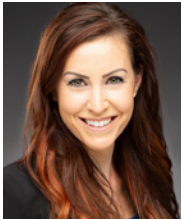


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Municipal Bond Market Performance

July 2022

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of 2.471% in July 2022, consisting of the components displayed in Table 1.

2022 continues to be a year of extreme returns. Instead of having record negative returns, July had one of the best monthly positive returns in the index's 23-year history. Since 2009, only May of 2020 had higher positive returns than July. The positive return is accompanied by a sizable drop in the AAA non-callable yield curve, taking the curve back down to about where it was at the start of April. Reflecting the drop in yields, the 1.751% Parallel Shift Return is the primary factor in July's positive return.

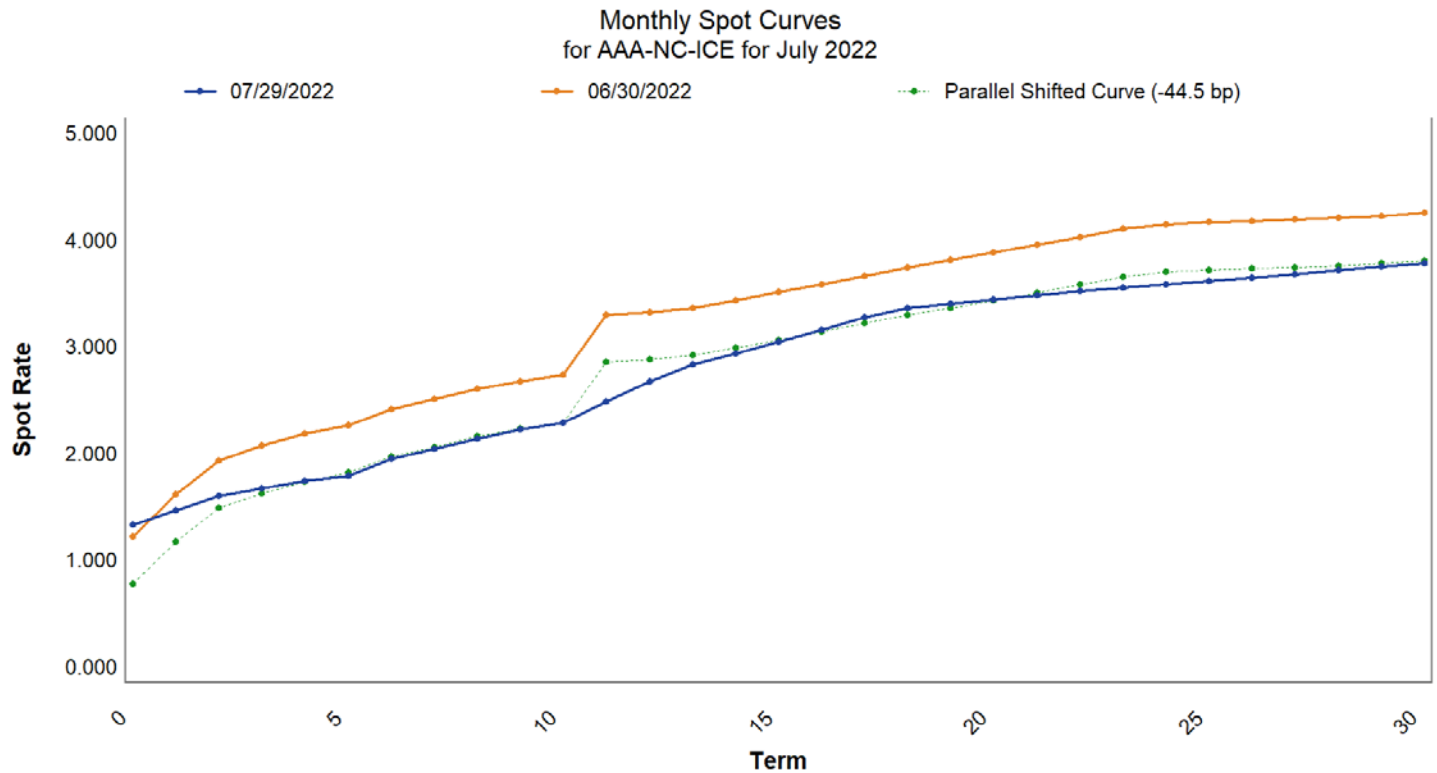
TABLE 1

	JULY	YTD
Total Return	2.471%	-5.849%
Coupon Return	0.359%	2.221%
Market Amortization Return	-0.117%	-1.023%
Parallel Shift Return	1.751%	-5.346%
Non-Parallel Shift Return	-0.100%	-0.227%
Sector/Quality Return	-0.687%	1.319%
Residual Price Return	1.265%	-2.792%

Interpretation

Figure 1 shows the overall change in the municipal AAA non-callable spot curve for July, which demonstrated a 44.5 bp decrease 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 1.751% is calculated from this curve decrease, as shown in Table 2.

TABLE 2

Change for 10-Year Spot Rate ^(a)	-44.45
Total Key Rate Duration ^(b)	3.939
Parallel Shift Return ^(-b*a)	1.751

The Non-Parallel Shift Return was -0.100%. This negative return was driven by flattening at the short end of the yield curve. The yields at these shorter terms decreased less than the yield at the 10-year point, and the yield at 6-month point even increased slightly. See Table 3 for the full calculations for 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	44.21	29.59	10.85	4.85	-2.89	-1.79	0.00	0.80	-3.08
Key Rate Duration	0.041	0.168	0.331	0.579	0.722	0.709	0.926	0.403	0.060
Non-Parallel Shift Return	-0.018	-0.050	-0.036	-0.028	0.021	0.013	0.000	-0.003	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

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 -0.687%.

The sectors exhibiting the largest widening in average option-adjusted spread (weighted by both market value and duration), included Housing, Public Power, Other Utility, and Water / Sewer. No sectors exhibited overall tightening, which helped lead to the substantially negative Sector/Quality Return. Quality-based groupings exhibited no significant trend.

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 Local GO	AA-rated Tax-Supported (Excl. GO's)	AA-rated Local GO	AA-rated Water/Sewer
Change in Duration-Adjusted Average OA Spread ^(a)	18.403	16.798	13.281	25.032
Total Key Rate Duration ^(b)	4.103	4.141	4.117	4.205
Sector/Quality Return ^(-b*a)	-0.755	-0.696	-0.547	-1.053
Market Value Weight ^(c)	9.096	7.942	9.661	4.356
Contribution to Duration ^(b*c)	0.37322	0.32885	0.39771	0.18317
Contribution to Sector/Quality Return ^(-b*c*a)	-0.06868	-0.05524	-0.05282	-0.04585

TABLE 5

	A-rated State GO	A-rated Insured	AAA-rated Insured	AAA-rated Health Care
Change in Duration-Adjusted Average OA Spread ^(a)	-5.339	-1.895	-6.097	-63.682
Total Key Rate Duration ^(b)	3.928	3.795	2.762	7.264
Sector/Quality Return ^(b*a)	0.210	0.072	0.168	4.626
Market Value Weight ^(c)	0.227	0.441	0.073	0.002
Contribution to Duration ^(b*c)	0.00890	0.01673	0.00201	0.00016
Contribution to Sector/Quality Return ^(b*c*a)	0.00048	0.00032	0.00012	0.00010

Coupon Return was 0.359%, based on the index's average coupon of 4.282%. The average beginning-of-month market yield was 3.044%, resulting in a Market Amortization Return of -0.117%. These two terms sum to a total 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 1.265%, 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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