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Municipal Bond Market Performance

December 2022



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Index Production and Analysis

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of 0.045% in December 2022, consisting of the components displayed in Table 1.

December's small positive return consisted largely of income effects partially offset by price decreases. While intermediate terms of the The ICE Municipal AAA non-callable yield curve saw a net decrease across the month, the short and long ends rose substantially in the second half of the month. These opposing curve movements created an inversion in the short-to-intermediate terms but had little overall effect on the index return. The housing sector was a bright spot, with state & local GO bonds creating drag forces.

Looking back over the whole year, 2022's annual total return ended up 30 basis points higher than April's year-to-date return. It was dominated by its Parallel Shift Return of almost -7%. The biggest driver: over the course of the year, the muni curve rose 160 basis points at the ten-year point and 280 basis points on the short end. Thus, despite ending in two consecutive months of positive returns, 2022 posted the worst yearly return in the history of the index.

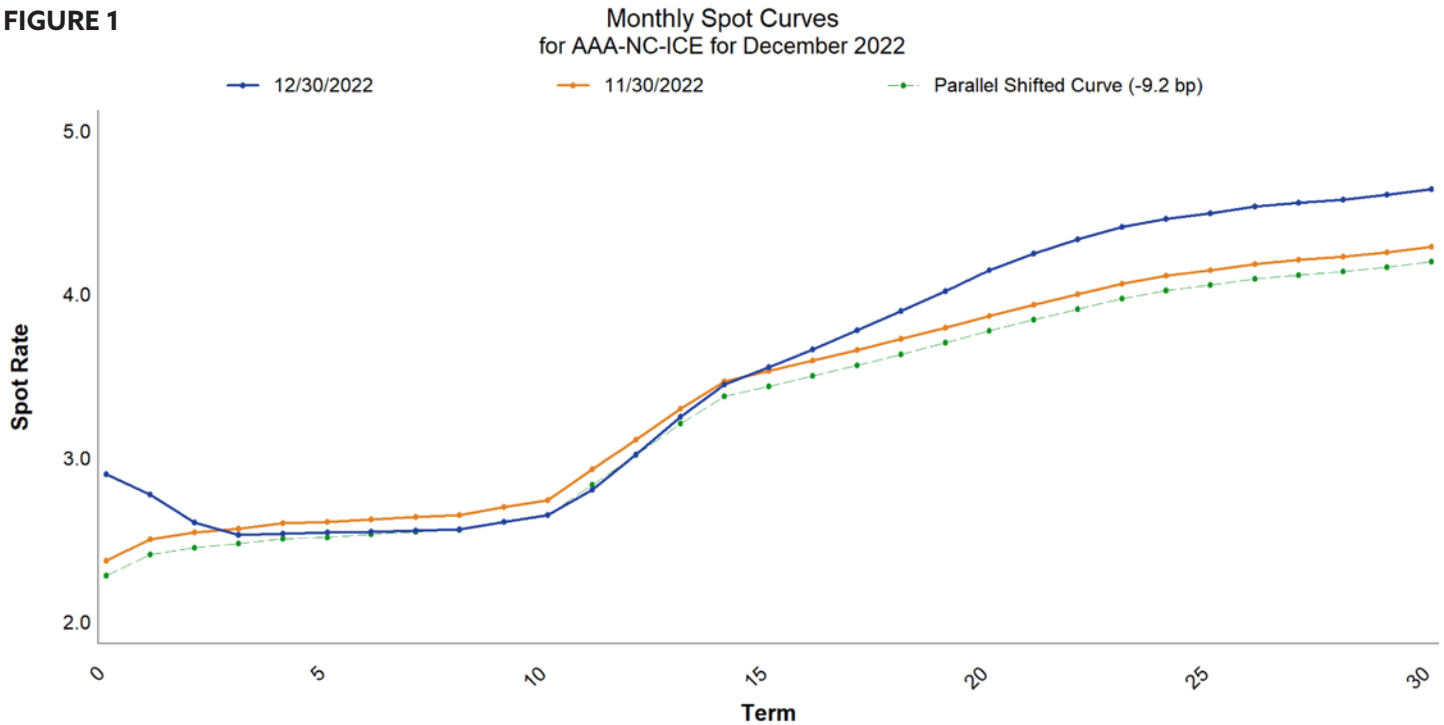
TABLE 1

	DECEMBER	YTD
Total Return	0.045%	-7.663%
Coupon Return	0.365%	3.836%
Market Amortization Return	-0.083%	-1.309%
Parallel Shift Return	0.364%	-6.947%
Non-Parallel Shift Return	-0.377%	-1.399%
Sector/Quality Return	-0.058%	1.969%
Residual Price Return	-0.166%	-3.814%

Interpretation

Figure 1 shows the overall change in the municipal AAA non-callable spot curve for December which demonstrated a small 9.2 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 0.364% is calculated from this curve decrease, as shown in Table 2.

TABLE 2

Change for 10-Year Spot Rate ^(a)	-9.20
Total Key Rate Duration ^(b)	3.959
Parallel Shift Return ^(b-a)	0.364

The overall Non-Parallel Shift Return was negative at -0.377%, as was the Non-Parallel Shift Return of almost every key term. This was caused by increases in short- and long-term spot rates with respect to intermediate-term rates, a pattern sometimes referred to as a butterfly shift. See Table 3 for the full calculations.

TABLE 3	6 Mos	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs	20 Yrs	30 Yrs
Non-Parallel Change	54.25	36.39	15.44	5.48	2.96	1.03	0.00	37.01	44.34
Key Rate Duration	0.046	0.168	0.334	0.569	0.705	0.716	0.946	0.413	0.061
Non-Parallel Shift Return	-0.025	-0.061	-0.052	-0.031	-0.021	-0.007	0.000	-0.153	-0.027

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 -0.058%.

The Housing sector (particularly its higher-rated securities) exhibited substantial tightening in average option-adjusted spread (weighted by both market value and duration), with the Health Care, Transportation, and Insured sectors exhibiting more modest tightening. The sectors exhibiting the largest overall widening were State GO, Water / Sewer, Local GO, and Public Power. 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 State GO	AA-rated Water/Sewer	BBB-rated State GO
Change in Duration-Adjusted Average OA Spread^(a)	4.782	8.382	6.569	34.466
Total Key Rate Duration^(b)	4.092	3.753	4.154	3.495
Sector/Quality Return^(-b*a)	-0.196	-0.315	-0.273	-1.205
Market Value Weight^(c)	9.731	5.371	4.379	0.705
Contribution to Duration^(b*c)	0.39819	0.20155	0.18190	0.02465
Contribution to Sector/Quality Return^(-b*c*a)	-0.01904	-0.01689	-0.01195	-0.00850

TABLE 5

	A-rated Transportation	AA-rated Housing	AAA-rated Housing	A-rated Health Care
Change in Duration-Adjusted Average OA Spread ^(a)	-6.241	-14.908	-19.474	-2.364
Total Key Rate Duration ^(b)	4.336	4.860	4.526	4.430
Sector/Quality Return ^(b*a)	0.271	0.725	0.881	0.105
Market Value Weight ^(c)	5.289	1.838	0.989	3.000
Contribution to Duration ^(b*c)	0.22931	0.08935	0.04475	0.13292
Contribution to Sector/Quality Return ^(b*c*a)	0.01431	0.01332	0.00871	0.00314

Coupon Return was 0.365%, based on the index's average coupon of 4.301%. The average beginning-of-month market yield was 3.425%, resulting in a Market Amortization Return of -0.083%. These two terms sum to a total income effect of 0.282%..

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 -0.166% reflecting the positive effects of rolling down the yield curve as well as the effects of convexity.

2022 Year in Review

Table 6 contains the 2022 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	-7.663%	3.836%	-1.309%	-6.947%	-1.399%	1.969%	-3.814%
Dec	0.045%	0.365%	-0.083%	0.364%	-0.377%	-0.058%	-0.166%
Nov	4.556%	0.355%	-0.017%	2.844%	-0.189%	-0.249%	1.812%
Oct	-0.626%	0.376%	-0.039%	-0.439%	-0.030%	0.045%	-0.539%
Sep	-3.431%	0.338%	-0.073%	-2.595%	-0.251%	0.329%	-1.179%
Aug	-2.301%	0.340%	-0.098%	-1.775%	-0.424%	0.617%	-0.962%
Jul	2.471%	0.359%	-0.117%	1.751%	-0.100%	-0.687%	1.265%
Jun	-1.630%	0.329%	-0.103%	-1.129%	0.203%	0.221%	-1.152%
May	1.457%	0.357%	-0.097%	1.057%	0.251%	-0.842%	0.730%
Apr	-2.635%	0.324%	-0.135%	-2.028%	0.095%	0.320%	-1.212%
Mar	-2.670%	0.359%	-0.211%	-2.362%	-0.221%	1.038%	-1.273%
Feb	-0.493%	0.292%	-0.171%	-0.243%	-0.167%	-0.199%	-0.005%
Jan	-2.371%	0.316%	-0.231%	-2.425%	-0.270%	1.402%	-1.163%

Coupon Return had the largest positive contribution over the course of the year, and the increase in yields over the course of the year caused a corresponding rise in Market Amortization Return, creating an improved position for future income effects. Additionally, the first quarter contained some sector bright spots. Nonetheless, the annual total return was dominated by the price hits caused by the dramatic rise in yields over the course of the year (and especially its first four months), captured best by the Parallel Shift 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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