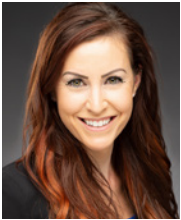




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Municipal Bond Market Performance

July 2021

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of 0.678% in July 2021, consisting of the components displayed in Table 1. Table 1 also displays a breakdown of year-to-date returns.

This month's total return was the second highest seen this year, bringing the YTD Total Return to 1.608%. The month's largest positive contributing factor was the overall drop in yield curve level, captured by parallel shift return.

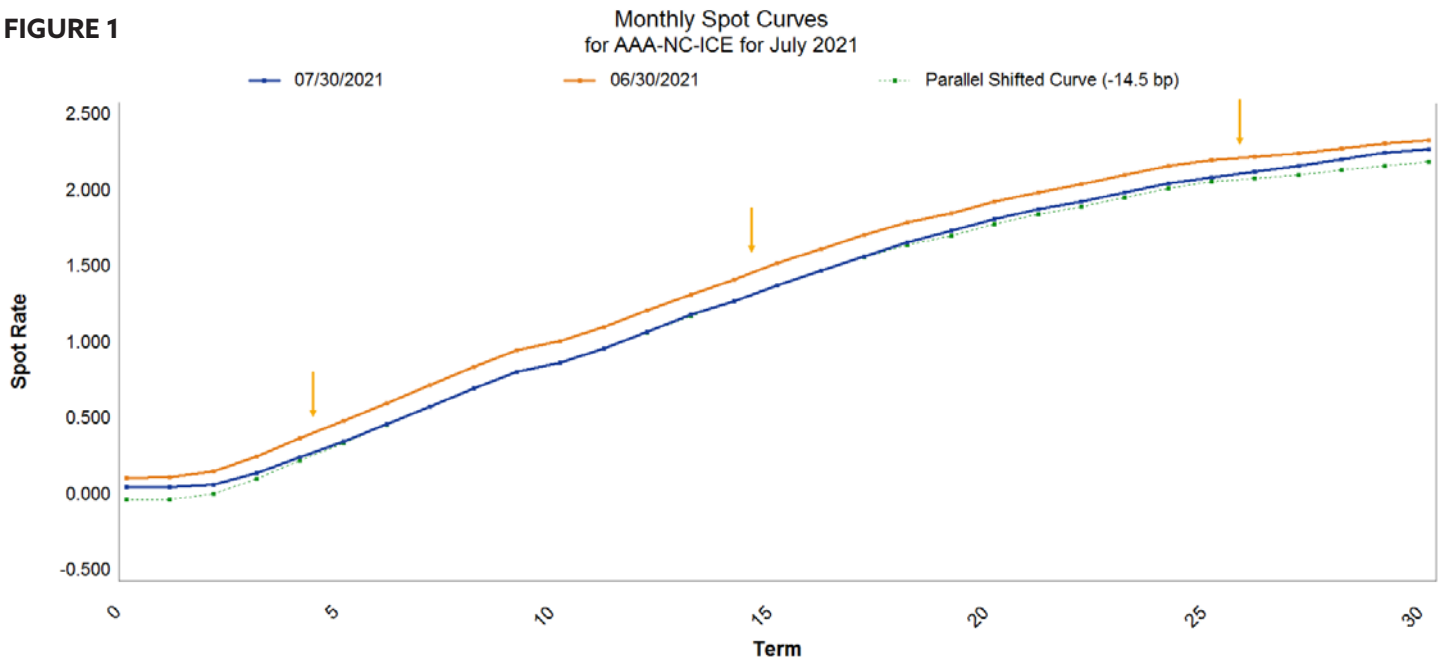
TABLE 1

	JULY	YTD
Total Return	0.678%	1.608%
Coupon Return	0.329%	2.242%
Market Amortization Return	-0.253%	-1.660%
Parallel Shift Return	0.615%	-0.799%
Non-Parallel Shift Return	-0.071%	0.203%
Sector/Quality Return	-0.250%	1.922%
Residual Price Return	0.307%	-0.300%

Interpretation

Figure 1 shows the overall change in the muni AAA non-callable spot curve for July. The graph captures the curvature change, in which the long and short ends of the curve fell less than the middle. This butterfly effect on the spot curve gave us the negative Non-Parallel Shift Curve change.

FIGURE 1



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

The Non-Parallel Shift Return of -0.071% can be broken down into extended return components, as shown in Table 2. Twist Return captures any flattening or steepening effects, which were almost non-existent this month. Butterfly Return captures the change in curvature. Investortools, Inc.'s Custom Index Manager™ product has the capability to display either Non-Parallel Shift Return or an extended breakdown into Twist, Butterfly, and Additional Yield Curve Return components.

TABLE 2

Twist Return	0.001%
Butterfly Return	-0.072%

The Parallel Shift Return of 0.615% is calculated from the -14.48 bp decrease in the ten-year point of the spot curve, as shown in Table 3. (Note: this value is slightly lower than the 0.625% shown in Table 3 because the actual calculation applies a floor to the parallel-shifted curve.)

TABLE 3

Change for 10-Year Spot Rate ^(a)	-14.48%
Total Key Rate Duration ^(b)	4.315%
Parallel Shift Return ^(-b*a)	0.625%

Despite the decline in the long end, the Non-Parallel Shift Return was slightly negative (-0.071%) due to the key rate durations on the long end being smaller than those in the middle part of the curve.

TABLE 4

	6 Mos	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs	20 Yrs	30 Yrs
Non-Parallel Change	8.08	8.28	5.88	3.46	1.20	0.42	0.00	3.17	8.45
Key Rate Duration	0.035	0.135	0.278	0.628	0.975	0.963	0.963	0.309	0.031
Non-Parallel Shift Return	0.003	0.011	0.016	0.022	0.012	0.004	0.000	0.010	0.003

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

Coupon Return was 0.329%, based on the index's average coupon of 4.340%. The average beginning-of-month market yield was 0.927%, resulting in a Market Amortization Return of -0.253%. These two terms sum to a total income effect of 0.076%.

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.

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 -0.250%.

The sectors exhibiting the largest widening in average option-adjusted spread (weighted by both market value and duration) were Housing, Public Power, and Water / Sewer. No sectors exhibited overall tightening in option-adjusted spread. There were also no substantive ratings-based trends exhibited this month in Sector/Quality breakdowns.

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 5. The biggest positive contributors are listed in Table 6.

TABLE 5

	AAA-rated Local GO	AA-rated Tax-Supported (Excl. GO's)	AA-rated Local GO	A-rated Transportation
Change in Duration-Adjusted Average OA Spread ^(a)	7.100	6.452	4.756	7.812
Total Key Rate Duration ^(b)	4.563	4.467	4.586	4.784
Sector/Quality Return ^(-b*a)	-0.324	-0.288	-0.218	-0.374
Market Value Weight ^{%(c)}	8.920	7.763	9.674	5.586
Contribution to Duration ^(b*c)	0.40702	0.34683	0.44363	0.26724
Contribution to Sector/Quality Return ^(-b*c*a)	-0.02890	-0.02238	-0.02110	-0.02088

TABLE 6

	BB-rated State GO	AA-rated IDR/PCR	A-rated State GO	BBB-rated Tax-Supported (Excl. GO's)
Change in Duration-Adjusted Average OA Spread ^(a)	-3.791	-2.941	-2.977	-1.399
Total Key Rate Duration ^(b)	3.843	3.810	4.792	4.413
Sector/Quality Return ^(-b*a)	0.146	0.112	0.143	0.062
Market Value Weight ^{%(c)}	0.734	0.545	0.253	0.429
Contribution to Duration ^(b*c)	0.02823	0.02076	0.01211	0.01892
Contribution to Sector/Quality Return ^(-b*c*a)	0.00107	0.00061	0.00036	0.00026

Finally, the Residual Price Return was 0.307%, reflecting the positive effects of rolling down the yield curve as well as the 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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To request a product demonstration, please contact sales@invtools.com.

For more information about **Custom Index Manager**, please [click here](#).