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Municipal Bond Market Performance

February 2020

Overview

The municipal bond market, as measured by the Standard & Poor's Municipal Bond Investment Grade Index, had a Total Return of 1.160% in February 2020, consisting of the components displayed in Table 1. Most of the total return came from an almost 20 bp drop in the spot curve level. After weeks of relatively level yields at the beginning of the month, the drop occurred largely in the last week, coinciding with the end-of-month correction in the equity market related to the COVID-19 virus.

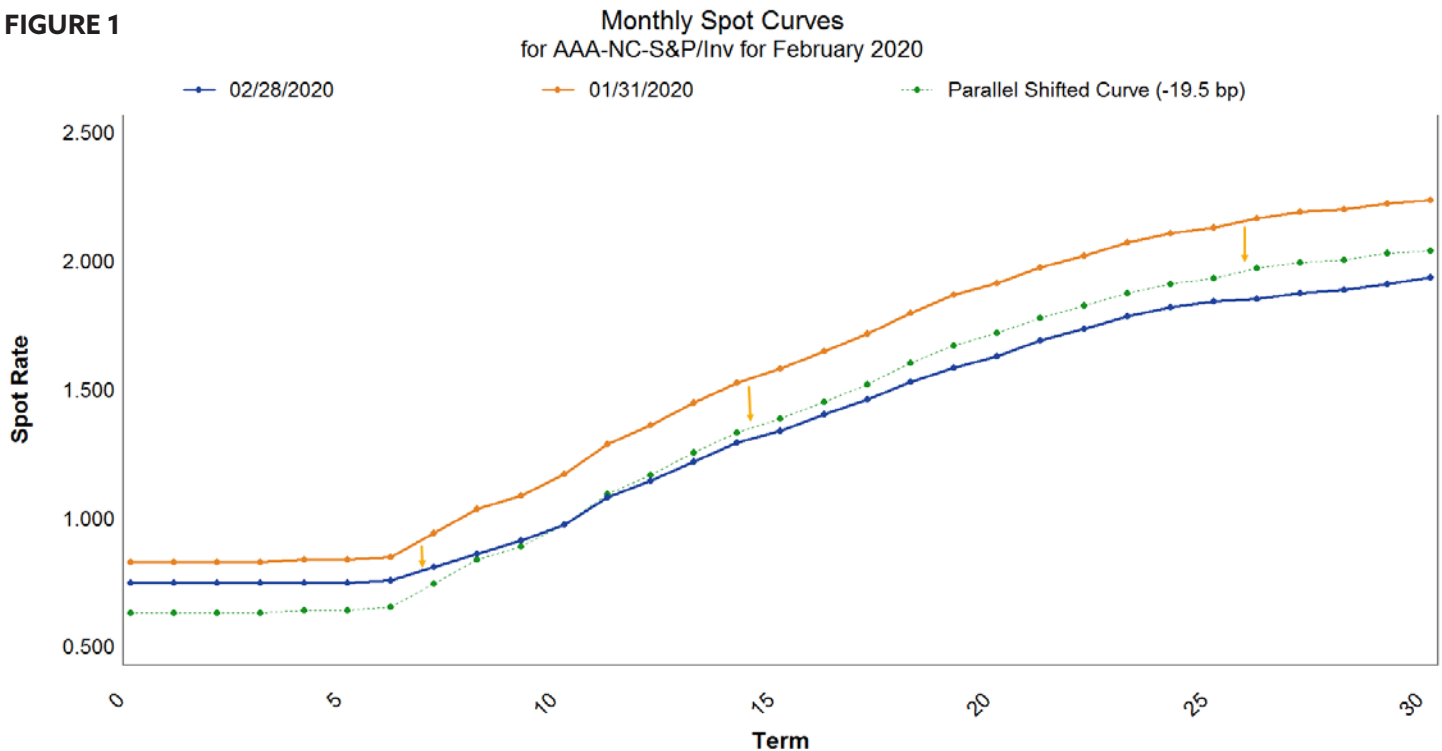
TABLE 1

Total Return	1.160%
Coupon Return	0.303%
Market Amortization Return	-0.194%
Parallel Shift Return	1.015%
Non-Parallel Shift Return	-0.202%
Sector/Quality Return	0.106%
Residual Price Return	0.132%

Interpretation

The biggest story for February, the decline in the spot curve, is depicted in Figure 1. The 19.5 bp decrease, measured at the ten-year point, resulted in a Parallel Shift Return of 1.015% (see Table 2).

FIGURE 1



The green dotted line depicts the parallel shift implied by the ten-year point's spot curve change.

TABLE 2

Change in 10-Year Spot Rate ^(a)	-19.50
Total Key Rate Duration ^(b)	5.2050
Parallel Shift Return ^(b*a)	1.015

The curve also experienced some flattening, with the short end dropping 11.5 bp less than the ten-year point did, and the long end dropping 10.5 bp more. The overall non-parallel effect was negative, due to substantial key rate durations in the three- to seven-year terms of the curve. Table 3 shows the non-parallel effect at each key point of the curve.

TABLE 3

	6 Mos	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	10 Yrs	20 Yrs	30 Yrs
Key Rate Duration	0.032	0.102	0.250	0.553	0.962	1.189	1.216	0.754	0.147
Non-Parallel Change	11.5	11.5	11.5	11.5	10.5	6.3	0.0	-8.8	-10.5
Non-Parallel Shift Return	-0.004	-0.012	-0.029	-0.064	-0.101	0.076	0.000	0.066	0.015

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

The Coupon Return of 0.303% was based on the index's average coupon of 4.424% and the Market Amortization Return of -0.194% was based on the index's average beginning-of-month market yield of 1.424%. These two terms sum to a total income effect of 0.109%.

Note that Coupon Return reflects both interest payments and changes in accrued interest throughout the month. And 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.

The overall Sector/Quality Return was 0.106%. The Housing sector saw spreads broadly widen. However, most other sectors experienced a "reach for yield," with lower-rated bonds seeing spreads tighten more than their higher-rated counterparts.

The sector/quality categories with the biggest negative contributions, considering both weight and the groupings' own sector-quality returns, are listed in Table 4. The biggest positive contributors are listed in Table 5.

TABLE 4

	AA-rated Housing	AAA-rated Housing	AAA-rated Wtr/Swr	BBB-rated Housing
Change in Duration-Adjusted Average OA Spread ^(a)	10.655	12.986	1.561	4.290
Total Key Rate Duration ^(b)	6.890	7.614	5.857	8.809
Sector/Quality Return ^(-b*a)	-0.734	-0.989	-0.091	-0.378
Market Value Weight ^(c)	1.718	0.652	1.491	0.071
Contribution to Duration ^(b*c)	0.11839	0.04963	0.08734	0.00629
Contribution to Sector/Quality Return ^(-b*c*a)	-0.01261	-0.00645	-0.00136	-0.00027

TABLE 5

	BBB-rated State GO	AA-rated Local GO	AA-rated Tax-Supported	A-rated Transportation
Change in Duration-Adjusted Average OA Spread ^(a)	-40.867	-2.076	-2.501	-2.534
Total Key Rate Duration ^(b)	4.483	5.476	5.090	5.763
Sector/Quality Return ^(-b⁺a)	1.832	0.114	0.127	0.146
Market Value Weight% ^(c)	0.684	10.167	7.954	5.865
Contribution to Duration ^(b⁺c)	0.03065	0.55675	0.40490	0.33796
Contribution to Sector/Quality Return ^(-b⁺c⁺a)	0.01253	0.01156	0.01013	0.00856

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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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