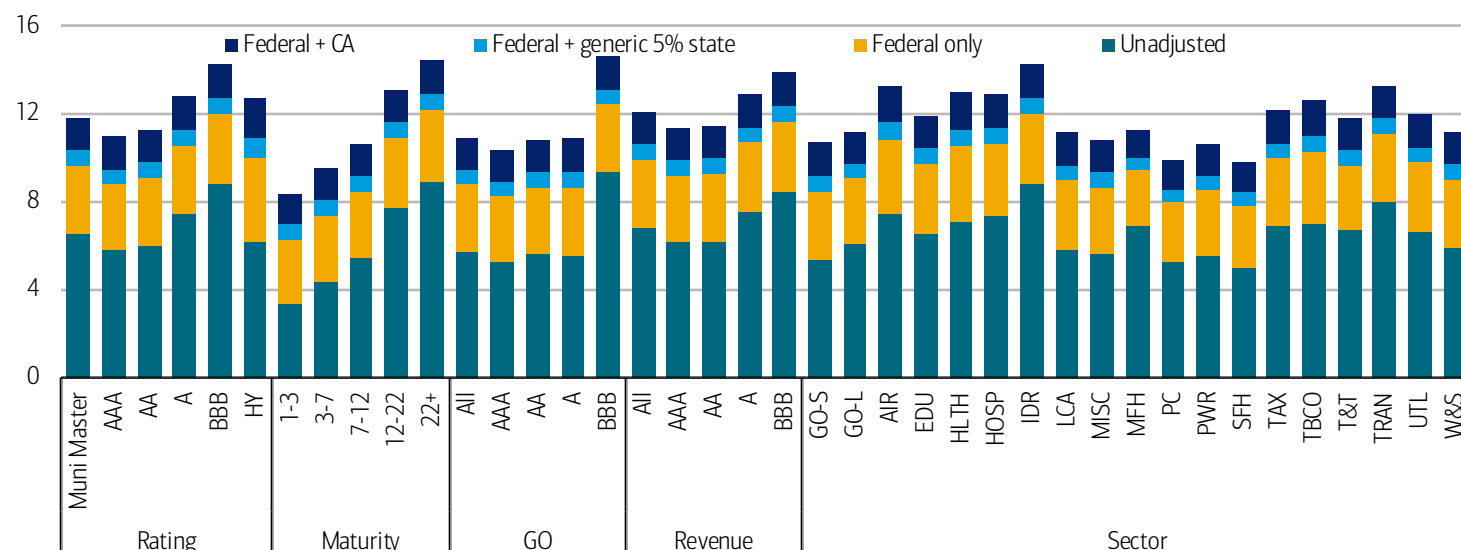
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Performance varied in 2023 among ratings, parts of the curve, and sector. Exhibit 7 shows (a) un-adjusted, (b) adjusted using only top federal tax rates and the Medicare surtax, (c) adjusted using that combined federal rate plus California's top rate, and (d) adjusted using the combined federal rate and a generic 5% state tax rate total returns.



**Exhibit 7: Un-adjusted and tax-adjusted total returns by rating, maturity, debt type and sector for 2023 (%)**

The long end of the curve performed best in 2023. Among the sectors, Industrial Development Revenue performed the best.



**Note:** See sector definitions in Exhibit 38 below.

**Source:** BofA Global Research, ICE Data Indices, LLC

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After the rate rally in November and December, Exhibit 7 shows that performance was strongest in the long end of the curve, down the rating scale and, among sectors, in Industrial Development Revenue, Transportation, Airports and Hospitals. Exhibit 8 is our typical performance table, which shows returns only on an unadjusted basis. Exhibit 9, meanwhile, shows that, among the coupon brackets, 4s outperformed across most of the curve in 2023. The strongest returns overall were long 4s: the 4% to 5% coupon bracket for the 22+ year part of the curve returned 11.09% in 2023, or 147bp better than 3s at that part of the curve and 380bp better than 5s.

**Exhibit 8: Municipal total returns (%) monitor, as of 31 December 2023**

2023 turns in strong year after stellar returns in the 4Q23

Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
Govt Master	GOA0	0.015	0.234	3.382	3.382	5.687	3.893	3.893
Corporate Master	COA0	0.012	0.419	4.044	4.044	7.913	8.398	8.398
<b>IG munis</b>	<b>UOA0</b>	<b>0.012</b>	<b>0.242</b>	<b>2.436</b>	<b>2.436</b>	<b>7.617</b>	<b>6.495</b>	<b>6.495</b>
AAA	UOA1	0.012	0.253	2.374	2.374	7.839	5.752	5.752
AA	UOA2	0.012	0.218	2.328	2.328	7.455	5.979	5.979
A	UOA3	0.012	0.265	2.612	2.612	7.678	7.391	7.391
BBB	UOA4	0.012	0.350	2.828	2.828	8.378	8.759	8.759
1-3yr	U1A0	0.012	0.086	0.790	0.790	2.730	3.316	3.316
3-7yr	U2A0	0.012	0.148	1.647	1.647	5.248	4.334	4.334
7-12yr	U3A0	0.011	0.193	2.419	2.419	7.094	5.472	5.472
12-22yr	U4A0	0.012	0.292	2.827	2.827	8.928	7.740	7.740
22+yr	U5A0	0.012	0.360	3.377	3.377	10.693	8.854	8.854
<b>HY munis</b>	<b>UOHY</b>	<b>0.015</b>	<b>0.341</b>	<b>2.530</b>	<b>2.530</b>	<b>6.170</b>	<b>6.197</b>	<b>6.197</b>
Non-rated	UONR	0.013	0.192	3.043	3.043	7.600	8.903	8.903
<b>General Obligation</b>	<b>UOAG</b>	<b>0.012</b>	<b>0.210</b>	<b>2.171</b>	<b>2.171</b>	<b>7.201</b>	<b>5.705</b>	<b>5.705</b>
AAA	UGA1	0.012	0.224	2.256	2.256	7.726	5.231	5.231
AA	UGA2	0.012	0.209	2.152	2.152	7.179	5.589	5.589
A	UGA3	0.012	0.179	2.121	2.121	6.349	5.479	5.479
BBB	UGA4	0.010	0.222	2.092	2.092	5.674	9.352	9.352
State	UOAA	0.012	0.176	1.948	1.948	6.228	5.350	5.350
Local	UOAB	0.011	0.249	2.427	2.427	8.332	6.110	6.110
<b>Revenue</b>	<b>UOAR</b>	<b>0.012</b>	<b>0.252</b>	<b>2.521</b>	<b>2.521</b>	<b>7.750</b>	<b>6.755</b>	<b>6.755</b>
AAA	URA1	0.012	0.273	2.454	2.454	7.916	6.127	6.127
AA	URA2	0.012	0.222	2.402	2.402	7.573	6.148	6.148
A	URA3	0.012	0.272	2.653	2.653	7.791	7.527	7.527
BBB	URA4	0.012	0.361	2.890	2.890	8.604	8.398	8.398

**Exhibit 8: Municipal total returns (%) monitor, as of 31 December 2023**

2023 turns in strong year after stellar returns in the 4Q23

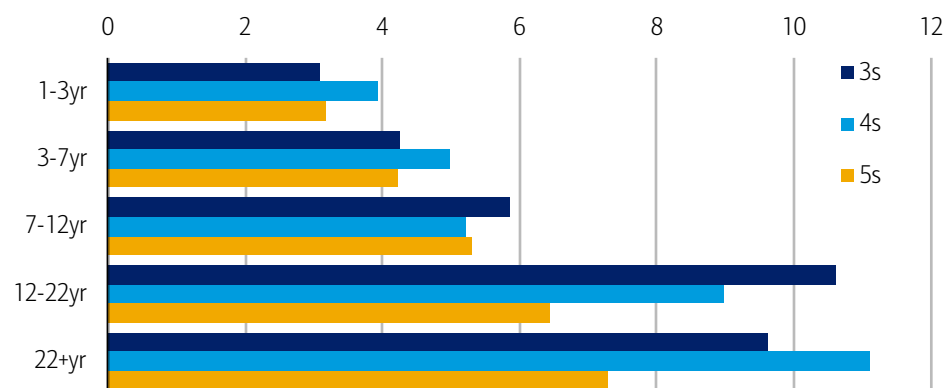
Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
Airport	UOAV	0.013	0.288	2.286	2.286	6.744	7.428	7.428
Education	UOAE	0.012	0.244	2.663	2.663	8.174	6.538	6.538
Health	UOHL	0.013	0.559	3.972	3.972	9.336	7.040	7.040
Hospital	UOAH	0.012	0.281	3.049	3.049	9.548	7.314	7.314
Industrial Development Rev	UOID	0.012	0.279	3.008	3.008	7.693	8.804	8.804
Leases, COPs & Appropriations	UOAL	0.012	0.233	2.357	2.357	7.137	5.778	5.778
Miscellaneous	UOAM	0.012	0.223	2.481	2.481	7.338	5.577	5.577
Multi-family Housing	UOAU	0.010	0.293	2.748	2.748	8.159	6.929	6.929
Pollution Control	UOAQ	0.010	0.165	2.219	2.219	6.133	5.238	5.238
Power	UOAP	0.012	0.269	2.219	2.219	6.539	5.484	5.484
Single-family Housing	UOAS	0.012	0.248	2.434	2.434	6.992	5.007	5.007
Tax Revenue	UOTX	0.012	0.235	2.580	2.580	8.276	6.845	6.845
Tobacco	UOTB	0.013	0.296	2.043	2.043	5.562	6.953	6.953
Toll & Turnpike	UOTL	0.011	0.247	2.231	2.231	7.300	6.661	6.661
Transportation - other	UOAT	0.011	0.241	2.587	2.587	7.789	8.013	8.013
Utilities - other	UOUT	0.012	0.248	2.393	2.393	6.415	6.624	6.624
Water & Sewer	UOAW	0.012	0.224	2.183	2.183	7.441	5.865	5.865
<b>Taxable</b>	<b>TXMB</b>	<b>0.012</b>	<b>0.298</b>	<b>4.634</b>	<b>4.634</b>	<b>7.514</b>	<b>8.193</b>	<b>8.193</b>
Build America Bonds	BABS	0.015	0.322	4.685	4.685	7.563	7.395	7.395
<b>VRDOs</b>	<b>VRDO</b>	<b>0.021</b>	<b>0.100</b>	<b>0.292</b>	<b>0.292</b>	<b>0.854</b>	<b>3.167</b>	<b>3.167</b>
Daily reset	VRDD	0.022	0.101	0.289	0.289	0.809	3.007	3.007
Weekly reset	VRDW	0.020	0.100	0.295	0.295	0.880	3.256	3.256

Source: ICE Data Indices, LLC

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**Exhibit 9: 2023 total returns, by coupon bracket and maturity (%)**

Long 4s had the strongest return in 2023



Source: BofA Global Research, ICE Data Indices, LLC

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**IG spreads 1bp wider w/w overall; HY spreads 2bp wider**

Muni IG spreads widened 1bp w/w overall to 26bp and are sitting at the 41<sup>st</sup> percentile of their 52-week range. Muni HY spreads widened 2bp to 229bp or the 100<sup>th</sup> percentile. Non-rated spreads tightened 2bp to 228bp. GO spreads were unchanged w/w and Revenue bond spreads widened 1bp. Among muni IG revenue bond sectors, Pollution Control narrowed the most by 4bp. The Industrial Development Revenue sector saw the most widening at 5bp for the week.

**Exhibit 10: Muni YTW spread monitor as of 3 January 2024**

Muni IG spreads widened 1bp w/w overall while HY spreads widened 2bp

	52wk				Current 1/3/24	Change from				Current as % of 52wk range	Price	Yield
	Tights	Wides	T-1wk	T-1d		Tights	Wides	T-1wk	T-1d			
<b>Investment Grade</b>	<b>19</b>	<b>36</b>	<b>25</b>	<b>26</b>	<b>26</b>	<b>7</b>	<b>-10</b>	<b>1</b>	<b>0</b>	<b>41</b>	<b>103</b>	<b>3.38</b>
AA	2	13	6	8	8	6	-5	2	0	55	104	3.20
A	49	77	58	59	59	10	-18	1	0	36	100	3.71
BBB	94	142	119	119	120	26	-22	1	1	54	97	4.32



**Exhibit 10: Muni YTW spread monitor as of 3 January 2024**

Muni IG spreads widened 1bp w/w overall while HY spreads widened 2bp

<b>High Yield</b>	<b>176</b>	<b>229</b>	<b>227</b>	<b>228</b>	<b>229</b>	<b>53</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>100</b>	<b>94</b>	<b>5.41</b>
Non-rated	174	298	230	229	228	54	-70	-2	-1	44	65	5.40
<b>General Obligation</b>	<b>-12</b>	<b>-3</b>	<b>-8</b>	<b>-7</b>	<b>-8</b>	<b>4</b>	<b>-5</b>	<b>0</b>	<b>-1</b>	<b>44</b>	<b>103</b>	<b>3.04</b>
AA	-19	-9	-15	-14	-13	6	-4	2	1	60	103	2.99
A	-15	29	8	10	3	18	-26	-5	-7	41	106	3.15
BBB	50	115	87	87	88	38	-27	1	1	58	97	4.00
State	-30	-17	-28	-27	-27	3	-10	1	0	23	107	2.85
Local	7	17	14	15	15	8	-2	1	0	80	99	3.27
<b>Revenue</b>	<b>30</b>	<b>49</b>	<b>36</b>	<b>37</b>	<b>37</b>	<b>7</b>	<b>-12</b>	<b>1</b>	<b>0</b>	<b>37</b>	<b>102</b>	<b>3.49</b>
AA	10	24	15	17	17	7	-7	2	0	50	104	3.29
A	53	81	62	63	63	10	-18	1	0	36	100	3.75
BBB	96	147	121	122	123	27	-24	2	1	53	97	4.35
Airport	52	84	66	67	67	15	-17	1	0	47	104	3.79
Education	9	36	16	17	17	8	-19	1	0	30	105	3.29
Health	135	174	163	165	165	30	-9	2	0	77	95	4.77
Hospital	60	89	71	71	72	12	-17	1	1	41	101	3.84
Industrial Development Rev	67	126	94	98	99	32	-27	5	1	54	101	4.11
Leases, COPs & Appropriations	-4	14	1	4	5	9	-9	4	1	50	105	3.17
Miscellaneous	-3	12	11	7	8	11	-4	-3	1	73	102	3.20
Multi-family Housing	54	90	66	66	67	13	-23	1	1	36	95	3.79
Pollution Control	30	64	61	56	57	27	-7	-4	1	79	99	3.69
Power	23	39	26	26	27	4	-12	1	1	25	105	3.39
Single-family Housing	69	89	89	88	89	20	0	0	1	100	99	4.01
Tax Revenue	3	18	6	6	6	3	-12	0	0	20	102	3.18
Tobacco	-22	40	14	15	15	37	-25	1	0	60	102	3.27
Toll & Turnpike	30	49	37	36	36	6	-13	-1	0	32	99	3.48
Transportation - other	25	59	28	32	32	7	-27	4	0	21	101	3.44
Utilities - other	67	105	77	78	79	12	-26	2	1	32	104	3.91
Water & Sewer	3	21	16	19	19	16	-2	3	0	89	104	3.31

**Note:** YTW spread to the ICE BofA AAA US Municipal Securities Index (UOA1).**Source:** BofA Global Research, ICE Data Indices, LLC

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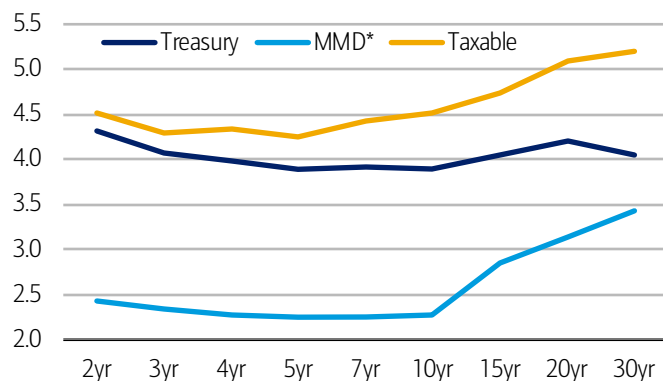
## Curve

**Curve shifts down 1bp w/w on avg and down 33bp m/m**

The AAA MMD curve fell 1bp w/w on average and richened by 33bp m/m. For the week, the 1s5s slope inversion decreased by 1bp to -40bp, 22bp flatter than one year ago; the 5s10s steepened w/w to 3bp and is 9bp flatter than it was one year ago; the 10s20s slope steepened 4bp w/w to 85bp and is 11bp steeper than one year ago, the 20s30s slope flattened 6bp w/w to 30bp and is 11bp steeper than it was one year ago. Investors should continue to position for a flattener led by the back end.

**Exhibit 11: AAA GO muni, Treasury and taxable yield curves (%)**

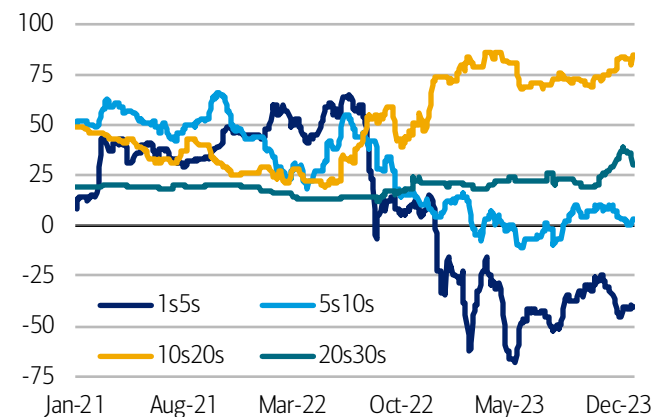
On average, Tsy &amp; Taxable cheapened and MMD narrowly richened w/w

**Note:** \*MMD AAA GO yield curve. As of 3 January 2024.**Source:** BofA Global Research, Refinitiv, Bloomberg

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**Exhibit 12: Curve slope (bp)**

All but the 20s30s steepened w/w with the 20s30s flattening 6bp

**Source:** Refinitiv

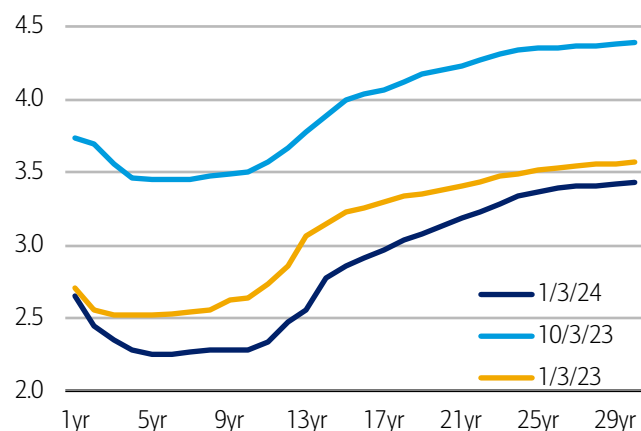
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**Exhibit 13: AAA GO municipal curve movement (%)**

AAA is richer than three months and a year ago across the curve



Source: Refinitiv

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## Supply & demand

### 2023 issuance totals \$380.4bn, down 3% y/y

December 2023 issuance totaled \$24.1bn, which was up 19% y/y, bringing 2023's issuance to \$380.4bn, which was down 3% y/y. 78% of 2023's issuance was new money and 22% was refundings. Note that new money volumes were down 5% y/y while refunding volumes were up 5% y/y.

**Exhibit 14: Issuance summary (\$mn)**

2023 issuance of \$380.4bn was down 3% y/y; new money down 5% y/y but refundings up 5% y/y

	Month-to-date			Year-to-date		
	12/31/23	12/31/22	y/y % Δ	12/31/23	12/31/22	y/y % Δ
<b>Total</b>	<b>24,132.8</b>	<b>20,272.5</b>	<b>19%</b>	<b>380,361.0</b>	<b>391,298.2</b>	<b>-3%</b>
New Money	17,937.7	17,614.0	2%	294,914.4	309,852.5	-5%
Total Refunding	6,195.0	2,658.5	133%	85,446.6	81,445.7	5%
Advanced refunding	0.0	0.2	-	1,380.9	2,155.9	-36%
Unknown refunding	5,691.8	1,627.2	250%	79,314.2	71,802.7	10%
Current & Forward refunding	503.3	1,031.1	-51%	4,751.5	7,487.2	-37%
Insured	1,245.8	1,535.1	-19%	31,855.9	28,884.3	10%
Fixed Rate	21,512.2	16,844.6	28%	336,132.2	358,785.9	-6%
Variable Rate Long	1,320.1	1,721.2	-23%	29,619.6	16,219.9	83%
Variable Rate Short	1,180.5	908.6	30%	12,449.7	11,532.8	8%
Linked Rate	119.9	576.7	-79%	1,573.3	2,869.4	-45%
Zero Coupon	0.0	221.5	-100%	435.6	1,283.0	-66%
Convertible	0.0	0.0	-	150.6	607.2	-75%
Variable rate no put	-	-	-	-	-	-
Tax Exempt	21,522.6	15,857.1	36%	326,209.2	315,316.7	3%
Taxable	1,945.7	2,055.4	-5%	37,443.5	54,279.5	-31%
Alternate Minimum Tax	664.6	2,360.0	-72%	16,708.3	21,702.1	-23%
General Purpose	7,335.6	3,468.6	111%	96,613.4	103,670.2	-7%
Education	5,232.7	3,280.9	59%	94,850.5	91,631.7	4%
Housing	3,254.6	3,223.0	1%	40,259.2	31,898.8	26%
Transportation	2,073.0	3,170.2	-35%	45,325.1	56,888.2	-20%
Healthcare	1,967.3	1,735.2	13%	16,752.4	27,905.3	-40%
Utilities	1,758.6	2,750.4	-36%	47,480.7	48,187.0	-1%
Electric Power	1,390.8	473.0	194%	17,680.2	12,251.1	44%
Development	432.4	1,582.3	-73%	10,069.0	10,193.9	-1%
Environmental Facilities	356.4	289.2	23%	3,636.7	3,007.6	21%
Public Facilities	331.4	299.8	11%	7,693.7	5,664.5	36%
Muni-backed corporates	150.0	2,150.6	-93%	4,051.8	15,088.8	-73%

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

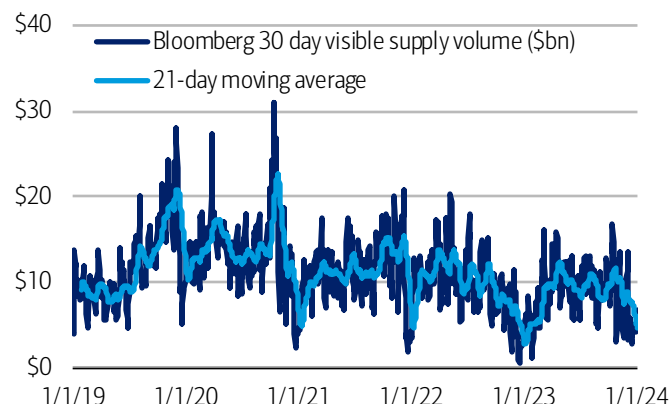
**Source:** BofA Global Research, Refinitiv, Bloomberg

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**Exhibit 15: Bloomberg 30-day visible supply (\$bn)**

30-day visible supply was \$6.7bn as of 4 January 2024



Note: Data as of 4 January 2024.

Source: Bloomberg

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**Exhibit 16: 2023 gross issuance, redemption forecasts vs actuals (\$bn)**

2023 gross issuance totaled \$380bn, down 24% vs forecast while 2023 principal + coupon redemptions totaled \$547bn, down 3% vs forecast

Month	Issuance		Prin. & cpn redemptions	
	Forecast	Actual	Forecast	Actual
January	\$23	\$24	\$42	\$39
February	20	22	45	42
March	32	34	39	37
April <sup>1</sup>	29	33	32	29
May	33	30	45	45
June	43	40	65	64
July	31	28	59	59
August	36	39	62	65
September	34	31	37	33
October	45	39	40	40
November	34	37	41	41
December	39	24	56	53

Note: Totals may not add up due to rounding. Data as of 31 December 2023. January-March data are actuals. <sup>1</sup>Monthly issuance forecasts revised from April onward.

Source: BofA Global Research, Refinitiv, Bloomberg

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## Relative value

### Ratios rich/very rich on a short-term basis

We screen the muni market for parts of the curve, sectors and ratings that are rich or cheap. Muni/Treasury ratios are rich/very rich on a short-term basis and mostly neutral on a long-term basis. Meanwhile, the slopes are mostly neutral on a short-term basis.

**Exhibit 17: Rich/cheap analysis of MMD\*/Treasury ratios as of 3 January 2024**

The muni market is Rich/Very Rich on a ST basis and mostly Neutral on a LT basis

Maturity	Current Tsy	Muni/Tsy	MMD R/C (short-term)	3 mo. max	3 mo. min	3 mo. avg	MMD R/C (long-term)	3 year max	3 year min	3 year avg
3yr	4.070%	57.7%	Rich	74.1%	57.3%	66.1%	Neutral	130.7%	26.7%	62.2%
5yr	3.891%	57.8%	Rich	74.3%	57.3%	66.4%	Neutral	92.0%	39.3%	63.3%
10yr	3.903%	58.4%	Rich	75.5%	57.8%	67.5%	Rich	105.3%	54.7%	72.7%
30yr	4.052%	84.6%	Very Rich	92.3%	83.6%	88.5%	Neutral	110.0%	63.5%	86.8%

Note: \*MMD AAA GO yield curve. R/C = Rich/Cheap Note the benchmark for short-term is the 3-month average and for long-term is the 3-year average. Rich/cheap is based on z-scores: if z-score is >2, then "Very Cheap"; if >1 but <2, then "Cheap"; if between -1 and 1, then "Neutral"; if <-1 but >-2, then "Rich"; if <-2, then "Very Rich".

Source: BofA Global Research, Refinitiv, Bloomberg

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**Exhibit 18: Rich/cheap analysis of MMD\* slopes (bp) as of 3 January 2024**

The slopes are mostly Neutral on a ST basis

Slope	Current slope	Slope S/F (short-term)	3 mo. max	3 mo. min	3 mo. avg	Slope S/F (long-term)	3 year max	3 year min	3 year avg
1s5s	-40	Neutral	-25	-45	-34	Flat	65	-68	10
1s10s	-37	Flat	-15	-42	-28	Flat	120	-74	37
10s30s	115	Neutral	123	88	104	Steep	123	32	70
1s30s	78	Neutral	84	63	77	Neutral	170	26	108

Note: \*MMD AAA GO yield curve. S/F = Steep/Flat Note the benchmark for short-term is the 3-month average and for long-term is the 3-year average. Rich/cheap is based on z-scores: if z-score is >2, then "Very Cheap"; if >1 but <2, then "Cheap"; if between -1 and 1, then "Neutral"; if <-1 but >-2, then "Rich"; if <-2, then "Very Rich".

Source: BofA Global Research, Refinitiv, Bloomberg

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## OAS rich/cheap analysis

At the 7-12yr part of the curve, AAA Power, AA Utilities' OAS is very cheap, while AAA Power, Single-A Power and Single-A Utilities' are cheap. AAA Local GO and AAA Pollution Control Very Rich. At the 22+yr part of the curve, BBB State GO and BBB Utilities are very rich, while AA Airports, AA Hospital and AAA State & Local GOs are cheap among others.

**Exhibit 19: Rich/cheap analysis of 7-12yr indexes' OAS (bp)**

AA Utilities' current OAS of 53bp at 7-12yrs is currently Very Cheap against its 3yr OAS average of 9bp

Sector	Current OAS				Rich/cheap analysis				3yr OAS average			
	AAA	AA	A	BBB	AAA	AA	A	BBB	AAA	AA	A	BBB
Airports		41	40	8		N	N	N		32	31	57
Higher Education	-11	-5	55		N	N	N		-8	-3	40	
GO Local	3	7	56	117	VR	N	N	N	-2	8	44	114
GO State	-4	-3	64	0	N	N	N	R	-6	-4	43	100
Health		24	97	152		N	N	N		20	71	108
Hospital		17	50	85		N	N	N		17	39	97
IDR		64	79	96		N	N	N		37	53	80
Leases COPS & Appr.		13	27	140		N	N	N		10	35	111
Pollution Control	8		81		VR		N		-1		73	
Power	-10	0	75		C	R	C		-4	-4	27	
Tax Revenues	2	5	72	94	N	N	N	N	3	6	55	117
Tobacco			52				N				48	
Toll & Turnpike		21	27	91		N	N	N		21	18	81
Transportation - Other	0	18	47	0	R	N	N	R	5	13	56	88
Utilities - Other	0	53	117		R	VC	C		-2	9	44	
Water & Sewer	-1	-4	26	23	N	N	N	N	-5	-6	13	105

**Note:** Data as of 2 January 2024. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.**Source:** ICE Data Indices, LLC

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**Exhibit 20: Rich/cheap analysis of 22yr+ indexes' OAS (bp)**

BBB Utilities' current OAS of 0bp at 22yr+ is currently Very Rich against its 3yr OAS average of 57bp

Sector	Current OAS				Rich/cheap analysis				3yr OAS average			
	AAA	AA	A	BBB	AAA	AA	A	BBB	AAA	AA	A	BBB
Airports		50	48	10		C	N	N		27	26	14
Higher Education	46	20	38	111	C	C	N	C	25	-8	20	76
GO Local	19	22	32	101	C	C	N	N	-9	2	22	77
GO State	6	12		0	C	C		VR	-25	-19		83
Health		-19	72	205		N	C	C		-16	38	111
Hospital		32	42	88		C	N	C		7	25	57
IDR			90	96			C	N			54	70
Leases COPS & Appr.	30	16	39	85	C	C	N	C	-5	-5	31	49
Pollution Control			48				C				17	
Power		20	38	55		C	N	N		-5	17	44
Tax Revenues	34	23	78	77	C	C	C	N	8	4	50	74
Tobacco				116				N				85
Toll & Turnpike			30	64			N	N			12	42
Transportation - Other		0	33	71		N	N	N		11	33	50
Utilities - Other		27	51	0		C	C	VR	-7	-7	23	57
Water & Sewer	13	13	16		C	C	N		-18	-13	-2	

**Note:** Data as of 2 January 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.**Source:** ICE Data Indices, LLC

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**MWIs small increases 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 has small increases in the overpriced space w/w, with the Industrial Development Revenue and Tobacco sector increasing most. Industrial Development Revenue's MWI is the lowest.

**Exhibit 21: MWIs – sector momentum (%) as of 2 January 2024**

Most sectors had small increases over the past week

Sector	MWI	m/m Δ	Sector	MWI	m/m Δ
<b>UOAO Index</b>	<b>99.3%</b>	<b>1.0%</b>	Miscellaneous	100.0%	0.3%
ETM	96.6%	-0.1%	Multi-Family Housing	97.5%	0.8%
GO - Local	99.6%	0.6%	Pollution Control	99.2%	0.7%
GO - State	99.9%	1.2%	Power	99.0%	0.7%
Pre-Re	100.0%	0.0%	Single Family Housing	96.9%	2.2%
Airport	98.0%	2.4%	Tax revenue	99.9%	1.7%
Education	99.8%	0.9%	Tobacco	97.5%	12.5%

**Exhibit 21: MWIs – sector momentum (%) as of 2 January 2024**

Most sectors had small increases over the past week

Sector	MWI	m/m Δ	Sector	MWI	m/m Δ
Health	99.1%	7.8%	Toll & Turnpike	99.1%	0.1%
Hospitals	99.7%	0.4%	Transportation	99.9%	0.2%
Industrial Development Rev	95.1%	4.5%	Utilities - Other	97.9%	-0.3%
Leasing COPS & Appropriations	98.8%	-0.6%	Water & Sewer	99.0%	1.2%

Source: BofA Global Research, ICE Data Indices, LLC

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## Trade activity

**Most actively traded CUSIPs for the week**

The most actively traded CUSIP over the last week by total volume was 20775DTU6, totaling \$48mn. Those are Connecticut Health and Education Facilities Authority bonds on behalf of Yale University, due in 2042. By number trades it was 113073AY6, totaling 122 trades. These are Brookhaven Georgia Development Authority Children's Healthcare of Atlanta revenue bonds due in 2049.

**Exhibit 22: Most actively traded muni CUSIPs over the week ending 3 January 2024**113073AY6 was the most frequently traded CUSIP. <sup>1</sup>Last trade

CUSIP	Short name	ST	Coupon/Maturity	Yield <sup>1</sup>	Spread	# of trades	Avg Vol (\$mn)
20775DTU6	CT HLTH&EDU FACS AUTH	CT	3.95s of '42	--	-305	13	3.69
59447TQ30	MICHIGAN FIN AUTH-BAM	MI	4s of '55	4.25	88	116	0.39
45470YEW7	INDIANA ST FIN AUTH-A	IN	4s of '49	4.13	81	103	0.35
59261AM53	MET TRANSP AUTH-E1	NY	4.1s of '50	--	-334	13	2.36
072024YE6	BAY AREA TOLL AUTH-A	CA	3.9s of '55	--	-337	12	2.45
650116HA7	NY TRANSPRTN DEV CORP	NY	5.375s of '60	4.88	151	22	1.30
59335KFS1	MIAMI DADE-REV-TXBL	FL	6.224s of '55	5.34	0	10	2.82
64966LU41	NYC-F-5	NY	4.1s of '44	--	-313	11	2.55
64971WCT5	NYC TRANS FIN AUTH-B3	NY	4.1s of '42	--	-307	6	4.31
647370EK7	NM HSP-VAR-B-PRESBYTE	NM	4.05s of '34	--	-232	5	5.00
13063BCD2	CA FLTG-A1-RMKT-12/01	CA	3.7s of '33	--	-224	7	3.03
39239MED0	GTR TEXOMA UTL AUTH-R	TX	4.375s of '54	4.09	72	80	0.26
64966MSB6	NY CITY-B4-VAR	NY	4.1s of '46	--	-324	10	2.08
113073AY6	BROOKHAVEN DEV AUTH-A	GA	4s of '49	4.04	73	122	0.17
70917S6Y4	PENNSYLVANIA ST HGR	PA	4s of '49	4.20	89	115	0.18
748508U97	QUINCY -BANS	MA	5s of '24	2.95	35	5	4.07
88258MAA3	TX NATURAL GAS SECZ	TX	5.102s of '35	4.87	93	6	3.37
915260CL5	UNIV HOSPS & CLINIC-B	WI	3.1s of '48	--	-328	4	5.00
64966QWQ9	NEW YORK CITY -2	NY	4.15s of '42	--	-303	4	5.00
9281723T0	VIRGINIA PUB BLDG-A	VA	4s of '35	2.80	37	4	5.00

Source: Bloomberg

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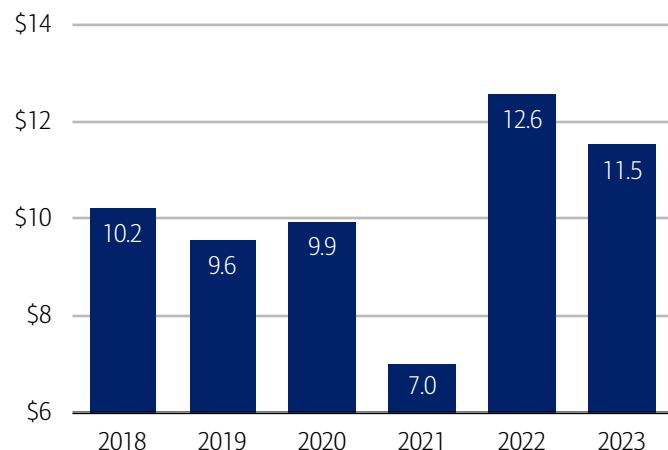
**2023's avg daily secondary trading at \$11.5bn**

A total of \$2.87tn of muni bond par traded in the secondary in 2023, down roughly 9% versus the \$3.12tn in 2022, based on Bloomberg data. The average daily secondary trading volume of \$11.5bn was down 8.3% versus 2022's \$12.6bn.

As of 3 January, we see an average daily secondary trading volume of \$6.8bn. While daily trading data is subject to revision over the course of the month, it currently represents a 37.9% decrease from December's average and is 40.7% below January 2022's level. As the month progresses, we expect January's daily average to climb.

**Exhibit 23: Daily avg secondary trading volume, by year (\$bn)**

2023's avg of \$11.5bn down 8.3% y/y



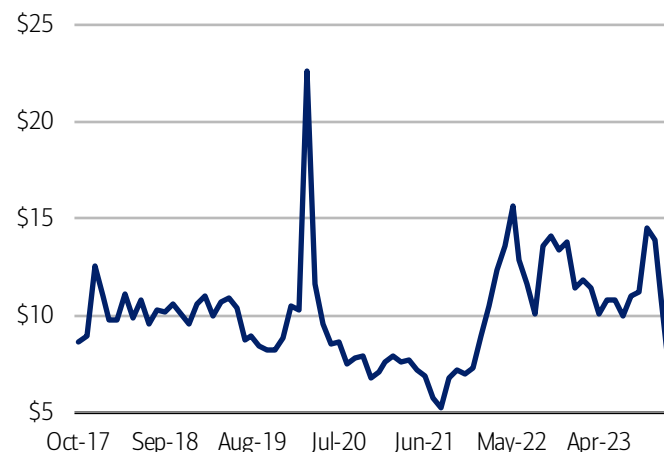
Note: Data as of 3 January 2024.

Source: Bloomberg

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**Exhibit 24: Daily avg secondary trading volume, by month (\$bn)**

We expect Jan-24's daily avg, currently at \$6.8bn, to rise over the month



Note: Data as of 3 January 2024.

Source: Bloomberg

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## Credit corner

### Muni indexes' Dec-23 UGRs

**UGRs improve for 11 of 19 sectors m/m in December**

In our [Municipals Year Ahead 2024](#) and [8 December 2023 Municipals Weekly](#), we discussed muni index net upgrade rates (UGR; the trailing 12-month total of par upgrades less downgrades divided by the total index par). We now have data through December and find that of the 19 different muni sector indexes maintained by ICE, 11 saw m/m increases in their UGRs. That said, only three indexes' UGRs are currently at a 12-month high: the Pollution Control (UOAQ) index's at 0.4%, the Toll & Turnpike (UOTL) index's at 20.3% and the Water & Sewer (UOAW) index's at 5.1%.

**Exhibit 25: Muni sector UGRs, Jan-23 through Dec-23**

While 11 of 19 sectors' UGRs improved m/m, only 3 sectors' are at 12-month highs

Index	Ticker	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
IG munis	UOAO	11.0%	10.2%	9.6%	8.0%	6.6%	6.2%	6.3%	6.1%	5.7%	6.1%	6.3%	6.3%
AA	UOA2	4.3%	3.6%	3.9%	1.1%	1.1%	1.0%	0.7%	0.6%	0.6%	1.0%	1.0%	1.2%
A	UOA3	16.1%	14.4%	10.8%	16.5%	14.2%	13.1%	14.8%	14.9%	14.9%	14.8%	14.8%	14.3%
BBB	UOA4	40.9%	41.3%	43.7%	44.3%	36.5%	37.4%	37.0%	36.7%	19.4%	22.7%	26.3%	25.3%
HY munis	UOHY	3.4%	2.8%	0.5%	16.8%	16.6%	16.2%	19.7%	19.2%	20.3%	19.7%	13.8%	12.5%
GO-S	UOAA	9.8%	9.9%	11.2%	11.3%	10.1%	10.1%	10.2%	10.3%	10.2%	10.1%	10.2%	11.0%
GO-L	UOAB	2.5%	1.9%	1.0%	1.2%	1.4%	0.7%	0.2%	-0.4%	-0.1%	1.0%	1.0%	1.0%
AIR	UOAV	24.5%	25.4%	26.4%	25.1%	27.4%	19.1%	18.2%	7.2%	5.1%	2.3%	2.7%	2.6%
EDU	UOAE	3.3%	3.2%	2.9%	1.3%	1.3%	1.3%	1.2%	0.8%	1.1%	1.0%	0.8%	0.4%
HLTH	UOHL	-0.2%	-4.7%	-4.0%	-3.5%	-3.3%	-3.3%	-3.6%	-3.2%	-3.1%	-5.1%	-4.7%	-2.2%
HOSP	UOAH	1.0%	0.5%	-0.8%	-0.3%	0.2%	-0.2%	0.1%	-0.5%	-3.2%	-4.1%	-3.6%	-3.0%
IDR	UOID	14.0%	0.6%	4.6%	4.6%	12.4%	12.2%	8.9%	9.2%	8.2%	8.1%	8.1%	4.8%
LCA	UOAL	17.4%	17.3%	13.1%	14.6%	13.2%	12.7%	10.3%	10.3%	8.6%	8.5%	8.4%	8.4%
MISC	UOAM	5.5%	5.4%	1.8%	2.0%	2.6%	1.9%	2.0%	0.2%	-0.6%	-0.6%	-0.6%	-0.6%
MFH	UOAU	1.1%	3.3%	3.3%	2.6%	2.6%	2.6%	2.5%	2.5%	2.5%	1.9%	1.9%	1.8%
PC	UOAQ	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-1.7%	-1.6%	0.0%	0.0%	0.4%	0.4%	0.4%
PWR	UOAP	0.6%	0.6%	-0.8%	-0.6%	-0.8%	-0.8%	0.3%	-0.7%	-1.1%	-1.1%	-1.1%	-1.0%
SFH	UOAS	5.0%	4.9%	4.9%	4.9%	6.6%	6.3%	6.3%	0.1%	0.1%	0.1%	0.1%	0.1%
TAX	UOTX	19.4%	19.8%	18.3%	6.6%	1.8%	1.9%	2.1%	2.6%	2.6%	4.1%	7.0%	7.1%
TBCO	UOTB	5.0%	5.0%	5.0%	5.0%	5.1%	5.1%	5.1%	4.2%	4.0%	7.1%	2.9%	-0.7%
T&T	UOTL	13.0%	7.9%	7.9%	7.2%	7.1%	7.2%	8.0%	17.3%	17.1%	18.5%	19.5%	20.3%
TRAN	UOAT	36.4%	36.5%	35.6%	37.6%	26.1%	26.6%	25.4%	24.8%	23.7%	24.3%	24.6%	22.8%
UTL	UOUT	-0.4%	-0.8%	-1.2%	-1.1%	2.2%	4.9%	12.2%	12.2%	12.5%	12.3%	6.3%	5.9%
W&S	UOAW	2.5%	3.1%	2.2%	2.8%	1.4%	1.7%	1.8%	2.4%	2.5%	4.6%	5.1%	5.1%

Note: See sector definitions in Exhibit 38 below.

Source: BofA Global Research, ICE Data Indices, LLC

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## State and local governments

### Nov-23 collection medians up modestly; early Dec-23 medians point down

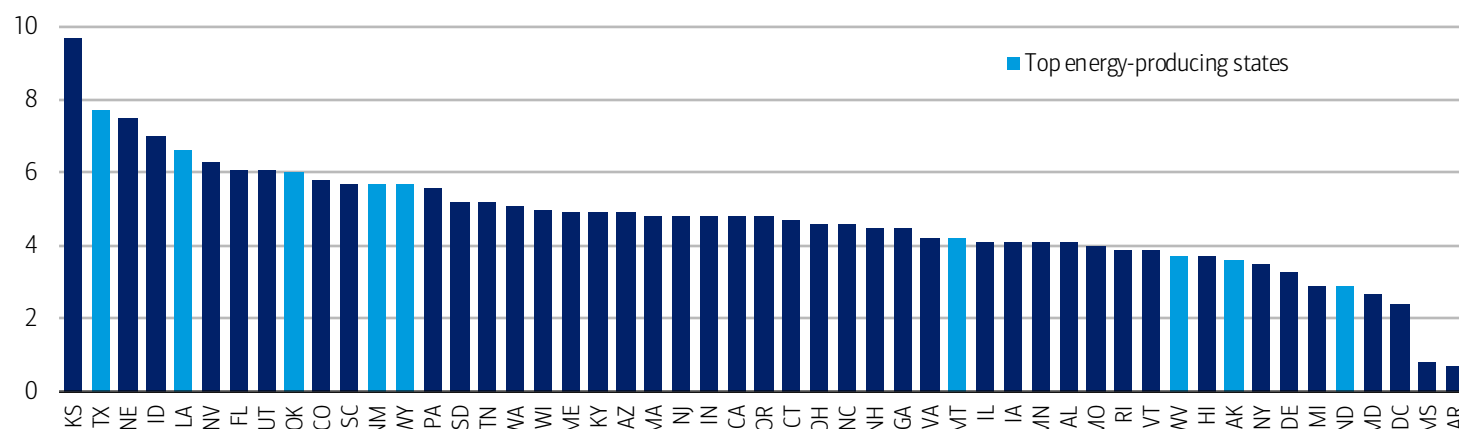
The total number of November reporting states is now 41. For these states, collections overall are up 1.2% on median y/y, with personal income collections up 1.3% on median, while corporate and sales tax collections were up 22.3% and 0.9%, respectively. Meanwhile, 8 states also reported collections for the month of December. While these medians are early, and subject to more volatility, they point to a modestly down month on a y/y basis; among these early reporting states, personal income collections are up 5.9% and sales tax collections are up 2.3%, while corporate collections are down 13.8%. Overall, collections are down 1.9% y/y on median.

### A check up on state economies: BEA and the Philly Fed data

All 50 states' and DC's real GDP increased at seasonally adjusted annual rates in 3Q23, according to a 22 December Bureau of Economic Analysis report. Per BEA's data, the percent change ranged from a high of +9.7% in KS to a low of 0.7% in AR. As Exhibit 26 shows, some energy producing states' growth in 3Q23 was among the strongest while others' was among the weakest.

#### Exhibit 26: 3Q23 real GDP growth, at seasonally adjusted annual rates, by state (%)

Each states' GDP expanded in 3Q23, led by KS' 9.7% growth



Source: Bureau of Economic Analysis

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The Philadelphia Fed also released state coincident index levels for November last month. The data shows that 21 states' index levels declined over the last three months – the largest number since all 50 states' did so in June 2020. Over the last three months: WV's index level fell 2.47%; MT's fell 2.29%; MI's fell 1.55%; IL's fell 0.84%; AK's fell 0.60%; MO's fell 0.59%; OK's fell 0.56%; NY's fell 0.48%; TN's fell 0.38%; MA's fell 0.38%; NJ's fell 0.36%; IA's fell 0.36%; ME's fell 0.31%; VT's fell 0.30%; WA's fell 0.29%; AR's fell 0.28%; KY's fell 0.26%; AL's fell 0.17%; WI's fell 0.15%; MS's fell 0.05%; and, AZ's fell 0.05%. Meanwhile, NV's 1.06% index level increase was largest, followed by TX's 1.01% and SC's 0.95%. The median increase over the last three months was 0.05%.

### Public pension funded ratio climbs 4.5ppt m/m in November – Milliman

Milliman's recently released its 2023 Public Pension Funding Study which shows the funded ratio for the 100-largest US public pension plans climbed to 75.9% as of the end of November, or 4.5ppt higher on a m/m basis and 1ppt higher than the 74.9% funded ratio immediately pre-pandemic in 4Q19. Unfunded liabilities decreased roughly \$250bn m/m to \$1.5tn on the back of positive market performance.

### NY statewide local sales taxes grow 5.1% y/y in Nov; NYC's grow 5.8%

A NY state comptroller report on local sales tax collections shows that state-wide local sales tax collections in New York were up \$88.6mn, or 5.1% on a y/y basis in November as New Yorkers "increased their spending heading into the holiday season, with all

regions seeing year-over-year increases for the month.” Note that New York City’s sales taxes grew 5.8% y/y in November, and for the 11 months from January 2023-November 2023, collections are up \$524mn, or 6.1% – that bests statewide growth over that time period of 4.4%

### Puerto Rico extends Act 5’s emergency period through 30 June

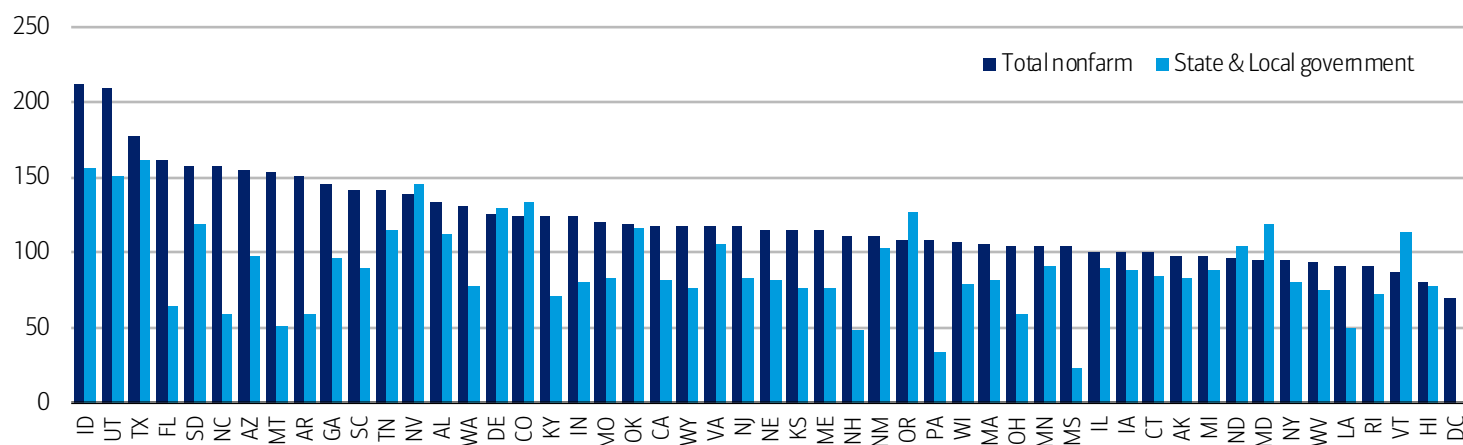
Through executive order, Puerto Rico’s governor extended the emergency period under Act-5 of 2017 for another six months through 30 June to allow Puerto Rico “to continue conducting the formalities and negotiations leading to the completion of the debt restructuring processes in an orderly manner while providing services to the residents of Puerto Rico and carrying out government operations.” The governor pointed to the Title III restructuring of PREPA, along with other instrumentalities’ under Title V of PROMESA. Meanwhile, according to data from the Economic Development Bank of Puerto Rico, Puerto Rico’s Economic Activity Index climbed 5.9% y/y in November, though fell 0.2% vs Oct-23’s print which was the highest level in a decade. Otherwise, we highlight: (a) TSA balances of \$8.9bn as of 22 December that were up \$360mn w/w, and for the YTD are up 23.4% above adopted liquidity plan (LP) estimates; (b) FY24 General Fund collections through 1 December of \$6.6bn that were up 6.2% vs collections LP estimates; (c) inbound air passenger traffic during the first quarter of the FY (Jul-23 through Sep-23) to Luis Muñoz Marín International and regional airports of 1.75 million vs outbound traffic of 1.78 million, for a net balance of -34,200, a modest improvement y/y; and (d) FY24 first quarter cruise ship passengers totaling 163,400, which is 25.9% larger y/y but still just roughly half of levels from the first quarter of FY20.

### Number of states fully recovering payroll losses increases to 39 as of Nov-23

39 states fully recovered jobs lost during the pandemic crisis as of Nov-23 per Bureau of Labor Statistics data, led by ID’s 212.1% recovery. The weakest overall nonfarm payroll recoveries are still concentrated in tourism-dependent and energy-producing states. Exhibit 27 shows that state and local government payroll recoveries remain weaker across the states, fully recovering in just 16 states: ID, UT, TX, SD, TN, NV, AL, DE, CO, OK, VA, NM, OR, ND, MD and VT. Also, just seven states’ public sector payroll recoveries exceed their overall nonfarm payroll recoveries: NV, DE, CO, OR, ND, MD and VT.

#### Exhibit 27: Nonfarm payroll and state and local payroll recoveries as of November 2023, by state (%)

State and local government payroll recoveries exceed overall nonfarm payroll recoveries in 7 states, and are complete in 16 states



Source: BofA Global Research, Bureau of Labor Statistics

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## Airports

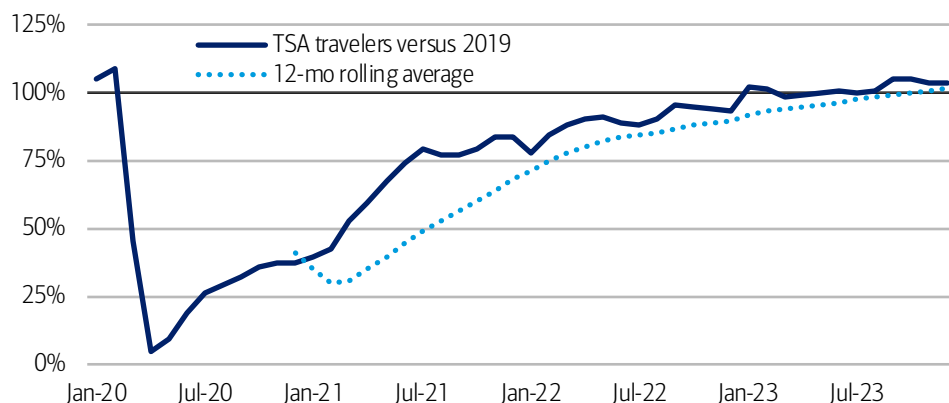
### 2023 total passengers beat 2019 by 1.5%

The air travel recovery was strong again in December with the number of passengers coming in at 103.3% of 2019 levels. December saw 72.5 million travelers versus 70.2 million travelers in December 2019. With 65.6 million travelers in December 2022, the number of travelers was up 10.5% y/y. Checkpoint growth was 1.6% m/m with the 12-

month rolling average recovery level continuing its climb and improving 1ppt to 102%. Last December, the recovery was 9.8ppt lower at 93.5%. For full-year 2023, passenger levels were up 1.5% compared to 2019 and 13.1% versus last year. Monthly recoveries have been at least 98.7% since January, with nine of the last 12 months above 100%.

#### Exhibit 28: Monthly TSA checkpoint travel numbers versus 2019

December 2023 air traveler recovery was 103.3%; 12-month rolling average of 102%



Source: Transportation Security Administration

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## Ports

### West Coast ports see bump in traffic leading into year end

The Port of Los Angeles (PLA) and the Port of Long Beach (PLB) both posted y/y increases in cargo volume in Nov-23. The PLA processed 763K TEUs, up 19.4% vs Nov-22, and the fourth month in a row of increased cargo volume. YTD-23, the port processed 7.9mn TEUs, down 14.1% from 2022's 9.2mn TEUs. The PLB processed 731K TEUs, up 24.2% y/y, with the PLB's CEO attributing the strong end to the year to the recapture of market share, with some portion of traffic having shifted to East and Gulf Coast ports this past year. YTD-23, TEU processing at the PLB reached 7.3mn TEUs, down 14.9% from the same time in 2022. However, the port noted that TEU processing in 2023 has "been approximately on pace with pre-pandemic levels, when the Port of Long Beach moved more than 6.96 million TEUs through November 2019."

## Defaults, distress & HY

### 2023 default & distress

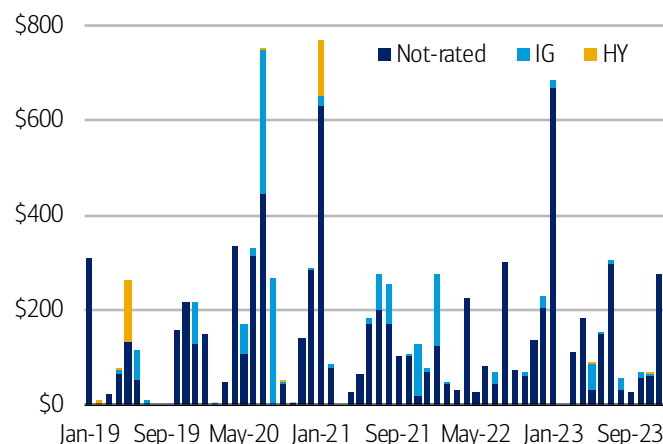
#### First-time payment defaults \$275mn in Dec; 2023 totals \$2.0bn, up 29% y/y

First-time payment defaults totaled \$275mn in December, coming from eight borrowers: AFSA High School Cappella of Grand Junction LLC, City of Overland Park KS Sales Tax Revenue, ENCORE Learning, Fulcrum Sierra Biofuels LLC, Harrison County Commission Special District Excise Tax Revenue, ML Dahlonaga LLC, ML The Renaissance LLC. 49% was from the Industrial Development sector, 37% was from the Sales & Excise Tax sector, 9% was from the Nursing Home/Senior Living sector, 5% was from the Charter School sector. All defaults were in the unrated space. 88% of 2023 defaults are within 2 years from when the first-time distress event was reported.



**Exhibit 29: Monthly first-time defaults (\$mn) by avg rating at issue**

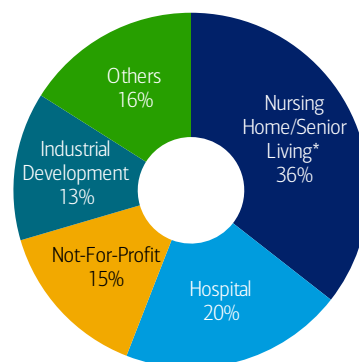
First-time defaults \$275mn in Dec; 2023 totals \$2.02bn, up 29% y/y

**Note:** We may revise data if Bloomberg revises its data.**Source:** BofA Global Research, Bloomberg

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**Exhibit 30: 2023 total first-time defaults by sector**

Nursing Home/Senior Living and Hospital sectors constitute more than half of the total defaults in 2023

**Note:** \*Nursing Home/Senior Living includes CCRC, ASST Living, Nursing Home, and Independent Living Facilities. NFP = not-for-profit. The sequence above is based on average rank of breakdown by par value and by number of CUSIPs.**Source:** BofA Global Research, Bloomberg

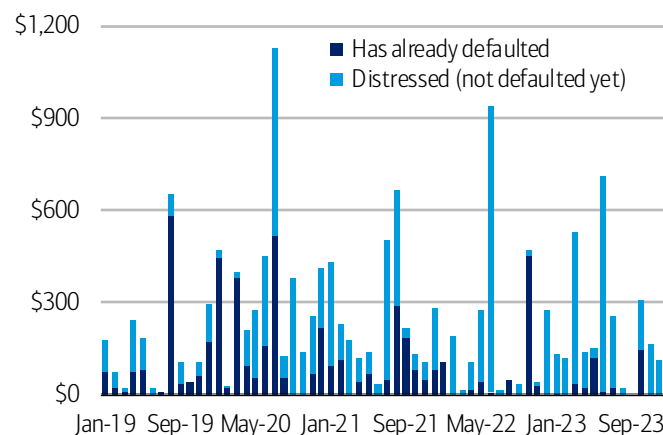
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**First-time distressed debt \$115mn in Dec; 2023 totals \$2.7bn, up 5% y/y**

First-time distressed debt (when the first distressed event that is not a payment default occurs) totaled \$115mn in December, bringing the 2023 total to \$2.7bn, up 5% y/y. The total cumulative first-time distressed debt since 2019 totals \$14.5bn; of that, 37% defaulted while 6% exited distressed status and 5% are no longer outstanding.

**Exhibit 31: Monthly first-time distressed debt (\$mn)**

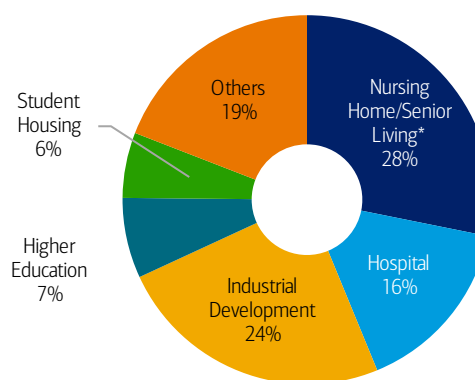
First-time distress \$115mn in Dec; 2023 totals \$2.7bn, up 5% y/y

**Note:** We may revise data if Bloomberg revises its data.**Source:** BofA Global Research, Bloomberg

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**Exhibit 32: 2023 total first-time distressed debt by sector**

Distressed debt concentrated in Nursing Home/Senior Living, Hospital and Industrial Development sectors

**Note:** \*See footnote in Exhibit 30. The sequence above is based on average rank of breakdown by par value and by number of CUSIPs.**Source:** BofA Global Research, Bloomberg

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

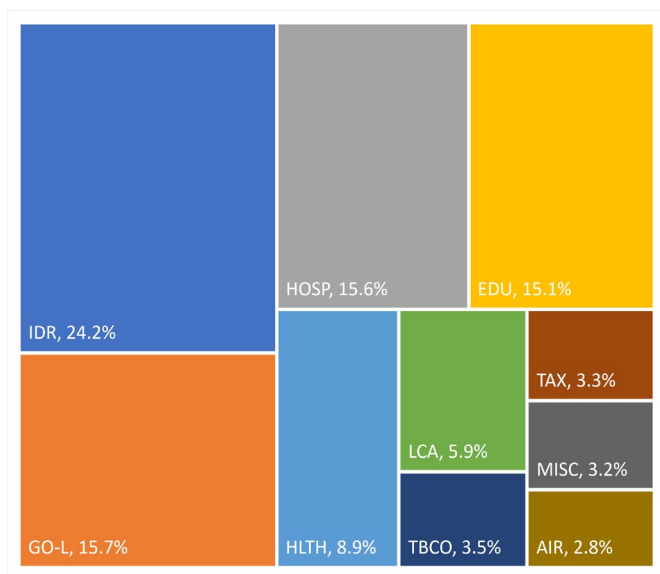
**IDR's UOHY weighting jumped 4.5% y/y and 12.7% since 2019**

As of 31 December 2023, the top-five sectors by market value within the ICE BofA US Municipal High Yield Securities Index (UOHY) were: (1) Industrial Development Revenue (24.2%); (2) Local GO (15.7%); (3) Hospitals (15.6%); (4) Education (15.1%); and (5) Health (8.9%). Over the past one year, the sectors with the largest increase in weighting were Industrial Development Revenue (+4.5%), Education (+1.2%) and Local GO (+1.2%). The sectors with the largest increase in weighting over the past five years were

Industrial Development Revenue (+12.7%), Education (+10.9%) and Hospitals (+8.7%). We note that airline bonds issued by American, Delta and United account for 56% of the total market value for the Industrial Development Revenue sector within UOHY.

### Exhibit 33: Top-10 sectors by MV in the ICE BofA Muni HY Index (UOHY)

The top-10 sectors account for 98.1% of the index



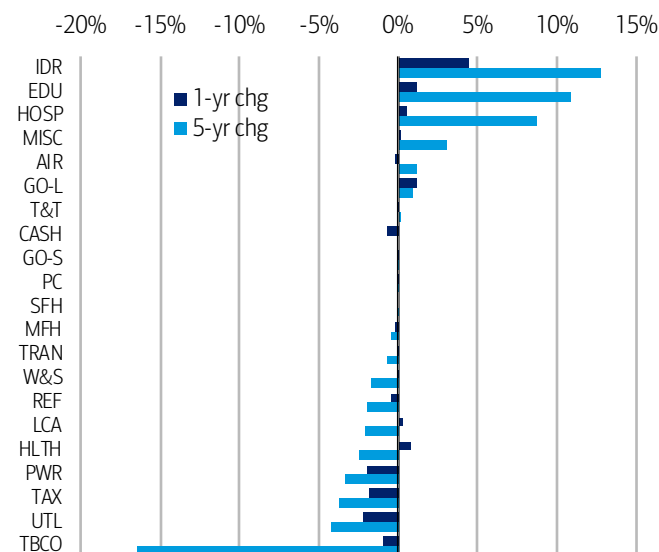
**Note:** MV = market value. See Exhibit 38 for sector definitions. Data as of 31 December 2023.

**Source:** ICE Data Indices, LLC

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### Exhibit 34: Sector weightings change for UOHY, 1- and 5-year

Since 2019, Industrial Development Revenue up 13%; Tobacco down 16%



**Note:** See Exhibit 38 for sector definitions. Data as of 31 December 2023.

**Source:** ICE Data Indices, LLC

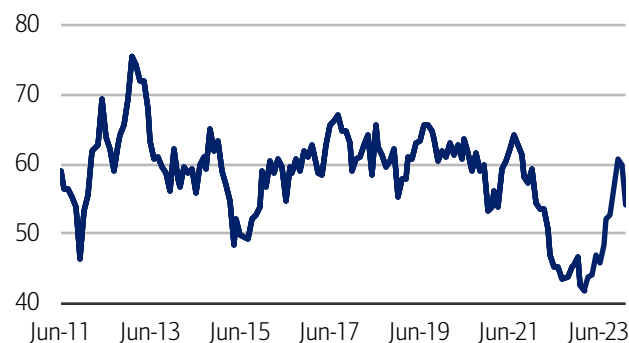
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## Tracking: material credit events and Ch. 9 filings

For the week ending 3 January, our tracking of those Moody's-defined material credit events (MCEs) shows 11 postings, down 4 on a w/w basis, with the MTD total of 7 as of 3 January. See Exhibit 35. We also note there were no new Chapter 9 bankruptcy petitions filed for the week ending on 3 January; it has now been 225 days since the last bankruptcy petition was filed by Hazel Hawkins Memorial Hospital on 23 May 2023, marking the 4<sup>th</sup> longest period since July 1987 between Chapter 9 filings.

### Exhibit 35: 6-mo mov avg of material credit events posted to EMMA

Filings posted to EMMA end December at 60, down from 87 in November



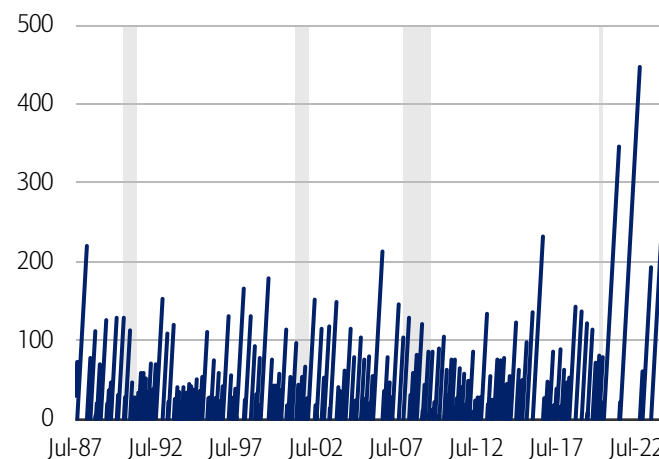
**Note:** Data as of 3 January 2024. Material credit events (MCE) reflect: 1. Bankruptcy, insolvency, receivership or similar event, 2. Financial obligation-event reflecting financial difficulties, 3. Nonpayment related default, 4. Principal/interest payment delinquency, 5. Unscheduled draw on credit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

**Source:** EMMA

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### Exhibit 36: Calendar days since last Chapter 9 petition filed

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



**Source:** BofA Global Research, PACER, US Courts

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# 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 and Spain; 5yr taxable munis are less attractive for South Korea and Taiwan.

## Exhibit 37: Cross currency equivalent yields as of 4 January 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 (3.982)	10 yr (3.999)	30 yr (4.146)	5 yr (4.25)	10 yr (4.51)	30 yr (5.2)	5 yr	10 yr	30 yr	5 yr	10 yr	30 yr
Canada	3.286	3.228	3.146	3.473	3.501	3.905	3.740	4.011	4.949	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom	3.676	3.722	4.358	3.674	3.673	3.988	3.943	4.183	5.037				Yes	Yes	Yes
France	2.396	2.660	3.189	2.982	2.564	3.455	2.691	3.071	4.477	Yes		Yes	Yes	Yes	Yes
Germany	2.055	2.121	2.343	2.982	2.564	3.455	2.691	3.071	4.477	Yes	Yes	Yes	Yes	Yes	Yes
Italy	3.218	3.807	4.447	2.982	2.564	3.455	2.691	3.071	4.477						Yes
Spain	2.724	3.105	3.765	2.982	2.564	3.455	2.691	3.071	4.477	Yes					Yes
Portugal	2.353	2.755	3.424	2.982	2.564	3.455	2.691	3.071	4.477	Yes		Yes	Yes	Yes	Yes
Netherlands	2.224	2.422	2.552	2.982	2.564	3.455	2.691	3.071	4.477	Yes	Yes	Yes	Yes	Yes	Yes
Switzerland	0.845	0.744	0.627	2.982	2.564	3.455	2.691	3.071	4.477	Yes	Yes	Yes	Yes	Yes	Yes
Japan	0.196	0.608	1.621	-0.002	0.338	2.404	0.260	0.838	3.380			Yes	Yes	Yes	Yes
Australia	3.730	4.048	4.391	4.224	4.612	4.448	4.494	5.123	5.510	Yes	Yes	Yes	Yes	Yes	Yes
South Korea	3.223	3.268	3.165	2.404	3.114	3.724	2.670	3.622	4.753			Yes		Yes	Yes
China	2.384	2.535	2.811	3.850	3.920	4.109	4.118	4.429	5.156	Yes	Yes	Yes	Yes	Yes	Yes
Taiwan	1.160	1.258	1.530	0.737	2.177	3.284	1.001	2.679	4.285		Yes	Yes		Yes	Yes
Singapore	2.659	2.738	2.723	3.404	3.673	3.990	3.671	4.182	5.033	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

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## Acronyms

### Exhibit 38: 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 38: 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

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# Disclosures

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