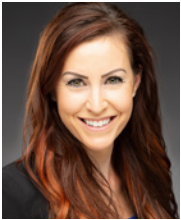




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Municipal Bond Market Performance

April 2021

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of 0.769% in April 2021, consisting of the components displayed in Table 1.

The month of April gave us a positive solid return, 23.2 bps higher than March. Year to Date Total Return is 0.358%. The total return for April was largely due to the 10-point increase in the spot curve level.

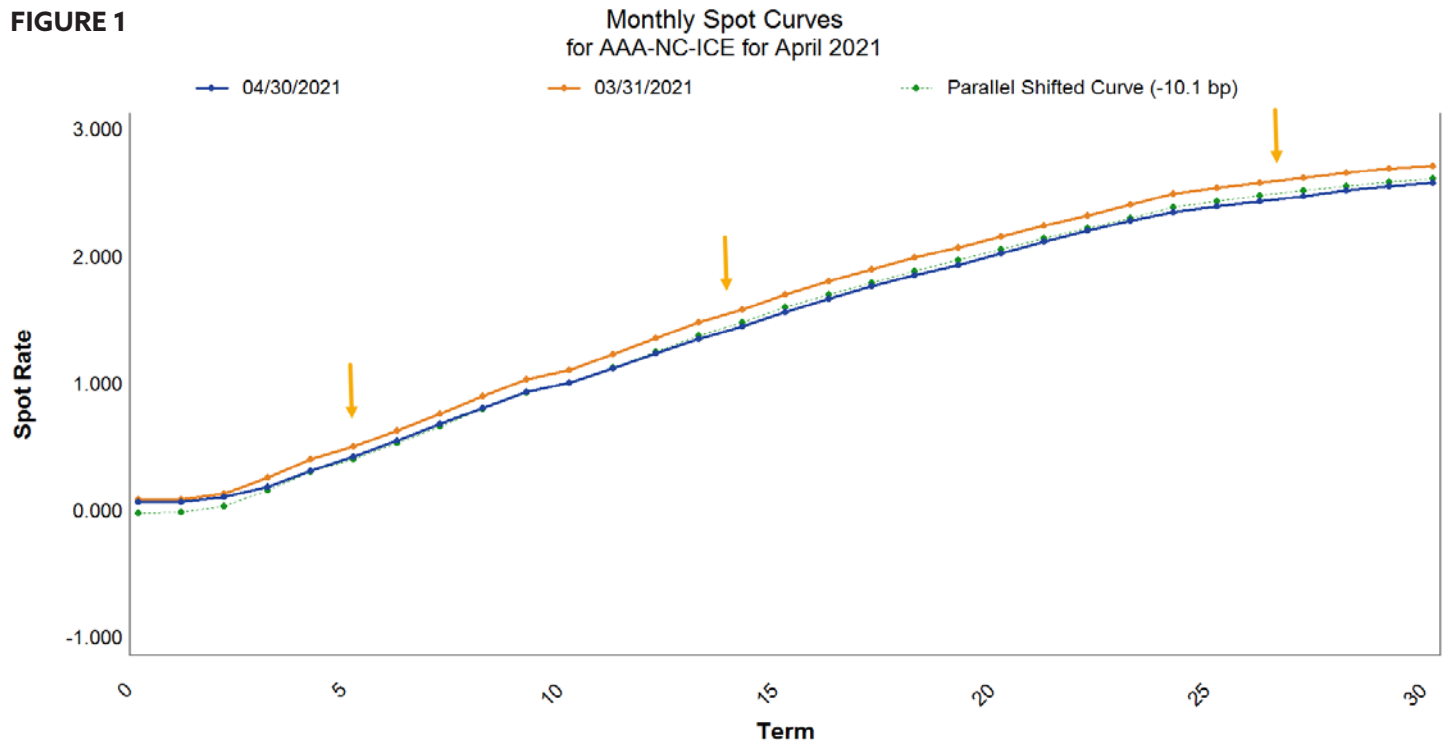
TABLE 1

Total Return	0.769%
Coupon Return	0.313%
Market Amortization Return	-0.222%
Parallel Shift Return	0.423%
Non-Parallel Shift Return	-0.071%
Sector/Quality Return	0.019%
Residual Price Return	0.308%

Interpretation

Figure 1 shows the overall change in the muni AAA non-callable spot curve for April. As depicted, the municipal spot curve declined on all term points, but the decline was very minimal for the shorter terms (less than 3 years).

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 0.423% is extrapolated from the 10 bp decrease in the ten-year point of the spot curve, as shown in Table 2. (Note: this value is slightly lower than the 0.425% shown in Table 2 because the actual calculation applies a floor to the parallel-shifted curve.)

TABLE 2

Change in 10-Year Spot Rate ^(a)	-10.07
Total Key Rate Duration ^(b)	4.220
Parallel Shift Return ^(-b*a)	0.425

The Non-Parallel Shift Return of -0.071% reflected a modest flattening of the curve. The negative non-parallel shift returns came mostly from a few points on the spot curve, particularly the 2- to 5- year points. See Table 3 for the full calculations.

Portfolios with a higher concentration of short-term securities than the index would likely experience a more negative non-parallel shift return, whereas portfolios with a higher concentration of longer-term securities than the index would likely experience a less negative non-parallel shift return.

	6 Mos	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs	20 Yrs	30 Yrs
Non-Parallel Change (bp)	8.37	8.27	7.37	2.85	2.02	1.66	0.00	-3.43	-3.27
Key Rate Duration	0.038	0.085	0.284	0.623	0.971	0.953	0.934	0.303	0.029
Non-Parallel Shift Return	0.003	-0.007	-0.021	-0.018	-0.020	-0.016	0.000	0.010	0.001

Each value in the Non-Parallel Shift Return row is calculated by multiplying together the two cells above it 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 0.019%.

The sectors exhibiting the largest tightening in average option-adjusted spread (weighted by both market value and duration) were IDR / PCR, Transportation, and State GO. The sectors exhibiting the greatest widening were Housing, Water / Sewer, and Tobacco Settlement. Quality-based groupings did not show any substantive trends this month. In general, spread widening tended to be more pronounced in callable bonds.

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.

	AA-rated Housing	AAA-rated Local GO	AAA-rated Water/Sewer	AA-rated Water/Sewer
Change in Duration-Adjusted Average OA Spread ^(a)	9.306	1.418	6.257	2.496
Total Key Rate Duration ^(b)	5.049	4.499	4.828	4.514
Sector/Quality Return ^(-b*a)	-0.470	-0.064	-0.302	-0.113
Market Value Weight ^(c)	1.798	8.919	1.469	3.581
Contribution to Duration ^(b*c)	0.09077	0.40128	0.07093	0.16164
Contribution to Sector/Quality Return ^(-b*c*a)	-0.00845	-0.00569	-0.00444	-0.00403

TABLE 5

	A-rated Transportation	BBB-rated State GO	BBB-rated Transportation	AA-rated Transportation
Change in Duration-Adjusted Average OA Spread ^(a)	-5.607	-25.959	-8.319	-1.998
Total Key Rate Duration ^(b)	4.743	3.880	4.886	4.562
Sector/Quality Return ^(b*a)	0.266	1.007	0.406	0.091
Market Value Weight ^(c)	5.529	0.735	1.087	4.264
Contribution to Duration ^(b*c)	0.26227	0.02853	0.05311	0.19454
Contribution to Sector/Quality Return ^(b*c*a)	0.01470	0.00741	0.00442	0.00389

Coupon Return was 0.313%, based on the index's average coupon of 4.361%. The average beginning-of-month market yield was 1.097%, resulting in a Market Amortization Return of - 0.222%. These two terms sum to a total income effect of 0.091%.

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 0.308%, 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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