





**TABLE 3**

Key Rate Duration									
Non-Parallel Shift Return									

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 0.208%.

The sector exhibiting the largest overall tightening in average option-adjusted spread (weighted by both market value and duration) was, by far, IDR / PCR. The sector exhibiting the most overall widening was Prerefunded/ETM. Quality-based groupings once again saw lower-rated groupings outperform their higher-rated counterparts.

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.

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	A-rated Local GO	Sub B-rated Prerefunded/ ETM	Prerefunded/ EMT	
Change in Dur-Adj Average OA Spread <sup>(a)</sup>	1.604	1.963	1.128	0.247
OA Spread Duration <sup>(b)</sup>	4.216	1.747	0.957	4.939
Sector/Quality Return <sup>(b*a)</sup>	-0.068	-0.034	-0.011	-0.012
Market Value Weight <sup>(c)</sup>	0.384	0.636	0.469	0.334
Contribution to Duration <sup>(b*c)</sup>	0.01618	0.01112	0.00449	0.01652
Contribution to Sector/Quality Return <sup>(b*c*a)</sup>	-0.00026	-0.00022	-0.00005	-0.00004

**TABLE 5**

	A-rated IDR/PCR	AA-rated Transporation	A-rated Transporation	AA-rated Tax- Supported (Excl.GOs)
Change in Dur-Adj Average OA Spread <sup>(a)</sup>	-18.521	-5.832	-7.699	-3.006
OA Spread Duration <sup>(b)</sup>	4.651	5.201	5.343	5.363
Sector/Quality Return <sup>(b*a)</sup>	0.861	0.303	0.411	0.161
Market Value Weight <sup>(c)</sup>	2.460	6.059	4.279	7.925
Contribution to Duration <sup>(b*c)</sup>	0.11443	0.31513	0.22861	0.42500
Contribution to Sector/Quality Return <sup>(b*c*a)</sup>	0.02119	0.01838	0.01760	0.01278

Table 6 below shows the states and territories with the five best state-specific spread returns while Table 7 shows the states and territories with the five worst state-specific spread returns. This is the portion of return from change in spread after adjusting for the sector/quality composition of the state's bonds, capturing the extent to which the state's bonds' performance differed from national averages.

Arizona performed similarly to the national average in many sectors except the Education sector, which saw substantially better spread tightening in Arizona than in other states. As previously mentioned, the IDR / PCR sector performed well across the nation, but particularly well in Alabama and Georgia. Guam's Tax Supported (Excl. GOs) sector performed well above the national average, and Puerto Rico's Insured bonds continued their outperformance.

On the other hand, Arkansas and Kansas once again underperformed the national average. For both of those states and for Delaware, no particular sector was to blame as almost all sectors lagged behind. For Minnesota, the State GO and Local GO sectors were the primary source of the state's relative underperformance. Finally, while the IDR / PCR sector was especially strong across the nation, Wyoming's IDR / PCR sector actually saw widening spreads, leading to that state's underperformance.

**TABLE 6**

State or Territory	Total Return Weight	Return from Sector/Quality Composition	State-Specific Spread Return	Total Spread Return
Guam	0.08%	0.181%	0.318%	0.499%
Puerto Rico				
Alabama				
Georgia				
Arizona				

**TABLE 7**

State or Territory	Total Return Weight	Return from Sector/Quality Composition	State-Specific Spread Return	Total Spread Return
North Carolina	1.52%	0.392%	-0.171%	0.221%
Delaware	0.26%	0.333%	-0.183%	0.150%
Kentucky	0.92%	0.355%	-0.202%	0.153%
Kansas	0.46%	0.277%	-0.233%	0.044%
Arkansas	0.28%	0.415%	-0.448%	-0.033%

Coupon Return was 0.343%, based on the index's average coupon of 4.369%. The average beginning-of-month market yield was 3.547%, resulting in a Market Amortization Return of -0.022%. These two terms sum to a total income effect of 0.321%.

*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 being 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.*

## CONTACT US

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

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