BofA SECURITIES

Municipals Weekly

Munis are a buy again

Industry Overview

02 June 2023

Municipals
United States

Key takeaways

- Munis are a buy again with yields at Feb peak levels, strong technicals, a debt limit resolution & declining inflation
- With May's selloff in AAA rates and spread compression, we see high grades as more attractive than credit now
- For May, first-time payment defaults totaled $85mn and first-time distressed debt $140mn. First Ch. 9 of 2023 filed in May

Munis are a buy again

A surprise May bear flattening of munis attributable to the Treasury market's selloff and rich muni/Treasury ratios pushed muni yields to around February's peak levels. The muni market should turn around in June as the debt ceiling resolution led to a Treasury rally and a guarded Fed will likely ensure that inflation continues to decline. Muni 1/30 AAA slope set new record low of 26bp in May.

High grades more attractive after AAA rates selloff

With May's selloff in AAA rates and spread compression, we see high grades as more attractive to credit: the AAA index and AA index YTW are both over 75% of the BBB index's, around levels last seen in March 2023 at the height of the regional bank problem. AAA and AA munis YTW are also cheap to their corporate counterparts.

May 2023 default and distress

First-time payment defaults totaled $85mn in May, bringing the YTD total to $958mn, up 58% y/y. First-time distressed debt totaled $140mn in May, bringing the YTD total to $981mn, up 40% y/y. May also brought the first Chapter 9 filing of the year; Hazel Hawkins Memorial Hospital filed on 23 May. It has $9.8mn in outstanding muni debt. That filing ended what was the 10th longest period since 1982 between Chapter 9 bankruptcy filings.

Key figures: issuance, returns, spreads & fund flows

Supply: MTD issuance through 31 May totals $26.6bn, down 27% y/y; YTD issuance of $137bn is down 24% y/y. YTD issuance is 86% tax-exempt and 12% taxable; 75% is new money and 25% is refundings. **Returns:** For the month of May, the Muni Master index (U0A0) returned -0.77% and the Muni High Yield index (U0HY) returned -0.59%; YTD total returns are 1.91% and 1.70%, respectively. By rating, BBBs' returns for the month are strongest at -0.56%; by sector, Health's -0.31% is strongest. Taxables' return for the month is -1.30%. **Spreads:** As of 31 May, IG spreads tightened flat w/w to 25bp while HY spreads widened 5bp to 186bp. **Flows:** For the week ending 31 May, all municipal bond fund outflows were $1.05bn; IG outflows were $0.57bn, while HY outflows were $0.47bn. Money market fund inflows were $0.25bn for the week.

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Recent Municipals Research

- Municipals Educational Series: Primer on Municipal Bonds 25 May 2023
- Monthly Municipal ESG Monitor: April 2023 23 May 2023
- Municipals Weekly: Muni market trading with a soft landing in mind 19 May 2023
- Municipals Weekly: Look to the long end as hedging eases 12 May 2023
- Municipals Weekly: VRDOs should benefit from debt ceiling concerns 05 May 2023

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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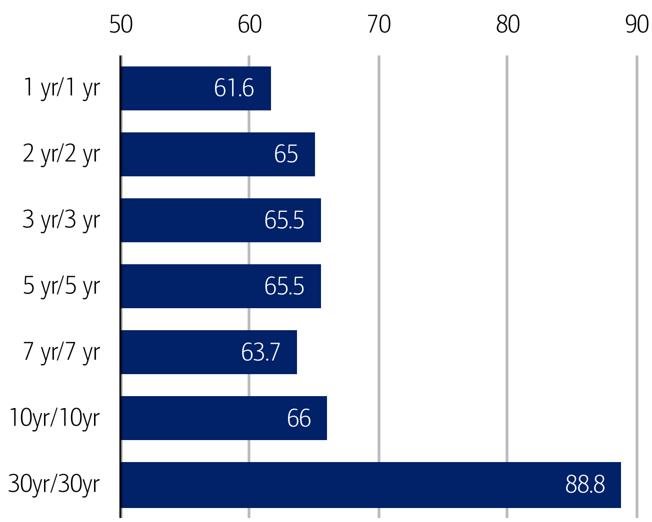
Market views & strategies

Munis are a buy again

Quite unexpectedly, May turned out to be just like February for munis in that it reversed all of the rally from the prior two months. We recall that the February selloff was triggered by the Fed's surprisingly coherent hawkish rhetoric, but by March the onset of regional bank problems turned the Fed away from that stance. The muni bond market worked quite well in March and April. However, by early May, the successful containment of the regional bank problem led to a Fed's hawkish hold posture. That posture was slowly justified by economic strength and then slower-than-expected inflation declines in April. The Fed funds futures now prices in a high probability of one more rate hike in the summer and delays the first rate cut possibly to early next year. This shift led to an overall rise of Treasury yields across the curve to the upper boundaries of their February-April ranges in a truly unexpected development.

Exhibit 2: Muni/Treasury ratios on 1 May 2023 (%)
Ratios were rich at the beginning of May



Source: Refinitiv

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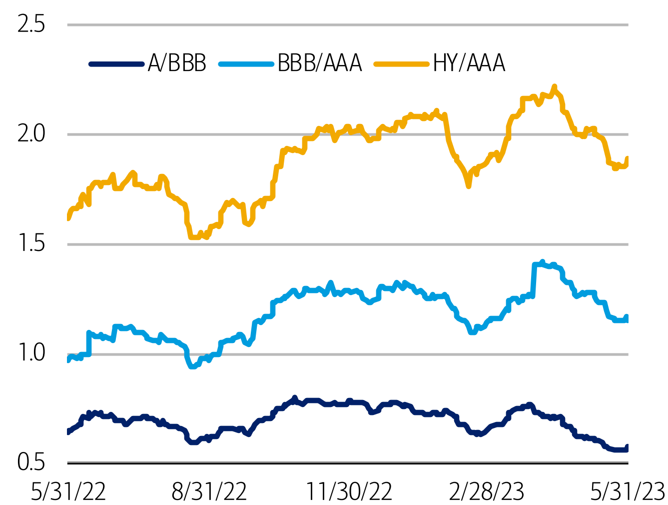
Exhibit 3: Spreads between ICE BofA muni credit indexes (%)
A-rated credit index spread set a 12 month low



Source: ICE Data Indices, LLC

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The muni market selloff in May is more passive, as muni/Treasury ratios were at rich levels at the start of the month (see Exhibit 2), which made it more vulnerable in a Treasury market selloff despite favorable supply/demand conditions. Indeed, when the Treasury market sold off, muni yields moved up more due to ratio adjustments. The favorable supply/demand condition was really working through credit paper, as those provided slightly more yield protection. In May, the ICE BofA A-rated muni index spread to the AAA-rated index set a new low for the past 12 months, while the BBB-rated spread and high yield index spread almost recovered their entire widenings from March and April during the regional bank problem (see Exhibit 3). At this point, on spread basis, investors should begin to look at high grade munis, as Treasury market turned around.

The debt limit deal reached by President Biden and House Speaker McCarthy that passed the House Wednesday is likely to strengthen the Fed's hawkish stance as any potential damage to the economy in a potential prolonged debt limit tussle or technical default is likely avoided. But on the other hand, it provides assurance that inflation readings should continue to decline, and the muni yield curve to flatten. We note that the 1/30 AAA muni curve has flattened to a low of 26bp, below the previous record low of 39bp in May 2007 (see Exhibit 4). Even the 10/30 AAA curve began to flatten after remaining stubbornly steep (see Exhibit 5). Again, we should note that the Treasury curve has steepened due to the expectation of Fed rate cuts later in the year.

Exhibit 4: 1/30 muni AAA curve slope set record low in May (%)
AAA 1/30 slope went below the old record level in May 2007

Source: Refinitiv

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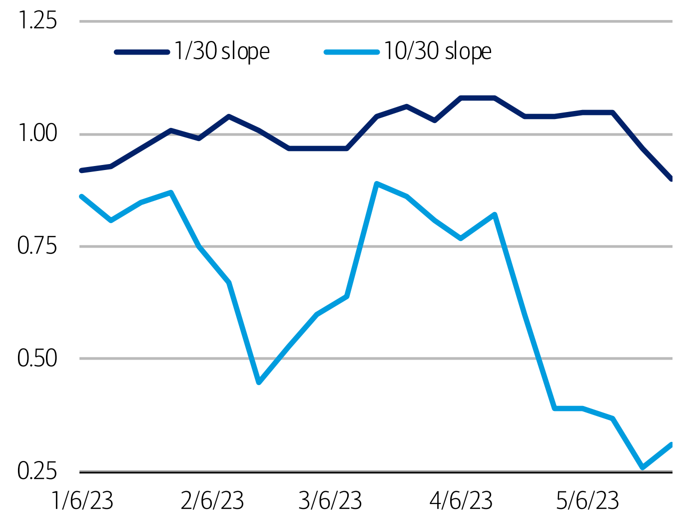
Exhibit 5: Muni AAA 10/30 begins to flatten
AAA 1/10 set a new record low of 26bp in May



Source: Refinitiv

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May supply misses target; June technicals strong

Preliminary data shows May issuance is approximately $27bn, lower than our revised forecast of $33bn. It is interesting to note that despite a sharp selloff in muni rates, refunding volumes came totaled $7.1bn for the month, or 26% of total issuance.

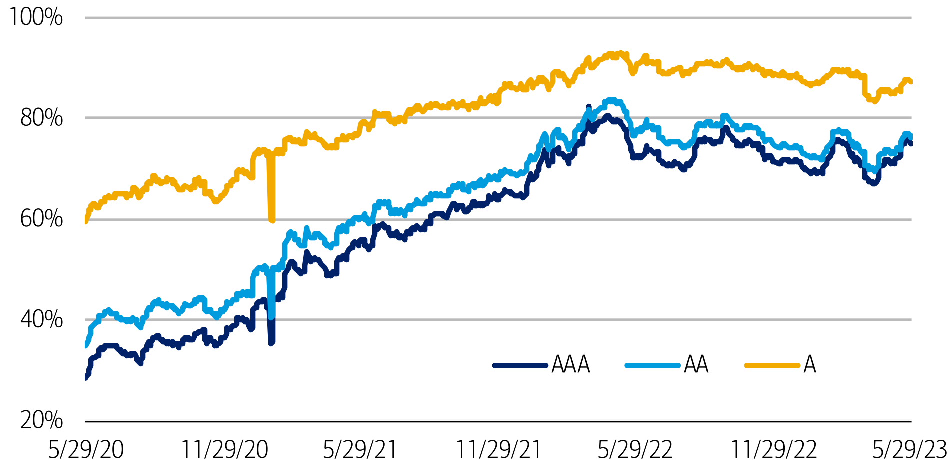
For the month of June, we expect issuance to be $43bn. We estimated that principal redemption of muni bonds in June should be about $49bn and coupon payments $16bn, totaling $65bn. Supply/demand conditions remain strong – as long as there are no large outflows from mutual funds.

High grades more attractive after AAA rates selloff

In May, AAA MMD rates sold off anywhere between 23bp at the long end to over 42bp between 2yrs and 7yrs, and credit spreads compressed – and even reached new YTD tights in AA and single-As.

With the selloff and spread compression, we see high grades as more attractive to credit: the index YTW for the ICE BofA AAA US Municipal Securities Index (U0A1) and ICE BofA AA US Municipal Securities Index (U0A2) are both over 75% of the ICE BofA BBB US Municipal Securities Index (U0A4), around levels last seen in March 2023 at the height of the regional bank problem. Indeed, since 12 April, their respective ratios climbed 8 and 7 ratios respectively, while the ICE BofA Single-A US Municipal Securities Index's (U0A3) climbed just 4.

Exhibit 6: AAA (U0A1), AA (U0A2) and single-A (U0A3) YTW as a percentage of BBB's (U0A4)
AAA's and AA's YTW are both >75% of BBB's following AAA rates selloff and spread compression



Source: BofA Global Research, ICE Data Indices, LLC

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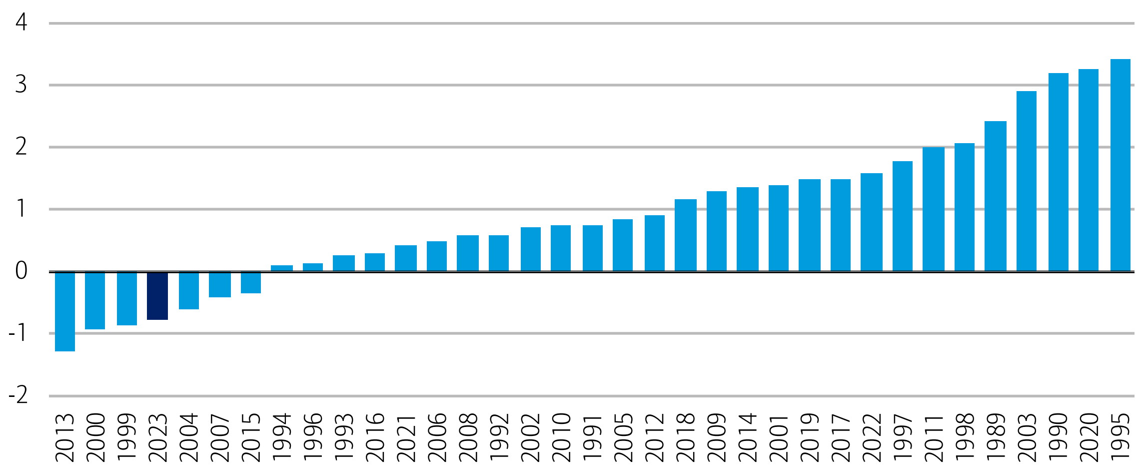
Performance

Munis turn in their fourth-worst May since 1989

May will be another month the muni market may hope to forget after turning in the fourth-worst return in May since 1989 (only returns in May 2013, May 2000 and May 1999 came in lower) with exempt muni IG's monthly loss of 77bp of returns.

Exhibit 7: Total returns for the ICE BofA Muni Master Index during the month of May since 1989 (%)
May 2023 was the fourth-worst month of May since 1989



Source: ICE Data Indices, LLC

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Despite those losses, exempt IG munis still outperformed both govies by 44bp and corporates by 56bp; exempts also outperformed taxables for the month by 53bp. Still, exempt muni IG underperformed HY by nearly 18bp in May. For the YTD through May, exempt IG munis underperformed govies by 45bp and corporates by 103bp. However, after tax-adjusting exempt IG munis' returns, they are outperforming govies by some 133bp and corporates by 21bp.

BBBs were the strongest performing rating bracket in May, losing 56bp of returns. AAs were the weakest performing bracket, losing 82bp during the month. GOs and revenue bonds performed largely in line, though revenue bonds edged out GO bonds by 6bp. Among the muni bond sectors, the Health sector had the strongest month, with loss of just 31bp of returns. For the YTD, Industrial Development Revenue's 340bp of returns are strongest.

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

Despite the fourth-worst May since 1989, exempt IG munis still outperformed govies and corporates

Index	Ticker	1d	1wk	MTD	1mo	3mo	YTD	1yr
Govt Master	G0A0	0.322	0.620	-1.212	-1.212	2.244	2.365	-2.429
Corporate Master	C0A0	0.264	0.870	-1.328	-1.328	2.059	2.939	-1.252
IG munis	**U0A0**	**0.265**	**0.736**	**-0.768**	**-0.768**	**1.336**	**1.911**	**0.215**
AAA	U0A1	0.278	0.756	-0.801	-0.801	1.167	1.396	-0.116
AA	U0A2	0.261	0.706	-0.819	-0.819	1.241	1.609	0.234
A	U0A3	0.250	0.747	-0.696	-0.696	1.449	2.422	0.435
BBB	U0A4	0.331	0.910	-0.557	-0.557	1.958	3.351	0.150
1-3yr	U1A0	0.038	0.233	-0.250	-0.250	0.595	0.499	0.575
3-7yr	U2A0	0.142	0.374	-0.935	-0.935	0.566	0.597	0.470
7-12yr	U3A0	0.189	0.414	-1.180	-1.180	0.685	1.204	1.753
12-22yr	U4A0	0.301	0.877	-0.717	-0.717	1.678	2.539	0.667
22+yr	U5A0	0.476	1.300	-0.722	-0.722	2.316	3.393	-1.635
HY munis	**U0HY**	**0.220**	**0.614**	**-0.588**	**-0.588**	**0.696**	**1.704**	**-1.795**
Non-rated	U0NR	0.340	0.807	-0.239	-0.239	1.691	3.111	-0.966
General Obligation	**U0AG**	**0.251**	**0.647**	**-0.814**	**-0.814**	**1.179**	**1.448**	**0.431**
AAA	UGA1	0.278	0.758	-0.862	-0.862	1.062	0.982	-0.309
AA	UGA2	0.247	0.642	-0.836	-0.836	1.100	1.326	0.388
A	UGA3	0.240	0.455	-0.616	-0.616	1.119	1.311	1.079
BBB	UGA4	0.137	0.493	-0.398	-0.398	3.139	5.188	3.756
State	U0AA	0.223	0.525	-0.787	-0.787	0.997	1.373	0.857
Local	U0AB	0.284	0.794	-0.846	-0.846	1.403	1.538	-0.121
Revenue	**U0AR**	**0.270**	**0.766**	**-0.753**	**-0.753**	**1.388**	**2.067**	**0.143**
AAA	URA1	0.279	0.755	-0.758	-0.758	1.242	1.699	0.019
AA	URA2	0.268	0.735	-0.812	-0.812	1.305	1.736	0.163
A	URA3	0.251	0.776	-0.704	-0.704	1.487	2.495	0.419
BBB	URA4	0.346	0.943	-0.573	-0.573	1.688	2.905	-0.547
Airport	U0AV	0.279	0.749	-0.643	-0.643	1.493	2.835	0.731
Education	U0AE	0.302	0.819	-0.897	-0.897	1.387	1.875	-0.148
Health	U0HL	0.294	0.809	-0.308	-0.308	0.441	-0.021	-4.566
Hospital	U0AH	0.347	1.083	-0.963	-0.963	1.409	1.976	-0.704
Industrial Development Rev	U0ID	0.256	0.656	-0.550	-0.550	1.724	3.402	0.550
Leases, COPs & Appropriations	U0AL	0.221	0.629	-0.747	-0.747	1.196	1.452	0.273
Miscellaneous	U0AM	0.230	0.644	-0.900	-0.900	0.977	1.292	0.012
Multi-family Housing	U0AU	0.318	0.774	-1.110	-1.110	0.915	1.642	-1.955
Pollution Control	U0AQ	0.218	0.526	-0.829	-0.829	0.681	1.150	0.547
Power	U0AP	0.216	0.593	-0.668	-0.668	1.094	1.543	0.257
Single-family Housing	U0AS	0.189	0.642	-1.156	-1.156	0.692	0.477	-1.849
Tax Revenue	U0TX	0.297	0.770	-0.776	-0.776	1.495	2.057	0.305
Tobacco	U0TB	0.340	0.669	-0.341	-0.341	1.367	3.066	1.545
Toll & Turnpike	U0TL	0.264	0.727	-0.721	-0.721	1.433	2.165	0.534
Transportation - other	U0AT	0.244	0.771	-0.684	-0.684	1.895	3.018	0.994
Utilities - other	U0UT	0.166	0.514	-0.485	-0.485	1.006	2.010	0.124
Water & Sewer	U0AW	0.236	0.751	-0.655	-0.655	1.345	1.763	0.213
Taxable	**TXMB**	**0.458**	**0.912**	**-1.302**	**-1.302**	**1.791**	**4.610**	**-0.860**
Build America Bonds	BABS	0.451	0.904	-1.529	-1.529	1.465	4.135	-0.970
VRDOs	**VRDO**	**0.006**	**0.062**	**0.259**	**0.259**	**0.564**	**0.784**	**1.669**
Daily reset	VRDD	0.010	0.069	0.248	0.248	0.518	0.685	1.441
Weekly reset	VRDW	0.003	0.058	0.266	0.266	0.589	0.837	1.790

Source: ICE Data Indices, LLC

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The shortest maturities of the curve outperformed in May, with the 1-3yr IG index's monthly returns of -25bp, besting the 22yr+ index by 47bp. Intermediate maturities fared the worst this month, with the 7-12yr index losing 118bp of returns. This is attributable to the 10/30 AAA flattening for the month. Still, for the YTD, the longest maturities return of 393bp is strongest.

Muni IG and HY spreads tightened w/w

Muni IG spreads tightened 3bp w/w to 25bp, hitting a new tight of their 52-wk range while Muni HY spreads narrowed 8bp to 192bp and are now sitting at the 63rd percentile of their 52-wk wide. Non-rated spreads tightened 10bp w/w. GO spreads tightened 3bp overall w/w, with single-A GO spreads tightening 6bp. Revenue bond spreads tightened 3bp w/w overall. Among muni IG revenue bond sectors, Multi-family Housing widened 4bp w/w, while Health narrowed by 11bp.

Exhibit 9: Muni YTW spread monitor as of 31 May
IG spreads flat w/w overall while HY spreads widened 5bp

	52wk				Current	Change from				Current as %		
	Tights	Wides	T-1wk	T-1d	5/31/23	Tights	Wides	T-1wk	T-1d	of 52wk range	Price	Yield
Investment Grade	**24**	**39**	**25**	**25**	**25**	**1**	**-14**	**0**	**0**	**7**	**100**	**3.74**
AA	5	21	6	5	7	2	-14	1	2	13	101	3.56
A	56	79	57	56	57	1	-22	0	1	4	98	4.06
BBB	94	142	115	116	115	21	-27	0	-1	44	92	4.64
High Yield	**153**	**222**	**184**	**186**	**189**	**36**	**-33**	**5**	**3**	**52**	**93**	**5.38**
Non-rated	189	298	208	208	212	23	-86	4	4	21	63	5.61
General Obligation	**-9**	**1**	**-8**	**-8**	**-7**	**2**	**-8**	**1**	**1**	**20**	**101**	**3.42**
AA	-15	1	-13	-13	-12	3	-13	1	1	19	101	3.37
A	-15	29	10	11	11	26	-18	1	0	59	104	3.60
BBB	40	122	75	76	76	36	-46	1	0	44	96	4.25
State	-28	-9	-25	-24	-23	5	-14	2	1	26	105	3.26
Local	12	19	13	12	12	0	-7	-1	0	0	97	3.61
Revenue	**35**	**52**	**36**	**36**	**37**	**2**	**-15**	**1**	**1**	**12**	**100**	**3.86**
AA	14	30	14	14	15	1	-15	1	1	6	101	3.64
A	60	83	61	60	62	2	-21	1	2	9	98	4.11
BBB	100	147	119	120	118	18	-29	-1	-2	38	92	4.67
Airport	61	98	63	63	65	4	-33	2	2	11	102	4.14
Education	14	44	15	15	18	4	-26	3	3	13	102	3.67
Health	103	174	143	140	145	42	-29	2	5	59	91	4.94
Hospital	69	97	71	70	72	3	-25	1	2	11	98	4.21
Industrial Development Rev	88	130	93	94	93	5	-37	0	-1	12	99	4.42
Leases, COPs & Appropriations	1	23	9	1	4	3	-19	-5	3	14	102	3.53
Miscellaneous	1	14	6	7	8	7	-6	2	1	54	98	3.57
Multi-family Housing	65	90	88	89	87	22	-3	-1	-2	88	91	4.36
Pollution Control	13	58	43	45	30	17	-28	-13	-15	38	99	3.79
Power	18	39	31	32	30	12	-9	-1	-2	57	102	3.79
Single-family Housing	59	87	86	86	87	28	0	1	1	100	95	4.36
Tax Revenue	7	32	8	8	8	1	-24	0	0	4	99	3.57
Tobacco	7	78	9	11	12	5	-66	3	1	7	101	3.61
Toll & Turnpike	33	50	33	35	35	2	-15	2	0	12	97	3.84
Transportation - other	33	62	36	35	38	5	-24	2	3	17	98	3.87
Utilities - other	55	105	72	73	72	17	-33	0	-1	34	102	4.21
Water & Sewer	11	21	13	11	12	1	-9	-1	1	10	102	3.61

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 $137bn, down 24% y/y

MTD issuance as of 31 May 2023 totaled $26.6bn, down 27% y/y versus the same period in 2022. By tax status, 91% of March's issuance is tax-exempt and 4% is taxable. YTD issuance of $137bn is down 24% y/y. Thus far, 75% of YTD issuance is new money, while 25% is refundings. New money volumes are down 25% y/y while refunding volumes are down 22%.

Exhibit 10: Issuance summary ($mn)
YTD issuance of $137bn is down 24% y/y; new money down 25% y/y and refundings down 22%

	Month-to-date			Year-to-date		
	5/31/23	5/31/22	y/y % Δ	5/31/23	5/31/22	y/y % Δ
Total	**26,582.3**	**36,583.1**	**-27%**	**137,095.6**	**180,465.4**	**-24%**
New Money	19,433.3	28,514.1	-32%	103,011.8	136,925.6	-25%
Total Refunding	7,149.1	8,069.1	-11%	34,089.7	43,539.8	-22%
Advanced refunding	0.0	0.0	-	1,380.9	1,256.3	10%
Unknown refunding	7,149.1	6,514.8	10%	31,276.0	38,249.1	-18%
Current & Forward refunding	0.0	1,554.2	-100%	1,432.8	4,034.5	-64%
Insured	4,422.3	3,739.1	18%	11,876.4	14,780.6	-20%
Fixed Rate	25,145.4	33,879.9	-26%	123,799.8	170,253.0	-27%
Variable Rate Long	1,321.8	1,243.5	6%	8,914.6	5,425.5	64%
Variable Rate Short	112.5	1,287.0	-91%	3,897.6	3,025.8	29%

Exhibit 10: Issuance summary ($mn)

YTD issuance of $137bn is down 24% y/y; new money down 25% y/y and refundings down 22%

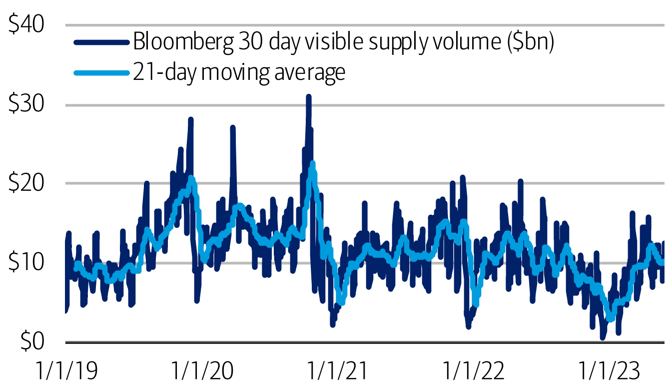
	Month-to-date			Year-to-date		
	5/31/23	5/31/22	y/y % Δ	5/31/23	5/31/22	y/y % Δ
Zero Coupon	2.7	70.6	-96%	195.6	448.4	-56%
Linked Rate	0.0	102.2	-	270.0	996.7	-73%
Convertible	0.0	0.0	-	18.1	315.9	-94%
Variable rate no put	-	-	-	-	-	-
Tax Exempt	24,190.8	28,333.1	-15%	117,859.1	140,631.8	-16%
Taxable	1,166.8	6,507.9	-82%	15,938.4	30,823.0	-48%
Alternate Minimum Tax	1,224.8	1,742.1	-30%	3,304.1	9,010.6	-63%
Education	9,603.0	8,437.3	14%	41,574.5	46,828.3	-11%
General Purpose	5,368.6	9,523.4	-44%	35,406.3	46,289.4	-24%
Utilities	3,492.2	7,306.4	-52%	18,294.6	22,388.1	-18%
Transportation	2,644.9	3,908.3	-32%	13,191.5	23,260.6	-43%
Housing	1,901.4	2,828.9	-33%	11,272.4	12,214.5	-8%
Electric Power	1,650.3	573.2	188%	6,059.4	5,402.6	12%
Healthcare	1,014.8	2,109.1	-52%	4,643.6	15,509.8	-70%
Development	451.0	675.4	-33%	3,910.8	3,814.6	3%
Public Facilities	243.9	756.5	-68%	1,693.1	3,684.3	-54%
Environmental Facilities	212.3	464.6	-54%	1,055.4	1,073.3	-2%
Muni-backed corporates	1,216.0	915.9	33%	2,296.6	10,387.1	-78%

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

BofA GLOBAL RESEARCH

Exhibit 11: Bloomberg 30-day visible supply ($bn)

30-day visible supply was $12.6bn as of 1 June 2023



Note: Data as of 1 June 2023.
Source: Bloomberg

BofA GLOBAL RESEARCH

Exhibit 12: 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		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 31 May 2023. January-March data are actuals. [1]Monthly issuance forecasts revised from April onward.
Source: BofA Global Research, Refinitiv, Bloomberg

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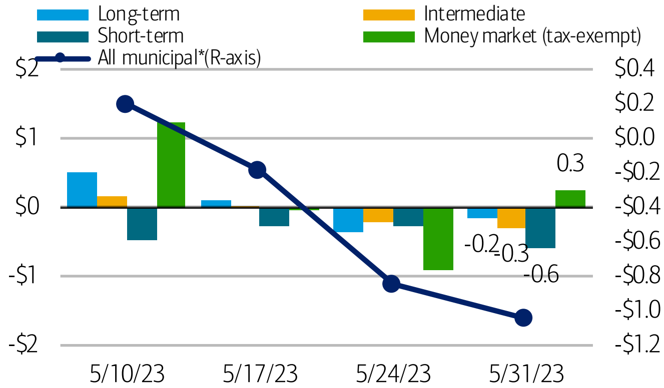
Mutual fund outflows total $1.05bn; ETF inflows $0.38bn

Mutual fund flows were negative this week, with outflows totaling $1.05bn, coming mostly from short-term funds. There were $0.57bn of outflows from investment grade funds against $0.47bn of outflows from high yield funds. YTD, investment grade outflows total $7.5bn versus $0.2bn of outflows from high yield. ETF fund flows were positive for the week, with inflows totaling almost $0.38bn. Overall, our flow strength indicator measured by the 2-year trailing z-score suggests this week's flow strength was normal.

Exhibit 13: Flows by maturity brackets ($bn)
Muni outflows of $1.05bn, money market inflows of $0.25bn



Note: ETFs included. All Municipal = LT+INT+ST. Data includes both weekly and monthly reporting funds as of 31 May 2023.
Source: Refinitiv Lipper

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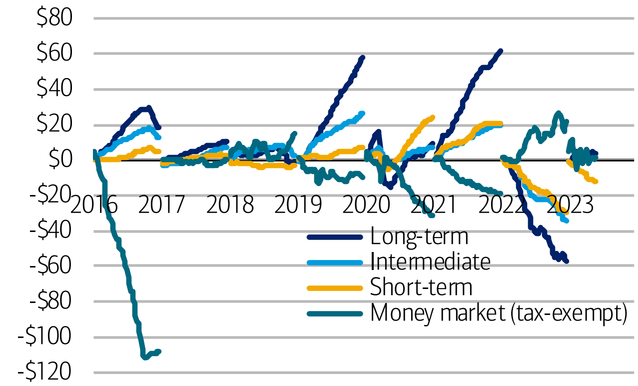
Exhibit 14: YTD cumulative flows ($bn)
2023 flow: LT: $4.0bn, INT: $0.7bn, ST: -$12.4bn, MM: $1.0bn



Note: ETFs included. All Municipal = LT+INT+ST. Data includes both weekly and monthly reporting funds as of 31 May 2023.
Source: Refinitiv Lipper

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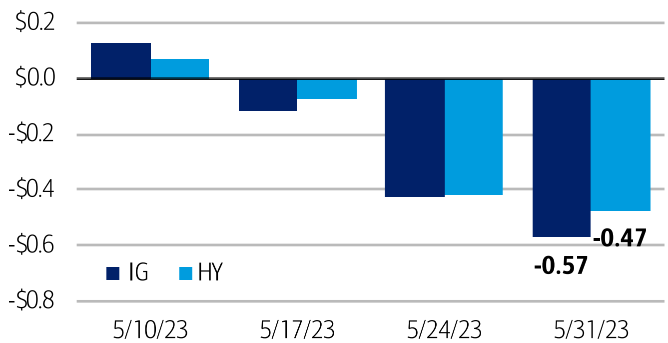
Exhibit 15: IG vs HY muni fund flows ($bn)
IG outflows of $0.57bn vs $0.47bn of HY outflows for the wk of 31 May



Note: ETFs included. All Municipal = IG+HY. Data includes both weekly and monthly reporting funds as of 31 May 2023.
Source: Refinitiv Lipper

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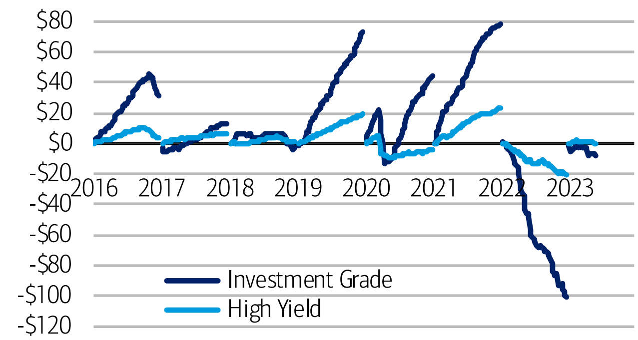
Exhibit 16: Year-to-date cumulative flows ($bn)
2023 flow: IG: -$7.5bn, HY: -$0.2bn



Note: ETFs included. All Municipal = IG+HY. Data includes both weekly and monthly reporting funds as of 31 May 2023.
Source: Refinitiv Lipper

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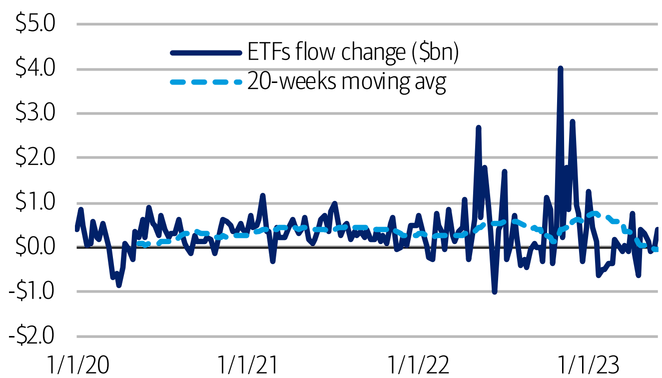
Exhibit 17: Municipal ETF fund flows ($bn)
ETF inflows were $0.38bn for the week of 31 May 2023



Note: ETFs included. All Municipal = LT+INT+ST. Data includes both weekly and monthly reporting funds as of 31 May 2023.
Source: Refinitiv Lipper

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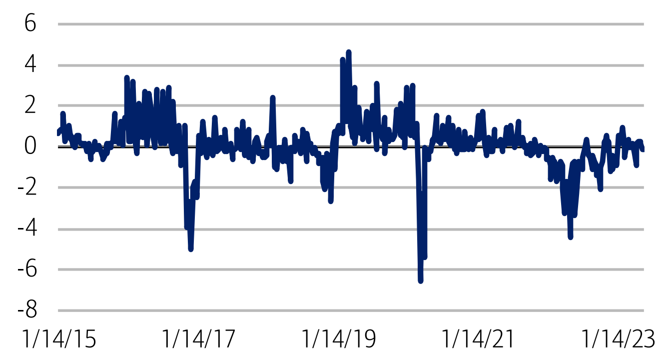
Exhibit 18: Flow strength indicator
Flow strength was Normal with -0.17 z-score for the week of 31 May



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 31 May 2023.
Source: Refinitiv Lipper

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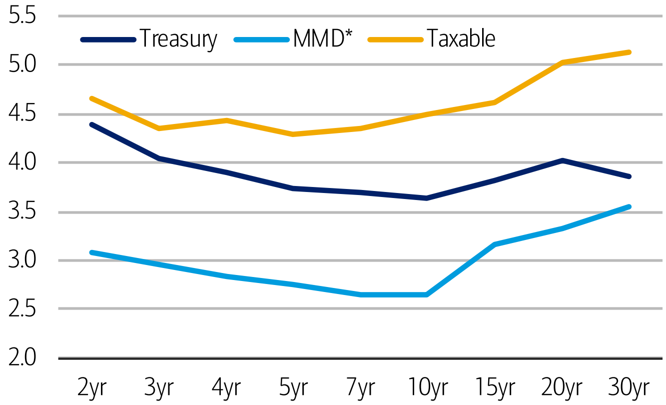
Curve

Curve shifts down 6bp on avg w/w

The AAA MMD curve richened w/w by 6bp on average, but cheapened by 31bp m/m. For the week, the 1s5s slope became less inverted, and stands at -48bp, or 106bp flatter than it was one year ago; the 5s10s slope inverted 1bp more w/w to -11bp and is 49bp flatter than it was one year ago; the 10s20s slope flattened 5bp w/w to 68bp but is 47bp steeper than it was a year ago. The 20s30s was unchanged w/w at 22bp and is 9bp steeper than it was one year ago. Investors should continue to position for a bull flattener.

Exhibit 19: AAA GO muni, Treasury and taxable yield curves (%)
Tsy, MMD and taxable richened on average w/w



Note: *MMD AAA GO yield curve. As of 31 May 2023.
Source: BofA Global Research, Refinitiv, Bloomberg

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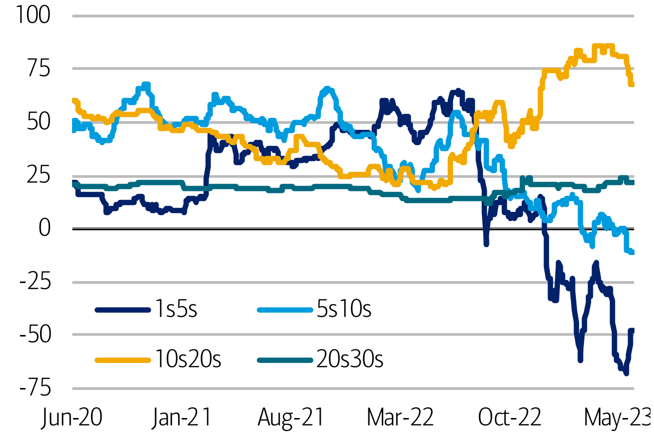
Exhibit 20: Curve slope (bp)
1s5s undid some inversion as 5s10s and 20s30s were negative w/w



Source: Refinitiv

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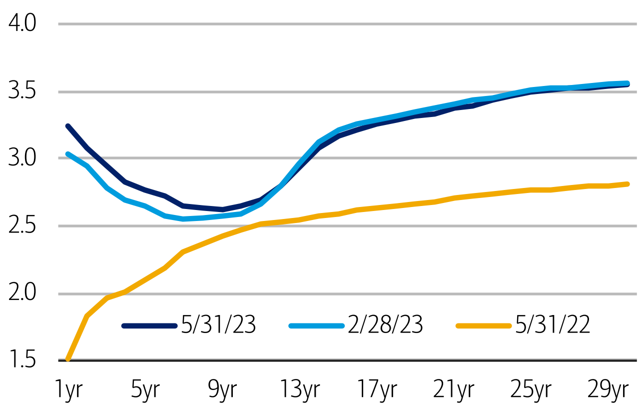
Exhibit 21: AAA GO municipal curve movement (%)
AAA is richer than 3 months ago between 13yr and 30yr



Source: Refinitiv

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Relative value

Ratios neutral, curves largely flat on long-term basis

We screen the muni market for parts of the curve, sectors and ratings that are rich or cheap. Exhibit 22 shows that muni/Treasury ratios are Neutral at the 30yr and Cheap/Very Cheap for the rest on a short-term basis and Neutral on a long-term basis. Exhibit 23 shows that the 10s30s slope is Steep while other slopes are Very Flat on a long-term basis. On a short-term basis, the 10s30s and 1s30s are Very Flat/Flat while others are Neutral.

Exhibit 22: Rich/cheap analysis of MMD*/Treasury ratios as of 31 May 2023
The muni market is Neutral at 30yr and Cheap/Very Cheap for the rest 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	4.041%	73.0%	Cheap	75.0%	55.5%	64.2%	Neutral	164.2%	26.7%	69.2%
5yr	3.744%	73.7%	Cheap	74.0%	57.6%	65.2%	Neutral	150.6%	39.3%	68.2%
10yr	3.637%	72.9%	Very Cheap	72.8%	59.7%	66.6%	Neutral	141.4%	54.7%	81.1%
30yr	3.855%	92.1%	Neutral	95.2%	85.0%	90.2%	Neutral	119.9%	63.5%	89.8%

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 23: Rich/cheap analysis of MMD* slopes (bp) as of 31 May 2023
The 10s30s curve is Steep on LT basis while the rest are Very Flat/Flat on a 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	-48	Neutral	-16	-68	-41	Very Flat	65	-68	20
1s10s	-59	Neutral	-13	-74	-43	Very Flat	120	-74	57
10s30s	90	Very Flat	108	90	102	Steep	108	32	65
1s30s	31	Flat	91	26	59	Very Flat	170	26	123

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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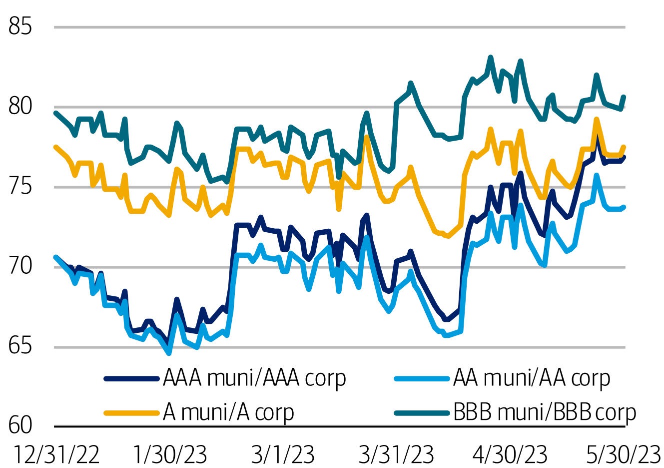
Munis cheapen to corporates; front-end cheapens to long

Exhibit 22 shows that munis, while cheaper to Treasuries as of late, remain at relatively rich levels inside 10 years, Munis, too, are generally cheaper to corporates. Exhibit 24 shows muni YTW ratios by rating bucket since the end of 2022. Clearly, BBB's ratio is cheapest on an absolute basis at nearly 81%. However, conducting a z-score analysis on these ratios since the end of 2022 shows that AAA's ratio is cheapest, with a z-score of 1.85; AA's is 1.59, single-A's is 1.22 and BBB's is 1.03. This reinforces our view, expressed in our Market views & strategies section suggesting that muni high grades are more attractive right now.

Exhibit 24: Muni to corporate YTW ratios (%), by rating bucket
AAA's ratio climbed 11.7 ratios since its YTD low on 30 January



Source: BofA Global Research; ICE Data Indices, LLC

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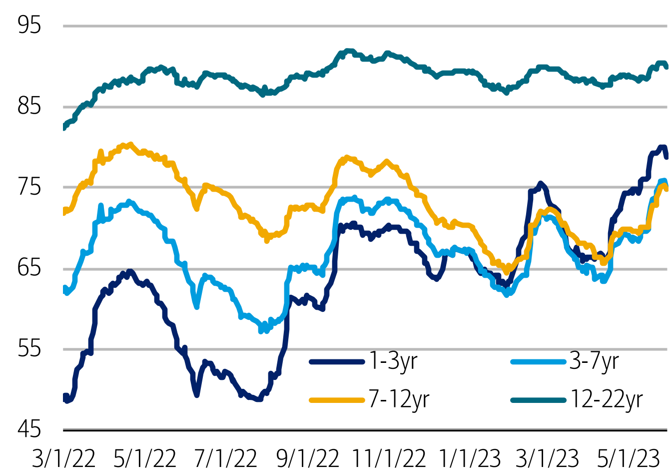
Exhibit 25: 1-3yr, 3-7yr, 7-12yr and 12-22yr YTW as % of 22+yr's
1-3yr and 3-7yr ratios reached their cheapest level of Fed tightening cycle



Source: BofA Global Research, ICE Data Indices, LLC

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Meanwhile, Exhibit 25 shows the 1-3yr, 3-7yr, 7-12yr and 12-22yr ICE maturity indexes YTW as a percentage of the ICE 22+yr index's. Like Exhibit 21, it shows how flat the muni yield curve is. But what it also shows is that the ratios of the 1-3yr and 7-12yr indexes are at their cheapest levels relative to the 22yr+ index since the Fed's tightening cycle began last March. In our view, it makes tactical sense to add front end paper here now that it appears that pressure from the debt ceiling negotiations are alleviating. That said, we expect front end yields to remain elevated, and the curve to stay flat, until the Fed's first cut, which our economists still expect to come in March 2024.

Screening for cheap OAS

At the 7-12yr part of the curve, we consider Single-A Health, BBB Lease COPs & Appropriation and AAA Utilities' OAS Cheap. See Exhibit 27. At the 22+yr part of the curve, we consider Single-A Health, BBB Health, AAA Higher Ed and AA Utilities sectors' OAS Cheap. Conversely, we consider BBB Utilities' OAS at the 22+yr part of the curve to be Very Rich. See Exhibit 30.

Exhibit 26: OAS, 7-12yr indexes (bp)
AA Health at -35bp

Sector	AAA	AA	A	BBB
Airports		26	7	19
Higher Education	-15	-21	21	
GO Local	-13	-8	48	103
GO State	-21	-23	44	0
Health		-35	126	167
Hospital		7	22	80
IDR		5	65	77
Leases COPS & Appr.		-6	29	240
Pollution Control	-7		79	
Power	-35	-27	16	
Tax Revenues	-18	-10	51	128
Tobacco			50	
Toll & Turnpike		15	-4	97
Transportation - Other	9	-2	49	77
Utilities - Other	0	-11	68	
Water & Sewer	-25	-23	-16	108

Note: Data as of 30 May 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 27: Rich/cheap OAS, 7-12yr
...is Very Rich right now at 7-12yrs...

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

Note: Data as of 30 May 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 28: 3-yr avg OAS, 7-12 year (bp)
...against its 3yr OAS avg of 32bp

Sector	AAA	AA	A	BBB
Airports		41	46	94
Higher Education	-5	4	56	
GO Local	2	16	53	140
GO State	-1	4	49	144
Health		32	69	112
Hospital		25	53	108
IDR		50	64	101
Leases COPS & Appr.		17	47	120
Pollution Control	1		85	
Power	5	2	32	
Tax Revenues	14	14	61	142
Tobacco			62	
Toll & Turnpike		28	33	98
Transportation - Other	7	24	84	114
Utilities - Other	-3	5	47	
Water & Sewer	2	0	25	116

Note: Data as of 30 May 2023. Only includes non-prerefunded bonds. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 29: Current OAS, 22yr+ indexes (bp)
BBB Utilities at 0bp

Sector	AAA	AA	A	BBB
Airports		28	16	10
Higher Education	39	-15	16	100
GO Local	-2	1	10	65
GO State	-23	-25		0
Health		-44	72	204
Hospital		12	29	73
IDR			56	80
Leases COPS & Appr.	8	-11	32	32
Pollution Control			24	
Power		-14	10	82
Tax Revenues	1	0	50	68
Tobacco				105
Toll & Turnpike			8	35
Transportation - Other		0	14	53
Utilities - Other		23	29	0
Water & Sewer	-26	-22	-15	

Note: Data as of 30 May 2023. Only includes non-prerefunded securities. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 30: Rich/Cheap OAS analysis, 22yr+
...is Very Rich 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	C
Hospital		N	N	N
IDR			N	N
Leases COPS & Appr.	N	N	N	N
Pollution Control			N	
Power		N	N	N
Tax Revenues	N	N	N	N
Tobacco				N
Toll & Turnpike			N	N
Transportation - Other		N	N	N
Utilities - Other		C	N	VR
Water & Sewer	N	N	N	

Note: Data as of 30 May 2023. Only includes non-prerefunded securities. Benchmark is 3-yr avg.
Source: ICE Data Indices, LLC

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Exhibit 31: 3-yr avg OAS, 22yr+ (bp)
...against its 3yr OAS avg of 77bp

Sector	AAA	AA	A	BBB
Airports		35	40	46
Higher Education	16	-1	31	88
GO Local	-11	4	32	113
GO State	-25	-15		113
Health		1	37	103
Hospital		10	33	65
IDR			55	84
Leases COPS & Appr.	-7	0	39	72
Pollution Control			12	
Power		-4	22	55
Tax Revenues	10	10	65	95
Tobacco				90
Toll & Turnpike			21	59
Transportation - Other		18	55	69
Utilities - Other	-10	-7	29	77
Water & Sewer	-17	-9	9	

Note: Data as of 30 May 2023. Only includes non-prerefunded securities. Benchmark is 3-yr avg
Source: ICE Data Indices, LLC

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MWIs retraced back into underpriced space

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 all sectors' MWIs retraced back over the past week into the underpriced space (below 20%). The Pre-re, Airport, Miscellaneous and Multi-Family Housing sectors' MWIs are lowest. On a w/w basis, Airport, Industrial Development Rev and Tobacco sectors MWIs decreased the most.

Exhibit 32: MWIs – sector momentum (%) as of 30 May 2023
Most the sectors had small decreases over the past week

Sector	MWI	w/w Δ	Sector	MWI	w/w Δ
U0A0 Index	3.0%	-32.0%	Miscellaneous	0.9%	-21.9%
ETM	2.2%	-2.2%	Multi-Family Housing	0.6%	-23.7%
GO - Local	3.5%	-29.4%	Pollution Control	7.2%	-14.5%
GO - State	3.5%	-23.9%	Power	1.2%	-27.5%
Pre-Re	0.4%	-1.0%	Single Family Housing	0.9%	-21.3%
Airport	0.8%	-49.0%	Tax revenue	2.6%	-35.9%
Education	2.8%	-36.8%	Tobacco	3.2%	-61.3%
Health	5.6%	-11.3%	Toll & Turnpike	3.2%	-40.5%
Hospitals	2.2%	-39.9%	Transportation	7.1%	-40.6%
Industrial Development Rev	9.1%	-62.3%	Utilities - Other	5.3%	-34.5%
Leasing COPS & Appropriations	3.6%	-29.7%	Water & Sewer	3.0%	-32.4%

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 and trades was 64613CDQ8, totaling $176.2mn and 194 trades. These are newly-issued New Jersey Transportation Trust Fund Authority bonds due in 2044.

Exhibit 33: Most actively traded muni CUSIPs over the week ending 31 May 2023
64613CDQ8 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)
64613CDQ8	NJ ST TRANSPRTN TRUST	NJ	4.250	06/15/44	06/01/23	98.223	4.38	150	98	194	176.2
64613CCU0	NJ TRANSPRTN TRUST-A	NJ	4.250	06/15/40	06/01/23	99.160	4.32	50	108	193	164.1
91412HPV9	UNIV OF CA-BP-1-REF	CA	2.650	05/15/48	02/22/23	100.000	--	5M+		30	95.6

Exhibit 33: Most actively traded muni CUSIPs over the week ending 31 May 2023
64613CDQ8 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)
677561KX9	OHIO ST HOSP FAC REVE	OH	4.000	01/01/46	05/09/19	97.802	4.15	25	68	187	59.9
01757LDW3	ALLEN HSP-C-CATHOLIC	OH	3.520	06/01/34	05/04/10	100.000	--	1400		20	58.5
592647ME8	MET WA ARPTS AUTH-A-A	DC	4.500	10/01/53	07/12/23	100.000	4.50	50	92	131	52.0
13063DTK4	CALIFORNIA ST	CA	4.000	03/01/46	03/19/20	99.375	4.04	10	57	141	50.1
91412GSG1	UNIV CA-AL2-VAR	CA	2.750	05/15/48	10/02/13	100.000	--	3675		11	45.7
41315RGU2	HARRIS HLTH-A1-RF-MET	TX	3.800	12/01/41	04/10/08	100.000	--	1850		14	41.3
915260CL5	UNIV HOSPS & CLINIC-B	WI	3.650	04/01/48	11/15/18	100.000	--	5M+		9	40.9
64966LU41	NYC-F-5	NY	3.500	06/01/44	06/18/15	100.000	--	5M+		10	36.9
91412HPW7	UNIV OF CA-BP-2-REF	CA	2.750	05/15/48	02/22/23	100.000	--	5M+		10	36.9
64966LLS8	NYC-ADJ-1-SUBSER I-2	NY	3.800	03/01/40	03/25/14	100.000	--	5M+		9	36.8
160853MS3	CHARLOTTE HOSP-REF-C	NC	3.750	01/15/37	08/28/07	100.000	--	1750		14	36.5
836753NP4	S BROWARD HOSP DT BAM	FL	3.000	05/01/51	11/18/21	71.871	4.85	5M+	127	8	35.0
546398ZP6	LA FACS-VAR-C-AIR PRO	LA	3.700	12/01/43	12/11/08	100.000	--	5M+		7	35.0
64972GC85	NYC MUNI WTR FIN-BB-2	NY	3.500	06/15/53	02/16/23	100.000	--	5M+		12	33.8
13032UMN5	CA HLTH FACS-A2	CA	4.000	11/01/44	05/03/17	97.978	4.14	10	73	23	33.0
64971XKU1	NYC TRANSITIONAL-A4	NY	3.500	08/01/39	08/16/10	100.000	--	5M+		7	32.9
64972GCM4	NYC MUNI WTR-AA1-ADJ	NY	3.800	06/15/50	09/17/13	100.000	--	5M+		13	32.1

Source: Bloomberg

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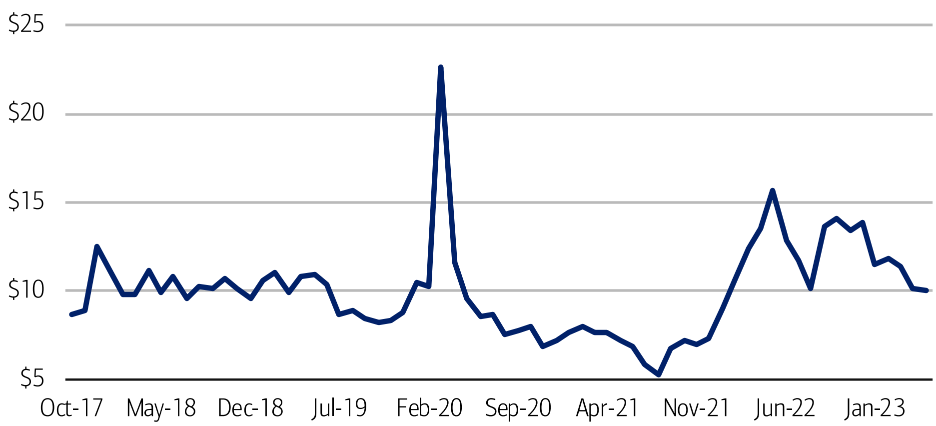
Avg daily secondary trading $10.1bn MTD in May

After a very slow start to the month, May's average daily secondary trading volume rebounded to $10.1bn, or less than 1% below April's average. However, it is down 36% versus May 2022's average. In total, $221.3bn of muni bond par value traded during the month.

Exhibit 34: Daily avg secondary trading volume ($bn; as of 31 May 2023)
May-23 MTD daily avg volume of $10.1bn down less than 1% vs Apr-23's daily average



Source: BofA Global Research, Bloomberg

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Credit corner

State & local governments

Lower April collections cause NJ to lower its FY23 & FY24 revenue forecasts

As more states reported April collections, medians continued to fall, dragged down by personal income taxes. For the 41 states reporting April thus far, we see median overall y/y growth of -14.3%. While both corporate and sales tax collections are up modestly on median y/y (4.7% and 2.5%, respectively), personal income tax collections are down 31.0% on median. Regionally, we see the weakest y/y aggregate collection growth in the Far West (-54.3%), followed by the Rocky Mountains (-30.2%). We see the strongest growth in the Southwest (-6.8%), followed by the Southeast (-10.6%).

Where are COVID funds being clawed back from?

There was some initial concern that sizeable amounts of unobligated funds would be clawed back from state and local governments as part of the debt ceiling agreement. But, as the Government Accountability Office noted in February, of the $350bn appropriated by Congress under for State and Local Fiscal Recovery Funds (SLFRF), $349.9bn had been obligated by the federal government by end of January 2023. Per an analysis by the Economic Policy Institute at the end of March, of those funds, the states had obligated over 55% of their funds by the end of 2022 and local governments 45%. We expect significantly more were obligated during the FY24 budget season. According to a document obtained by *NPR* said to be circulated by the White House to Democrats in Congress, while no SLFRF funds will be clawed back, a total of $27bn will across eight federal agencies or departments will be. While most will come from Health and Human Services, some (a) $391mn will come from the Education Stabilization Fund at the Department of Education which went to support states and schools through the COVID-19 pandemic, and (b) $1bn will come from the Department of Labor for state grants aimed at combatting fraud and identity theft, among others.

Moody's revises California's outlook to negative

Moody's revised California's outlook to negative from stable on 18 May, while affirming the state's Aa2 rating, reflecting the rating agency's view on California's "weakened and uncertain revenue environment … that raises the possibility of extended pressure on the state's budget." The outlook revision came shortly after the governor's May revise of his budget proposal, in which he proposed scaling back or delaying non-recurring spending to maintain budget reserves through FY24. As we noted previously, the state extended the tax filing deadline from April to October for those affected by this winter's storms. Per Moody's, "a more complete and accurate picture of the state's revenue collections will likely not be available until October … The delayed receipt of revenue leaves the state with less certainty around fiscal 2024 budgeted revenues and a narrowed window in which to respond to revenue collections that fall short of present assumptions." California estimates that deadline delay shifted $40bn of revenue from FY23 into FY24, though its liquidity cushion, of which over $90bn are borrowable resources, will cover cash flow implications. For its part, Fitch noted the state's deteriorating revenue forecast, but expects California to "respond to the lower available tax revenues with sustainable actions that support ongoing structural budget balance," per a 25 May report. The market seems to agree with Fitch's assessment: California spreads to AAA MMD moved just 2bp wider the day Moody's shifted its outlook at both the 10yr and 30yr spot. We generally agree with Fitch, as well as those in the market that were surprised by how quickly Moody's revised its outlook. Still, as the state's Legislative Analyst's Office (LAO) suggests, there are risks to the governor's May revision: per a 23 May budget outlook brief, the LAO, there is a "one-in-six chance the state can afford the May Revision spending level across the five-year period. This means that, if the Legislature adopts the Governor's May Revision proposals, the state very likely will face more budget problems over the next few years." The LAO suggests further reducing one-time and temporary spending for FY24 from $11bn to $4bn and eliminating that spending entirely in outyears. Reducing/eliminating that spending and using reserves would "give the Legislature a few years to align revenues and spending as the economic picture unfolds" per the LAO.

Public pension funded ratios climb slightly in April – Milliman

Milliman's PPFI report for the month of April shows the funded ratio for the 100-largest US public pension plans climbed 0.3ppt m/m to 74.8% in April. Unfunded liabilities (the deficit between assets and liabilities) fell roughly $10bn from the end of March to the end of April to $1.52tn. This is largely the result of 0.8% investment returns during the month. Note that the funded ratio, at 74.8%, remains 0.1ppt below where it stood just prior to COVID and is well below the PPFI's highwater mark of 85.5% as of the end of 2021. Of the 100 plans, just 37 have funded ratios at or above 80% and just 5 are fully funded or better.

IL Supreme Court to hear challenge over pension consolidation

The IL Supreme Court agreed to hear a challenge, under the state constitution's pension and takings clause, to the state's consolidation of 650 local police and firefighters' pension funds. The lawsuit, originally filed in 2021, has been rebuffed by both the circuit court (May 2022) and appellate court (February 2023). The appellate court, affirming the circuit court, wrote that "while plaintiffs have a constitutional right to receive pension benefits … they have no right to the investments held by the funds; rather, they are entitled only to present or future payments from the funds." Per the state's Department of Insurance Public Pension Division's 2021 biennial report, the Suburban and Downstate Police Pension Funds' and Suburban and Downstate Firefighters Pension Funds' funded ratios were 55.8% and 55.7%, respectively, as of 2020.

FOMB sends $12.7bn FY24 budget to PR legislature

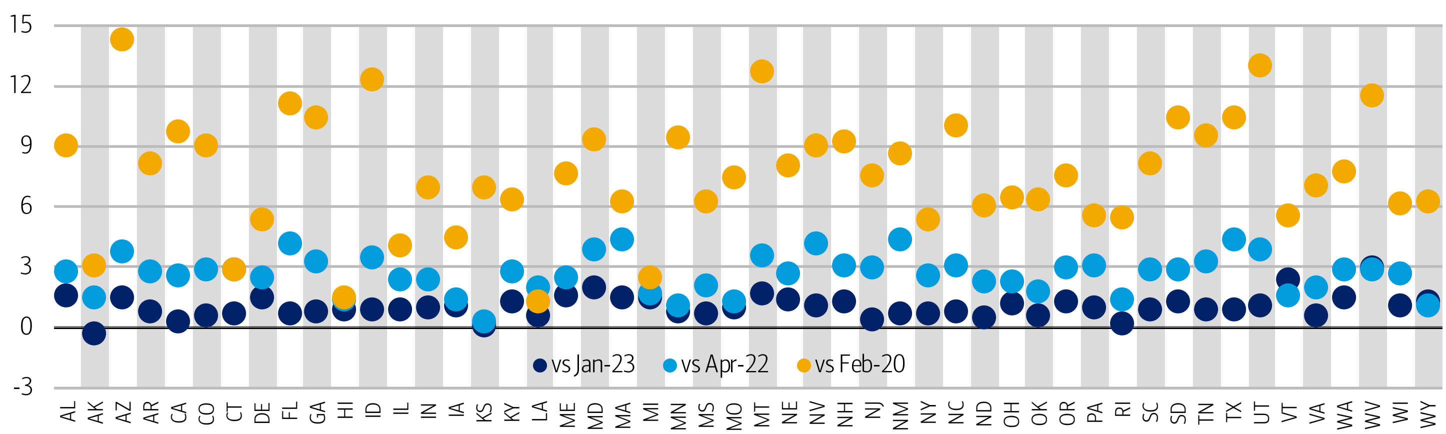
After finding the governor's budget non-compliant with PROMESA, the FOMB sent its own budget to the legislature, totaling $12.7bn for FY24. The governor suggested his administration will propose amendments, including funding for municipal health coverage and the University of Puerto Rico (UPR), while the House Speaker also suggested his chamber will seek changes, including UPR funding and funding for municipalities to provide essential services. As a reminder, PROMESA vests final budgetary authority with the FOMB. Otherwise, we highlight TSA balances of $7.0bn as of 19 May were up $175mn w/w, but are now 3.2% below adopted liquidity plan levels, and FYTD General Fund collections through 19 May of $11.5bn that are up 1.3% vs adopted liquidity plan levels.

Only AK's coincident index value declined over last 3 mos – Philly Fed

The Philadelphia Fed released state coincident index levels for April on 24 May. Those indexes combine nonfarm payrolls, average hours worked for manufacturing and production workers, unemployment rates and deflated wage and salary disbursements to "summarize current economic conditions in a single statistic." The data shows that just AK's index level declined over the last three months, falling by 0.25%. All other states' index levels increased over that period, led by WV's 3.03% increase. The median increase over the last three months was 1.02%. Over the last 12 months, each states' index level is higher (MA's 4.47% is largest), as are all states' vs February 2020, the last pre-pandemic month (AZ's 14.38% increase is largest).

Exhibit 35: Percent change in Philadelphia Fed's Apr-23 state coincident indexes vs Feb-20, Apr-22 and Jan-23 (%)

Over the last 3 months, only AK's coincident index level declined, falling 0.25%; WV's 3.03% increase over that period was the largest



Source: BofA Global Research, Philadelphia Federal Reserve Bank

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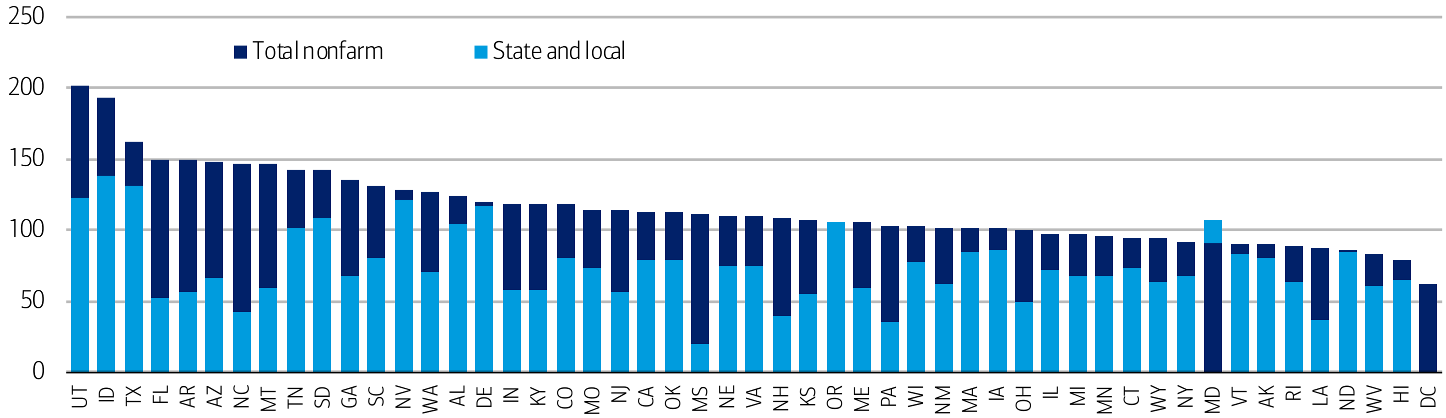
35 states' payroll recoveries complete as of April 2023

Exhibit 36 shows the result of our analysis of Bureau of Labor Statistics' April nonfarm payroll data, and shows, still, that 35 states fully recovered jobs lost during the pandemic crisis as of April, led by UT's 202.1% recovery. The weakest overall nonfarm payroll recoveries continue to be concentrated in tourism-dependent and energy-producing states. Note that 15 states' recoveries declined m/m; RI's declined the most m/m, falling 3.5ppt to 92.7%. Exhibit 36 also shows that state and local government payroll recoveries remain generally weaker across the states; in fact, only MD's public sector payroll recovery exceeds its overall nonfarm payroll recovery, though OR's is roughly equal. Still, 10 states' aggregate state and local government payroll recovery is complete as of April: UT, ID, TX, TN, SD, NV, AL, DE, OR and MD.

Exhibit 36: Nonfarm payroll and state and local payroll recoveries as of April 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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Meanwhile, we note that the 15-largest MSAs by seasonally adjusted April 2023 payrolls recovered, in the aggregate, 111.4% of jobs lost during the pandemic crisis, led by Dallas-Fort Worth-Arlington, TX's 187.3% payroll recovery; Minneapolis-St. Paul-Bloomington, MN-WI's 90.4% recovery is weakest. The New York-Newark-Jersey City, NY-NJ-PA MSA's recovery is 99.1%; the Los Angeles-Long Beach-Anaheim, CA MSA's recovery is 103.3%; and, Chicago-Naperville-Elgin, IL-IN-WI's is 97.7%. Overall, nonfarm payroll recoveries are led by The Villages, FL's 300.0% recovery and Logan, UT-ID's 263.8% recovery, followed by a number of other MSAs in Utah, Idaho and Texas. The lowest overall continues to be in Kokomo, IN at 18.0%, followed by Lake Charles, LA at 45.0% and Kankakee, IL at 47.5%.

Higher Education

Spring 2023 enrollment down just 0.2% – NSCRC

Spring 2023 enrollment numbers fell just 0.2%, per the National Student Clearinghouse Research Center's Spring 2023 Current Term Enrollment Estimates report. After 3.1% and 2.4% declines in Spring 2022 and Spring 2021 respectively, enrollment seems to have stabilized for now, albeit still below pre-pandemic levels, down nearly 1.1 million students, or 5.9%, since Spring 2020. Public 4-year and private nonprofit 4-year schools saw -0.8% and -1.0% declines respectively, while private for-profit 4-year schools saw enrollment grow 1.4% and public 2-year school's enrollment grew 0.5%. Notably, public 2-year schools posted enrollment growth y/y for the first time since the onset of the pandemic, with 2022 and 2021 declines at -8.2% and -10.1% respectively.

Young degree holders find less benefit in degrees while seniors see dollar signs

The Federal Reserve's Economic Well-Being of US Households in 2022 survey highlights opinions surrounding higher education across the country. Respondents who hold a bachelor's degree or more felt that the cost of their degree was outpaced by subsequent lifetime financial benefits. Those who did not complete a degree did not share the same sentiment, with just 3 in 10 respondents feeling that the cost of their degree was topped by lifetime financial benefits. Opinions on the value of higher education varied by age range: 79% of respondents aged 45-59 felt that the benefits of higher education exceeded the costs, as did 85% of those 60+ years of but just 61% of respondents between the ages of 18-29. As the report notes, older respondents have had more time to reap the benefits of their degree. The survey also noted that bachelor's degree attainers were less likely to fall behind on subsequent student loan payments when compared to those who did not finish their degree.

Healthcare

YTD median hospital operating margin improves to 0% in April

Kaufman Hall's (KH) latest National Hospital Flash Report showed improvement in the YTD-23 median hospital operating margin to 0.0% through April vs -0.3% the prior month. Net operating revenue fell to -5% m/m despite a -1% decrease in total expense. For YTD-23 levels versus YTD-20 levels, revenues were up 27% and total expense 21%. Over that same period, inpatient revenue was up 19% and outpatient 46% as total labor expense was up 20% and total non-labor expense 21%. KH cautioned that most hospitals have "little to no financial wiggle room." Also notable is the increase in the "bad debt and charity care" provided by hospitals in April, with experts noting that "this data could illustrate the effects of the start of widespread disenrollment from Medicaid following the end of the COVID-19 public health emergency." Patient volume also dropped, while lengths of stay increased; emergency departments being the least effected by decreases in patient volume. Labor costs continue to remain elevated with costs remaining above pre-pandemic levels; however, expenses mostly fell in April.

Airports

May air travel was 100% of 2019 levels

Air traveler levels rose in May, edging out pre-pandemic levels by 139,669 travelers. The recovery to 2019 levels was 100.1% in May with 74.2 million travelers versus 74.1 million travelers in May 2019. With 67.2 million travelers in May 2022, the number of travelers was up 10% y/y. M/m checkpoint growth was up 6.2% and the 12-month rolling average recovery level remained flat at 95%. At this time last year, the recovery was 9ppt lower at 91%. For the YTD, passenger levels are up 0.1% compared to 2019 and 16% compared to last year.

Mass Transit

S&P downgrades San Francisco BART GO bonds to A+ from AA

S&P downgraded San Francisco BART's GO bonds two notches to A+ from AA, with a negative outlook, citing continued operational and fiscal concerns. BART also saw its sales tax revenue bonds' outlook revised to negative from stable. The rating downgrade comes amid depressed ridership numbers systemwide paired with expected deficits of over $300mn in 2025 after the last of federal aid runs out. "Both ridership and fare revenues continue to underperform BART's previous forecasts and the current fiscal 2023 budget (ending June 30) by 12%-16%," per S&P, who also estimates that ridership and fare revenue in FY23 will be about 40% of 2019's levels. While ridership levels are projected to reach 70% of pre-pandemic levels by FY32, with a lower range of 60%, S&P finds that ridership projections have been difficult to predict and reaching these targets could prove challenging. With no immediate funding looming, S&P expects that "BART will be challenged in returning to … historically strong financial performance measures" and "will require access to funding beyond what it can autonomously generate or is currently authorized to collect and that implementation of a timely and credible plan that restores structural balance in BART's operating fund from reoccurring revenue sources is critical to maintaining credit quality."

MTA's May Board meeting provides update on 2023 fare and toll changes

After Governor Hochul's budget provided the MTA with an additional $65mn in funding, the MTA was able to adjust down planned fare revenue changes from 5.5% to 4%; toll increases remain at the 5.5% level. Base fares on subway, local bus and paratransit rides will increase 5% from $2.75 to $2.90. LIRR and Metro-North fares look to be increased by 4.3% on monthly tickets and 4.6% on one-way peak tickets. The MTA is currently considering two scenarios for one-way passenger vehicle toll increases: Scenario A would increase E-ZPass and Tolls by Mail equally, up 7% a piece, while Scenario B would see E-ZPass increase by 6% and Tolls by Mail up 10%. The MTA anticipates that it will hold a board vote on these changes in July, with implementation of the 2023 fare and toll changes by Labor Day 2023 the latest.

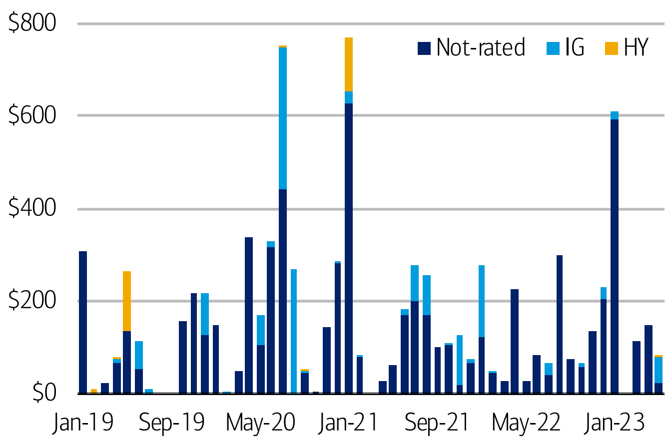
Defaults, distress & HY

May-23 defaults total $85mn; distress totals $140mn

First-time payment defaults totaled $85mn in May, bringing the YTD total to $958mn, up 58% y/y. May's defaults came from four borrowers: Arizona Retirement Centers Obligated Group, Beverly Community Hospital Association Obligated Group, Provident Group - EMU Properties LLC and Summit Academy/MI. By rating at issue, 65% was investment grade, 5% was high yield and 30% was unrated. By sector, 30% was from the Nursing Home/Senior Living sector ,42% was from Parking Facilities, 23% was from Hospitals and 5% was from the Charter School sector. Among YTD defaults, 89% defaulted within 2 years from when the first-time distress event was reported. The Nursing Home/Senior Living sector continues to default in YTD-23, as we projected earlier. We continue to hold a cautious view on this sector.

First-time distressed debt (when the first distressed event that is not a default happens) totaled $140mn in May, bringing the YTD total to $981mn, up 40% y/y. The total cumulative first-time distressed debt since 2019 totals $12.8bn; of that, 35% defaulted while 7% 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. Going forward, 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 $85mn in May; YTD-23 totals $958mn, up 58% y/y



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

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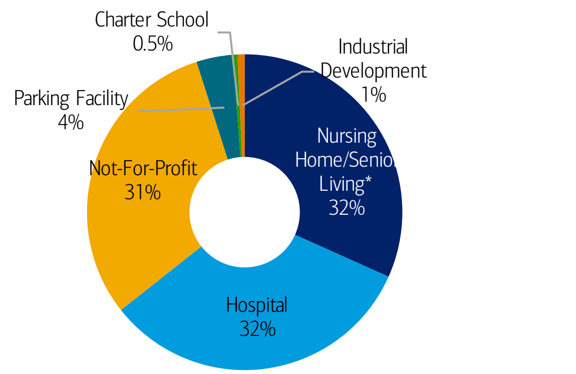
Exhibit 38: YTD-23 defaults by sector
Concentrated in the Nursing Home/Senior Living, Hospital & Not-For-Profit sectors



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

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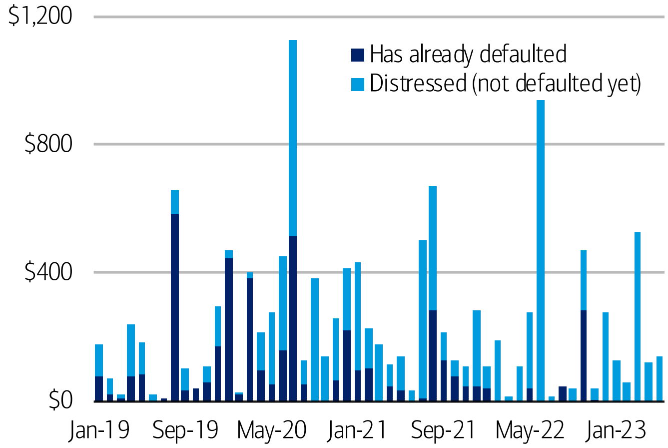
Exhibit 39: Monthly first-time distressed debt ($mn)
First-time distressed $140mn in May; YTD-23 totals $981mn, up 40 % y/y



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

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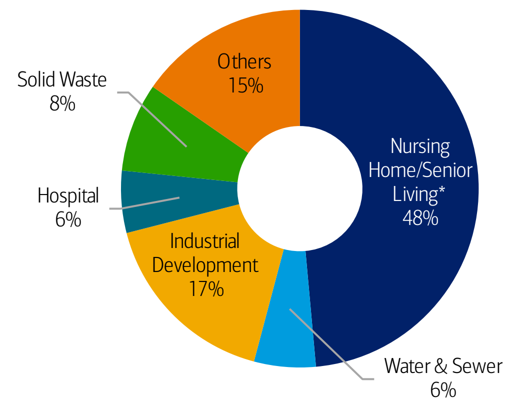
Exhibit 40: YTD-23 distressed by sector
Nearly half of YTD distress is in the Nursing Home/Senior Living sector



Note: *See footnote in Exhibit 38. The sequence above is based on average rank of breakdown by par value and by number of CUSIPs.
Source: BofA Global Research, Bloomberg

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Sizing distress in the muni HY and IG market

Borrowing screening levels from our high yield corporate analysts, here we size both the high yield and investment grade muni markets that we would consider mildly distressed (HY OAS >1,000bp, IG OAS >300bp) and deeply distressed (HY price <60pt, IG OAS >1,000bp) using the ICE BofA Muni Master Index (U0A0) and ICE BofA US Municipal High Yield Securities Index (U0HY). Based on these parameters, we see a total of $1.01bn of mildly distressed debt and $1.23bn of deeply distressed debt.

Exhibit 41: Mild and deep distress volumes, HY vs IG munis
Data as of 30 May 2023

	Mild distress		Deep distress	
	Face $mn	**Face %**	**Face $mn**	**Face %**
HY (U0HY)	209.4	0.45	1233.1	2.68
IG (U0A0)	703.8	0.07	-	-
Unrated (U0NR)	836.4	0.42	611.3	0.31

Note: Excludes zero coupon bonds
Source: BofA Global Research, ICE Data Indices, LLC

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Bear in mind that U0HY contains only bonds with a sub-IG rating, based on the average of Moody's, S&P and Fitch. In other words, it does not include the unrated universe. Applying those same screening levels to the ICE US Mon-Rated Municipal Securities Index (U0NR) shows another $836.4mn of mildly distressed debt, and some $611.3mn of deeply distressed debt.

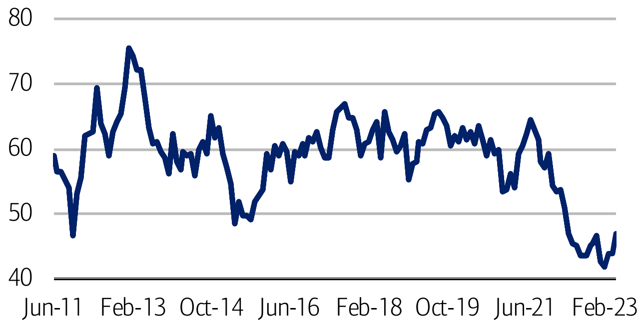
First Ch. 9 filing of 2023: Hazel Hawkins Memorial Hosp

The first Chapter 9 bankruptcy petition for 2023 was on 23 May by the San Benito Health Care District (d/b/a Hazel Hawkins Memorial Hospital) in the Northern District of California's bankruptcy court. The district operates a 25-bed not-for-profit hospital in Hollister, CA, as well as two skilled nursing facilities, five rural health clinics, two community health clinics and two satellite lab/draw stations. The district has been trying to "shore up finances ahead of a possible strategic partnership with a larger organization," and found itself at "a point where we need to tackle a few items that have been systemically complicating our financial health that we have not been able to solve outside of bankruptcy," per a 16 May posting on its website. Its focus in bankruptcy will be its "self-insured status for employee health care benefits as well as some vendor contracts which are not aligned with where" the district is "today as an organization."

Per its petition, the district has between 200 and 999 creditors, $100mn to $500mn in assets and $50mn to $100mn in liabilities. The district's largest unsecured creditor is Principal Custody Solutions for its pensions at $14.7mn. Bloomberg data shows the district has a total of $9.8mn of outstanding muni debt, spread among six CUSIPs, all issued in 2021 with maturities between 2024 and 2029.

With no filings since the district's, it has been just 8 days since the last bankruptcy petition was filed. As a reminder, since 1982, the average period between bankruptcy filings is 52 days. Note that the period between Chester, PA's filing on 10 November 2022 to the district's filing that stretched for 193 days was the 10th longest period dating back to 1982. As we noted in our 2023 Municipals Year Ahead, we expect Chapter 9 bankruptcy petitions to remain low this year.

Exhibit 42: 6-mo mov avg of material credit events posted to EMMA
Filings posted to EMMA have increased since last May



Note: Data as of 31 May 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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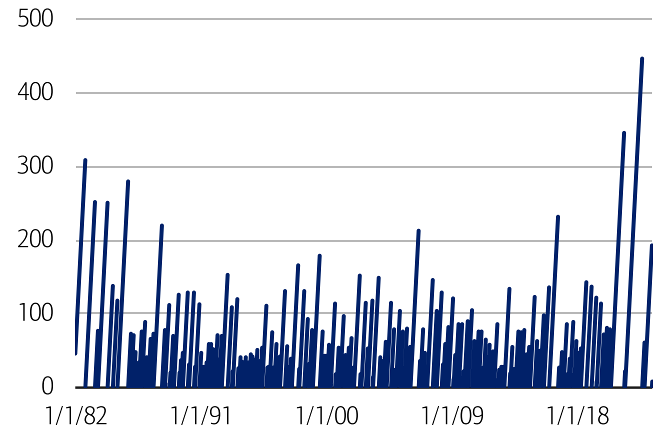
Exhibit 43: Calendar days since last Chapter 9 petition filed
It's been 8 days since Hazel Hawkins Memorial Hospital filed Ch. 9 petition



Source: BofA Global Research, PACER, US Courts

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Meanwhile, we note that, for the week ending 31 May, our tracking of those Moody's-defined material credit events (MCEs) shows 13 postings, up 8 on a w/w basis, with the MTD total of 63 as of 31 May. See Exhibit 42.

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.

Exhibit 44: Cross currency equivalent yields as of 31 May 2023
Taxable munis are attractive for foreign investors, though 5yr and 10yr taxables are less attractive for Italy; 5yr taxables less attractive for South Korea

	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 (3.699)**	**10 year (3.605)**	**30 year (3.831)**	**5 year (4.29)**	**10 year (4.49)**	**30 year (5.13)**	**5 year**	**10 year**	**30 year**	**5 year**	**10 year**	**30 year**
Canada	3.441	3.151	3.083	3.61	3.452	3.761	4.19	4.337	5.057	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom	4.036	4.108	4.451	4.362	4.019	4.021	4.954	4.905	5.334	Yes			Yes	Yes	Yes
France	2.589	2.804	3.266	2.63	2.629	3.383	3.217	3.508	4.655	Yes		Yes	Yes	Yes	Yes
Germany	2.238	2.243	2.45	2.63	2.629	3.383	3.217	3.508	4.655	Yes	Yes	Yes	Yes	Yes	Yes
Italy	3.482	4.079	4.377	2.63	2.629	3.383	3.217	3.508	4.655						Yes
Spain	2.901	3.279	3.908	2.63	2.629	3.383	3.217	3.508	4.655				Yes	Yes	Yes
Portugal	2.557	2.948	3.553	2.63	2.629	3.383	3.217	3.508	4.655	Yes			Yes	Yes	Yes
Netherlands	2.457	2.611	2.705	2.63	2.629	3.383	3.217	3.508	4.655	Yes	Yes	Yes	Yes	Yes	Yes
Switzerland	0.728	0.763	0.805	2.63	2.629	3.383	3.217	3.508	4.655	Yes	Yes	Yes	Yes	Yes	Yes
Japan	0.07	0.399	1.254	-0.356	-0.026	2.182	0.223	0.841	3.391			Yes	Yes	Yes	Yes
Australia	3.382	3.612	4.085	3.91	4.341	4.211	4.501	5.226	5.476	Yes	Yes	Yes	Yes	Yes	Yes
South Korea	3.424	3.523	3.601	2.255	2.815	3.527	2.838	3.694	4.740					Yes	Yes
China	2.4	2.699	3.063	4.66	4.131	4.167	5.251	5.016	5.379	Yes	Yes	Yes	Yes	Yes	Yes
Taiwan	1.075	1.18	1.556	0.739	1.994	3.093	1.320	2.866	4.337		Yes	Yes	Yes	Yes	Yes
Singapore	2.889	2.875	2.312	3.195	3.331	3.704	3.784	4.214	4.992	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 45: 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
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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