Municipals Weekly

Where muni rates are headed in 2024

Industry Overview

10 November 2023

Municipals
United States

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Key takeaways

- Muni rally to extend until mid-December; 2024 AAA targets: 2.60% for 10yr and 3.60% for 30yr.
- 2024 sector credit views: most positive on essential services and GOs, most negative on higher education and healthcare.
- The value of the muni tax exemption hit 319bp on 31 Oct, the highest since mid-2002; muni yields are still attractive.

Muni rates outlook: near term and 2024

The current muni market rally should extend to mid-December, with the 10-year AAA reaching the 2.90% area and the 30-year AAA the 3.90% area if the economy softens from its surprising acceleration in 3Q. For the longer term, we believe peak muni rates were likely delivered in October 2023. We expect the 10-year AAA to decline to 2.60% and 30-year AAA to 3.60% in 2024 in an economic soft landing. The risk is economic resilience (steady growth) in 2024, in which case munis may only deliver a sideways rally.

2024 sector credit outlooks; default estimate

Our relative sector credit outlooks for 2024 are largely the same as those from 2023. From a credit perspective, we remain most positive on essential service sectors and GOs, and most negative on higher education and healthcare. We also expect defaults to be largely similar to 2023's, though with more risk to the upside given the rate environment, expectations for slower economic growth and observable default and distress speeds. Our initial estimate for 2024 is for $1.9bn to $2.3bn of first-time payment defaults.

Value of muni tax exemption at two-decade high

Reviewing taxable equivalent yields to worst for the ICE BofA Muni Master Index (U0A0) and adjusting only for top federal tax rates, we see that the value of the muni tax exemption (or, in other words the difference between U0A0's YTW and its taxable equivalent YTW) hit 319bp on 31 October – the highest level since mid-2002. We continue to view muni yields as attractive.

Key figures: issuance, returns, spreads & trade activity

Supply: MTD issuance through 8 November totals $6.5bn, up 9% y/y; YTD issuance of $324bn is down 8% y/y. YTD issuance is 86% tax-exempt and 10% taxable; 77% is new money and 23% is refundings. **Returns:** The Muni Master index (U0A0) returned 2.90% for the MTD as of 8 November, matching corporates' returns but outperforming govies. The Muni High Yield index (U0HY) returned 2.63%. U0A0's returns YTD are 0.55% while U0HY's are 9bp worse at 0.46%. BBBs MTD returns strongest at 3.49%, as are the 22+yr maturities' 4.65%. **Spreads:** For the week ending 8 November, IG spreads were flat w/w at 22bp, while HY spreads widened 4bp to 203bp. **Trade activity:** MTD through 8 November, $76.0bn of muni par value traded in the secondary, with a daily avg of $12.7bn. That avg is down 13% m/m and down 6% y/y.

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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 10s30s curve flattening and narrower credit spreads in 2H23
• 4% coupon bracket to benefit more in a rally
• Swap long-end muni taxables for long-end tax-exempts
Key forecasts
• 2023 issuance to total $400bn; $320bn of new money and $80bn of refundings
• 2023 principal redemptions to total $402bn and coupon payments $161bn. Cumulative fund inflows of $40-$60bn
• 1/30 slope to fall to 65bp, driven by 10s30s AAA flattening, with slope falling to 50bp range
• 10yr muni/Tsy ratio range of 70%-90% and 30yr 85%-100%

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

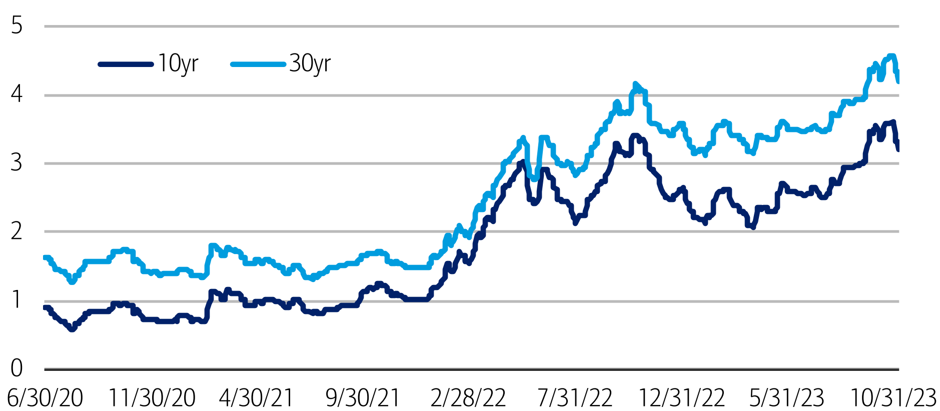
Muni rates outlook for the near term

Although this round of muni market bullish reversal was pulled off one week later than Treasuries', the rally progressed better. The 10-year Treasury yield achieved its YTD peak on 23 October and declined 54bp as of Wednesday's close. The 10-year muni AAA attained the peak on 31 October, and by Wednesday's close, declined 41bp, forcing the muni/Treasury ratio down to 70% from 74%.

Here we give our view on the muni rates outlook for the rest of the year and our initial outlook for 2024.

In our last Weekly report we forecasted that, even if this is another limited rally, the 30-year AAA should get to 4.15%. Now it is only a few basis points away. We believe an even more important question is how long this rally can continue, assuming it is in fact limited. The progress of the rally so far clearly qualifies it as a retracement move of the selloff that began in April. As such, it is likely that the market should spend a minimum of about one and a half months rallying, with a possible extension to two and a half months. Interestingly, this estimate of the earliest ending time, based purely on structural considerations, coincides with the next Fed meeting on 13 December 2023. If the rally is extended to two and a half months, that would bring it to mid-January 2024. If the rallying time works out as we suggest here, the 30-year AAA not only will get to 4.15%, but potentially to 3.90%. For the 10-year AAA, it should get to the 2.90% area if our timeframe works out.

Exhibit 2: 10- and 30-year AAA MMD since the all-time low in August 2020 (%)
10-yr AAA should move to 2.90% area, and 30-year AAA to 3.90% area if market rallies to mid-December



Source: Refinitiv

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In macro terms, this round of a bond market rally appears to be about the unwinding of the selloff that ran from August to late October which was propelled by a surprising economic acceleration in 3Q, marked by large retail sales and industrial production, on top of high employment and sticky inflation. Along this line, investors should watch the economic data stream over the next several weeks to see if the weaker-than-expected October employment report marks the start of some economic deceleration. Also, interesting to note, is the Fed's poise regrading this "acceleration" blip.

Muni rates outlook for 2024

For year 2024, BofA Global Research's economists believe an economic soft landing is the most likely outcome. The probability of a resilience (steady growth) scenario in 2024 is lower. A hard landing or economic acceleration are considered to have much lower probabilities, in their view.

As mentioned in our last Weekly report, BofA Global Research's rates strategists are also thinking of four different economic scenarios for 2024 in their Treasury rates forecast: (1) hard landing, (2) soft landing, (3) resilience (steady growth) and (4) acceleration, though they assign high probabilities to scenarios (2) and (3). In both cases, interest rates likely topped out. However, if it is a soft landing, they believe a 100bp 10-year Treasury rates rally would ensue; and if its resilience, 10-year Treasury rates would go sideways throughout the year.

Given these macro outlooks, we believe muni rates have likely topped out already. Even if the Fed has one more hike to do, that is less likely to push rates higher than what we saw in October 2023. The remaining question is: will the rally be large or more sideways in 2024? Given our economists' conviction, we believe a large rally is more likely than a sideways rally.

In a large rally, we believe the 10-year AAA should move down to the 2.60% area and the 30-year AAA to 3.60% area in 2024. Investors should note that these levels still stay above the lowest levels for the two maturities in 2023.

2024 sector credit outlooks

Heading into the year, BofA Global Research's economists, like many market participants, forecasted a recessionary environment in 2023. Of course, the economy proved more resilient this year. For 2024, their current forecasts suggest the economy will be able to stave off a recession, though growth will certainly slow. While the current forecast is for a slowing economy now versus a modest recession then, our sector outlooks – which we detail below – are largely unchanged from last year. That said, as we noted in our 20 October Municipals Weekly report, there are some new and recurring risks we are mindful of. Those include but are not limited to: the impact of commercial real estate on large cities' property taxes, the impact of inflation and higher rates on operating and capital budgets, demographic trends, labor challenges (including the impacts of trends in wage increases and cost-of-living adjustments in labor contracts), return to office and environmental change, among many others.

Again, as in years past, our sector outlooks are relative and are purely from a credit perspective. They may not be indicative of sector returns. Indeed, as we look ahead to 2024 amid expectations for a soft landing, we think credit spreads will be fairly well-behaved next year; we do not currently expect spreads to move materially wider under a soft landing scenario. Rather, we think performance in 2024 will be dictated more by a combination of rates, curve and duration – much like it was in 2023 thus far.

Essential services: positive. Essentiality and the ability to pass on increased costs to customers via self-regulated rate setting is a key credit strength for the public power and water & sewer sectors. Leverage will likely increase to repair, replace, and weatherize aged infrastructure. Affordability may be a challenge in areas with weaker demographics, especially in a slowing economy. Larger utilities are much better positioned to absorb cost increases versus smaller systems. Cyber-attacks and physical climate risks continue to be headwinds for these sectors.

Local governments: positive. Property tax collections should remain resilient amid a weakening US housing market, as they have in prior recessions and economic slowdowns. Reserve levels remain robust and any state funding cuts amid an economic slowdown can be expected to more benign than in previous cycles given strong state credit. More economically sensitive issuers may be challenged in the face of a weakening US economy and those more reliant on commercial real estate for property tax collections may face headwinds. We favor issuers with diverse economies, revenues supported by property taxes, and strong pension funded ratios.

State governments: positive. Like local governments, state reserve levels are largely at-or-near historic highs following an unprecedented amount of federal aid and strong tax collections. While revenue growth has slowed after very strong years, states will adjust spending and, if necessary, draw on reserves to balance their budgets. We continue to favor states with strong and diverse economies, coupled with relatively low unfunded pension liabilities.

Airports: neutral. Air traffic has improved significantly since the start of the pandemic and has surpassed pre-pandemic levels overall. However, an economic slowdown could result in weakened travel demand as consumers become more budget conscious. After hitting pause during the pandemic, many airport operators restarted their capital programs for expansion and/or modernization projects, which could cause leverage metrics to elevate. Though, on balance, we do not see this leading to credit stress across the sector. International travel, which has lagged domestic, should continue its recovery.

Mass Transit: neutral. Many transit agencies across the country continue to struggle with lagging pandemic ridership levels, particularly those that rely primarily on farebox and toll revenue. Some, like the MTA, have found new revenue sources to fill looming budget gaps, via state aid and new tax revenues, but those that do not are likely face continued operating challenges and recurring budget gaps.

Ports: neutral. The two largest ports in the US, the Port of Los Angeles and the Port of Long Beach, both experienced declines in activity entering 2023 and drawn-out labor negotiations through the summer of 2023 seemingly led to a shift in cargo to the East Coast and the Gulf Coast. As the two largest ports see some of that activity return West following the ratification of a new labor deal, port volumes can expect to regulate should recessionary tides remain offshore and trade policies not drastically alter trade patterns.

Healthcare: negative. While volumes have largely recovered after plummeting during the pandemic, providers have now been grappling with higher expenses driven by inflation and labor costs. We expect operating margins will continue to recover but at a slow pace and will remain below pre-pandemic levels. An aging population and shift in payor mix towards government payors will continue to pressure the revenue side. M&A activity is expected to tick-up for strategic purposes, as well as the result of distress across the sector. Rural hospitals and senior living facilities will continue to be the most negatively impacted.

Higher Education: negative. Despite the latest Common App data indicating first time applications are up from pre-pandemic levels, preliminary enrollment data shows that freshman enrollment challenges persist in both public and private institutions. Broadly, preliminary undergraduate enrollment data indicates y/y declines after enrollment increases in Fall 2022. As we cautioned in the past, small private colleges with limited offerings and schools with less demographic diversification in recruitment will continue to struggle in this post-pandemic education environment. We favor comprehensive universities and research institutions with brand recognition and schools that recruit from many states. Opportunities remain for schools that maintain the assets and infrastructure necessary for the consolidation or absorption of struggling institutions.

Tax exemption's value at two-decade high

In our last Weekly report, we discussed taxable equivalent yields that, depending where on the curve, exceeded 8% for many states' GOs. Some were even north of 10%. Here, we reviewed taxable equivalent yields to worst for the ICE BofA Muni Master Index (U0A0), adjusting only for top federal tax rates, dating back to the start of 2000. The value of the muni tax exemption (or, in other words the difference between U0A0's YTW and its taxable equivalent YTW) hit 319bp on 31 October – the highest level since 21 May 2002. While the muni rates market rallied to start November, the value of the tax exemption still sits around 300bp – well above its three-year average of 172bp, its five-year average of 158bp and its 10-year average of 167bp. Again, we view munis' taxable equivalent yields as attractive given the fundamental credit strength in the muni market, and also on a relative basis versus taxable markets' yields.

Given the shape of the curve, the exemption value is slightly higher for the 1-3yr index (U1A0) currently than it is for the 3-7yr index (U2A0): 251bp and 249bp, respectively. For the 22+yr index (U5A0), the exemption's value is 325bp. Note that, again, those are slightly lower than they were on Halloween 2023. Note also that the values as of 31 October were the highest since: 26 December 2000 for the 1-3yr index; 21 October 2008 for the 3-7yr index; 29 December 2008 for the 7-12yr index (U3A0); 26 April 2011 for the 12-22yr index (U4A0); and, 7 July 2011 for the 22yr+ index (if we ignore the 1bp higher value the day before Halloween 2023).

Exhibit 3: Value of munis' tax exemption*, historically (bp)

On Halloween 2023, value was at its highest level since the Spring of 2002 at 319bp

Note: *Reflects the bp difference between U0A0's YTW and its taxable equivalent yield calculated using only the top federal marginal tax rate in effect for a given tax year.

Source: BofA Global Research, ICE Data Indices, LLC, St. Louis FRED

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Election roundup

While full results are not yet available, *Bond Buyer* data shows that at least $27.4bn of bond ballots were approved by voters on Election Day versus some $7.5bn that was rejected. The data also shows that every single billion dollar-plus bond ballot was approved by voters on Election Day. Those include the $2.5bn of authorization sought by Charlotte-Mecklenburg Schools in NC, the Harris County Hospital District in TX and the Prosper Independent School District in TX. *Bond Buyer* also suggested that, based on unofficial results, the $16bn+ of authorization from the Legacy Municipal Management District in TX was also approved. We also note OH voters' approval of Issue 2 – the legalization of adult use marijuana. In August, the Ohio State University's Drug Enforcement and Policy Center estimated that, in year 5 following legalization, Ohio could expect anywhere between $276mn and $403mn in annual taxes from adult use marijuana. Meanwhile, Democrats in VA maintained their hold on the state's Senate, but also gained control of the House of Delegates. Control in VA remains divided, however, as the governor is a Republican.

Performance

Rates rally spurs strong performance MTD

Performance in either direction this year has been about one thing: rates. Since the end of October, 10yr AAA MMD rallied 41bp while 30yr AAA MMD rallied 37bp. That led to strong returns for the MTD, with exempt IG returning 290bp, matching corporates' returns. While exempt IG's returns were strong enough to outperform govies by 55bp for the MTD, and muni high yield by 28bp, taxable munis' returns were about 22bp stronger. Notably, the strong start to November has pulled exempt IG's returns back into positive territory, with YTD now sitting at 55bp. While that is weaker than corporates by about 93bp and taxable munis by 129bp, it is still better than govies by 125bp.

For the MTD, BBBs' returns were strongest, with their 349bp of total returns while AAs' 275bp were weakest. After successive weeks of outperformance, GOs underperformed revenue bonds MTD by 38bp, widening their YTD underperformance relative to revenue bonds to 52bp. Note, however, that BBB GOs outperformance relative to their revenue bond counterparts remains notable at 290bp. Meanwhile, we note that the longest maturities (22+yr) performed best MTD, returning 465bp, pulling their YTD returns to 31bp. That still trails the shortest maturities' (1-3yr) by 115bp for the YTD. However, that performance spread is materially narrower than it was at the end of October, when it stood at roughly 490bp.

Exhibit 4: Municipal total returns (%) monitor, as of 8 November 2023

Exempt IG munis match corporates' MTD performance, outperform govies

Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
Govt Master	G0A0	0.380	1.501	2.348	2.164	-1.524	-0.695	2.027
Corporate Master	C0A0	0.463	2.019	2.902	2.527	-1.365	1.483	6.226
IG munis	**U0A0**	**0.498**	**2.723**	**2.902**	**2.375**	**-1.614**	**0.552**	**4.808**
AAA	U0A1	0.515	2.730	2.943	2.476	-1.583	-0.199	3.692
AA	U0A2	0.481	2.603	2.752	2.305	-1.606	0.193	4.327
A	U0A3	0.497	2.855	3.069	2.449	-1.472	1.331	5.866
BBB	U0A4	0.624	3.274	3.493	2.499	-2.320	1.870	6.773
1-3yr	U1A0	0.106	0.664	0.702	0.936	0.471	1.456	2.830
3-7yr	U2A0	0.216	1.489	1.592	1.645	-0.499	0.412	3.314
7-12yr	U3A0	0.291	2.118	2.247	2.114	-1.553	-0.069	4.178
12-22yr	U4A0	0.644	3.413	3.633	2.800	-2.042	0.742	5.544
22+yr	U5A0	0.876	4.358	4.651	3.334	-3.105	0.305	6.625
HY munis	**U0HY**	**0.435**	**2.497**	**2.626**	**1.287**	**-2.368**	**0.462**	**4.895**
Non-rated	U0NR	0.550	2.765	2.915	1.952	-2.226	2.127	6.772
General Obligation	**U0AG**	**0.434**	**2.454**	**2.619**	**2.225**	**-1.483**	**0.158**	**3.952**
AAA	UGA1	0.523	2.704	2.892	2.426	-1.629	-0.688	3.215
AA	UGA2	0.438	2.491	2.644	2.271	-1.426	0.139	3.922
A	UGA3	0.202	1.686	1.901	1.474	-1.550	0.115	3.857
BBB	UGA4	0.257	1.554	1.678	1.537	-1.621	4.285	7.858
State	U0AA	0.292	1.977	2.140	1.906	-1.138	0.569	3.754
Local	U0AB	0.598	3.012	3.180	2.597	-1.887	-0.316	4.248
Revenue	**U0AR**	**0.519**	**2.811**	**2.994**	**2.423**	**-1.659**	**0.682**	**5.095**
AAA	URA1	0.509	2.749	2.977	2.509	-1.551	0.154	4.035
AA	URA2	0.499	2.651	2.799	2.320	-1.686	0.219	4.511
A	URA3	0.523	2.959	3.173	2.535	-1.471	1.410	5.983
BBB	URA4	0.654	3.417	3.644	2.579	-2.375	1.382	6.659
Airport	U0AV	0.549	3.103	3.415	2.270	-1.508	1.803	6.531
Education	U0AE	0.542	2.880	3.081	2.425	-1.850	0.109	4.563
Health	U0HL	0.600	3.389	3.506	2.222	-2.244	-1.143	2.942
Hospital	U0AH	0.638	3.734	3.990	3.114	-2.243	-0.007	5.691
Industrial Development Rev	U0ID	0.572	3.004	3.047	1.847	-2.147	1.995	7.168
Leases, COPs & Appropriations	U0AL	0.420	2.313	2.403	2.109	-1.505	0.134	4.214
Miscellaneous	U0AM	0.475	2.585	2.804	2.293	-1.640	-0.184	4.171
Multi-family Housing	U0AU	0.441	2.545	2.694	2.520	-1.337	0.751	5.411
Pollution Control	U0AQ	0.396	2.053	2.122	1.929	-1.203	0.378	4.824
Power	U0AP	0.407	2.170	2.353	2.020	-1.368	0.417	4.017
Single-family Housing	U0AS	0.420	2.436	2.571	2.251	-1.049	-0.340	3.615
Tax Revenue	U0TX	0.553	2.828	3.005	2.593	-1.802	0.450	4.880
Tobacco	U0TB	0.191	1.695	1.771	1.623	-1.824	2.174	5.626

Exhibit 4: Municipal total returns (%) monitor, as of 8 November 2023
Exempt IG munis match corporates' MTD performance, outperform govies

Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
Toll & Turnpike	U0TL	0.520	2.767	2.939	2.334	-1.633	0.959	5.355
Transportation - other	U0AT	0.512	2.796	2.928	2.350	-1.531	1.806	6.130
Utilities - other	U0UT	0.427	2.118	2.277	2.014	-0.714	1.613	4.909
Water & Sewer	U0AW	0.514	2.768	2.936	2.407	-1.654	0.185	4.043
Taxable	**TXMB**	**0.564**	**2.373**	**3.119**	**2.938**	**-1.414**	**1.837**	**6.286**
Build America Bonds	BABS	0.567	2.499	3.243	3.123	-1.647	1.131	5.982
VRDOs	**VRDO**	**0.008**	**0.061**	**0.071**	**0.310**	**0.875**	**2.668**	**3.029**
Daily reset	VRDD	0.005	0.047	0.057	0.290	0.841	2.529	2.843
Weekly reset	VRDW	0.009	0.069	0.079	0.322	0.894	2.744	3.130

Source: ICE Data Indices, LLC

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IG spreads flat w/w overall; HY spreads 4bp wider

Muni IG spreads were unchanged w/w at 22bp and are sitting at the 12th percentile of their 52-week range. Muni HY spreads widened 4bp to 203bp or the 66th percentile. Non-rated spreads widened 3bp to 199bp. GO spreads were flat overall w/w as BBB spreads widened by 8bp. Revenue bond spreads widened 1bp w/w overall. Among muni IG revenue bond sectors, Pollution Control narrowed the most by 5bp. Tobacco saw the most widening at 9bp for the week.

Exhibit 5: Muni YTW spread monitor as of 8 November 2023
Muni IG spreads were flat w/w overall while HY spreads widened 4bp

	52wk				Current	Change from				Current as %		
	Tights	Wides	T-1wk	T-1d	11/8/23	Tights	Wides	T-1wk	T-1d	of 52wk range	Price	Yield
Investment Grade	**20**	**37**	**22**	**22**	**22**	**2**	**-15**	**0**	**0**	**12**	**97**	**4.40**
AA	5	20	7	8	8	3	-12	1	0	20	98	4.26
A	44	72	48	47	47	3	-25	-1	0	11	95	4.65
BBB	92	126	101	101	100	8	-26	-1	-1	24	90	5.18
High Yield	**180**	**215**	**199**	**202**	**203**	**23**	**-12**	**4**	**1**	**66**	**89**	**6.21**
Non-rated	179	264	196	199	199	20	-65	3	0	24	62	6.17
General Obligation	**-9**	**2**	**-7**	**-7**	**-7**	**2**	**-9**	**0**	**0**	**18**	**98**	**4.11**
AA	-12	1	-10	-10	-9	3	-10	1	1	23	98	4.09
A	-38	15	5	3	5	43	-10	0	2	81	101	4.23
BBB	50	123	71	78	79	29	-44	8	1	40	93	4.97
State	-23	-7	-22	-22	-21	2	-14	1	1	13	102	3.97
Local	5	14	10	9	9	4	-5	-1	0	44	94	4.27
Revenue	**29**	**50**	**31**	**32**	**32**	**3**	**-18**	**1**	**0**	**14**	**97**	**4.50**
AA	12	29	14	15	15	3	-14	1	0	18	99	4.33
A	48	76	52	51	50	2	-26	-2	-1	7	95	4.68
BBB	94	129	103	103	102	8	-27	-1	-1	23	90	5.20
Airport	46	90	50	52	52	6	-38	2	0	14	99	4.70
Education	11	40	14	15	15	4	-25	1	0	14	99	4.33
Health	109	154	138	139	139	30	-15	1	0	67	88	5.57
Hospital	52	77	59	57	56	4	-21	-3	-1	16	94	4.74
Industrial Development Rev	62	112	77	75	74	12	-38	-3	-1	24	94	4.92
Leases, COPs & Appropriations	-3	23	0	1	1	4	-22	1	0	15	99	4.19
Miscellaneous	-21	-2	-7	-8	-8	13	-6	-1	0	68	96	4.10
Multi-family Housing	52	68	61	58	58	6	-10	-3	0	38	90	4.76
Pollution Control	26	55	54	50	49	23	-6	-5	-1	79	95	4.67
Power	29	51	29	32	32	3	-19	3	0	14	100	4.50
Single-family Housing	37	64	63	60	60	23	-4	-3	0	85	94	4.78
Tax Revenue	7	26	9	11	10	3	-16	1	-1	16	97	4.28
Tobacco	32	65	33	40	42	10	-23	9	2	30	98	4.60
Toll & Turnpike	31	59	32	34	34	3	-25	2	0	11	94	4.52
Transportation - other	25	56	26	27	27	2	-29	1	0	6	95	4.45
Utilities - other	50	79	63	61	59	9	-20	-4	-2	31	100	4.77
Water & Sewer	14	36	16	18	18	4	-18	2	0	18	99	4.36

Note: YTW spread to the ICE BofA AAA US Municipal Securities Index (U0A1).
Source: BofA Global Research, ICE Data Indices, LLC

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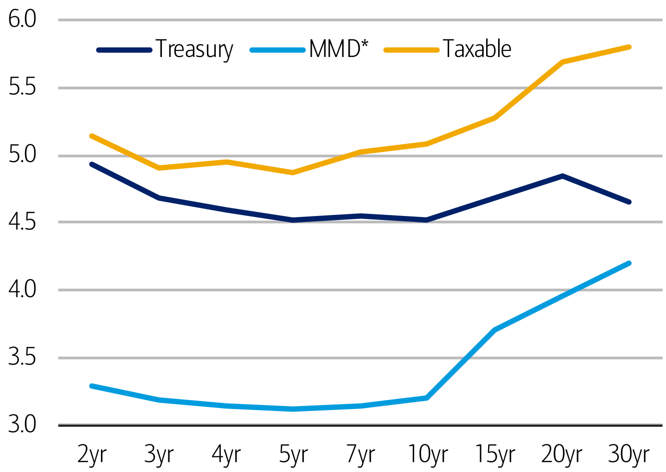
Curve

Curve shifts down 37bp w/w on avg and down 35bp m/m

The AAA MMD curve fell 37bp w/w on average, and richened by 35bp m/m. For the week, the 1s5s slope inversion increased by 5bp to -30bp, 38bp flatter than one year ago; the 5s10s flattened by 1bp w/w to 8bp and is 4bp flatter than it was one year ago; the 10s20s slope steepened 2bp w/w to 75bp and is 23bp steeper than one year ago, while the 20s30s flattened 1bp w/w to 25bp and is 1bp steeper than it was one year ago. Investors should continue to position for a flattener led by the back end.

Exhibit 6: AAA GO muni, Treasury and taxable yield curves (%)
On average Tsy, MMD and Taxable richened w/w



Note: *MMD AAA GO yield curve. As of 8 November 2023.
Source: BofA Global Research, Refinitiv, Bloomberg

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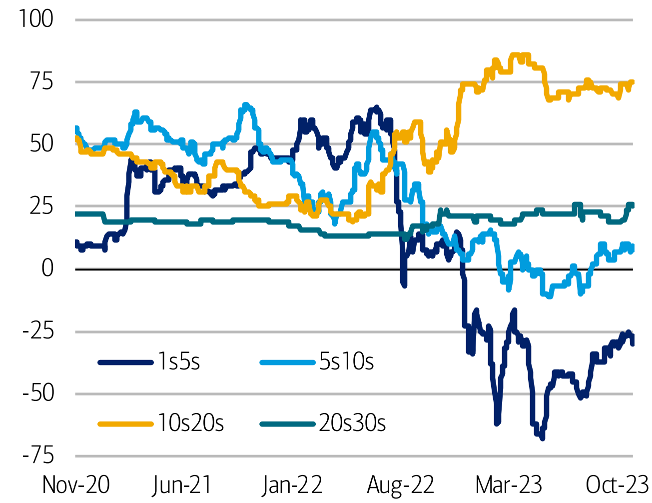
Exhibit 7: Curve slope (bp)
The 1s5s, 5s10s, and 20s30s all flattened w/w



Source: Refinitiv

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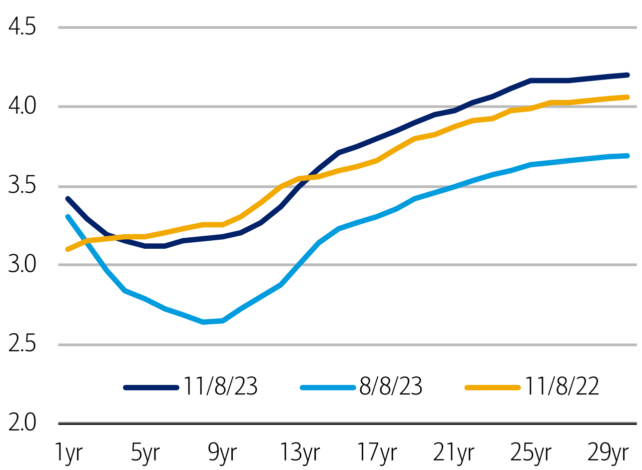
Exhibit 8: AAA GO municipal curve movement (%)
AAA is richer than a year ago between 4yrs and 13yrs



Source: Refinitiv

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Supply & demand

YTD issuance totals $324bn, down 8% y/y

MTD issuance as of 8 November 2023 totaled $6.5bn, up 9% y/y. YTD issuance of $324bn is down 8% y/y. 77% of YTD issuance is new money and 23% is refundings. New money volumes are down 9% y/y while refunding volumes are down 2%.

Exhibit 9: Issuance summary ($mn)

YTD issuance of $324bn is down 8% y/y; new money down 9% y/y and refundings down 2%

	Month-to-date			Year-to-date		
	11/8/23	11/8/22	y/y % Δ	11/8/23	11/8/22	y/y % Δ
Total	**6,549.0**	**6,015.3**	**9%**	**323,990.9**	**350,266.6**	**-8%**
New Money	4,127.8	4,225.9	-2%	249,002.9	274,039.4	-9%
Total Refunding	2,421.2	1,789.4	35%	74,988.0	76,227.2	-2%
Advanced refunding	0.0	0.0	-	1,380.9	2,155.7	-36%
Unknown refunding	2,421.2	1,775.5	36%	69,501.2	67,722.2	3%
Current & Forward refunding	0.0	13.9	-	4,105.9	6,349.4	-35%
Insured	490.7	627.7	-22%	27,027.0	25,624.2	5%
Fixed Rate	6,331.7	5,521.1	15%	290,238.5	323,565.9	-10%
Variable Rate Long	213.5	24.0	790%	23,005.7	12,962.8	77%
Variable Rate Short	0.0	301.5	-100%	9,565.1	10,042.5	-5%
Zero Coupon	3.7	8.8	-58%	374.2	930.4	-60%
Linked Rate	0.0	160.0	-100%	723.4	2,157.9	-66%
Convertible	0.0	0.0	-	83.9	607.2	-86%
Variable rate no put	-	-	-	-	-	-
Tax Exempt	5,956.7	4,200.8	42%	278,571.6	281,108.3	-1%
Taxable	326.4	517.1	-37%	32,206.0	50,734.3	-37%
Alternate Minimum Tax	265.9	1,297.4	-80%	13,213.4	18,424.0	-28%
General Purpose	1,828.0	1,079.5	69%	83,131.7	95,663.4	-13%
Education	1,736.0	1,827.2	-5%	85,379.5	83,593.7	2%
Housing	890.0	454.0	96%	31,830.7	26,742.6	19%
Electric Power	659.6	4.6	14147%	15,121.6	10,746.0	41%
Utilities	501.9	85.4	487%	39,878.1	41,836.3	-5%
Transportation	383.5	2,110.0	-82%	37,500.5	51,018.7	-26%
Public Facilities	336.3	76.3	341%	6,396.8	5,146.5	24%
Development	112.1	183.3	-39%	9,013.6	7,607.4	18%
Healthcare	101.6	160.0	-36%	12,781.8	25,385.9	-50%
Environmental Facilities	0.0	35.0	-100%	2,956.6	2,526.1	17%
Muni-backed corporates	0.0	0.0	-	3,951.6	12,698.5	-69%

Note: Long-term bonds only. Reflects any data revisions by Refinitiv or Bloomberg.
Source: BofA Global Research, Refinitiv, Bloomberg

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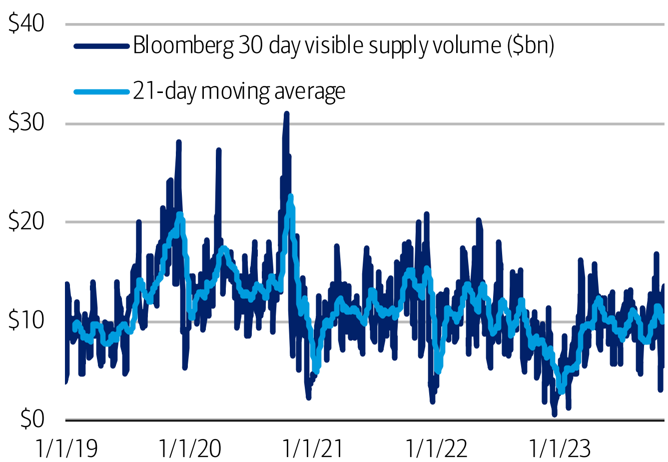
Exhibit 10: Bloomberg 30-day visible supply ($bn)

30-day visible supply was $8.0bn as of 9 November 2023



Note: Data as of 9 November 2023.
Source: Bloomberg

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Exhibit 11: 2023 gross issuance, redemption forecasts vs actuals ($bn)

Gross issuance forecast of $400bn vs $564bn of prin. & cpn. redemptions

	Issuance		Prin. & cpn redemptions	
Month	Forecast	Actual	Forecast	Actual
January	$23	$23	$42	$39
February	20	20	45	42
March	32	32	39	36
April[1]	29	33	32	29
May	33	27	45	45
June	43	38	65	64
July	31	27	59	59
August	36	38	62	65
September	34	29	37	33
October	45	39	40	40
November	34	7*	41	
December	39		56	

Note: Totals may not add up due to rounding. Data as of 8 November 2023. January-March data are actuals. [1]Monthly issuance forecasts revised from April onward.
Source: BofA Global Research, Refinitiv, Bloomberg

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Relative value

Ratios Neutral on both a short- and long-term basis

We screen the muni market for parts of the curve, sectors and ratings that are rich or cheap. Muni/Treasury ratios are neutral on both a short- and long-term basis. Meanwhile, the 10s30s slope is Steep on a long-term basis, while the other slopes are mostly Flat. On a short-term basis, the 1s30s and 10s30s slopes are steep while the rest are Neutral.

Exhibit 12: Rich/cheap analysis of MMD*/Treasury ratios as of 8 November 2023
The muni market is Neutral on both a ST and 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	4.681%	68.1%	neutral	74.1%	62.6%	68.1%	neutral	130.7%	26.7%	63.4%
5yr	4.519%	69.0%	neutral	74.3%	62.8%	68.8%	neutral	92.0%	39.3%	63.2%
10yr	4.519%	70.8%	neutral	75.5%	64.5%	71.0%	neutral	106.5%	54.7%	73.6%
30yr	4.653%	90.3%	neutral	92.4%	85.6%	89.7%	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 13: Rich/cheap analysis of MMD* slopes (bp) as of 8 November 2023
On a ST basis, the 1s30s and 10s30s curve is Steep while the rest are Neutral

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	-28	neutral	-25	-51	-34	Flat	65	-68	12
1s10s	-19	neutral	-15	-58	-29	Flat	120	-74	42
10s30s	100	Steep	101	88	94	Steep	108	32	68
1s30s	81	Steep	83	39	65	neutral	170	26	110

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 Local GO, AAA Pollution Control, AAA Power, AAA Water & Sewer, AA Higher Education, AA State GO and AA Water & Sewer,' OAS are Very Cheap, while Single-A Power, AA and Single-A Utilities' are Cheap. At the 22+yr part of the curve, BBB Utilities are Very Rich, while BBB State GO and Single-A COPS & Appropriations are Rich.

Exhibit 14: Rich/cheap analysis of 7-12yr indexes' OAS (bp)
A Power's current OAS of 70bp at 7-12yrs is currently Cheap against its 3yr OAS average of 27bp

	Current OAS				Rich/cheap analysis				3yr OAS average			
Sector	AAA	AA	A	BBB	AAA	AA	A	BBB	AAA	AA	A	BBB
Airports		35	24	56		N	N	N		34	33	65
Higher Education	-16	-12	39		C	VC	N		-7	-2	42	
GO Local	-18	-4	51	115	VC	R	N	N	-1	10	45	121
GO State	-14	-20	58	0	C	VC	N	R	-5	-3	44	113
Health		27	75	166		N	N	N		22	70	109
Hospital		17	39	25		N	N	N		19	42	102
IDR		6	84	84		N	N	N		38	55	82
Leases COPS & Appr.		5	31	119		N	N	N		12	38	114
Pollution Control	-5		98		VC		N		-1		76	
Power	-17	8	70		VC	VR	C		-3	-3	27	
Tax Revenues	-7	0	46	113	VR	R	N	N	5	8	55	124
Tobacco			20				N				49	
Toll & Turnpike		15	1	63		N	N	N		22	21	82
Transportation - Other	0	12	46	0	R	N	N	R	6	16	64	94
Utilities - Other	0	22	100		R	C	C		-2	8	43	
Water & Sewer	-27	-18	14	58	VC	VC	N	N	-4	-5	15	111

Note: Data as of 7 November 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 15: Rich/cheap analysis of 22yr+ indexes' OAS (bp)

BBB Health's current OAS of 179bp at 22yr+ is currently Cheap against its 3yr OAS average of 108bp

	Current OAS				Rich/cheap analysis				3yr OAS average			
Sector	**AAA**	**AA**	**A**	**BBB**	**AAA**	**AA**	**A**	**BBB**	**AAA**	**AA**	**A**	**BBB**
Airports		17	6	-13		N	N	N		28	28	21
Higher Education	31	-16	16	90	N	N	N	N	23	-7	22	78
GO Local	1	-2	15	45	N	N	N	N	-9	2	24	85
GO State	-8	-31		0	N	N		R	-25	-19		92
Health		-42	66	179		N	N	C		-12	37	108
Hospital		7	21	66		N	N	N		7	27	58
IDR			63	78			N	N			53	72
Leases COPS & Appr.	-8	-14	9	42	N	N	R	N	-6	-4	32	52
Pollution Control			16				N				15	
Power		-22	10	38		N	N	N		-6	18	47
Tax Revenues	3	-3	38	55	N	N	N	N	8	6	52	78
Tobacco				111				N				84
Toll & Turnpike			4	22			N	N			14	45
Transportation - Other		0	5	54		N	N	N		14	39	54
Utilities - Other		-5	13	0		N	N	VR	-7	-7	23	63
Water & Sewer	-25	-20	-17		N	N	N		-18	-13	1	

Note: Data as of 7 November 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.

Source: ICE Data Indices, LLC

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MWIs remain in the underpriced space with small increase

Our market width indicator (MWI) – which measures muni sectors' recent market momentum by calculating the percentage of a sectors' CUSIPs whose current yields-to-worst are below their moving 20-week average – shows that most sectors' MWIs slightly increased in the underpriced space w/w, with the Airport, Health, Hospitals and Single & Multi-Family Housing sectors increasing the most. The Health, and Single & Multi-Family Housing sectors' MWIs are the highest.

Exhibit 16: MWIs – sector momentum (%) as of 7 November 2023

Most sectors have slightly increased in the underpriced space over the past week

Sector	MWI	w/w Δ	Sector	MWI	w/w Δ
U0A0 Index	**1.0%**	**0.7%**	Miscellaneous	1.2%	1.2%
ETM	2.2%	0.0%	Multi-Family Housing	4.1%	3.5%
GO - Local	0.2%	0.2%	Pollution Control	0.8%	0.8%
GO - State	0.3%	0.1%	Power	0.4%	0.3%
Pre-Re	0.4%	0.4%	Single Family Housing	2.3%	2.3%
Airport	3.2%	1.4%	Tax revenue	0.5%	0.4%
Education	0.6%	0.4%	Tobacco	2.5%	1.3%
Health	2.6%	2.6%	Toll & Turnpike	0.9%	0.7%
Hospitals	2.0%	1.8%	Transportation	2.5%	0.5%
Industrial Development Rev	0.7%	0.7%	Utilities - Other	0.9%	0.6%
Leasing COPS & Appropriations	1.2%	0.9%	Water & Sewer	0.8%	0.6%

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 79574CFR9, totaling $152.5mn. Those are newly issued Salt River Project Agricultural Improvement and Power District, Arizona revenue bonds due in 2053. By number trades it was 010685KF1, totaling 215 trades. These are Shands Teaching Hospital and Clinics, Florida revenue bonds due in 2044.

Exhibit 17: Most actively traded muni CUSIPs over the week ending 8 November 2023

010685KF1 was the most frequently traded CUSIP. [1]Last trade

CUSIP	Short name	ST	Coupon/Maturity	Yield[1]	Spread	# of trades	Avg Vol ($mn)
79574CFR9	AZ AGRIC IMP&PWR DT-B	AZ	5.25s of '53	4.48	28	54	2.82
79574CFQ1	AZ AGRIC IMP&PWR DT-B	AZ	5s of '48	4.46	35	44	2.53
650010BD2	NEW YORK ST THRUWAY A	NY	5.25s of '56	4.60	39	81	0.74
74514L3P0	RESTRUCTURED-SER A1	PR	4s of '46	6.43	235	88	0.61

Exhibit 17: Most actively traded muni CUSIPs over the week ending 8 November 2023
010685KF1 was the most frequently traded CUSIP. [1]Last trade

CUSIP	Short name	ST	Coupon/Maturity	Yield[1]	Spread	# of trades	Avg Vol ($mn)
64971QV26	NYC TRAN FIN AUTH-C-4	NY	2.45s of '36	--	0	15	3.47
650116GP5	NY TRANSPRTN DEV -AMT	NY	5.625s of '40	5.58	177	34	1.44
645913AA2	NJ ECON-SER A	NJ	7.425s of '29	6.22	171	76	0.59
130179VJ0	CA EDUCTL FACS AUTH-A	CA	5.5s of '53	5.55	135	50	0.84
679111C93	OK TURNPIKE AUTH	OK	4.5s of '53	4.50	30	46	0.91
6133408D3	MONTGOMERY CO-E	MD	3.1s of '37	--	0	22	1.89
46246SAV7	IA FIN AUTH-REV-REF	IA	5s of '50	--	139	20	2.04
64966LLS8	NYC-ADJ-1-SUBSER I-2	NY	3.1s of '40	--	0	15	2.49
010685KF1	ALACHUA HTLH FAC-A	FL	5s of '44	5.00	99	215	0.17
64972GCN2	NYC MUNI WTR-AA2-ADJ	NY	3.1s of '50	--	0	27	1.38
79574CFN8	AZ AGRIC IMP&PWR DT-B	AZ	5s of '43	4.18	24	30	1.23
160853MS3	CHARLOTTE HOSP-REF-C	NC	3.1s of '37	--	0	16	2.22
64972GCM4	NYC MUNI WTR-AA1-ADJ	NY	3.1s of '50	--	0	22	1.60
544495DG6	L A WTR/PWR VAR-B-2	CA	2s of '34	--	0	8	4.30
13063A5W0	CA VAR-A2-KINDERGARTE	CA	1.7s of '34	--	0	12	2.64
452252PQ6	ILLINOIS ST TOLL HWY	IL	5s of '45	4.50	49	20	1.54

Source: Bloomberg

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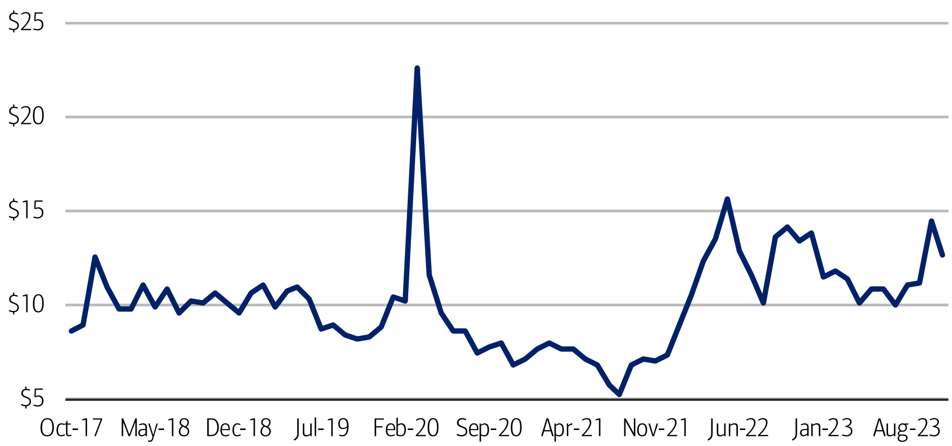
Early Nov-23's avg daily secondary trading at $12.7bn

Current data shows elevated secondary trading volumes in October are carrying over into November. As of 8 November, we see an average daily secondary trading volume of $12.7bn. While daily trading data is subject to revision over the course of the month, it currently represents a 13% decrease from October's average. All the same, as Exhibit 18 shows, while down m/m, average trading levels in October and November are the highest thus far in 2023. Note that, for the MTD, $76.0bn of muni bond par value traded.

Exhibit 18: Daily avg secondary trading volume ($bn)
Early Nov-23 daily avg volume of $12.7bn down nearly 13% m/m



Note: Data as of 8 November 2023.
Source: BofA Global Research, Bloomberg

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Credit corner

Rating activity

S&P's Oct-23 upgrade to downgrade ratio weakest since Jun-22

S&P's rating activity moderated in October, yet was still positive. During the month, the rating agency upgraded 59 ratings vs 38 downgraded, for an upgrade to downgrade ratio of 1.6 to 1. That is the weakest monthly upgrade-to-downgrade ratio since June 2022's 1.5 to 1. Local governments again accounted for the most upgrades with 41, but also the most downgrades, with 20. Neither the healthcare nor public power sectors had any upgrades for the month, but did see downgrades (11 and 3, respectively). For outlook revisions, S&P revised 16 outlooks to stable, 22 to positive, but 23 to negative. With those changes, unfavorable outlook and CreditWatch changes were outpaced by favorable changes during the month – 27 unfavorable vs 36 favorable.

While upgrades are outpacing downgrades 3.0 to 1 for the YTD, unfavorable changes are nevertheless outpacing favorable changes 1.5 to 1. As we noted in our 20 October Municipals Weekly, while we expect a continuation of upgrades outpacing downgrades in 2024, we do so at a more moderate level than we saw in 2023 thus far. We do see the potential for the credit profiles of weaker issuers to be pressured given slowing economic growth.

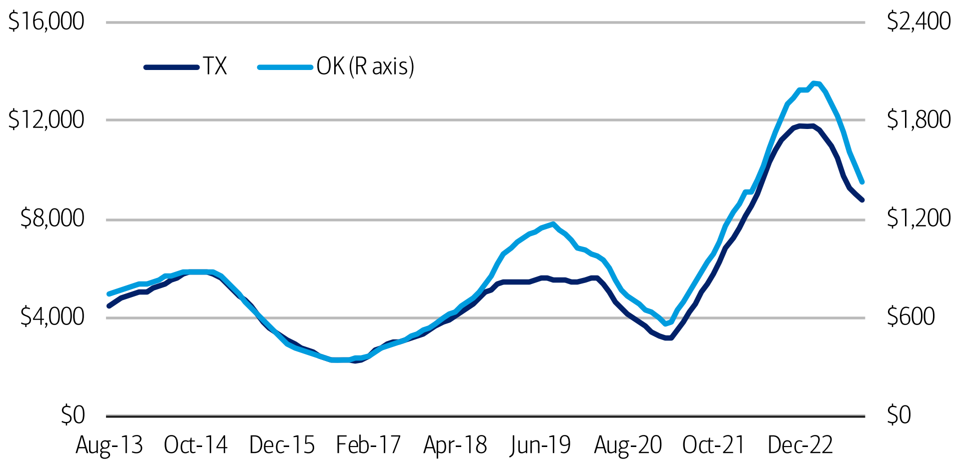
State and local governments

Earliest collection medians for October point to another down month

The total number of October reporting states is 15. For these early reporting states, collections overall are down on median 1.0%, with personal income collections down 7.6% y/y on median, while corporate and sales tax collections are up 0.2% and 1.2%, respectively. Note that while down y/y on median, their collections are nevertheless up 14.0% vs those from October 2021. Meanwhile, reporting from both TX and OK in October showed continued weakening in oil and natural gas production taxes from peak levels. TX collected $8.8bn in oil and natural gas production taxes over the 12-mos ending in October, which is down 23% vs the 12-mo period ending Oct-22. OK collected $1.4bn, which is down 25% vs the 12-mo period ending Oct-22. Yet, as Exhibit 19 shows, those collections remain elevated. Otherwise, we highlight CA's October personal income tax collections, which at $16.8bn, came in 57% below expectations for the month. As a reminder, CA and the IRS originally extended the tax filing deadline for residents affected by winter storms from April into October. That was subsequently extended until 16 November.

Exhibit 19: 12-mo cumulative oil & natural gas production tax collections for TX and OK ($mn)

TX 12-mo total collections as of Oct-23 down 25% from recent peak; OK's down 30%



Source: BofA Global Research, state reports

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Illinois upgraded to A- by Fitch

Fitch upgraded Illinois' issuer default and GO ratings one notch on 7 November to A- from BBB+. As a result, each of Moody's, S&P and Fitch now rate the state in the single-A category. Per Fitch, the upgrade was driven by IL's "ability to execute on significant planned reserve contributions and maintain improvements in budget management including normalized accounts payable, thereby improving the state's overall operating profile." As of 7 November, the state's comptroller estimated IL's general fund accounts payable totaled $1.86bn – that is up roughly $1.4bn vs recent lows as of 1 July 2023, but well below the $6.0bn estimated when the last administration's term ended. While 10yr ILGO spreads to the 10yr BVAL AAA have widened since the end of October, and stood at 114bp as of 7 November, they remain at neutral levels when compared to spreads over the last year. Since the start of March 2020, daily spreads averaged 150bp.

Puerto Rico MSAs payroll levels strong

Overall, it was a relatively quiet week in Puerto Rico. That said, in our last Weekly, we discussed nonfarm payroll recovery levels for the 389 metropolitan statistical areas (MSA) across the US. Those do not include the seven MSAs in Puerto Rico. Puerto Rico's overall payrolls as of Sep-23 amounted to 107.7% of Mar-20 levels; the strongest growth among its MSAs is in Aguadilla-Isabela at 114.4% while the weakest is in Guayama at 106.3%. Otherwise, we highlight: (a) TSA balances of $8.3bn as of 27 October that were down $74mn w/w, and for the YTD are 11.8% above adopted liquidity plan (LP) estimates; and (b) FY24 General Fund collections through 27 October of $4.2bn that were up 8.9% vs collections LP estimates.

State and local government payroll recovery now at 95% after Oct-23 increases

The US added a below-estimate 150,000 jobs in October, while state and local government payrolls grew by 48,000 m/m (state payrolls increased by 10,000 m/m while local payrolls increased 38,000 m/m). Both state and local government education and non-education jobs grew during the month. Overall, state and local governments' nonfarm payroll recovery of jobs lost during the peak of the COVID crisis is 95.0%, with local governments' recovery at 96.9% and state governments at 86.0%. On a combined basis, state and local government education payrolls recovered 88.0% of jobs lost – lower than the 106.9% for non-education. As it stands, Oct-23's education payrolls equal 98.9% of February 2020's and non-education equals 100.5%.

State and local government construction spending hits record in Sep-23 SAAR

State and local government construction spending hit an all-time high in September at seasonally adjusted annual rates, reaching $408.4bn per Census Bureau data. That is up 15.0% on a y/y basis. A number of major construction sectors reached all-time highs themselves: healthcare construction spending hit $9.3bn, amusement and recreation hit $16.3bn, highway and street hit $128.9bn and conservation and development hit $4.8bn as of September. So, too, did many subsectors: elementary education, "other" public safety, fire/rescue, park/camp, sewage/dry waste, and waste water treatment plant. Among the major sectors, transportation's is furthest from all-time highs; at $39.5bn as of September, it is 8.2% below the all-time high reached back in August 2020.

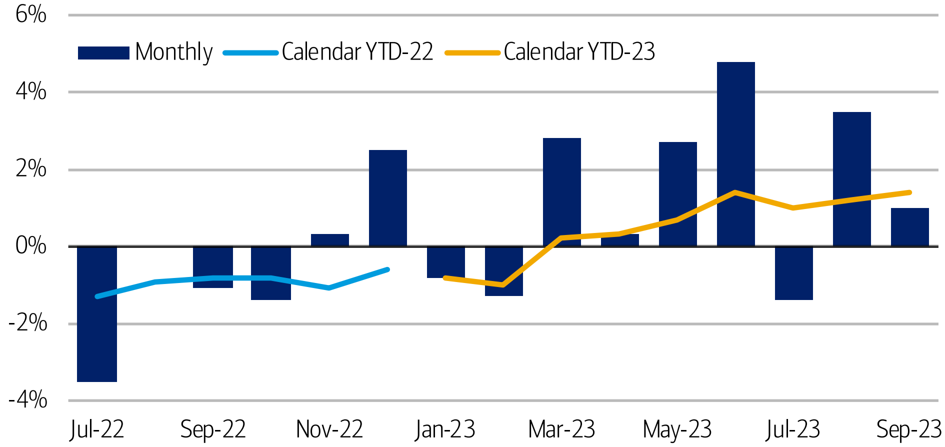
Healthcare

YTD median hospital operating margin improves to 1.4% in September

Kaufman Hall's (KH) latest National Hospital Flash report showed an improvement in the YTD median hospital operating margin, coming in at 1.4% in September, up from 1.2% the prior month. The median change in operating margin was -13% m/m and 16% y/y, but -2% comparing YTD-23 to YTD-20. Net operating revenue per calendar day was -2% m/m with total expenses per calendar day flat over the same period. For YTD-23 levels versus YTD-20, revenues were up 21%, beating the 20% increase in total expense.

Over that same period, inpatient revenue was up 16% and outpatient 45%, as labor expense was up 20% and non-labor expense 20%. KH noted that: (1) overall hospital performance was down in September as volume decreased; (2) bad debt and charity care were higher on a y/y basis; and (3) labor expenses increased but overall expense was down given lighter volume.

Exhibit 20: Kaufman Hall's operating margin index, monthly and YTD medians
YTD operating margin hit 1.4% in September, matching its peak level last reached in June



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

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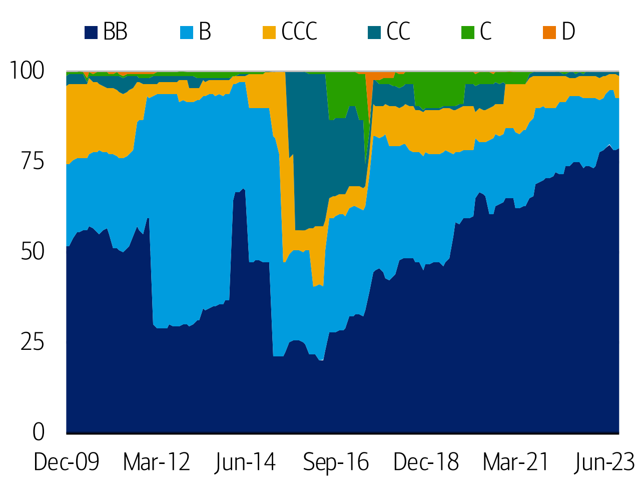
Defaults, distress & HY

Almost 80% of U0HY rated BB

The share of BB rated debt in the ICE BofA US Municipal High Yield Securities Index (U0HY) has been rising since the Spring of 2016; BB-rated debt now accounts for 79% of U0HY's par value. Part of the growth of BB's share is due to Puerto Rico bonds being largely removed from the index (in February of 2015, Puerto Rico's bonds accounted for nearly 51% of U0HY's par value; as of the end of October 2023, they totaled just over 1%). But, of course, part of it also is the result of credit strengthening across the muni market that accelerated post-pandemic for all but a few sectors.

As Exhibit 22 shows, U0HY is heavily more skewed to BBs than the ICE BofA US High Yield Index (H0A0) for corporates, though is more similar when you aggregate BBs and single-Bs (92.8% for U0HY vs 87.4% for H0A0).

Exhibit 21: Historical % of U0HY face value, by rating cohort
BBs account for 79% of U0HY's par; single-Bs account for another 14%



Source: ICE Data Indices, LLC

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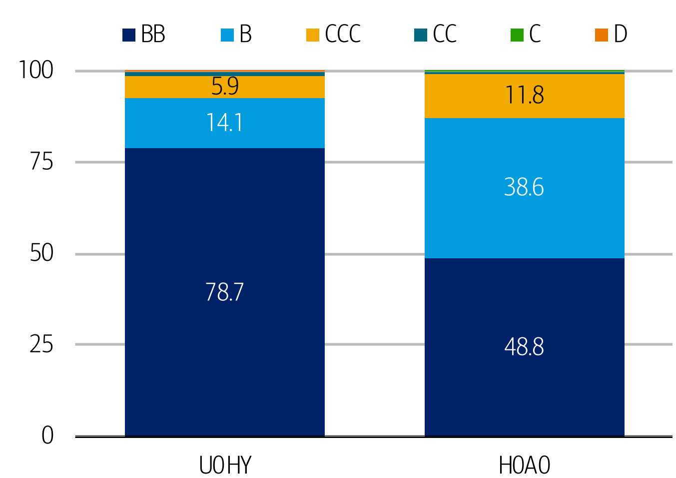
Exhibit 22: U0HY vs H0A0 % of face value, by rating cohort
U0HY is heavily more skewed to BBs than H0A0



Source: ICE Data Indices, LLC

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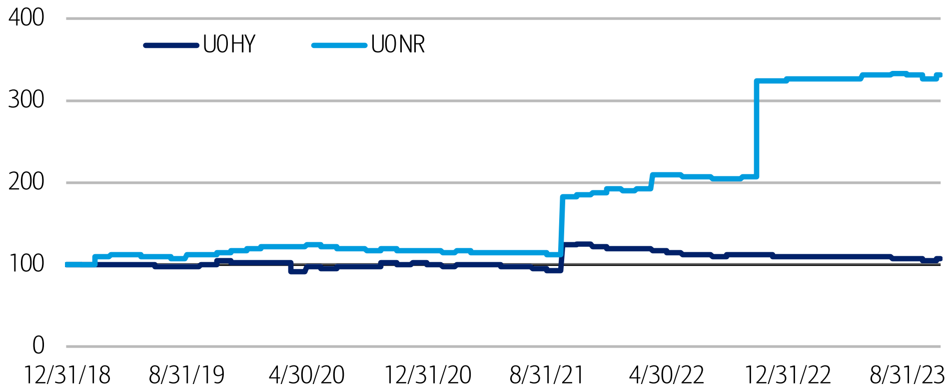
While BofA Global Research's corporate high yield analysts are expecting a notable increase in defaults in 2024, we do not in munis. For 2024, we expect defaults to be largely similar to 2023's, though with more risk to the upside given the rate environment, expectations for slower economic growth and observable default and distress speeds. **Our initial estimate for 2024 is for $1.9bn to $2.3bn of first-time payment defaults**. As with 2023, however, we expect the bulk of 2024's defaults to emanate from the unrated space. Note that the unrated high yield space is certainly growing; since the end of 2018, U0HY's face value increased just 7% compared to the ICE US Non-Rated Municipal Securities Index's (U0NR) 231% growth. Most of that growth came post-pandemic, though we see stability since the Fall of 2022.

Exhibit 23: Index of U0HY's and U0NR's face value
31 December 2018 = 100



Source: BofA Global Research, ICE Data Indices, LLC

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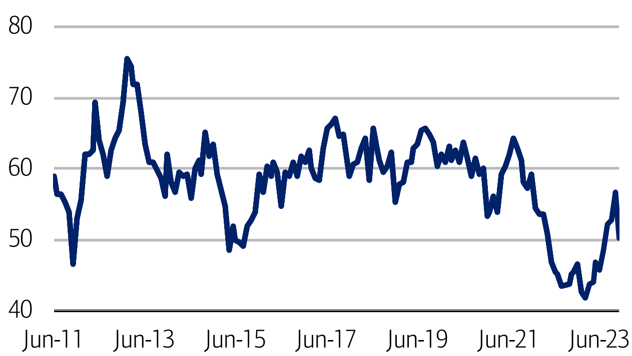
But, while we are neutral overall on high yield, we agree with our corporate high yield analysts that investors in the space should focus more on higher grade high yield.

Tracking: material credit events and Ch. 9 filings

For the week ending 8 November, our tracking of those Moody's-defined material credit events (MCEs) shows 18 postings, up 8 on a w/w basis, with the MTD total of 24 as of 8 October. See Exhibit 24. We also note there were no new Chapter 9 bankruptcy petitions filed for the week ending on 8 November; it has now been 169 days since the last bankruptcy petition was filed by Hazel Hawkins Memorial Hospital on 23 May 2023, making it the 8th longest period since July 1987 between Chapter 9 filings.

Exhibit 24: 6-mo mov avg of material credit events posted to EMMA
Filings posted to EMMA nearly double w/w



Note: Data as of 8 November 2023. 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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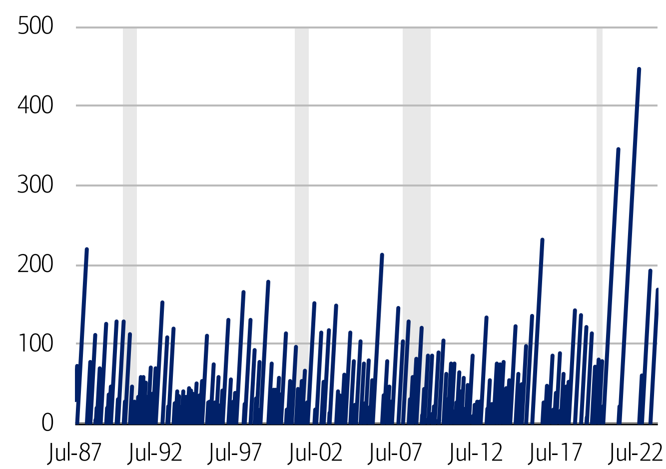
Exhibit 25: Calendar days since last Chapter 9 petition filed
169 days since Hazel Hawkins Memorial Hosp. filed Ch. 9 petition



Source: BofA Global Research, PACER, US Courts

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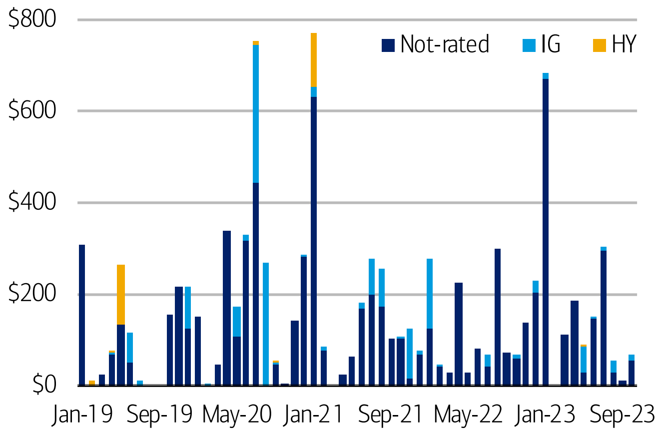
YTD default & distress through October

As we discussed in our last Municipals Weekly, first-time payment defaults totaled $69mn in October, bringing the YTD total to $1.66bn, up 39% y/y. First-time distressed debt (when the first distressed event that is not a default happens) totaled $308mn in

October; as a result, the YTD totals $2.2bn, which is roughly flat y/y. The total cumulative first-time distressed debt since 2019 totals $14bn; of that, 36% defaulted while 6% exited distressed status.

Exhibit 26: Monthly first-time defaults ($mn) by avg rating at issue
First-time defaults $69mn in October; YTD-23 totals $1.66bn, up 39% y/y



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

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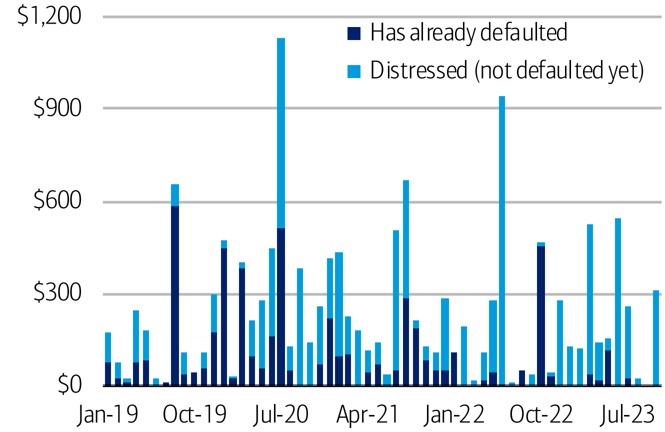
Exhibit 27: Monthly first-time distressed debt ($mn)
First-time distress $308mn in Oct; YTD-23 totals $2.2bn, close to '22 y/y



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

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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 Japan and South Korea.

Exhibit 28: Cross currency equivalent yields as of 9 November 2023
Taxable munis are generally attractive for foreign investors with a few exceptions

	Government bond yield (in investor country's currency)			Cross currency equivalent yield*						Can foreign investors buy?					
				US Treasury			US AAA taxable muni			US Treasury			US AAA taxable muni		
Country	**5 yr**	**10 yr**	**30 yr**	**5 yr (4.629)**	**10 yr (4.636)**	**30 yr (4.786)**	**5 yr (4.87)**	**10 yr (5.08)**	**30 yr (5.8)**	**5 yr**	**10 yr**	**30 yr**	**5 yr**	**10 yr**	**30 yr**
Canada	3.857	3.837	3.635	4.150	4.156	4.553	4.390	4.601	5.558	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom	4.248	4.267	4.728	4.348	4.239	4.591	4.578	4.682	5.597	Yes			Yes	Yes	Yes
France	2.973	3.228	3.756	2.969	3.050	4.015	3.203	3.490	4.997			Yes	Yes	Yes	Yes
Germany	2.571	2.643	2.877	2.969	3.050	4.015	3.203	3.490	4.997	Yes	Yes	Yes	Yes	Yes	Yes
Italy	3.938	4.505	4.978	2.969	3.050	4.015	3.203	3.490	4.997						Yes
Spain	3.313	3.690	4.317	2.969	3.050	4.015	3.203	3.490	4.997						Yes
Portugal	2.972	3.370	3.971	2.969	3.050	4.015	3.203	3.490	4.997			Yes	Yes	Yes	Yes
Netherlands	2.795	2.976	3.100	2.969	3.050	4.015	3.203	3.490	4.997	Yes	Yes	Yes	Yes	Yes	Yes
Switzerland	1.033	1.027	1.007	2.969	3.050	4.015	3.203	3.490	4.997	Yes	Yes	Yes	Yes	Yes	Yes
Japan	0.391	0.833	1.697	0.130	0.514	2.815	0.362	0.945	3.744			Yes		Yes	Yes
Australia	4.218	4.527	4.866	4.843	5.199	5.058	5.084	5.643	6.077	Yes	Yes	Yes	Yes	Yes	Yes
South Korea	3.833	3.929	3.703	2.867	3.659	4.311	3.104	4.099	5.297			Yes		Yes	Yes
China	2.509	2.646	2.958	4.068	4.329	4.637	4.307	4.771	5.638	Yes	Yes	Yes	Yes	Yes	Yes
Taiwan	1.194	1.270	1.635	1.759	3.049	4.019	1.996	3.486	4.986	Yes	Yes	Yes	Yes	Yes	Yes
Singapore	3.039	3.041	2.846	3.950	4.267	4.605	4.192	4.709	5.606	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 29: 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
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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