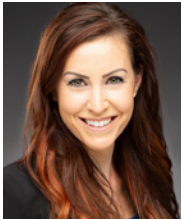


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Municipal Bond Market Performance

August 2022

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of -2.301% in August 2022, consisting of the components displayed in Table 1.

Just as June wiped out May's positive return, so too August wiped out most of July's positive return. The intermediate- and long-term yields of the municipal yield curve increased steadily during the month, ending at similar levels to the beginning of May. However, the short end of the curve experienced substantial flattening, with the 1-year point increasing by 80 basis points over the course of the month (the point's biggest monthly move in this yield curve's almost twenty-year history). January through August of this year are the worst eight months in the index's over twenty-three-year history, continuing the conspicuous story of 2022.

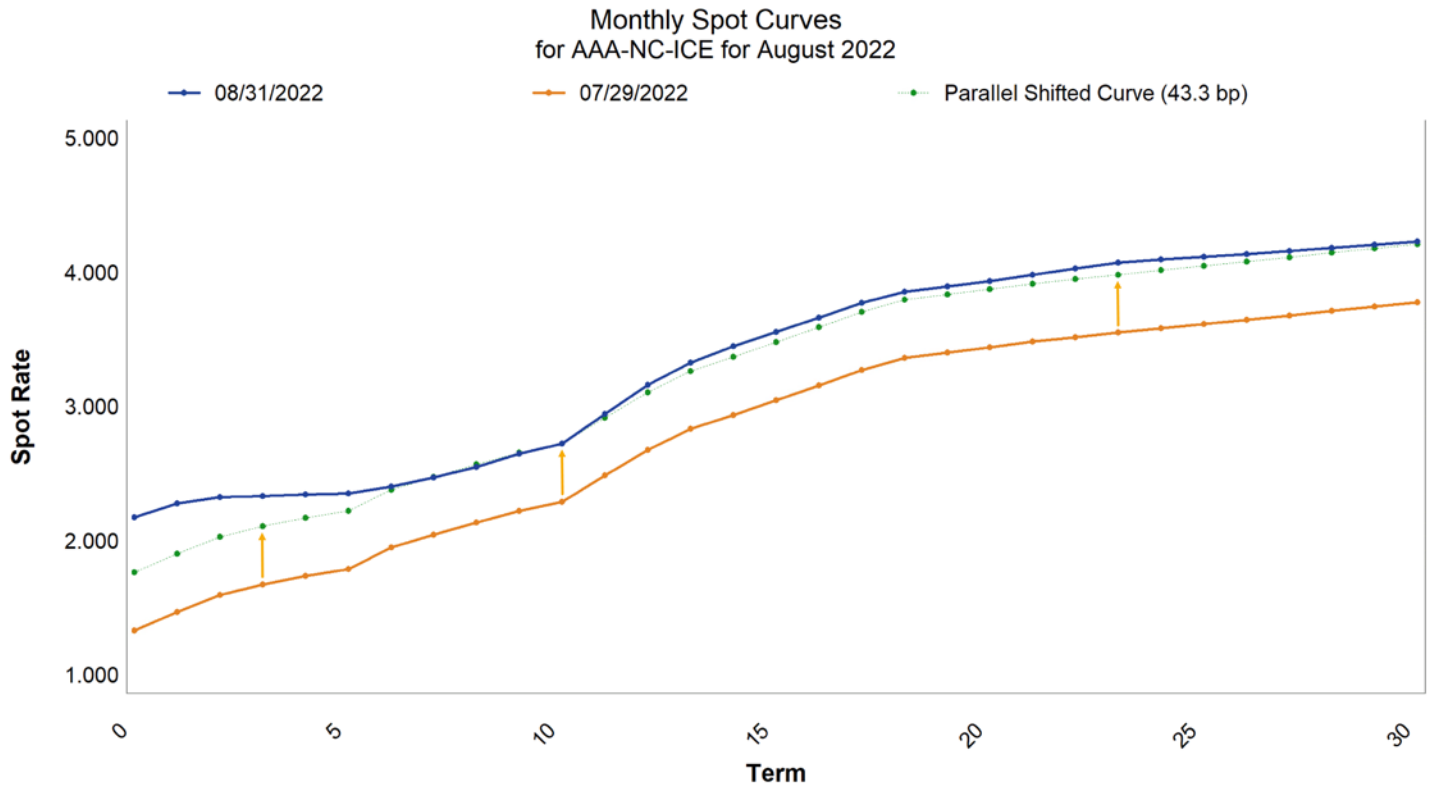
TABLE 1

	AUGUST	YTD
Total Return	-2.301%	-8.015%
Coupon Return	0.340%	2.542%
Market Amortization Return	-0.098%	-1.115%
Parallel Shift Return	-1.775%	-7.017%
Non-Parallel Shift Return	-0.424%	-0.627%
Sector/Quality Return	0.617%	1.900%
Residual Price Return	-0.962%	-3.697%

Interpretation

Figure 1 shows the overall change in the municipal AAA non-callable spot curve for August which demonstrated a 43.3 bp increase in overall level as measured at the ten-year point.

FIGURE 1



The green dotted line depicts the parallel shift implied by the ten-year point's spot curve change.

The Parallel Shift Return of -1.775% is calculated from this curve increase, as shown in Table 2.

TABLE 2

Change for 10-Year Spot Rate ^(a)	43.30
Total Key Rate Duration ^(b)	4.099
Parallel Shift Return ^(-b*a)	-1.775

The Non-Parallel Shift Return was -0.424%. Terms longer than 5 years shifted similarly to the ten-year point and so had little effect on the Non-Parallel Shift Return. But the larger increases on the short end contributed to the overall negative value. See Table 3 for the full calculations of this term.

TABLE 3	6 Mos	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs	20 Yrs	30 Yrs
Non-Parallel Change	39.59	37.50	29.35	22.66	13.16	-0.71	0.00	5.89	2.23
Key Rate Duration	0.041	0.161	0.322	0.585	0.754	0.758	0.988	0.427	0.063
Non-Parallel Shift Return	-0.016	-0.060	-0.095	-0.133	-0.099	0.005	0.000	-0.025	-0.001

Each value in the Non-Parallel Shift Return row is calculated by multiplying together the two cells above it, dividing by 100 and reversing the sign

Sector/Quality Return captures return from changes in average option-adjusted spread (adjusted by duration) for sector/quality groupings. The index's overall Sector/Quality Return was 0.617%.

The sectors exhibiting the largest tightening in average option-adjusted spread (weighted by both market value and duration) were Tobacco Settlement, Resource Recovery, Public Power, and Other Utility. Quality-based groupings trended towards a reach for yield, especially in callable securities.

The sector/quality categories with the biggest negative contributions to Sector/Quality Return, considering both weightings and the groupings' own sector/quality returns, are listed in Table 4. The biggest positive contributors are listed in Table 5.

TABLE 4	AAA-rated Health Care	AAA-rated IDR / PCR	BBB-rated Other Revenue
Change in Duration-Adjusted Average OA Spread ^(a)	134.635	7.986	1.126
Total Key Rate Duration ^(b)	7.212	1.957	3.045
Sector/Quality Return ^(-b*a)	-9.710	-0.156	-0.034
Market Value Weight ^{%(c)}	0.002	0.107	0.094
Contribution to Duration ^(b*c)	0.00017	0.00208	0.00287
Contribution to Sector/Quality Return ^(-b*c*a)	-0.00023	-0.00017	-0.00003

TABLE 5

	A-rated Transportation	AA-rated Tax-Supported (Excl. GO's)	AA-rated Water/Sewer	AA-rated Local GO
Change in Duration-Adjusted Average OA Spread ^(a)	-23.275	-15.499	-21.340	-9.606
Total Key Rate Duration ^(b)	4.453	4.308	4.329	4.305
Sector/Quality Return ^(b*a)	1.037	0.668	0.924	0.414
Market Value Weight ^(c)	5.738	8.061	4.331	9.643
Contribution to Duration ^(b*c)	0.25555	0.34725	0.18751	0.41515
Contribution to Sector/Quality Return ^(b*c*a)	0.05948	0.05382	0.04002	0.03988

The increase in yields over the course of 2022 to more typical levels has brought with it higher income projections and less negative Market Amortization Returns. Coupon Return in August was 0.340%, based on the index's average coupon of 4.285%. The average beginning-of-month market yield was 2.681%, resulting in a Market Amortization Return of -0.098%. These two terms sum to a total monthly income effect of 0.242%.

Note that Coupon Return reflects both interest payments and changes in accrued interest throughout the month. Market Amortization Return is negative because of the large number of premium bonds in the index due to the low yield curve environment. Premium bond prices, absent any change in yield, naturally decline over time to their redemption price. This decline is called market amortization.

Finally, the Residual Price Return was -0.962%, reflecting the positive effects of rolling down the yield curve as well as the more substantial effects of convexity.

CONTACT US

All table data and figures in this report were produced using Investortools, Inc.'s **Custom Index Manager** product.

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