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Municipal Bond Market Performance

September 2022

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of -3.431% in September 2022, consisting of the components displayed in Table 1.

As bad as 2022 has been for the municipal bond market, September is the worst month of 2022 yet. Increasing yields were the primary cause of this negative return, which is captured by the -2.595% Parallel Shift Return. Yields at the 1-year point rose by 23 basis points on September 13th alone, the same day that year-over-year inflation (as measured by the Consumer Price Index) was announced to still be above 8%. Later in the month, yields at this same term broke out above the highs set in 2020, making 2007 the last time that yields on the short end of the curve were as high as they are now.

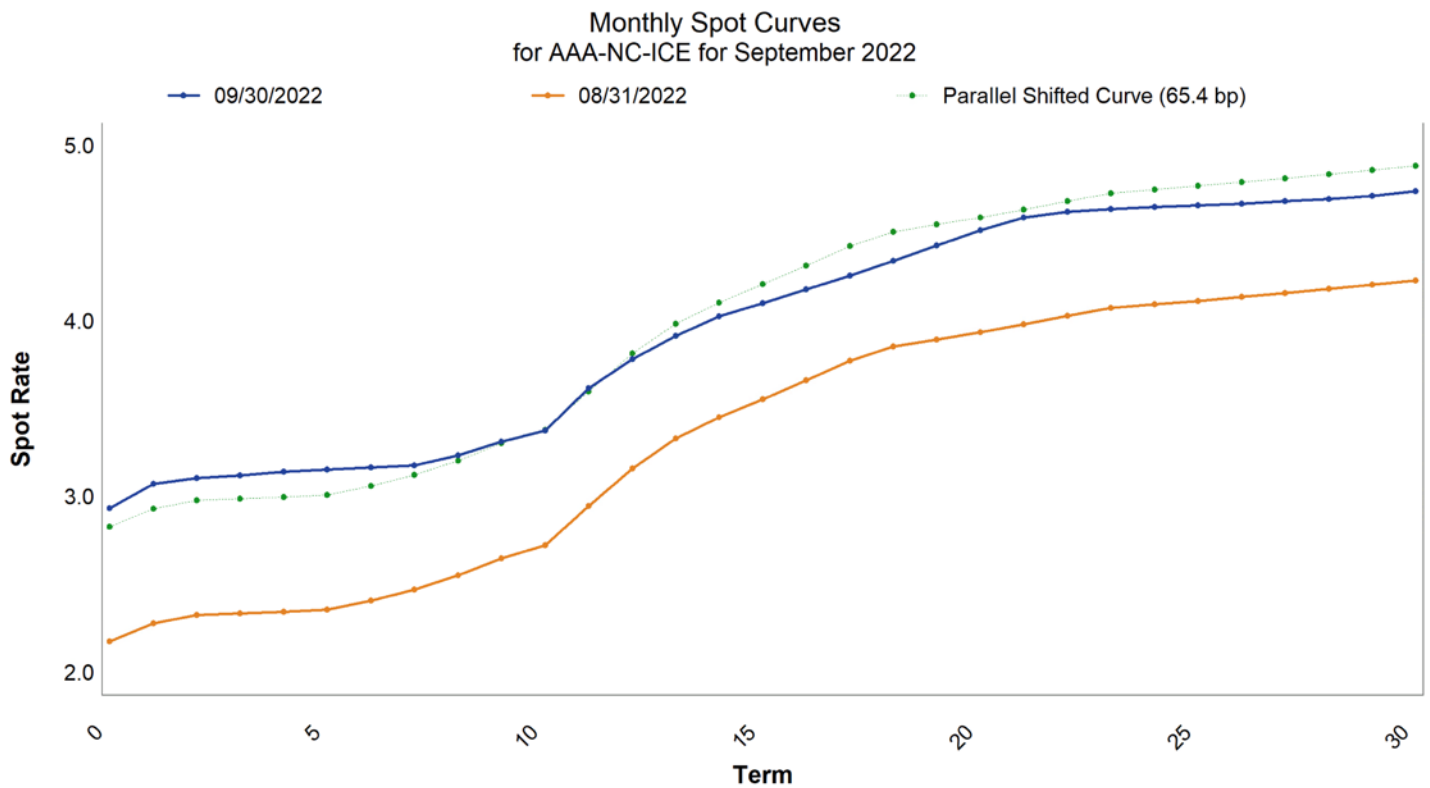
TABLE 1

	SEPTEMBER	YTD
Total Return	-3.431%	-11.171%
Coupon Return	0.338%	2.853%
Market Amortization Return	-0.073%	-1.182%
Parallel Shift Return	-2.595%	-9.404%
Non-Parallel Shift Return	-0.251%	-0.858%
Sector/Quality Return	0.329%	2.203%
Residual Price Return	-1.179%	-4.782%

Interpretation

Figure 1 shows the overall change in the municipal AAA non-callable spot curve for September which demonstrated a 65.4 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 -2.595% is calculated from this curve increase, as shown in Table 2.

TABLE 2

Change for 10-Year Spot Rate ^(a)	65.38
Total Key Rate Duration ^(b)	3.969
Parallel Shift Return ^(-b*a)	-2.595

The Non-Parallel Shift Return was much smaller, at -0.251%. This negative return is due to a slight flattening of the curve, with the short end rising 10-15 basis points more than the 10-year point. See Table 3 for the full calculations for this term.

	6 Mos	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs	20 Yrs	30 Yrs
Non-Parallel Change	11.83	13.95	12.52	13.25	14.63	5.24	0.00	-7.26	-14.70
Key Rate Duration	0.043	0.167	0.330	0.575	0.724	0.722	0.936	0.409	0.062
Non-Parallel Shift Return	-0.005	-0.023	-0.041	-0.076	-0.106	-0.038	0.000	0.030	0.009

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 0.329%.

The sectors exhibiting the largest tightening in average option-adjusted spread (weighted by both market value and duration) were Public Power, Transportation, and Housing. The sectors exhibiting overall widening were Tobacco Settlement, IDR / PCR, Prerefunded/ETM, Health Care, and Insured. For quality-based groupings, the most substantial trend was the overall widening of BBB spreads.

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. (All are BBB-rated.) The biggest positive contributors are listed in Table 5.

	BBB-rated IDR / PCR	BBB-rated Health Care	BBB-rated State GO	BBB-rated Transportation
Change in Duration-Adjusted Average OA Spread ^(a)	26.367	10.565	14.658	15.443
Total Key Rate Duration ^(b)	4.120	4.595	3.419	4.629
Sector/Quality Return ^(-b*a)	-1.086	-0.485	-0.501	-0.715
Market Value Weight ^{%(c)}	0.740	0.906	0.727	0.372
Contribution to Duration ^(b*c)	0.03050	0.04162	0.02487	0.01723
Contribution to Sector/Quality Return ^(-b*c*a)	-0.00804	-0.00440	-0.00365	-0.00266

TABLE 5

	AA-rated Tax-Supported (Excl. GO's)	AA-rated Transportation	AA-rated State GO	A-rated Transportation
Change in Duration-Adjusted Average OA Spread ^(a)	-13.952	-17.998	-18.443	-15.683
Total Key Rate Duration ^(b)	4.169	4.306	3.686	4.282
Sector/Quality Return ^(-b*a)	0.582	0.775	0.680	0.671
Market Value Weight ^(c)	8.054	5.108	5.554	5.549
Contribution to Duration ^(b*c)	0.33577	0.21998	0.20473	0.23761
Contribution to Sector/Quality Return ^(-b*c*a)	0.04685	0.03959	0.03776	0.03726

Coupon Return was 0.338%, based on the index's average coupon of 4.289%. The average beginning-of-month market yield was 3.226%, resulting in a Market Amortization Return of -0.073%. These two terms sum to a total income effect of 0.265%.

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 yields remaining lower than most coupon rates. 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 -1.179% reflecting the positive effects of rolling down the yield curve as well as the more substantial effects of convexity.

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

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