Municipals Weekly

Strong technicals around the corner

Industry Overview

28 April 2023

Municipals
United States

Key takeaways

- If the Fed hits pause on hikes and then cuts rates towards year-end, the muni curve should flatten into next year.
- May-August will be a strong redemption season; new money issuance may be light vs. robust refundings.
- Over the past 20+ years, muni rates declined on average during the period leading up to the debt ceiling being raised.

Muni curve should flatten into year-end

Muni curve flattening in a Fed tightening cycle usually extends through the early months of the next easing cycle. If the Fed is on hold after next week's rate hike and eventually cut rates towards year-end, the muni curve should flatten for the rest of the year.

A strong season of redemptions may see more supply

The muni market is entering a strong redemption season in May-August. We estimate that principal redemptions and coupon payments for those four months will be $169bn and $63bn, respectively. We estimate issuance for those four months will total $143bn. New money issuance may remain light, but refundings should be robust.

Muni rates fall on average into debt ceiling being raised

Between 2000 and 2021, the US debt ceiling was raised over 20 different times. We reviewed muni 10-year AAA MMD rates historically and found that, on average, they decline during the period prior leading up to the debt ceiling being raised.

Key figures: issuance, returns, spreads & fund flows

Supply: MTD issuance through 26 April totals $27.2bn, down 11% y/y; YTD issuance of $104.3bn is down 22% y/y. YTD issuance is 84% tax-exempt and 14% taxable; 77% is new money and 23% is refundings.

Returns: For the week ending 26 Apr, the Muni Master index (U0A0) returned 0.47% and the Muni High Yield index (U0HY) returned 0.72%; YTD total returns are 2.82% and 2.31%, respectively. By rating, BBBs' returns for the week are strongest at 0.72%; by sector, Hospitals' 0.69% is strongest. Taxables' return for the week is 1.30%.

Spreads: As of 26 Apr, IG spreads tightened 1bp w/w to 30bp while HY spreads tightened 8bp to 203bp.

Flows: For the week ending 26 April, all municipal bond fund outflows were $0.09bn; IG inflows were $0.47bn, while HY outflows were $0.56bn. Money market fund outflows were $2.49bn for the week.

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Municipals Weekly: Issuance forecast revised down to $400bn 31 March 2023

Timestamp: 28 April 2023 07:30AM EDT

Exhibit 1: Strategic and tactical views & key forecasts
Buy long duration high grade bonds, especially 4% coupons

Strategic views
• Overweight: (1) 15-30yr part of the curve, particularly 4% coupon bonds; (2) AMT bonds*
• Neutral: BBBs and high yield
• Underweight: (1) the territories; (2) small private colleges; (3) rural, single-facility hospitals
Tactical views
• TXMB/C0A0 spread to fall to -70bp during tightening cycle
• Position for a muni curve bull flattener and credit spread compression in 1H23
• 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 10/30 AAA flattening, with slope falling to 50bp range
• 10yr AAA rates to reach 1.65% area; 30yr to 2.20%. 10yr muni/Tsy ratio range of 70%-90% and 30yr 85%-100%
• Muni Master index to return 11.5% in 2023; taxable muni index 12.5%

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 curve will likely flatten to the year end

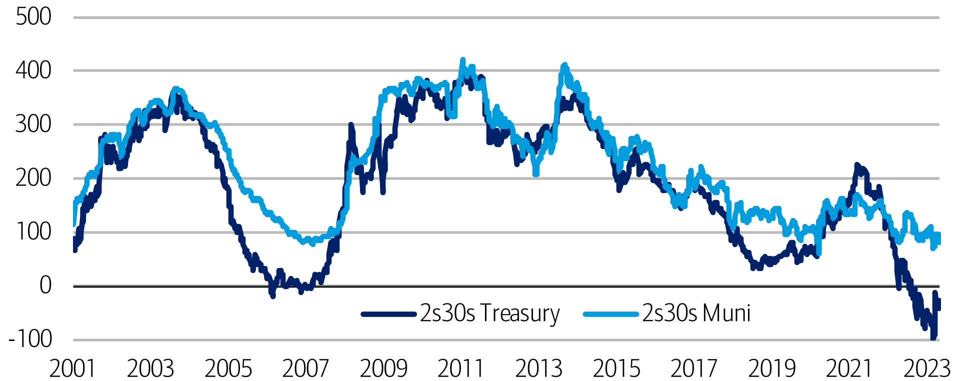
Investors' jitters in the lead up to next week's Fed meeting resulted in some large macro market moves and a rise in volatility. The Fed Funds futures market pricing, which only a week ago indicated a small probability of an extra hike after the Fed's expected 25bp hike in May based on a stable environment, has now switched to a 25bp hike and done. Moreover, two Fed rate cuts are priced in for 2023, with the first in November. If so, that means the Fed will be on hold for nearly six months and then cut rates.

Historically, the macro market tended to have some issues after the Fed's final rate hike; typically, that is in connection with economic deterioration and an expectation of a recession. Generally, the Treasury market would rally well with a steepening bias, while credit spreads would widen. This cycle should be similar, though the labor market and economic output appear to have sticky strength, increasing the odds of a soft landing. Suspected tightening in regional bank lending has not shown an impact on economic performance so far. Still, while inflation has trended down, it remains higher than the Fed's desired target. On top of this, the debt limit discussion has begun in earnest. Volatility will likely increase more by June (see our discussion below).

Our view for munis remains the same: we expect a continued muni rates market rally and limited credit spread widening. However, as we wrote previously, unlike the Treasury curve, the muni AAA curve should continue to flatten, possibly up to the initial months of the Fed's rate cuts (see Exhibit 2). In the 2004-2006 tightening cycle, the Fed executed its last rate hike in June 2006, and the 2s30s Treasury slope began to steepen in February 2006 while the 2s30s muni AAA curve only started steepening 13 months later. In the 2017-2018 tightening cycle, the Fed's final rate hike was in December 2018 and the 2s30s Treasury curve began steepening in September 2018. The 2s30s muni curve, however, continued to flatten all the way to March 2020. Indeed, the muni curve only began to steepen after the COVID-19 pandemic hit. A similar muni lag also happened during the QE (Quantitative Easing) era. For example, the Fed started its QE3 in September 2012 and the 2s30s Treasury curve began to steepen in July 2012 while the 2s30s muni AAA curve only began steepening in December 2012.

In this Fed tightening cycle, the 2s30s Treasury curve has steepened from a low of -120bp in March 2023 to 5bp as the regional bank issues pulled the Fed closer to the end of its tightening cycle. So far, the time and scale of the steepening are well within historical norms. The muni curve, too, will likely follow the historical norm, and flatten all the way to year-end even if the Fed starts cutting rates in November. Given the inversion of the 1s10s muni curve and the outstanding 10s30s steepness, we think some flattening should come from the 10s30s curve.

Exhibit 2: 2s30s Treasury and 2s30s Muni AAA slopes (bp)
2s30s Muni curve will likely flatten to the year end



Source: Refinitiv, Bloomberg

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Entering a strong season of redemption with more supply?

MTD issuance as of 26 April totals approximately $27bn, but the preliminary numbers show the total for the month should exceed $30bn, slightly higher than our revised target of $29bn. This will bring the first four month's total issuance to $105bn.

New money issuance in April continued to be light, showing no sign of robustness. However, it is good see that refunding volume in April is almost $10bn, accounting for 37% of the total. In fact, this is the second month that refunding deals accounted for 25%+ of the total, bring the YTD refunding volume to $24bn, a 23% of the total issuance volume YTD. This suggests that tax-exempt muni rates have declined to good levels to trigger large increase in current and forward refunding activity. If we are correct about muni rates, then refunding volume going forward should be robust for the rest of the year and account for high percentages of monthly issuance volumes. These refundings are mostly tax-exempt refundings. At a time when tax-exempt muni supply is at shortage, this is certainly a welcome change.

For May, we expect $33bn of new issuance for long term bonds, while principal redemptions should be about $31.3bn and coupon payments on the order of $13.7bn.

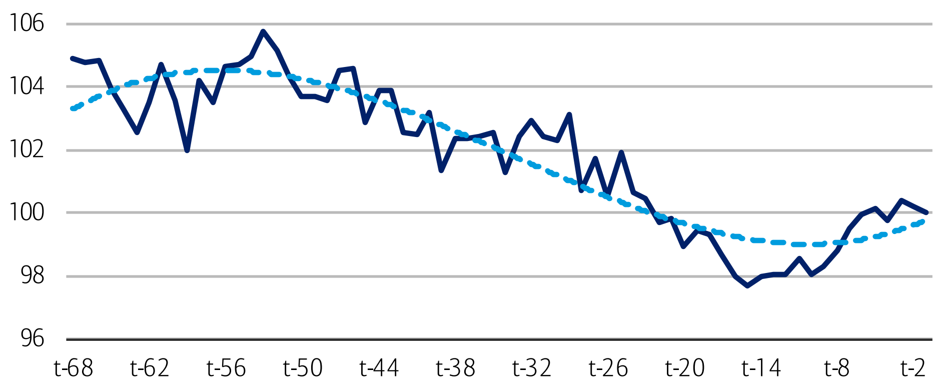
Clearly, the ongoing imbalance of supply/demand conditions will continue. Indeed, **starting from May, the muni market is entering a season of strong performance months May-August as established over the past several years**. The season represents the expansion of traditional strength in June/July redemptions to May-August. This year, our estimated principal redemption for the four months totals $169bn and coupon payments $63bn. Total expected issuance for the four months is $143bn – a very large imbalance. A strong performance in absolute and relative values should be expected.

We continue to favor long maturity, 4% coupon high grade bonds. Investors should note that despite the outstanding 10s30s steepness, total returns YTD for the ICE 22+ year muni index U5A0 (4.32%) is significantly higher than that for the 7-12 year muni index (2.52%). The 4% coupon bucket in U5A0 beat the 5%+ coupon bucket by 2.39% (5.69% vs 3.30%). For an overall performance heatmap according to maturity and duration, see Exhibit 5 in our Performance section below. There, one can see that longer duration, long maturities performed much better than the middle part of the curve.

Muni rates fall on average into debt ceiling being raised

Between 2000 and 2021, the US debt ceiling was raised over 20 different times, either by statute, suspension, auto adjustment or on a de facto basis. Our rates strategists recently pulled forward their estimated debt ceiling X-date from mid- to early-August given lower-than-expected April tax data. The start of August is just 68 business days from today. Assuming Congress goes down to the wire and raises the debt ceiling on 1 August, we reviewed muni 10-year AAA MMD rates historically and found that, on average, they decline over the 68-business day period prior to the raising of the debt ceiling by about 5%. That is not to say, however, that there are not periods when they climb. Indeed, they did so 10 times, including when the debt ceiling was ultimately raised in: July 2008, September 2009, November 2012, February 2013, November 2013, December 2014, December 2016, June 2017, July 2021 and September 2021. Still, the average performance of rates during these periods along with the strong technical season from May and through the summer months (see our discussion above) lends further support to our view of 10-yr MMD closing out 1H23 around 2.0%.

Exhibit 3: 10-year muni AAA behavior in the lead up to the debt ceiling being raised
On average, 10yr AAA MMD tends to fall (t = date the debt ceiling was raised)



Note: Each day represents the average of the corresponding business day in advance of the debt ceiling being raised since 2000.
Source: BofA Global Research, Refinitiv

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Performance

Munis underperform again this week

Munis underperformed again this week, with muni IG's 47bp of total returns failing to keep pace with govies' 108bp and corporates' 82bp. Taxable munis performed strongly this week, outperforming tax-exempt munis by 83bp, govies by 22bp and corporates by 48bp. Over the last two weeks, taxables returned 15bp, while both govies and corporates were modestly negative and tax-exempt munis lost 122bp of returns. Exempt muni IG also underperformed HY this week by 25bp; that marks the first week HY outperformed IG since the week ending 15 February. While HY is now besting IG for the last month by 8bp, IG is still outperforming HY for the YTD by 51bp. In total, muni IG gained just 26bp of returns over the last month, still good enough for about 30bp of outperformance versus govies but 61bp less than corporates and 62bp less than taxable munis.

BBBs had the strongest week by rating grade, with 72bp of returns. That marks the third in the last four weeks that BBBs were the strongest performer (and the 16th week in the last 24). In a reversal from last week, AAs were the weakest performers with AAAs, gaining 42bp of returns. Over the last month, BBBs' returns are strongest with 76bp of returns, besting single-As by 35bp, AAs by 60bp and AAAs by 67bp.

GOs underperformed revenue bonds this week by 15bp: GOs gained 36bp of returns versus revenue bonds' 51bp gain. The largest outperformance came in BBB revenues, which outperformed their GO counterpart by 42bp for the week. Note that single-A GOs outperformed single-A revenues by 7bp for the week. For the YTD, revenue bonds are besting GOs by 56bp. Among the muni bond sectors, Hospitals had the strongest week, with a gain of 69bp. Over the last month, however, Utilities' returns are strongest at 82bp; for the YTD, Industrial Development Revenue's 406bp of returns are strongest. As a reminder, in our 3 February Municipals Weekly, we suggested that if our economists' forecasts for a 2H23 recession are correct, and if history repeats itself this cycle, GOs may outperform in the back half of the year as their YTW ratios richen to revenue bonds. As we suggested previously, that may come a bit sooner than 2H23 given that economic risks appear to be shifting earlier in time.

Exhibit 4: Municipal total returns (%) monitor, as of 26 April 2023

Exempt munis could not keep pace with govies and corporates this week, but taxable munis did

Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
Govt Master	G0A0	-0.362	1.081	0.502	-0.040	1.067	3.579	-1.851
Corporate Master	C0A0	-0.420	0.822	0.676	0.863	0.370	4.147	-0.558
IG munis	**U0A0**	**0.052**	**0.469**	**-0.002**	**0.255**	**-0.254**	**2.821**	**2.554**
AAA	U0A1	0.036	0.420	-0.134	0.091	-0.472	2.377	2.586
AA	U0A2	0.047	0.420	-0.083	0.157	-0.360	2.583	2.804
A	U0A3	0.064	0.536	0.131	0.404	-0.057	3.221	2.335
BBB	U0A4	0.076	0.724	0.381	0.757	0.231	4.004	1.793
1-3yr	U1A0	0.015	0.056	-0.242	-0.136	-0.123	0.858	1.808
3-7yr	U2A0	0.012	0.132	-0.304	-0.115	-0.418	1.641	2.962
7-12yr	U3A0	0.015	0.253	-0.070	0.186	-0.258	2.522	4.580
12-22yr	U4A0	0.057	0.538	0.120	0.430	0.051	3.381	2.865
22+yr	U5A0	0.115	0.981	0.248	0.578	-0.533	4.321	1.025
HY munis	**U0HY**	**0.111**	**0.719**	**0.152**	**0.331**	**-0.840**	**2.313**	**-1.006**
Non-rated	U0NR	-0.005	1.047	0.936	1.189	-0.696	3.479	0.599
General Obligation	**U0AG**	**0.033**	**0.357**	**-0.239**	**0.031**	**-0.351**	**2.406**	**2.988**
AAA	UGA1	0.033	0.317	-0.240	-0.006	-0.568	2.018	2.184
AA	UGA2	0.037	0.340	-0.221	0.025	-0.418	2.313	3.129
A	UGA3	-0.011	0.603	-0.521	-0.339	-0.563	1.964	3.209
BBB	UGA4	0.079	0.333	0.135	0.868	1.703	5.517	4.488
State	U0AA	0.028	0.328	-0.299	-0.033	-0.300	2.282	3.357
Local	U0AB	0.038	0.392	-0.168	0.109	-0.419	2.556	2.505
Revenue	**U0AR**	**0.058**	**0.506**	**0.077**	**0.329**	**-0.222**	**2.961**	**2.410**
AAA	URA1	0.038	0.493	-0.058	0.161	-0.403	2.639	2.879
AA	URA2	0.052	0.456	-0.021	0.217	-0.334	2.705	2.653
A	URA3	0.071	0.530	0.189	0.467	-0.004	3.308	2.314
BBB	URA4	0.075	0.748	0.429	0.710	-0.179	3.582	1.220
Airport	U0AV	0.090	0.480	0.124	0.432	0.042	3.547	3.227
Education	U0AE	0.087	0.529	-0.022	0.292	-0.407	2.935	2.412
Health	U0HL	0.008	0.430	-0.181	0.030	-2.666	0.386	-4.271
Hospital	U0AH	0.092	0.689	0.047	0.303	-0.633	3.102	0.942
Industrial Development Rev	U0ID	0.107	0.633	0.461	0.799	0.499	4.057	2.522
Leases, COPs & Appropriations	U0AL	0.062	0.381	-0.089	0.123	-0.374	2.363	2.506
Miscellaneous	U0AM	0.010	0.261	-0.234	-0.029	-0.545	2.352	2.798
Multi-family Housing	U0AU	0.052	0.433	-0.105	0.057	-0.615	2.949	0.654
Pollution Control	U0AQ	0.017	0.366	0.014	0.222	-0.521	2.122	2.502
Power	U0AP	0.029	0.360	0.101	0.360	-0.229	2.340	2.264
Single-family Housing	U0AS	0.049	0.278	-0.329	-0.110	-0.878	1.794	0.641
Tax Revenue	U0TX	0.053	0.525	0.046	0.278	-0.172	3.005	3.174
Tobacco	U0TB	-0.044	0.578	0.317	0.491	0.152	3.465	3.439
Toll & Turnpike	U0TL	0.041	0.530	0.078	0.405	-0.244	3.013	2.602
Transportation - other	U0AT	0.066	0.512	0.125	0.392	0.411	3.832	3.416
Utilities - other	U0UT	0.035	0.440	0.599	0.816	0.022	2.535	1.375
Water & Sewer	U0AW	0.034	0.468	-0.005	0.184	-0.249	2.576	2.463
Taxable	**TXMB**	**-0.422**	**1.303**	**0.814**	**0.877**	**0.733**	**5.779**	**-1.977**
Build America Bonds	BABS	-0.446	1.275	0.842	0.979	0.473	5.515	-1.903
VRDOs	**VRDO**	**0.009**	**0.059**	**0.197**	**0.276**	**0.501**	**0.666**	**1.587**
Daily reset	VRDD	0.010	0.066	0.182	0.258	0.454	0.585	1.378
Weekly reset	VRDW	0.008	0.054	0.205	0.286	0.526	0.708	1.697

Source: ICE Data Indices, LLC

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Exhibit 4 also shows that the longest maturities of the curve outperformed the shortest maturities this week. Indeed, we can see that the 22yr+ IG index outperformed the 1-3yr IG index by 93bp. With that outperformance, the longest maturities' performance for the YTD of 432bp is outperforming the shortest's by 345bp. Exhibit 5, meanwhile, shows that long duration is outperforming. We continue to suggest that investors extend duration for the strongest returns going forward.

Exhibit 5: YTD total return (%) by maturity and modified duration to worst (as of 26 April 2023)

Long duration outperforming short duration for the YTD

	Modified duration to worst													
Maturity	**0-1**	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8-9**	**9-10**	**10-11**	**11-12**	**>=12**	**Total**
1	0.87	0.77												0.78
2	0.80	0.84	0.72											0.76
3	0.88	0.69	0.95	1.08										1.03
4	0.99	0.59	0.98	1.43	1.55									1.39
5	1.01	0.76	0.99	1.42	2.03	1.81								1.78
6	1.00	0.92	1.10	1.42	2.60	2.28	3.13							2.06
7	0.79	0.85	1.26	1.58	2.49	2.66	2.35	3.69						2.15
8	0.90	1.00	1.18	1.53	2.16	2.56	3.08	2.60	4.54					2.31
9	1.04	1.29	1.17	1.50	2.25	2.77	3.20	3.39	2.94	4.71				2.53
10	1.06	1.21	1.31	1.62	2.61	2.62	2.94	4.12	3.96	5.37	5.73			2.60
11	1.10	1.36	1.41	1.86	2.81	3.01	3.78	4.38	3.93	3.91	-0.22	6.32		2.94
12	1.30	1.14	1.61	1.94	2.98	3.22	3.95	4.67	3.75	5.16	6.18	2.32	7.45	3.41
13	1.01	0.85	1.35	1.93	2.80	3.17	3.86	4.34	3.96	3.55	4.44	4.52	6.31	3.26
14	1.24	1.20	1.42	2.25	2.66	2.81	3.78	4.13	4.54	3.18	3.70	3.33	6.74	3.31
15	1.03	1.26	1.42	2.03	2.43	2.76	3.61	4.35	4.34	0.38	1.81	3.55	6.15	3.14
16	0.91	1.10	1.31	1.65	2.24	3.49	2.98	4.18	4.33	1.37	0.62	2.91	4.93	3.11
17	0.56	1.29	1.34	1.64	2.55	2.95	2.80	3.97	-0.35	2.99	2.47	2.50	3.61	3.31
18	0.56	1.33	1.34	1.73	1.71	2.94	3.31	3.98	4.81	-0.33	0.09	3.62	3.61	3.40
19	-0.10	1.25	0.18	1.98	1.76	2.50	3.44	3.59	0.01	0.04	1.96	3.41	3.65	3.53
20	1.08	1.20	1.35	1.27	2.16	2.55	3.16	3.64	2.18	4.32	3.59	-0.26	4.62	3.39
21	0.69	0.92	0.64	1.17	0.78	2.70	2.80	3.67	-3.69	3.65	5.26	5.46	4.71	3.60
22	-1.87	0.43	0.75	1.98	2.30	2.69	2.45	4.49		5.08	-4.81	5.55	4.94	4.13
23	0.47	0.43	1.10	1.65	2.75	2.89	3.39	2.97	0.41	5.21		4.13	4.80	4.20
24	0.92	0.43	1.35	1.88	1.64	3.09	2.53	3.41	-3.23			3.20	4.63	3.74
25	0.84	1.58	1.26	1.73	2.09	2.53	3.66	3.42	-1.25	-4.32		-1.58	4.69	3.96
26	-0.05	1.39	2.23	1.80	1.94	2.39	3.22	3.19			0.37		5.79	4.73
27	0.56	1.15	1.42	1.74	2.66	2.15	2.95	4.30	3.08				5.62	5.01
28	0.64	-0.22	1.29	1.21	3.05	2.51	3.44	3.61	0.05	0.24			5.15	4.56
29	0.91	-0.31	-0.73	2.25	2.41	3.69	2.56	3.32	2.17				4.92	4.10
30	1.27	1.28	0.64	1.49	2.65	2.49	3.61	2.29	-2.77				4.78	4.28
>30	-0.43	0.61	1.06	1.29	1.79	3.15	3.77	4.01					5.10	4.54
Total	0.85	0.90	1.04	1.60	2.20	2.68	3.13	3.68	3.90	4.00	3.65	3.18	4.84	2.82

Source: ICE Data Indices, LLC

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Muni IG and HY spreads largely tightened w/w

Muni IG spreads tightened 1bp w/w to 30bp, or to the 36th percentile of their 52-wk range. Muni HY spreads tightened 8bp to 203bp and are now sitting at the 82nd percentile of their 52-wk wide. Non-rated spreads tightened 4bp and sit at the 50th percentile of their 52-wk range. GO spreads tightened 1bp overall w/w, with A GO spreads tightening 6bp. Revenue bond spreads tightened 2bp w/w overall. Among muni IG revenue bond sectors, Miscellaneous, Single-family Housing and Water & Sewer widened 1bp w/w, while Industrial Development Rev, Tobacco and Utilities – other narrowed by 4bp.

Exhibit 6: Muni YTW spread monitor as of 26 April

IG spreads tightened 1bp w/w overall while HY spreads tightened 8bp

	52wk				Current	Change from				Current as %		
	Tights	Wides	T-1wk	T-1d	4/26/23	Tights	Wides	T-1wk	T-1d	of 52wk range	Price	Yield
Investment Grade	**25**	**39**	**31**	**31**	**30**	**5**	**-9**	**-1**	**-1**	**36**	**101**	**3.48**
AA	8	21	10	10	9	1	-12	-1	-1	8	102	3.27
A	45	79	68	65	65	20	-14	-3	0	59	99	3.83
BBB	72	142	134	130	129	57	-13	-5	-1	81	94	4.47
High Yield	**119**	**222**	**211**	**203**	**203**	**84**	**-19**	**-8**	**0**	**82**	**94**	**5.21**
Non-rated	162	298	234	231	230	68	-68	-4	-1	50	65	5.48
General Obligation	**-9**	**3**	**-6**	**-6**	**-7**	**2**	**-10**	**-1**	**-1**	**17**	**102**	**3.11**
AA	-15	3	-12	-11	-12	3	-15	0	-1	17	102	3.06
A	-15	29	24	16	18	33	-11	-6	2	75	104	3.36
BBB	40	122	104	104	102	62	-20	-2	-2	76	100	4.20
State	-28	-5	-23	-23	-24	4	-19	-1	-1	17	106	2.94
Local	12	19	14	14	14	2	-5	0	0	29	98	3.32

Exhibit 6: Muni YTW spread monitor as of 26 April
IG spreads tightened 1bp w/w overall while HY spreads tightened 8bp

	52wk				Current	Change from				Current as %		
	Tights	Wides	T-1wk	T-1d	4/26/23	Tights	Wides	T-1wk	T-1d	of 52wk range	Price	Yield
Revenue	**33**	**52**	**44**	**43**	**42**	**9**	**-10**	**-2**	**-1**	**47**	**101**	**3.60**
AA	18	30	20	20	19	1	-11	-1	-1	8	103	3.37
A	47	83	72	70	69	22	-14	-3	-1	61	99	3.87
BBB	75	147	135	132	131	56	-16	-4	-1	78	93	4.49
Airport	67	98	76	74	73	6	-25	-3	-1	19	103	3.91
Education	23	44	25	25	23	0	-21	-2	-2	0	104	3.41
Health	64	174	165	165	164	100	-10	-1	-1	91	92	4.82
Hospital	49	97	83	81	81	32	-16	-2	0	67	99	3.99
Industrial Development Rev	64	130	112	109	108	44	-22	-4	-1	67	100	4.26
Leases, COPs & Appropriations	8	23	11	10	9	1	-14	-2	-1	7	103	3.27
Miscellaneous	1	15	5	7	6	5	-9	1	-1	36	100	3.24
Multi-family Housing	58	90	87	85	84	26	-6	-3	-1	81	92	4.02
Pollution Control	-29	58	47	45	44	73	-14	-3	-1	84	100	3.62
Power	13	39	34	34	33	20	-6	-1	-1	77	103	3.51
Single-family Housing	46	85	80	82	81	35	-4	1	-1	90	96	3.99
Tax Revenue	12	32	13	13	12	0	-20	-1	-1	0	101	3.30
Tobacco	10	78	26	21	22	12	-56	-4	1	18	102	3.40
Toll & Turnpike	32	50	43	40	40	8	-10	-3	0	44	98	3.58
Transportation - other	41	62	45	44	43	2	-19	-2	-1	10	99	3.61
Utilities - other	25	105	86	83	82	57	-23	-4	-1	71	102	4.00
Water & Sewer	9	21	16	17	17	8	-4	1	0	67	103	3.35

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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Supply & demand

YTD issuance totals $104.3bn, down 22% y/y

MTD issuance as of 26 April 2023 totaled $27.2bn, down 11% y/y. By tax status, 93% of April's issuance is tax-exempt and 7% is taxable. YTD issuance of $104.3bn is down 22% y/y. Thus far, 77% of YTD issuance is new money, while 23% is refundings. New money volumes are down 20% y/y while refunding volumes are down 28%.

Exhibit 7: Issuance summary ($mn)
YTD issuance of $104.3bn is down 22% y/y; new money down 20% y/y and refundings down 28%

	Month-to-date			Year-to-date		
	4/26/23	4/26/22	y/y % Δ	4/26/23	4/26/22	y/y % Δ
Total	**27,232.1**	**30,515.5**	**-11%**	**104,259.1**	**133,965.1**	**-22%**
New Money	17,239.1	22,556.4	-24%	80,054.6	100,282.4	-20%
Total Refunding	9,993.0	7,959.2	26%	24,204.5	33,682.7	-28%
Advanced refunding	0.0	19.4	-	1,380.9	1,256.3	10%
Unknown refunding	9,990.8	6,490.7	54%	21,390.7	29,946.1	-29%
Current & Forward refunding	2.2	1,449.1	-100%	1,432.9	2,480.3	-42%
Insured	1,424.6	1,917.8	-26%	7,093.4	10,347.4	-31%
Fixed rate	24,364.7	29,099.1	-16%	92,722.3	126,690.2	-27%
Variable rate long	1,170.7	101.9	1049%	7,527.8	4,064.3	85%
Variable rate short	1,663.4	558.3	198%	3,532.1	1,622.3	118%
Convertible	19.0	70.6	-73%	19.0	315.9	-94%
Zero coupon	14.4	65.1	-78%	187.9	377.9	-50%
Linked rate	-	620.5	-	270.0	894.5	-70%
Variable rate no put	-	-	-	-	-	-
Tax exempt	25,213.7	23,280.9	8%	88,029.2	104,715.8	-16%
Taxable	1,995.0	4,362.3	-54%	14,365.5	22,045.6	-35%
Alternative minimum tax	23.4	2,872.3	-99%	1,864.4	7,203.7	-74%
General Purpose	10,862.0	8,400.1	29%	27,852.5	35,334.5	-21%
Education	7,879.6	7,199.0	9%	30,573.0	36,862.3	-17%
Utilities	2,876.6	2,563.5	12%	14,744.5	14,901.3	-1%
Housing	1,563.3	1,641.5	-5%	8,684.1	8,788.4	-1%
Transportation	1,141.9	5,734.6	-80%	9,526.6	18,723.7	-49%
Healthcare	1,034.1	2,535.8	-59%	3,578.6	9,089.3	-61%
Electric Power	848.0	1,287.6	-34%	5,469.0	3,954.8	38%
Public Facilities	632.2	374.8	69%	1,393.1	2,764.1	-50%

Exhibit 7: Issuance summary ($mn)

YTD issuance of $104.3bn is down 22% y/y; new money down 20% y/y and refundings down 28%

	Month-to-date			Year-to-date		
	4/26/23	4/26/22	y/y % Δ	4/26/23	4/26/22	y/y % Δ
Development	400.2	337.6	19%	1,937.2	2,938.0	-34%
Environmental Facilities	-	441.0	-	506.4	608.7	-17%
Muni-backed corporates	1,520.0	2,475.7	-39%	1,611.6	8,732.2	-82%

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

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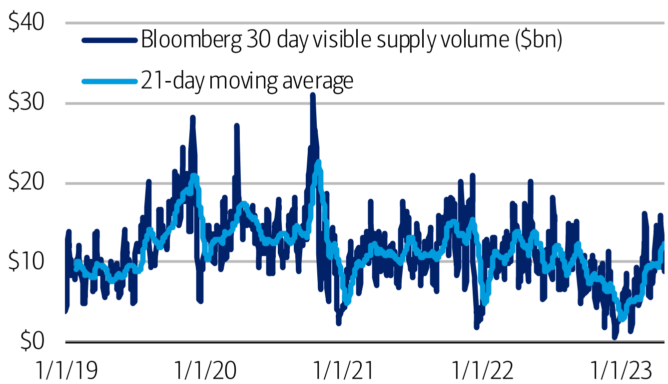
Exhibit 8: Bloomberg 30-day visible supply ($bn)

30-day visible supply was $8.8bn as of 27 April 2023



Note: Data as of 27 April 2023.
Source: Bloomberg

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Exhibit 9: 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	27*	32	
May	33		45	
June	43		65	
July	31		59	
August	36		62	
September	34		37	
October	45		40	
November	34		41	
December	39		56	-

Note: Totals may not add up due to rounding. Data as of 26 April 2023. January-March data are actuals. [1]Monthly issuance forecasts revised from April onward.
Source: BofA Global Research, Refinitiv, Bloomberg

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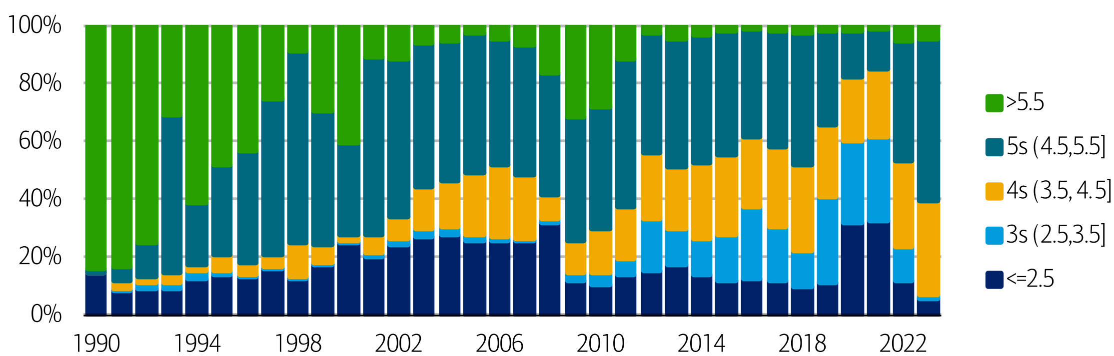
4s and 5s account for 90% of YTD issuance

Issuers of tax-exempt munis are generally incentivized to issue high coupon bonds as they appear more attractive to investors given the larger tax-free cash flow. Currently, the average coupon in the muni market is 4.4%. Exhibit 10 shows the breakdown of annual issuance by coupon brackets since 1990. Historically, 5s account for the largest share of issuance, typically around 40%-60% of overall annual issuance. 3s and 4s accounted for very small shares in 1990, but increased over time to about 20%-30% in recent years. However, for 2023YTD, 5s and 4s account for a dominant share, totaling about 90% of overall issuance. 2s, 3s and 6s, on the other hand, have each fallen precipitously. Of course, there are many benefits of owing higher coupon bond in the period of inflation and rising rates environment. See Municipals Educational Series: Primer on premium bonds.

Exhibit 10: Issuance by coupon bracket

Historically, 5s constitutes highest percentage of total issuance



Source: BofA Global Research, Refinitiv

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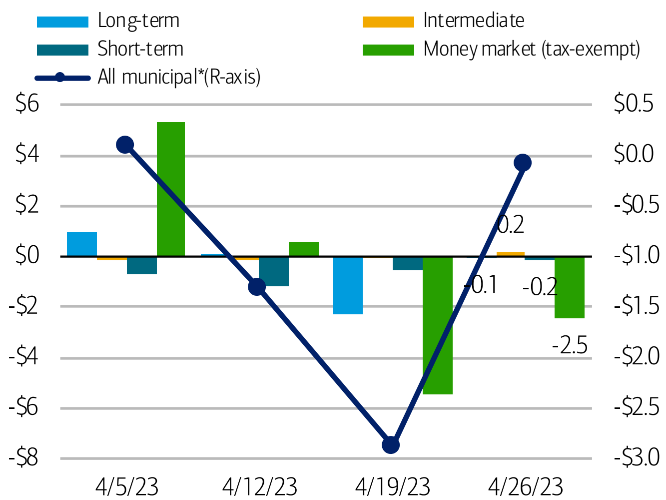
Mutual fund outflows total $0.09bn; ETF inflows $0.42bn

Mutual fund flows were negative this week, with outflows totaling $0.09bn, coming mostly from short-term funds. There were $0.47bn of inflows from investment grade funds and $0.56bn of outflows from high yield funds. YTD, investment grade outflows total $6.9bn versus $1.0bn of inflows into high yield. ETF fund flows were also positive for the week, with inflows totaling almost $0.42bn. Overall, our flow strength indicator measured by the 2-year trailing z-score suggests this week's flow strength was normal.

Exhibit 11: Flows by maturity brackets ($bn)
Muni outflows of $0.09bn; money market outflows of $2.49bn



Note: ETFs included. All Municipal = LT+INT+ST. Data includes both weekly and monthly reporting funds as of 26 April 2023.
Source: Refinitiv Lipper

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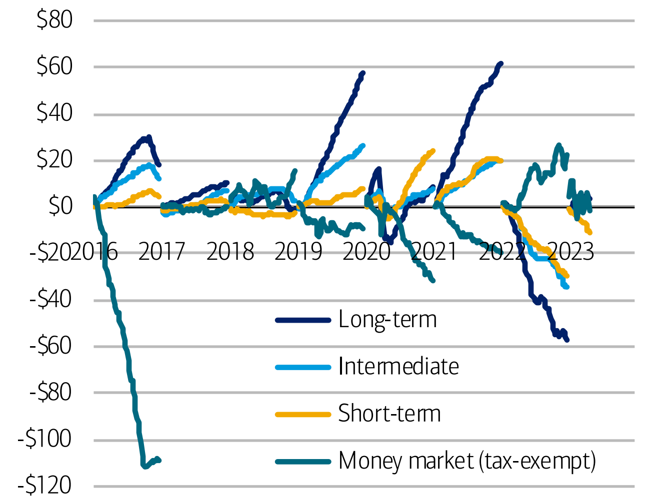
Exhibit 12: YTD cumulative flows ($bn)
2023 flow: LT: $3.6bn, INT: $1.1bn, ST: -$10.7bn, MM: -$1.9bn



Note: ETFs included. All Municipal = LT+INT+ST. Data includes both weekly and monthly reporting funds as of 26 April 2023.
Source: Refinitiv Lipper

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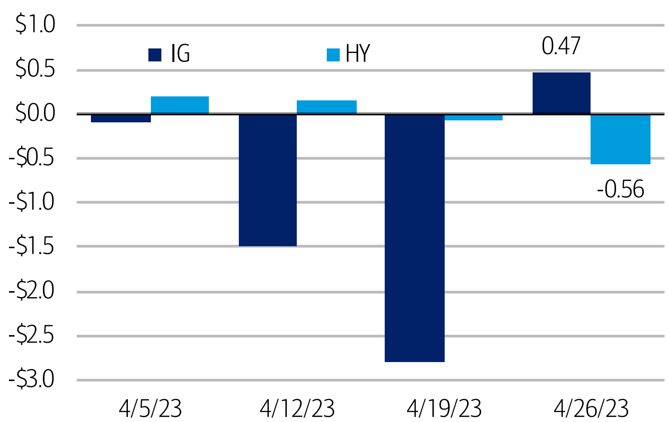
Exhibit 13: IG vs HY muni fund flows ($bn)
IG inflows of $0.47bn vs $0.56bn of HY outflows for the wk of 26 April



Note: ETFs included. All Municipal = IG+HY. Data includes both weekly and monthly reporting funds as of 26 April 2023.
Source: Refinitiv Lipper

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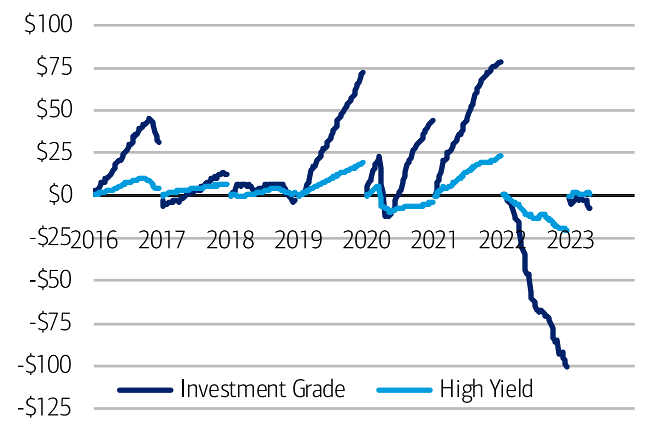
Exhibit 14: Year-to-date cumulative flows ($bn)
2023 flow: IG: -$6.9bn, HY: $1.0bn



Note: ETFs included. All Municipal = IG+HY. Data includes both weekly and monthly reporting funds as of 26 April 2023.
Source: Refinitiv Lipper

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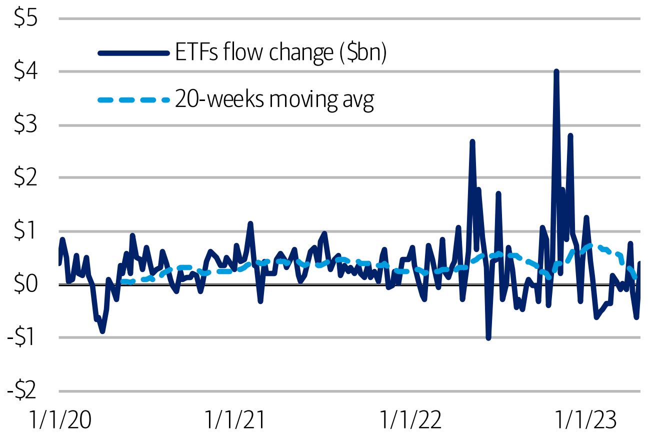
Exhibit 15: Municipal ETF fund flows ($bn)
ETF inflows were $0.42bn for the week of 26 April 2023



Note: ETFs included. All Municipal = LT+INT+ST. Data includes both weekly and monthly reporting funds as of 26 April 2023.
Source: Refinitiv Lipper

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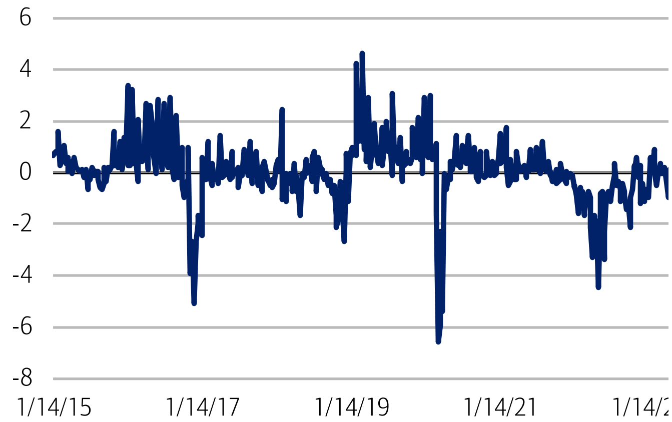
Exhibit 16: Flow strength indicator
Flow strength was Normal with 0.16 z-score for the week of 26 April



Note: The flow strength indicator is measured by 2-year trailing z-score (A positive or negative number does not necessarily suggest buying or selling). ETFs included. Data includes both weekly and monthly reporting funds as of 26 April 2023.
Source: Refinitiv Lipper

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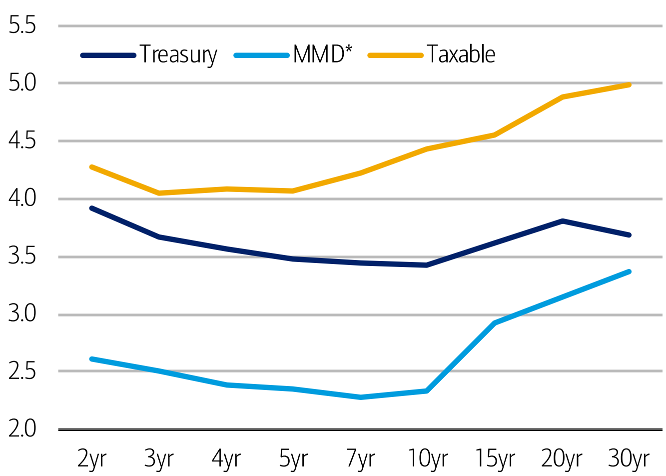
Curve

Curve shifts up 1bp on avg w/w

The AAA MMD curve cheapened w/w by 1bp on average, and has cheapened by 8bp m/m. For the week, the 1s5s slope inverted further w/w by 21bp to -59bp and is 106bp flatter than it was one year ago; the 5s10s slope inverted w/w by 3bp to -3bp and is 30bp flatter than it was one year ago; the 10s20s slope was flat w/w by at 82bp and is 60bp steeper than it was one year ago. The 20s30s slope was also flat w/w at 22bp and is still 9bp steeper than it was one year ago. We reiterate our suggestion that investors position for a bull flattener.

Exhibit 17: AAA GO muni, Treasury and taxable yield curves (%)
Tsy and taxable richened across the curve w/w while MMD cheapened



Note: *MMD AAA GO yield curve. As of 26 April 2023.
Source: BofA Global Research, Refinitiv, Bloomberg

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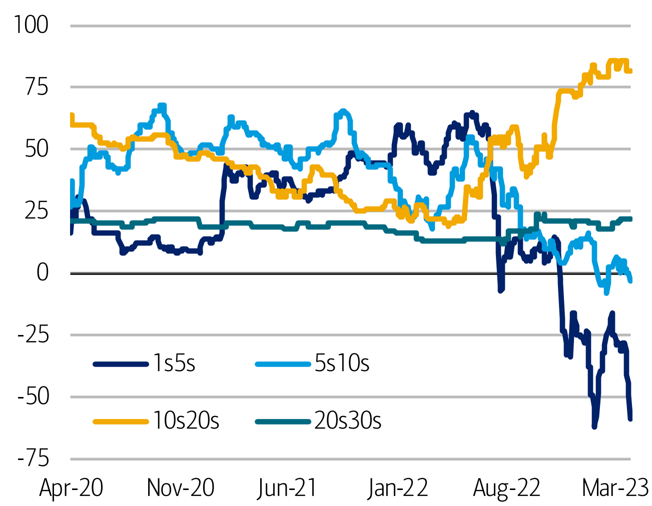
Exhibit 18: Curve slope (bp)
1s5s and 5s10s were negative while 10s20s and 20s30s were flat w/w



Source: Refinitiv

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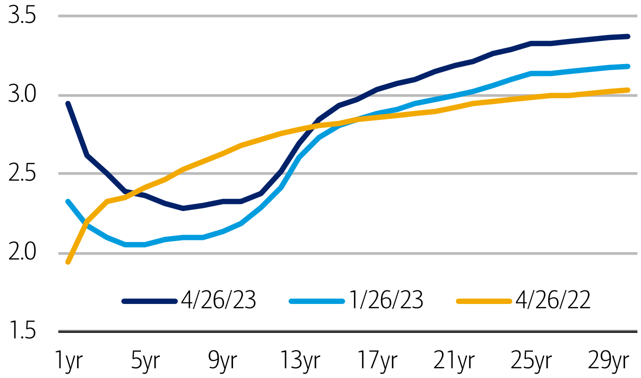
Exhibit 19: AAA GO municipal curve movement (%)
AAA is richer than a year ago between 5yr and 13yr



Source: Refinitiv

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Relative value

Ratios neutral, curves largely flat on a long-term basis

We screen the muni market for parts of the curve, sectors and ratings that are rich or cheap. Exhibit 20 shows that while muni/Treasury ratios Neutral on a long-term basis, they are nevertheless Cheap/Very Cheap on a short-term basis. Exhibit 21 shows that the while the 10s30s slope is Very Steep on a long-term basis but Neutral on a short-term basis, other slopes are Very Flat on both a short-term and long-term basis.

Exhibit 20: Rich/cheap analysis of MMD*/Treasury ratios as of 26 April 2023
The muni market is Cheap/Very Cheap on a ST basis and 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	3.663%	68.3%	**Very Cheap**	68.6%	51.7%	59.0%	**Neutral**	437.4%	26.7%	76.0%
5yr	3.475%	67.9%	**Cheap**	68.5%	53.5%	60.9%	**Neutral**	317.7%	39.3%	73.2%
10yr	3.426%	68.0%	**Cheap**	70.3%	59.7%	64.5%	**Neutral**	233.5%	54.7%	84.4%
30yr	3.685%	91.5%	**Cheap**	95.2%	85.0%	89.6%	**Neutral**	184.8%	63.5%	91.5%

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 21: Rich/cheap analysis of MMD* slopes (bp) as of 26 April 2023
The 10s30s curve is Very Steep on a LT basis while the rest are Very Flat on both a ST and LT 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	-59	**Very Flat**	-16	-62	-34	**Very Flat**	65	-62	23
1s10s	-62	**Very Flat**	-8	-62	-30	**Very Flat**	120	-62	62
10s30s	104	**Neutral**	108	97	102	**Very Steep**	108	32	65
1s30s	42	**Very Flat**	93	42	72	**Very Flat**	170	42	126

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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Best spot for credit spread roll is the 7yr on the BAA curve

For tax-exempt munis, the 7yr spot on the BAA curve is the best for credit spread roll at 12bp. For taxable munis, the 7yr is also the best spot but on the A curve where 17bp of credit spread roll can be found.

Exhibit 22: Tax-exempt credit curve spreads to AAA MMD as of 26 April 2023 (bp)

A 12bp pickup can be found at the 7yr on the BAA curve

		1yr	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	AA	3	4	5	6	8	10	12	14	15	16	20	22	24	27	30	30	30	30	32	34	36	36	36	36	37	37	37	37	37	37
Spread to MMD AAA	A	14	18	19	21	22	28	31	32	37	36	43	44	47	49	51	51	51	51	53	55	57	57	57	57	57	57	57	57	57	57
	BAA	49	50	50	54	59	65	77	79	85	90	91	92	93	94	95	95	95	95	97	99	101	101	101	101	101	101	101	101	101	101
	AA	-	1	1	1	2	2	2	2	1	1	4	2	2	3	3	0	0	0	2	2	2	0	0	0	1	0	0	0	0	0
Bp pickup along curve	A	-	4	1	2	1	6	3	1	5	-1	7	1	3	2	2	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0
	BAA	-	1	0	4	5	6	12	2	6	5	1	1	1	1	1	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0

Source: Refinitiv

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Exhibit 23: Taxable credit curve spreads to AAA MMD as of 26 April 2023 (bp)

A 17bp pickup can be found at the 7yr on the A curve

		1yr	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	AA	15	15	17	17	18	20	29	27	25	26	26	28	30	32	31	30	30	30	29	29	28	28	28	28	28	28	28	28	28	28
Spread to MMD AAA	A	35	35	37	37	38	41	58	56	58	60	62	63	65	67	66	65	64	64	64	64	63	63	63	63	63	63	63	63	63	63
	BAA	120	120	122	122	123	122	129	130	136	143	149	152	154	156	158	157	156	155	154	154	153	153	153	153	153	153	153	153	153	153
	AA	-	0	2	0	1	2	9	-2	-2	1	0	2	2	2	-1	-1	0	0	-1	0	-1	0	0	0	0	0	0	0	0	0
Bp pickup along curve	A	-	0	2	0	1	3	17	-2	2	2	2	1	2	2	-1	-1	-1	0	0	0	-1	0	0	0	0	0	0	0	0	0
	BAA	-	0	2	0	1	-1	7	1	6	7	6	3	2	2	2	-1	-1	-1	-1	0	-1	0	0	0	0	0	0	0	0	0

Source: Refinitiv

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Screening for cheap OAS

At the 7-12yr part of the curve, we consider single-A Health as Very Cheap, and BBB Lease COPs & Appropriation and AAA Utilities' OAS Cheap. See Exhibit 25. At the 22+yr part of the curve, we consider BBB Health Very Cheap, and AAA Higher Ed, AAA Lease COPS & Appropriation, Single-A Health and Single-A Pollution Control sectors' OAS Cheap. Conversely, we consider BBB Utilities' OAS at the 22+yr part of the curve to be Very Rich, AA health and BBB State GO's OAS Rich. See Exhibit 28.

Exhibit 24: OAS, 7-12yr indexes (bp)

Single-A Health at 159bp

Sector	AAA	AA	A	BBB
Airports		31	17	-19
Higher Education	-19	-20	27	
GO Local	-13	-8	49	110
GO State	-22	-21	45	0
Health		-36	159	162
Hospital		10	17	88
IDR		15	80	95
Leases COPS & Appr.		-2	25	262
Pollution Control	-8		81	
Power	-25	-25	9	
Tax Revenues	-13	-9	55	124
Tobacco			61	
Toll & Turnpike		18	1	114
Transportation - Other	11	3	55	86
Utilities - Other	0	-7	74	
Water & Sewer	-22	-20	-3	117

Note: Data as of 25 April 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.

Source: ICE Data Indices, LLC

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Exhibit 25: Rich/cheap OAS, 7-12yr

...is Very Cheap right now at 7-12yrs...

Sector	AAA	AA	A	BBB
Airports		N	N	R
Higher Education	VR	R	N	
GO Local	R	R	N	N
GO State	R	R	N	R
Health		VR	VC	N
Hospital		N	R	N
IDR		R	N	N
Leases COPS & Appr.		R	N	C
Pollution Control	R		N	
Power	R	R	N	
Tax Revenues	R	R	N	N
Tobacco			N	
Toll & Turnpike		N	R	N
Transportation - Other	N	N	N	N
Utilities - Other	C	N	N	
Water & Sewer	R	R	R	N

Note: Data as of 25 April 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.

Source: ICE Data Indices, LLC

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Exhibit 26: 3-yr avg OAS, 7-12 year (bp)

...against its 3yr OAS avg of 65bp

Sector	AAA	AA	A	BBB
Airports		40	46	96
Higher Education	-4	5	56	
GO Local	2	16	53	140
GO State	-1	4	49	142
Health		33	65	109
Hospital		25	53	108
IDR		50	64	100
Leases COPS & Appr.		17	47	115
Pollution Control	1		84	
Power	6	3	32	
Tax Revenues	14	15	60	141
Tobacco			62	
Toll & Turnpike		28	33	96
Transportation - Other	7	24	83	114
Utilities - Other	-4	5	46	
Water & Sewer	2	0	25	116

Note: Data as of 25 April 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.

Source: ICE Data Indices, LLC

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Exhibit 27: Current OAS, 22yr+ indexes (bp)
BBB Health at 215bp

Sector	AAA	AA	A	BBB
Airports		35	27	-6
Higher Education	39	-9	19	105
GO Local	1	3	9	86
GO State	-30	-19		0
Health		-36	80	215
Hospital		16	30	75
IDR			57	96
Leases COPS & Appr.	15	-6	41	52
Pollution Control			49	
Power		-3	22	84
Tax Revenues	10	4	66	94
Tobacco				114
Toll & Turnpike			18	47
Transportation - Other		0	25	56
Utilities - Other		-14	37	0
Water & Sewer	-18	-16	0	

Note: Data as of 25 April 2023. Only includes non-prerefunded securities. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 28: Rich/Cheap OAS analysis, 22yr+
...is Very Cheap right now at 22+ years

Sector	AAA	AA	A	BBB
Airports		N	N	N
Higher Education	C	N	N	N
GO Local	N	N	N	N
GO State	N	N		R
Health		R	C	VC
Hospital		N	N	N
IDR			N	N
Leases COPS & Appr.	C	N	N	N
Pollution Control			C	
Power		N	N	N
Tax Revenues	N	N	N	N
Tobacco				N
Toll & Turnpike			N	N
Transportation - Other		N	N	N
Utilities - Other		N	N	VR
Water & Sewer	N	N	N	

Note: Data as of 25 April 2023. Only includes non-prerefunded securities. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 29: 3-yr avg OAS, 22yr+ (bp)
...against its 3yr OAS avg of 100bp

Sector	AAA	AA	A	BBB
Airports		35	40	50
Higher Education	15	-1	31	89
GO Local	-12	4	32	116
GO State	-25	-15		119
Health		2	36	100
Hospital		9	33	65
IDR			55	82
Leases COPS & Appr.	-8	-1	37	72
Pollution Control			15	
Power		-6	22	54
Tax Revenues	9	10	65	94
Tobacco				88
Toll & Turnpike			20	58
Transportation - Other		18	54	68
Utilities - Other	-11	-8	28	75
Water & Sewer	-17	-10	9	

Note: Data as of 25 April 2023. Only includes non-prerefunded securities. Benchmark is 3-yr avg
Source: ICE Data Indices, LLC

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MWIs retraced back amid rates climbing

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 have further retraced back into the Neutral/Cheap levels (20%-50%) over the past week while the ETM, Pre-Re and Health sectors are the lowest. For w/w, the ETM, Pre-Re, Pollution Control and Single-Family Housing sectors had the biggest decreases.

Exhibit 30: MWIs – sector momentum (%) as of 25 April 2023
Most sectors further retraced back into the Neutral/ Cheap levels over the past week

Sector	MWI	w/w Δ	Sector	MWI	w/w Δ
U0A0 Index	**47.8%**	**-13.7%**	Miscellaneous	44.7%	-15.9%
ETM	13.0%	-33.7%	Multi-Family Housing	35.8%	-6.4%
GO - Local	47.6%	-14.2%	Pollution Control	39.8%	-28.9%
GO - State	42.6%	-15.7%	Power	43.5%	-18.6%
Pre-Re	4.7%	-27.6%	Single Family Housing	26.6%	-22.7%
Airport	59.5%	-12.0%	Tax revenue	56.3%	-15.6%
Education	50.8%	-9.4%	Tobacco	71.7%	4.3%
Health	16.0%	-3.2%	Toll & Turnpike	53.6%	-15.4%
Hospitals	51.9%	-7.2%	Transportation	56.4%	-14.9%
Industrial Development Rev	68.8%	4.5%	Utilities - Other	47.4%	-6.4%
Leasing COPS & Appropriations	45.1%	-13.8%	Water & Sewer	53.5%	-9.2%

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 774286DT2, totaling $173.8mn. These are Rockwell Texas Independent School District bonds due in 2053. By number of trades, it was 452153FM6, totaling 335 trades. Those are Illinois General Obligation bonds due in 2048.

Exhibit 31: Most actively traded muni CUSIPs over the week ending 26 April 2023
452153FM6 was the most frequently traded CUSIP. [1]Last trade.

CUSIP	Short name	ST	Coupon	Maturity	Issue	Price[1]	Yield[1]	Size[1] (000s)	Spread	# of trades	Volume ($mn)
774286DT2	ROCKWALL TX INDEP SCH	TX	4.000	02/15/53	05/01/23	98.050	4.11	50	62	122	173.8
452153FM6	ILLINOIS ST-B	IL	4.500	05/01/48	05/10/23	100.572	4.42	20	112	335	159.6
67919PUG6	OK WTR RESOURCES BRD	OK	4.000	04/01/48	05/18/23	100.000	4.00	5	70	132	126.8
402207AD6	GULF COAST INDL DEV	TX	3.450	11/01/41	12/06/12	100.000	--	2205		37	103.0

Exhibit 31: Most actively traded muni CUSIPs over the week ending 26 April 2023
452153FM6 was the most frequently traded CUSIP. [1]Last trade.

CUSIP	Short name	ST	Coupon	Maturity	Issue	Price[1]	Yield[1]	Size[1] (000s)	Spread	# of trades	Volume ($mn)
67919PUH4	OK WTR RESOURCES BRD	OK	4.125	04/01/53	05/18/23	99.065	4.18	565	80	164	90.2
74529JQH1	PR SALES TAX FING-A1	PR	0.000	07/01/51	08/01/18	19.861	5.82	115	245	51	68.6
414009PV6	HARRIS ED-VAR-B-REF	TX	3.300	12/01/59	08/27/20	100.000	--	3950	-351	16	65.6
64966MSB6	NY CITY-B4-VAR	NY	3.500	10/01/46	10/03/17	100.000	--	805		23	64.3
91412HPW7	UNIV OF CA-BP-2-REF	CA	2.950	05/15/48	02/22/23	100.000	--	200		16	62.5
74529JPX7	PR SALES TAX FING-A1	PR	5.000	07/01/58	08/01/18	97.092	5.18	250	177	74	56.9
60956PF98	MONMOUTH CO IMP AUTH	NJ	4.000	03/15/24	05/11/23	100.740	3.10	135	34	24	54.7
842469BJ6	STHRN CA PUB PWR AUTH	CA	5.000	07/01/48	05/09/23	111.455	3.64	200	33	39	53.3
91412HPV9	UNIV OF CA-BP-1-REF	CA	2.980	05/15/48	02/22/23	100.000	--	5M+		12	51.6
64966LLS8	NYC-ADJ-1-SUBSER I-2	NY	3.450	03/01/40	03/25/14	100.000	--	5M+		11	50.8
74514L3T2	CVI-SUBSER CW NT	PR	0.000	11/01/43	03/15/22	36.000	5.11	0.8		132	50.0
6133408D3	MONTGOMERY CO-E	MD	3.400	11/01/37	12/19/17	100.000	--	1200		23	45.2
64971XHT8	NYC TRANS FIN AUTH-B4	NY	3.500	08/01/42	09/25/18	100.000	--	5M+		16	44.3
38546WDS6	GRAND FORKS-REV-REF	ND	4.000	12/01/51	09/28/21	81.597	5.25	100	188	71	42.9
645790CB0	NJ HLTHCARE FACS-REF	NJ	4.000	07/01/48	08/24/16	83.870	5.15	90	184	19	41.4
362848RR6	GAINESVILLE UTILS-B	FL	3.450	10/01/42	08/02/12	100.000	--	2000		12	39.2

Source: Bloomberg

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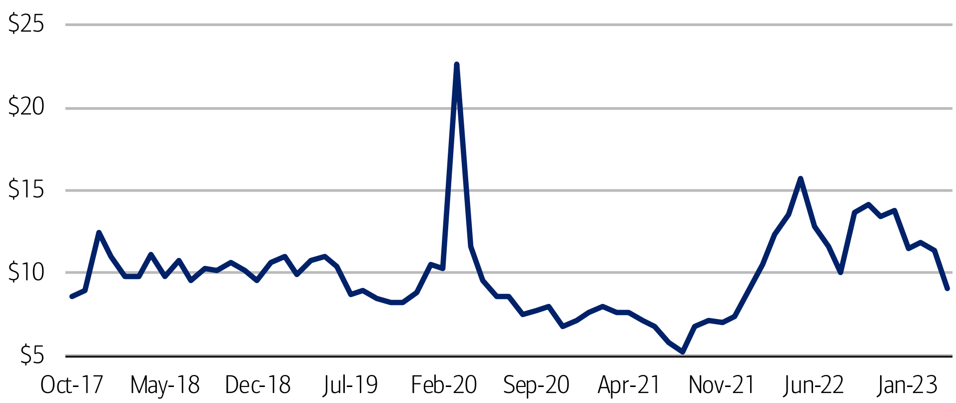
Avg daily secondary trading $9.1bn MTD in April

Average daily secondary trading levels in April are below March's levels for the MTD: as of 26 April, $154.1bn of muni bond par value traded, with an average daily volume of $9.1bn. That is about 21% lower than March's daily average of $11.4bn and down about 33% vs Apr-22's $13.6bn. It is also the lowest daily average since Jan-22.

Exhibit 32: Daily avg secondary trading volume ($bn; as of 26 April 2023)
Apr-23 MTD daily avg volume of $9.1bn down 21% vs Mar-23's $11.4bn daily average



Source: BofA Global Research, Bloomberg

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Credit corner

State & local governments

Taxes grow in 1Q23, but at a moderated pace – BEA

The Bureau of Economic Analysis' (BEA) 27 April GDP report provided the first full look at state and local governments' current tax receipts for the 1Q23. BEA's data shows personal income taxes fell 11.4% y/y at seasonally adjusted annual rates to $478bn; sales taxes grew 5.0% to over $550bn; property taxes – primarily the domain of local governments – increased 4.4% to roughly $693bn; and, excise taxes grew 2.0% to about $237bn. In the aggregate, personal income, sales, property and excise tax collections were down 0.1% y/y. Versus 2021 levels, personal income tax collections were down 4.9%, sales taxes were up 18.2%, property tax collections were up 9.8% and excise taxes were up 10.4% per BEA data.

To be sure, the BEA's estimates are largely consistent with our own collection reporting in previous Weeklies. For March, 43 states reported monthly collections thus far. For them, we see median y/y total collection growth of -0.8%, with median personal income collections growth of -8.9%, median corporate collection growth of 18.6% and median sales collections growth of 4.7%. For those 43 states reporting thus far, the strongest growth in March by region is in the Southwest states, where aggregate collections are up 0.5% y/y, and the weakest growth in the Far West states, where aggregate collections were down on the order of 37%.

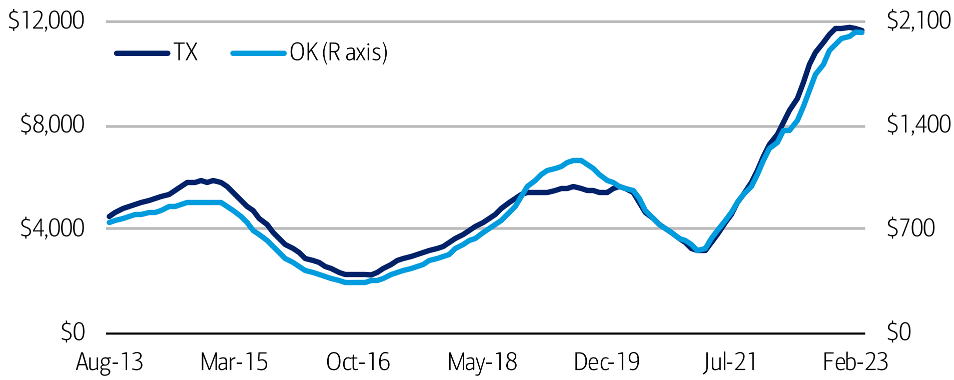
CT cuts surplus estimate 1% in its April estimate

CT's Office of Policy and Management (OPM) lowered its projection for the state's general fund surplus at fiscal year-end 2023 ever-so-slightly in its April letter to the state's comptroller: it now expects a $1.42bn surplus at fiscal year-end, down 1% from OPM's estimate a month prior. The smaller surplus estimate reflects $16mn in greater expenditure expectations through the end of the fiscal year. Regarding the state's rainy day fund, CT expects a fiscal year-end balance of $6.58bn – or, about 29.8% of FY23's net General Fund appropriations.

TX's and OK's production taxes seem to have topped

Over the last 12 months, Texas collected $11.6bn in oil and natural gas production taxes, while Oklahoma collected just over $2bn. Both states show that collections may have topped out in recent months. Even still, as Exhibit 33 shows, collections certainly remain elevated. Our commodities analysts expect WTI to average $82/bbl this year, down from roughly $96/bbl last year on slowing global demand.

Exhibit 33: 12-mo cumulative oil & natural gas production tax collections for TX and OK ($mn)
Y/y growth has slowed significantly, and both states' 12-mo totals show signs of topping



Source: BofA Global Research, state reports

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DE legalizes, to tax, adult use recreational marijuana

Delaware legalized adult use marijuana after the governor did not veto HB1 and HB2, despite vetoing legalization legislation in 2022. DE is set to levy a 15% sales tax on marijuana. Note that there are no official estimates of how much revenue legalization will generate included in the legislature's fiscal notes. However, the state's auditor in 2021 suggested DE could have roughly 103.5K adult users, with annual spending of $2,080. Applying a 15% sales tax to that suggests the state could bring in over $32mn per year in additional tax revenue, with more yet from license fees. Again, while we generally view marijuana legalization as credit positive, we do not view it as overly so.

FL's legislature passes ESG bill

Florida's legislature passed House Bill 3 (HB3), which requires that the decisions on how to deposit or invest state money must be based solely on pecuniary (or monetary) factors. The bill also prohibits any issuer within the state from: (1) issuing ESG bonds; (2) using public funds to pay for third-party verification to the designation or labeling of bonds as ESG bonds; and (3) entering "into a contract with any rating agency whose ESG scores for such issuer will have a direct, negative impact on the issuer's bond ratings." The prohibition on ESG bond issuance does not apply to any bonds issued, or to any agreement entered into or any contract executed, before 1 July 2023. The bill now heads to the governor's desk, with the expectation that he will sign it into law. At this time, it is unclear how HB3 will impact credit ratings for future muni bond issuance across FL given the broad language in the bill. Note that FL is not a large contributor to overall ESG issuance: looking at Bloomberg data going back to 2015, FL muni ESG issuance only accounts for 1.7% of all muni ESG issuance. Looking within the state specifically, ESG issuance in FL was only 2.5% of total muni issuance across the state over the same time period. For YTD-23, no ESG bonds have been issued in FL.

Judge Swain sees "enormous risks" amid "lack of mediation" on PREPA

In granting the PREPA mediation team's request for a 3-month extension of the mediation termination date, Judge Swain suggested the "apparent lack of substantial Mediation activity is puzzling … considering the immense challenges ahead and the enormous risks that all parties and stakeholders face if they cannot resolve their differences absent full-blown litigation". To that end, she stated that the "[c]onfirmation of the current proposed plan is far from a certainty" and that, "if the plan that is presented for confirmation is neither substantially consensual nor reflective of such a process and is not confirmed, the Court will have to consider carefully whether it would be a reasonable use of the Court's or the parties' resources to permit PREPA to begin again at square one." While FOMB member Justin Peterson urged the FOMB to return to mediation and suggested that Puerto Rico's $1.5bn surplus could be used to reach a deal with PREPA bondholders. The FOMB's chair rebuffed that suggestion and also stated that the FOMB has no plans currently to withdraw its current plan of adjustment. Otherwise, we highlight: TSA balances of $6.4bn as of 14 April were up $6mn w/w, and remain 7.5% above adopted liquidity plan levels, and FYTD General Fund collections through 14 April of $9.6bn that are up 8.1% vs adopted liquidity plan levels.

Detroit's GO rating upgraded to BB+ by S&P

S&P upgraded its rating on Detroit's unlimited tax GOs to BB+ from BB on 26 April. Per S&P, the upgrade reflects the city's "ongoing efforts toward building financial resiliency, evident in another year of positive financial results and improvements to reserves and liquidity, as well as its commitment to robust financial planning and budgetary management." It also takes into account Detroit's "strong revenue growth and enormous federal stimulus allocation, supporting its extensive capital needs." S&P has a positive outlook on the city, reflecting "recent revenue growth and forecasts showing that it can follow through with its financial plan, at least in the near term." Note that Moody's upgraded the city's GOs earlier this month for similar reasons to Ba1.

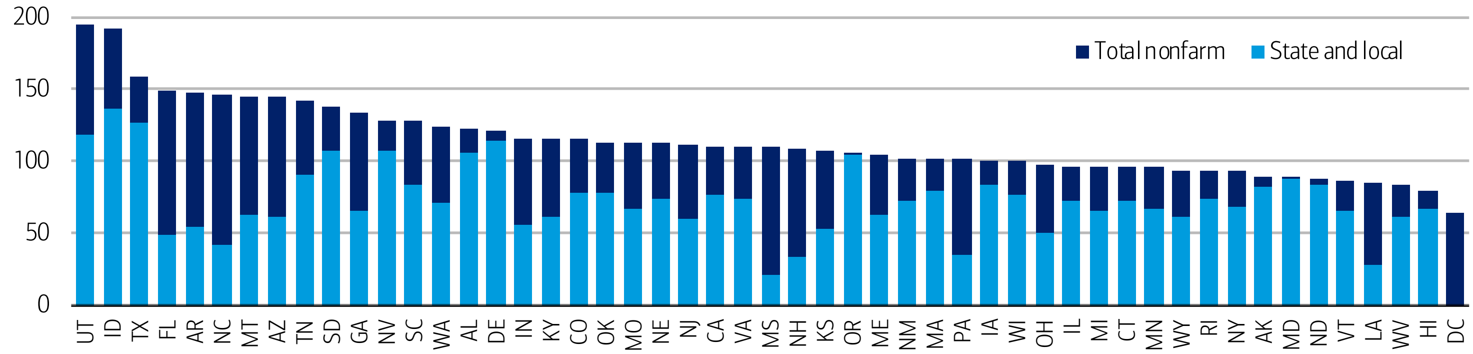
Just AK's coincident index level is below its post-COVID high

The Philly Fed's state coincident indexes shows that just AK's March index level is below its post-pandemic high. The data also shows that, since the February 2020, AZ's index level has climbed the most – up 13.7% – while LA's has grown the least – up just 1.0%. Over the last year, NM's 5.2% growth is strongest, while KS' 0.4% is weakest. Meanwhile, our monitor of the count of states with coincident index levels declining m/m in March totals just 1, which is 5 less than February based on revised data, and brings the three-month average to 3; as we noted previously, the three-month average recorded prior to the last five recessions is 12 states.

35 states' payroll recoveries complete as of March 2023

Exhibit 34 shows the result of our analysis of Bureau of Labor Statistics' March nonfarm payroll data, and shows that 35 states fully recovered jobs lost during the pandemic crisis as of March, led by UT's 196% recovery. The weakest overall nonfarm payroll recoveries continue to be concentrated in tourism-dependent and energy-producing states. Note that 14 states' recoveries declined m/m; AK's declined the most m/m, falling 3.1ppt to 89.3%, while KS' and MN's each fell 1.4ppt m/m. Exhibit 34 also shows that state and local government payroll recoveries remain generally weaker across the states; in fact, no states' public sector payroll recovery exceeds is overall nonfarm payroll recovery. Still, 8 states' aggregate state and local government payroll recovery is complete as of March: UT, ID, TX, SD, NV, AL, DE and OR.

Exhibit 34: Nonfarm payroll and state and local payroll recoveries as of March 2023, by state (%)
Nonfarm payroll recoveries continue to lag in many energy-producing and tourism-dependent states



Source: BofA Global Research, Bureau of Labor Statistics

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55% of local capital spending in NY on climate-related hazards – comptroller

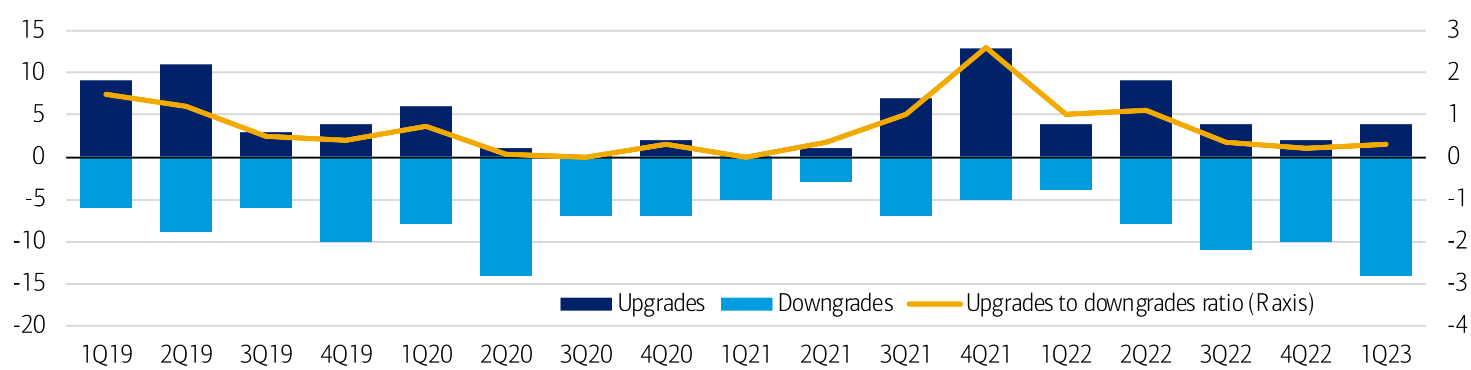
New York's comptroller reported that of a "sample of local governments across New York [that] reported $1.34 billion in actual and anticipated spending on capital projects over a 10-year period … about 55% of the total [was] in response to climate-related hazards such as increased flooding and storm damage." While the overall responses were relatively small among the state's local communities, totaling just 95, 77 reported they "had undertaken or planned projects to adapt their infrastructure and natural systems to climate change." Per the comptroller, the most commonly-reported categories among capital projects among local communities were: planting trees or vegetation (46 responses), enlarging culverts (44 responses), rebuilding or retrofitting critical infrastructure other than buildings (42 responses) and retrofitting municipal buildings (41 responses).

Healthcare

S&P's 1Q23 rating actions skewed negative: 4 upgrades and 14 downgrades

S&P maintained ratings and outlooks on two-thirds of issuers reviewed through 1Q23, but the rating and outlook changes that did occur "were largely unfavorable and concentrated in the acute-care portfolios … affecting both systems and stand-alone providers … at all rating levels." The actions were largely driven by "operating losses and weaker cash flow, mostly due to labor inflation and for those with less balance-sheet cushion." S&P noted that it expects certain regions, such as the Pacific Northwest, may experience a longer recovery period.

Exhibit 35: S&P hospital sector rating activity trends
Upgrades to downgrades ratio of 0.29 for 1Q23



Source: S&P Global Ratings

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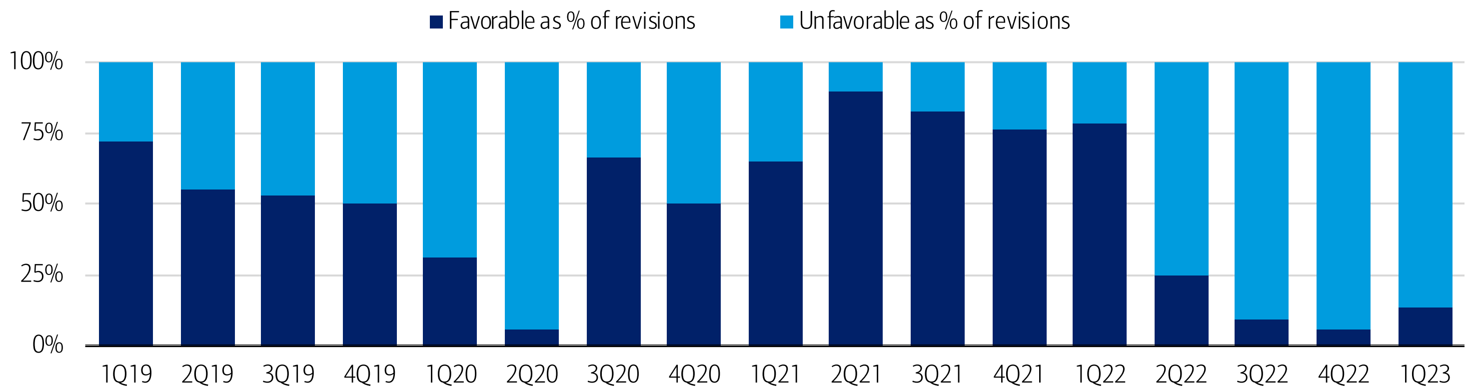
As shown in Exhibit 35, 1Q23 saw 4 upgrades vs 14 downgrades, or a ratio of 0.3, marking the third-straight quarter where downgrades have outpaced upgrades. We also note that the number of 1Q23 downgrades (14) matched those of 2Q22 when the pandemic began and is the peak for downgrades going back to 2019. Outlook revisions also skewed negative in 1Q23, a trend that began in 2Q22.

Exhibit 36: S&P hospital sector outlook revision trends
Outlook revisions have skewed negative since 2Q22



Source: S&P Global Ratings

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Higher Education

Students that left college without a degree up 3.6 y/y for 2022 school year

The National Student Clearinghouse Research Center (NSCRC) released it is annual report highlighting students that had started some college but left and have not yet completed their degree. Covering the 2021-2022 school year (SY22), NSCRC reports that as of July 2021, 40.4 million students left college without attaining a degree, up 3.6% y/y, with each state and DC seeing growth. "Potential completers", or those that already completed at least two years of college before disenrolling, grew by 2.9 million and make up 7.3% of the total number of students who had some college but no degree. In SY22, while just 2.1% of the total some college, no degree population reenrolled, recent stop out students enrolled at a rate of 9.4% while potential completers reenrolled at a rate of 6.1%. Students were most likely to reenroll in community colleges, making up 38.8% of those returning to school, with 44% of students who were previously enrolled at four-year public institutions opting for reenrollment at a community college.

Average tuition discount rate reaches record high according to NACUBO

The National Association of College and University Business Officers (NACUBO) 2022-23 preliminary estimates put the record high tuition discount rate for full-time first year students at private nonprofit colleges at 56% while all undergraduates set a high of 51%. Covering 341 private non-profit colleges, average tuition discounting for first time undergraduates has increased 10% since the 2013-14 school year, while up 11% for all undergraduates. Institutions of all types offer grants, fellowships, and scholarships to increase affordability in an increasingly competitive enrollment environment. 90% of first-time undergraduates received some form of grant aid, on average covering 62% of advertised tuition and fees. Across the full undergraduate student body, 83% received some form of aid, on average covering 58% of advertised costs. Highly selective institutions offer less tuition discounting on average, the median discount rate was 47%, down 12ppt from the median of 59% offered by all other institutions.

Mass Transit

MTA ridership up in March and April sets new daily high since pandemic

The MTA's April board meeting highlighted the rise in average weekday subway ridership, up from February's 3.52 million to 3.68 million in March. Average weekday subway ridership is now at 66.2% of 2019 ridership, up 2ppt from where ridership stood back in February. Including weekends, March was the first time post-pandemic that monthly subway ridership exceeded 100 million. Monthly recovery totals sit at 70% of March 2019 ridership. Jumping forward to April, single day subway ridership reached 4 million riders last Thursday, the first time since the onset of the pandemic.

California Transit Association unveils $5.15bn budget request

The California Transit Association (CTA) released its 2023 budget request, seeking $5.15bn through FY28 to address both operating deficits brought on by the pandemic and future objectives; $1.21bn is requested for FY24. As pandemic federal funding dries up, agencies like Bay Area Rapid Transit (BART) and the San Francisco Municipal Transportation Agency (SFMTA) are looking to state funding to help prevent service cuts; CTA believes the $5.15bn in funding would tide these agencies over until further long-term funding solutions could be found, such as permanent tax measures. It is expected that should any funding proposals be approved, there will be significant policy limitations as state lawmakers look for evidence and commitment to improving the transit system quality and safety long term.

Airports

Phoenix airport bonds upgraded to Aa2 by Moody's

On 26 April, Moody's upgraded Phoenix, AZ Airport Enterprise's senior lien airport revenue bonds to Aa2 from Aa3 and its junior lien bonds to Aa3 from A1 while assigning a stable outlook. The upgrade reflects "the improved air travel passenger base in the quickly growing Phoenix region, demonstrated resilience of the airport's rates by ordinance business model through a severe stress period during the COVID-19 pandemic, and low leverage relative to peers with limited need for material additional indebtedness to fund capital projects."

Defaults, distress & HY

Delinquencies fall to "lowest level in years" – Moody's

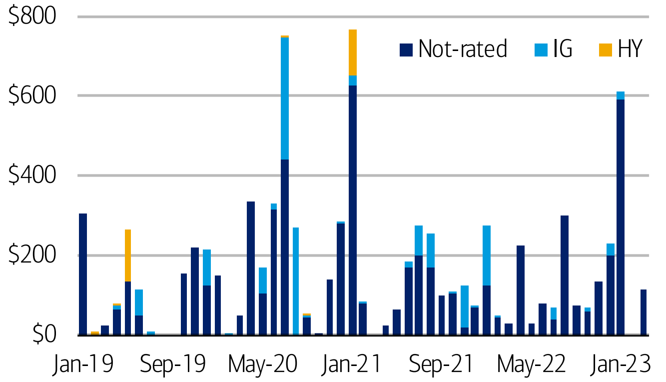
New material credit events "followed the same pattern in Q1 as prior quarters: senior living and local government special districts continued to demonstrate the most significant credit risk, with a smattering of projects and nonprofit organizations sprinkled in," according to a 20 April Moody's report. In their (and our view) "[s]enior living remains the riskiest sector in the US municipal bond market."

Moody's report also noted that "[d]elinquencies and early red flags for potential defaults in the US municipal bond market dropped to the lowest levels since before the pandemic started" in 1Q23, falling to just 38 default disclosures vs 73 in 4Q22 and the previous post-pandemic low of 52 in 3Q20, with 4 first-time delinquencies vs 11 in 4Q22 and the previous post-pandemic low of 5 in both 2Q21 and 3Q22. Those disclosures "defied" the rating agency's expectations "that municipal credit risk was heating up, based on a heavy volume of disclosures in Q4" as the high yield muni sector "has shown some resilience against higher interest rates, turbulence in the banking sector, and inflation."

Still, our survey of first-time payment defaults totaled $113mn in March, bringing the YTD total to $724mn, up 105% y/y. The Nursing Home/Senior Living sector continues to default in 2023, as we projected earlier. We hold a cautious view on this sector. First-time distressed debt totaled $129mn in March, bringing the YTD total to $320mn, almost the same level as the same period in 2022. The total cumulative first-time distressed debt since 2019 totals $12.1bn; of that, 36.8% defaulted while 8% currently exited distressed status.

As we noted in our Municipals Year Ahead 2023, we expect defaults to tick up some in 2023, with our estimate for the year at $1.7bn-$2.1bn. We expect defaults emanating from this distress to be concentrated in the Nursing Home, Hospital, Student Housing and Industrial Development sectors.

Exhibit 37: Monthly first-time defaults ($mn) by avg rating at issue
First-time defaults $113mn in March; YTD-23 totals $724mn, up 105% y/y



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

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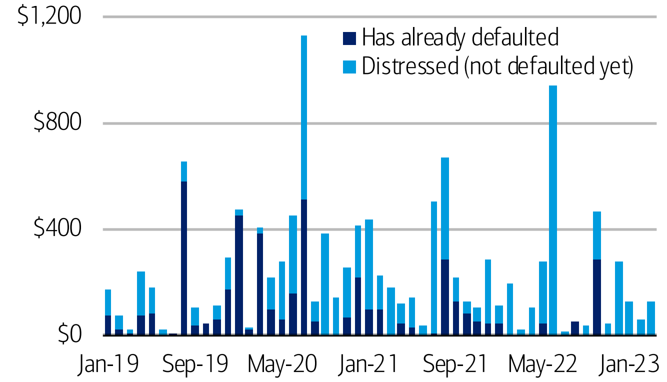
Exhibit 38: Monthly first-time distressed debt ($mn)
First-time distressed $129mn in March; YTD-23 totals $320mn, flat y/y



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

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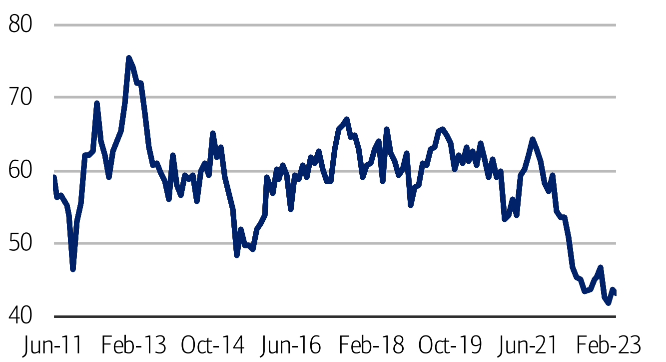
Tracking: material credit event and Ch. 9 filings

For the week ending 26 April, our tracking of those Moody's-defined material credit events (MCEs) shows 16 postings, up 9 on a w/w basis, with the MTD total of 39 as of 26 April. See Exhibit 39. Meanwhile, we note there were no new Chapter 9 bankruptcy petitions filed for the week ending on 26 April and, as a result, it's been 167 days since the last bankruptcy petition was filed by Chester, PA on 10 November 2022. Since 1982, the average period between bankruptcy filings is 52 days. Note that, over this period, the time between Chapter 9 filings exceeded 167 days on only 10 other occasions.

Exhibit 39: 6-mo mov avg of material credit events posted to EMMA
Filings posted to EMMA have increased slightly since last April



Note: Data as of 26 April 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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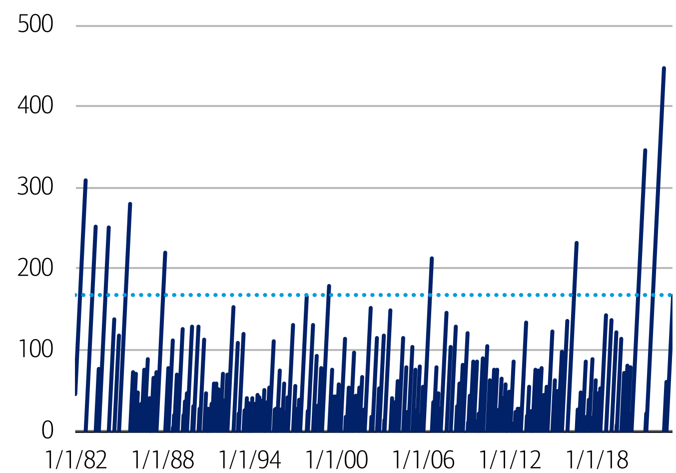
Exhibit 40: Calendar days since last Chapter 9 petition filed
167 days since Chester, PA filed for bankruptcy protection on 10 Nov 2022



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: 5-yr and 10-yr taxable munis remain less attractive for Italy; 5-yr taxable for South Korea and Taiwan.

Exhibit 41: Cross currency equivalent yields as of 27 April 2023

Taxable munis are attractive for foreign investors, though 5yr and 10yr taxables are less so for Italy; 5yr taxables for South Korea and Taiwan

	Government bond yield (in investor country's currency)			Cross currency equivalent yield*						Can foreign investors buy?					
				US Treasury			US AAA taxable municipal bond			US Treasury			US AAA taxable municipal bond		
Country	5 year	10 year	30 year	5 year (3.598)	10 year (3.519)	30 year (3.759)	5 year (4.07)	10 year (4.43)	30 year (4.99)	5 year	10 year	30 year	5 year	10 year	30 year
Canada	3.080	2.950	3.046	3.270	3.253	3.637	3.743	4.163	4.862	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom	3.650	3.786	4.147	4.003	3.776	3.876	4.477	4.688	5.114	Yes			Yes	Yes	Yes
France	2.794	3.026	3.367	2.855	2.876	3.463	3.326	3.783	4.678	Yes		Yes	Yes	Yes	Yes
Germany	2.453	2.455	2.527	2.855	2.876	3.463	3.326	3.783	4.678	Yes	Yes	Yes	Yes	Yes	Yes
Italy	3.809	4.341	4.577	2.855	2.876	3.463	3.326	3.783	4.678						Yes
Spain	3.111	3.503	4.018	2.855	2.876	3.463	3.326	3.783	4.678				Yes	Yes	Yes
Portugal	2.839	3.279	3.777	2.855	2.876	3.463	3.326	3.783	4.678	Yes			Yes	Yes	Yes
Netherlands	2.672	2.820	2.776	2.855	2.876	3.463	3.326	3.783	4.678	Yes	Yes	Yes	Yes	Yes	Yes
Switzerland	0.980	1.054	1.127	2.855	2.876	3.463	3.326	3.783	4.678	Yes	Yes	Yes	Yes	Yes	Yes
Japan	0.141	0.454	1.325	-0.322	0.026	2.174	0.143	0.919	3.324			Yes	Yes	Yes	Yes
Australia	3.098	3.365	3.872	3.747	4.155	4.054	4.222	5.065	5.292	Yes	Yes	Yes	Yes	Yes	Yes
South Korea	3.222	3.308	3.324	2.045	2.659	3.369	2.513	3.564	4.574			Yes		Yes	Yes
China	2.605	2.782	3.142	4.633	4.085	4.016	5.105	4.996	5.258	Yes	Yes	Yes	Yes	Yes	Yes
Taiwan	1.060	1.091	1.555	0.546	1.830	2.997	1.010	2.727	4.176		Yes	Yes		Yes	Yes
Singapore	2.756	2.726	2.329	3.143	3.266	3.643	3.613	4.175	4.865	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 42: 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	PRHTA	Puerto Rico Highway & Transportation 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	SW	Southwest
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

Exhibit 42: Common acronyms used in our Municipals reports

This list is subject to change

Acronym	Definition	Acronym	Definition	Acronym	Definition
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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