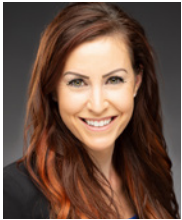


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Municipal Bond Market Performance

December 2021

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of 0.129% in December 2021, consisting of the components displayed in Table 1.

Table 1 also displays a breakdown of year-to-date returns; the YTD Total Return was 1.397%.

December 2021's biggest moves were spread changes in Tobacco Settlement (tightening) and Housing (widening) sectors and falling yields in the long end of the curve. Still, the yield curve changes were minimal enough to give December the second smallest (that is, closest to 0%) Total Return and Parallel Shift Return of the year, and the smallest Non-Parallel Shift Return.

A year-end summary and monthly breakdown have been appended to the end of the report.

TABLE 1

	DECEMBER	YTD
Total Return	0.129%	1.397%
Coupon Return	0.326%	3.840%
Market Amortization Return	-0.241%	-2.847%
Parallel Shift Return	0.014%	-1.608%
Non-Parallel Shift Return	0.015%	0.078%
Sector/Quality Return	-0.139%	2.607%
Residual Price Return	0.154%	-0.672%

Interpretation

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 -0.139%.

The sectors exhibiting the largest widening in average option-adjusted spread (weighted by both market value and duration) were Housing, Other Utility, Water / Sewer, and Health Care. The only sector exhibiting overall spread tightening was Tobacco Settlement (with a 15 basis point decrease in overall OAS). Quality-based groupings did not exhibit any strong trends this month. 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 2. The biggest positive contributors are listed in Table 3.

TABLE 2

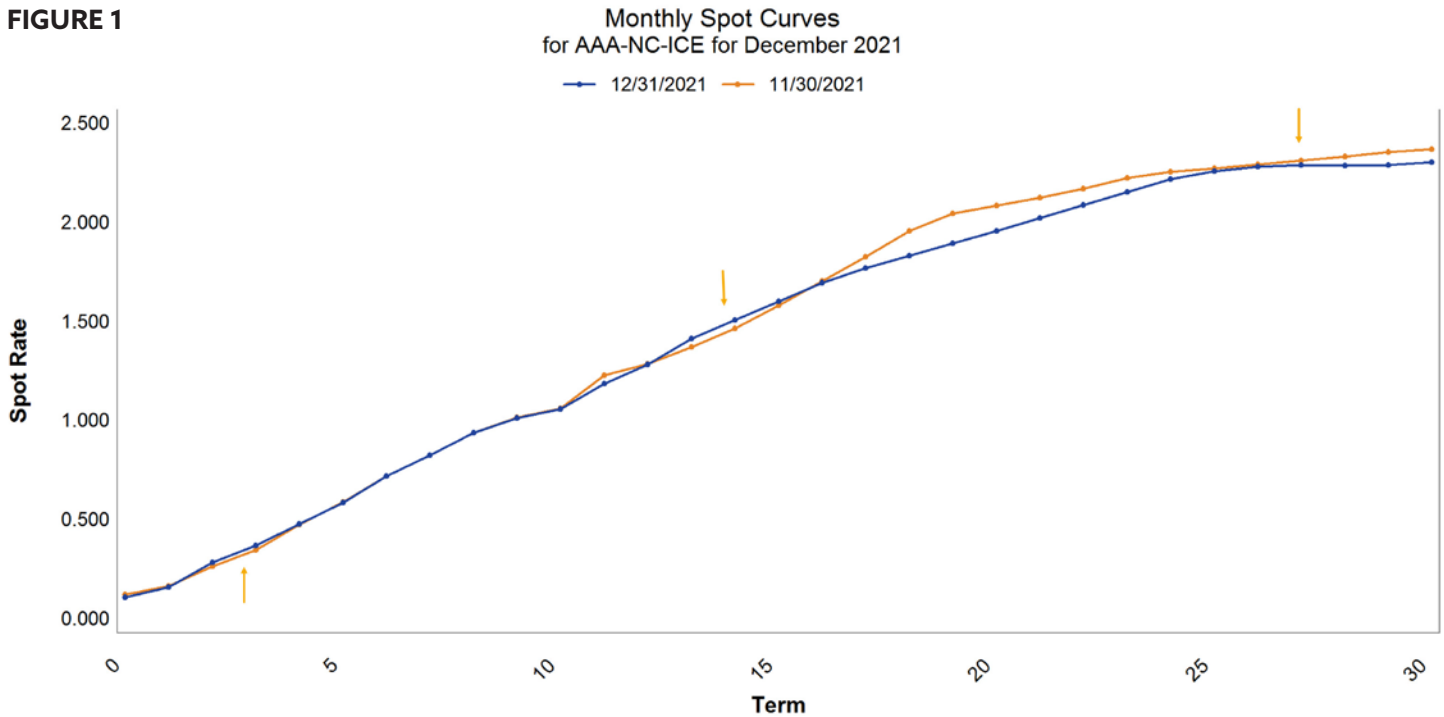
	AAA-rated Local GO	AA-rated Local GO	AA-rated Water/Sewer	AA-rated Health Care
Change in Duration-Adjusted Average OA Spread ^(a)	3.650	3.337	5.594	6.048
Total Key Rate Duration ^(b)	4.491	4.518	4.565	4.759
Sector/Quality Return ^(-b*a)	-0.164	-0.151	-0.255	-0.288
Market Value Weight ^(c)	8.952	9.624	4.347	3.606
Contribution to Duration ^(b*c)	0.40202	0.43486	0.19842	0.17162
Contribution to Sector/Quality Return ^(-b*c*a)	-0.01467	-0.01451	-0.01110	-0.01038

TABLE 3

	A-rated Tobacco Settlement	BBB-rated State GO	BBB-rated Other Revenue	BBB-rated Tobacco Settlement
Change in Duration-Adjusted Average OA Spread ^(a)	-27.413	-1.664	-3.254	-1.230
Total Key Rate Duration ^(b)	4.228	3.705	2.675	5.640
Sector/Quality Return ^(-b*a)	1.159	0.062	0.087	0.069
Market Value Weight ^(c)	0.237	0.687	0.172	0.160
Contribution to Duration ^(b*c)	0.01000	0.02547	0.00461	0.00904
Contribution to Sector/Quality Return ^(-b*c*a)	0.00274	0.00042	0.00015	0.00010

Figure 1 shows the overall change in the municipal AAA non-callable spot curve for December. As depicted, the curve showed a very slight flattening, most notably on the long end. There was a minimal decrease in the 6-month and 1-year points, but a larger decrease in the 20-year and 30-year points, accounting for the positive non-parallel shift return.

FIGURE 1



The Parallel Shift Return of 0.014% is calculated from the tiny 0.3 bp decrease in the ten-year point of the spot curve, as shown in Table 4.

TABLE 4

Change for 10-Year Spot Rate ^(a)	-0.33
Total Key Rate Duration ^(b)	4.278
Parallel Shift Return ^(-b*a)	0.014

The Non-Parallel Shift Return was also very small (0.015%), with falling long-term yields as the biggest contributor. See Table 5 for the full calculations for this term.

TABLE 5

	6 Mos	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs	20 Yrs	30 Yrs
Non-Parallel Change	-0.97	-0.17	2.33	2.43	0.11	0.32	0.00	-12.48	-6.13
Key Rate Duration	0.040	0.131	0.279	0.641	0.960	0.931	0.954	0.309	0.033
Non-Parallel Shift Return	0.000	0.000	-0.006	-0.016	-0.001	-0.003	0.000	0.039	0.002

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.

Coupon Return was 0.326%, based on the index's average coupon of 4.308%. The average beginning-of-month market yield was 1.001%, resulting in a Market Amortization Return of -0.241%. These two terms sum to a total income effect of 0.085%.

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, Residual Price Return reflects the positive effect of rolling down the yield curve as well as the effect of convexity.

2021 Year in Review

Table 6 contains the 2021 monthly and annual total returns and their breakdowns.

TABLE 6

	Total Return	Coupon Return	Mkt Amort Return	Parallel Shift Return	Non-Parallel Shift Return	Sector/Quality Return	Residual Price Return
Year	1.397%	3.840%	-2.847%	-1.608%	0.078%	2.607%	-0.672%
Dec	0.129%	0.326%	-0.241%	0.014%	0.015%	-0.139%	0.154%
Nov	0.694%	0.307%	-0.212%	0.593%	-0.285%	-0.223%	0.513%
Oct	-0.081%	0.328%	-0.246%	-0.288%	0.045%	0.038%	0.042%
Sep	-0.667%	0.305%	-0.233%	-0.789%	0.112%	0.445%	-0.507%
Aug	-0.278%	0.314%	-0.243%	-0.325%	-0.012%	0.551%	-0.564%
Jul	0.678%	0.329%	-0.253%	0.615%	-0.071%	-0.250%	0.307%
Jun	0.219%	0.307%	-0.222%	-0.007%	-0.020%	0.047%	0.114%
May	0.343%	0.329%	-0.254%	0.026%	-0.067%	0.094%	0.216%
Apr	0.769%	0.313%	-0.222%	0.423%	-0.071%	0.019%	0.308%
Mar	0.537%	0.358%	-0.251%	0.103%	0.035%	0.296%	-0.005%
Feb	-1.399%	0.286%	-0.216%	-1.896%	0.344%	1.230%	-1.146%
Jan	0.467%	0.318%	-0.240%	-0.057%	0.053%	0.485%	-0.093%

The most noteworthy month was February. It highlighted the biggest negative total return, negative parallel shift return, positive non-parallel shift return, and sector-quality return of the year. Other returns were spread out over the year, with April bringing the highest total return.

CONTACT US

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

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