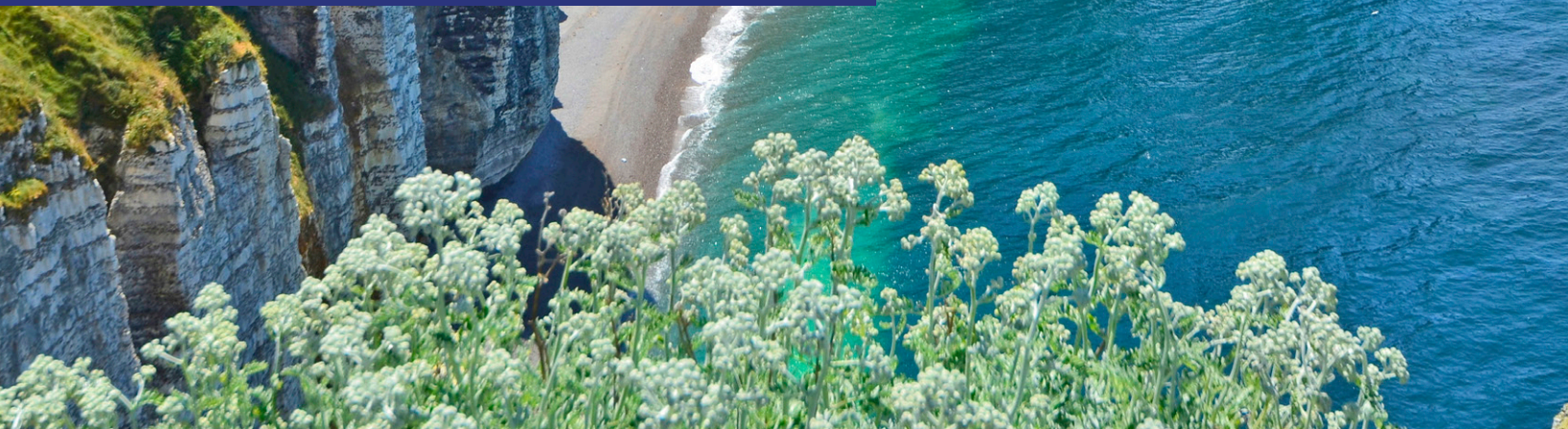


THE STRATEGIC ADVANTAGE

Concerned About An Equity Drawdown? Your Bond Portfolios May Need An Adjustment Too.

In down markets, not all bond sectors are created equal.



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When investors begin to get nervous about equities, they focus on equity sector rotation and asset class rebalancing. Rotation within their existing fixed income allocation often gets overlooked. Cumberland ran an analysis using data for the past 10 years comparing drawdown performance between corporate bonds and taxable municipals. The study makes a case that taxable municipals may provide more defense and provide better returns when the S&P 500 is down, indicating a transition from typical core fixed income strategies into strategies with higher levels of taxable municipal bond exposure may make sense.

Specifically, the data showed that corporate bonds carried more equity correlation and lower returns during equity drawdowns over the period, while taxable municipals provided more resiliency and more defensive characteristics. Moody's has reported on taxable municipals also maintaining lower bond defaults and higher average ratings relative to corporates. (1)

Other industry comparisons between taxable municipal and corporate bond indices have provided similar results but some overlook a fundamental difference: duration. Since some widely used taxable municipal indices have historically

carried longer duration than investment-grade corporate indices, a simple comparison of index returns and volatility could have been misleading. To create a more comparable analysis, we adjusted both the Bloomberg Taxable Muni US AGG Total Return Index and the Bloomberg US Corporate Bond Index by their Treasury-rate exposure using its daily option-adjusted duration (OAD) and compared the residual return attributable to credit and spread risk. The result: taxable municipals outperformed investment-grade corporates by an average of 42 basis points in months when the S&P 500 declined.

Over the period studied, the investment-grade corporate index generated a higher total return than the municipal index. Corporates achieved that result with an average OAD of 7.4 years versus 10.4 years for taxable municipals. Because duration was materially different, the results may be evaluated in the context of Treasury benchmarks with similar interest-rate exposure.

Index	Cumulative Return	Average OAD
Taxable Municipal Index	22.61%	10.39
10-15 Treasury Index	-0.46%	10.26
Investment-Grade Corporate Index	25.55%	7.44
7-10 Treasury Index	5.8%	7.54

Source: Bloomberg LP. Period: 10y period Sept 1, 2016 to Aug 31, 2026

Using the above duration-matched treasury index for comparison, excess returns are as follows:

Asset Class	Return	Comparable Treasury	Treasury Return	Excess Return
Taxable Municipal	22.61%	10-15 Treasury	-0.46%	+23.07%
Investment-Grade Corporate	25.55%	7-10 Treasury	5.8%	+19.75%

Source: Bloomberg LP. Period: 10y period Sept 1, 2016 to Aug 31, 2026

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The Down-Market Difference

Each index return was reduced by the return of a Treasury benchmark interpolated to its beginning-of-period OAD. The figures below are average monthly results, not annualized returns.

Taxable Municipals vs Corporates During Equity Drawdowns

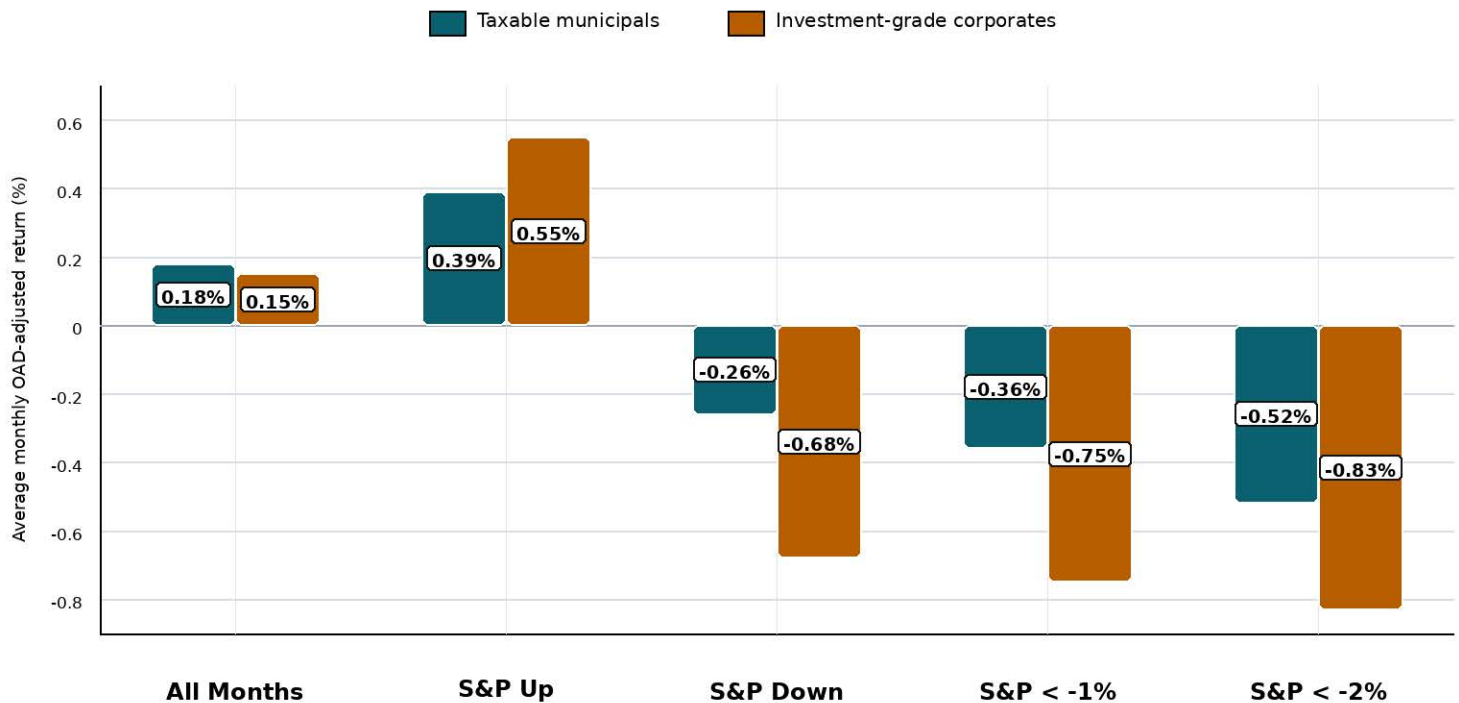


Figure 1. Average monthly OAD-adjusted returns, September 2016 through August 2026. Taxable Municipal data are represented by the Bloomberg Taxable Muni US AGG Total Return Index. Corporate data are represented by the Bloomberg US Corporate Bond Index.

S&P 500 condition	Months	Taxable Muni	Corporate	Difference	t-stat	p-value
All months	120	0.18%	0.15%	+0.03%	0.38	0.702
Positive months	81	0.39%	0.55%	-0.16%	-1.73	0.088
Negative months	39	-0.26%	-0.68%	+0.42%	2.96	0.005
Below -1%	30	-0.36%	-0.75%	+0.40%	2.24	0.033
Below -2%	25	-0.52%	-0.83%	+0.31%	1.54	0.136

Table 1. Paired t-tests evaluate whether the monthly taxable muni-minus-corporate difference equals zero.

The broad set of negative S&P 500 months produced the strongest evidence. Taxable municipals outperformed in 74% of those months. The observed outperformance was statistically significant for the full set of negative S&P 500 months and for the subset of months in which the S&P 500 declined by more than 1%. Results for declines greater than 2% remained directionally favorable but were not statistically significant at conventional confidence levels due to the smaller sample size.

Spreads Tell the Same Story

Option-adjusted spread (OAS) provides an independent view of credit behavior. During equity drawdowns, corporate spreads widened more than taxable municipal spreads. Annualized volatility of daily OAS changes was 26.4 basis points for taxable municipals and 42.0 for investment-grade corporates. In months when the S&P 500 fell more than 1%, taxable municipal OAS widened by 3.3 basis points on average, compared with 12.3 basis points for corporates.

Corporate spreads widened more in equity drawdowns

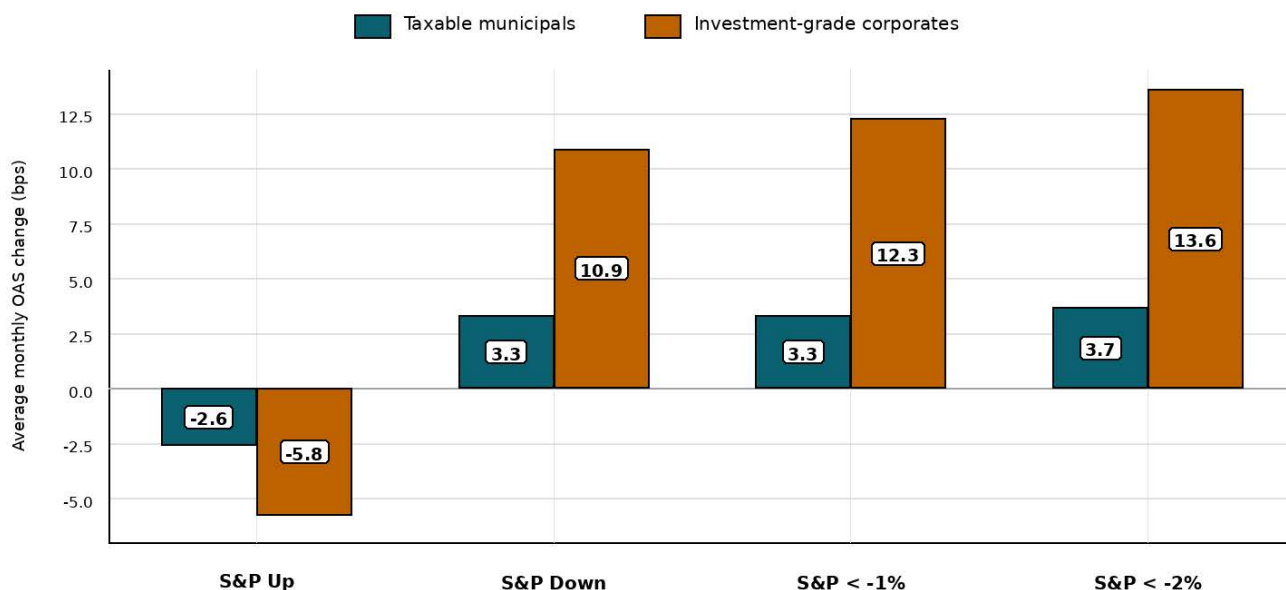


Figure 2. Average month-end OAS change. Positive values indicate spread widening; negative values indicate tightening. Taxable Municipal data are represented by the Bloomberg Taxable Muni US AGG Total Return Index. Corporate data are represented by the Bloomberg US Corporate Bond Index.

Taxable municipals showed less equity sensitivity

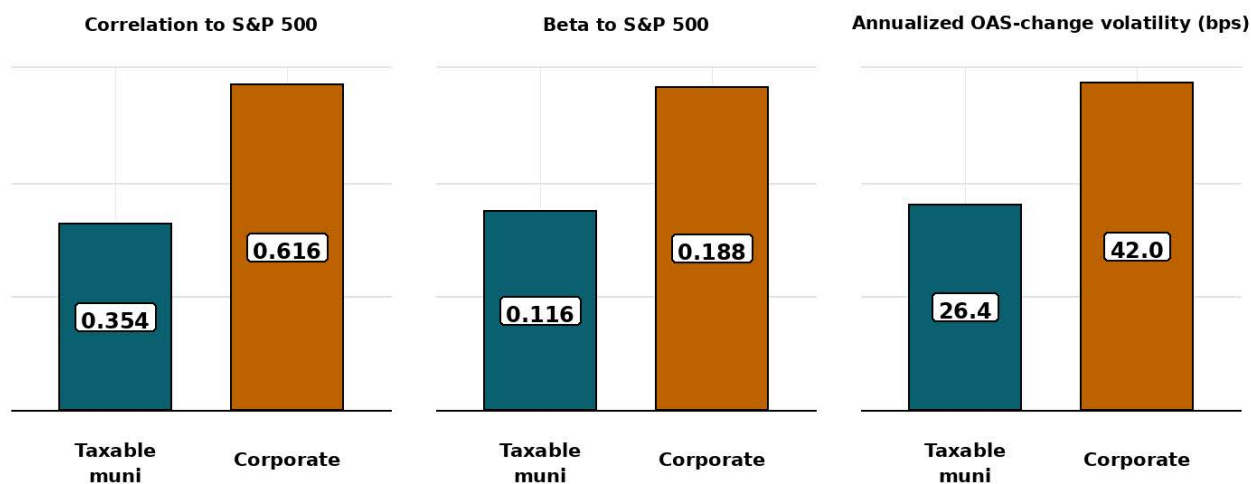


Figure 3. Monthly OAD-adjusted correlation and beta to the S&P 500, plus annualized volatility of daily OAS changes. Taxable Municipal data are represented by the Bloomberg Taxable Muni US AGG Total Return Index. Corporate data are represented by the Bloomberg US Corporate Bond Index. Correlation and beta are calculated using monthly OAD-adjusted returns relative to contemporaneous monthly S&P 500 returns during the September 2016 through August 2026 study period.

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What This Means for Advisors

A weakening equity outlook may support a transition of fixed income allocations, specifically from typical taxable core strategies into strategies that incorporate taxable municipal bonds in place of some corporate bond exposure. While the study shows corporate credit offered greater participation when equities rose, taxable municipals gave up less when equities declined. Returns between both asset classes were similar across the measured 10yr period, while taxable municipals had lower beta, higher average ratings, less equity correlation, and fewer credit defaults.

The study does not support a claim that taxable municipals consistently outperform corporates in all markets. They support a narrower conclusion: taxable municipals were more resilient during equity drawdowns. Thus, advisors may want to think about fixed income strategy rotation in addition to changes in equity exposure as their view on equity markets adjusts.

Conclusion

An equity view can inform bond-sector selection too. For advisors concerned about equity drawdowns, taxable municipals may offer a more defensive source of taxable fixed-income exposure without requiring a retreat from spread product. If you are interested in receiving a fact sheet, learning more about taxable fixed income SMA strategies that incorporate taxable municipals, or to discuss transitions from your current strategy, email ClientRelations@Cumber.com.

(1) US municipal bond defaults and recoveries, 1970-2022; Moody's Investor Service, July 19, 2023

Important Disclosures:

This material is for informational and discussion purposes only and does not constitute investment advice, a recommendation, or an offer to buy or sell any security. Indexes are unmanaged and cannot be invested in directly. Past performance does not guarantee future results. Bond investments are subject to interest-rate, credit, liquidity, call, market, and other risks.

The analysis covers September 1, 2016 through August 31, 2026 and uses Bloomberg total-return index levels, option-adjusted duration (OAD), Treasury index levels and durations, option-adjusted spread (OAS) data, and S&P 500 index data obtained from third-party sources believed to be reliable but not guaranteed. While reasonable efforts were made to verify data accuracy and calculations, errors may exist and no guarantee is made regarding completeness or accuracy.

The OAD-adjusted returns presented herein are hypothetical, model-derived analytical results and do not represent the actual performance of any account, portfolio, strategy, security, or index. The figures were created by adjusting index returns for estimated Treasury-rate exposure using a methodology that interpolates Treasury benchmarks to match each index's beginning-of-period OAD, with the resulting residual return intended to isolate credit and spread-related performance. These figures are not published index returns and should not be viewed as actual investor experience.

Hypothetical and model-derived results have significant inherent limitations. They do not reflect actual trading activity, transaction costs, taxes, advisory fees, cash flows, portfolio constraints, security selection, rebalancing effects, liquidity considerations, implementation timing, or investor-specific circumstances. Results are dependent upon the assumptions, methodologies, and inputs employed. Alternative duration measures, Treasury benchmarks, matching methodologies, observation frequencies, index selections, or analytical

techniques could produce materially different results. Actual investor results may differ materially from those shown.

The analysis uses broad-market indices and an aggregate OAD measure for each index. It does not fully capture differences in key-rate duration exposure, index composition, sector allocation, credit quality, security structures, liquidity conditions, pricing methodologies, issuer concentration, or portfolio construction decisions. OAS measures are subject to model assumptions and may not be directly comparable across markets. OAS analysis was performed as a complementary measure of market behavior and was not the primary basis for the return comparisons presented.

Statistical significance measures only the likelihood that observed historical relationships within this sample occurred by chance. Statistical significance does not establish causation, economic significance, predictive power, or future reliability. Historical relationships observed during the study period may not persist in future market environments.

References to historical outperformance, downside resilience, correlation, beta, spread behavior, ratings characteristics, or default experience are based on historical index observations and third-party research and should not be interpreted as guarantees of future results. The analysis evaluates historical relationships among market indices and is not intended to predict future performance or recommend any specific asset allocation, security selection, portfolio transition, or investment strategy.

No representation is being made that any Cumberland strategy, separately managed account, portfolio, or client achieved or will achieve results similar to those presented. Whether taxable municipal bonds are appropriate for a particular investor depends on that investor's objectives, risk tolerance, tax circumstances, liquidity needs, investment horizon, and other factors.

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