Municipal Quarterly Update
2nd Quarter 2018

Municipal Securities Team

First Half of 2018: Municipal Market Performance and Highlights

- **Municipals outperform Treasuries in first half of 2018:** Municipal market returns were relatively flat in first half of 2018. The Barclays Municipal Bond Index (BMBI) returned -0.25% during first half of 2018 and outperformed the Barclays Treasury Bond Index by 83 basis points (bps). For the trailing twelve months ended June 30, 2018, the BMBI had a total return of 1.56%, compared to the Barclay's U.S. Treasury Index return of -0.65%.

- **Rates and Fed Activity:** Healthy U.S. economic statistics including payroll and wage growth, increasing inflation statistics, and U.S. Federal Reserve activity, including two FOMC rate hikes and the beginning of balance sheet downsizing, weighed on treasury prices in the first half of 2018. At June 29, 2018, the 10-year U.S. Treasury yield stood at approximately 2.86%, a 45 basis point increase from the start of the year.

- **Overall Municipal Issuance Declines:** In the first half of 2018, total municipal issuance declined by 21.8% led by a decline in advance refunding activity. The ability for municipal borrowers to pursue advance refunding of municipal bonds on a tax-exempt basis was a casualty of the Tax Cuts & Jobs Act. YoY, refunding issuance has declined 53%.

- **Despite Higher Rates, Retail Demand Remains Positive:** Retail demand for the first half of 2018 totaled $13.6 billion of inflows, nearly identical to the $13.8 billion for the six months prior. Since the beginning of 2017, the municipal market has only seen three months of net outflows.

- **Credit Trends Positive:** Municipal credit quality trends remained favorable in the first half of 2018. Through June 30, 2018, using MMA data, first-time municipal defaulters totaled just 12 borrowers compared to 22 and 29 in 2017 and 2016, respectively. Moody's credit rating upgrade vs. downgrade ratios also suggest favorable credit trends, with the number of credit rating upgrades exceeding downgrades in each of the last three quarters and six of the prior seven (for the quarter ended March 31, 2018).

- **Tighter Credit Spreads:** During the first half of 2018, credit spreads compressed significantly for high yield municipals. Regarding investment grade rated municipals, A and BBB rated bond spreads declined modestly. See figures 1 and 3 below.

Second Half 2018 Outlook and Strategy

- Despite our expectation for gradually higher rates in 2018, we believe intermediate maturity municipal bonds will generate positive total returns of approximately 1.0% for the year. Regarding high yield municipal bonds, given how far spreads have compressed year to date, we believe intermediate high yield munis will experience positive total returns of between 3.5% and 5.0% for 2018. This is based on applying our total return analysis to bonds in the intermediate portion of the municipal yield curve.

- The Federal Reserve hiked rates by 25 basis points in March and June. With the Fed in the process of normalizing short-term interest rates, we believe the Fed is likely to raise the Fed Funds rate 1-2 additional times in the second half of 2018. We see the 10-year U.S. Treasury yield ending the year between 3.00% and 3.25%. Further influencing 2018 will be the Fed continuing to shrink its $4.5 trillion balance sheet through the tapering program it defined in late 2017. As the Fed has stated, Fed rate actions will be data dependent, with a focus on supportive economic data including jobs and wage growth, inflation and inflation expectations.

- We think issuance will decline to $290-$330 billion in 2018 from $448 billion in 2017. With issuers having rushed to market in November-December of 2017, new issue supply could decline over $100 billion in 2018. According to JP Morgan forecasts, the municipal market could shrink in total size during 2018, due to bond calls, maturities, and sinking fund payments, among other factors, exceeding new issue supply.

- Despite our expectation for higher rates in the remainder of 2018, we believe flows into municipal bond funds will be remain positive, but volatile. We also expect that flows will be inversely related to rates, generally, and the relationship could become more acute with sharp or unexpected rate movements.

- The first half of 2018 showed the health of and the continued strengthening of municipal credit. Since 2012, the number of municipal defaults in the first half of the year has steadily declined and 2018 saw 73% fewer defaults than the first half of 2012. Despite the broadly healthy market, large municipal borrowers such as the States of Illinois and New Jersey will continue to grapple with growing pension and healthcare liabilities that outpace revenue growth.

- Against this backdrop, we continue to structure our portfolios defensively, choosing strategies that benefit from yield curve positioning, bond structure, and positive credit fundamentals. More specifically we favor:

Yield Curve/Structure	Credit Overweight	Industry Weightings
• 7-12 year maturities • 13-20 year maturities priced to a 6-9 year call • 5% (and higher) coupon bonds versus 3% and 4% coupon bonds	• "A" rated bonds over "AAA" rated bonds • Given current new issue spreads, we advise caution on new issue purchases of "BBB" rated bonds • Purchase below investment grade and non-rated bonds; however, don't buy the market	• Overweight revenue bonds of essential service providers—senior living, special tax, charter schools, and utilities • Underweight general obligation bonds

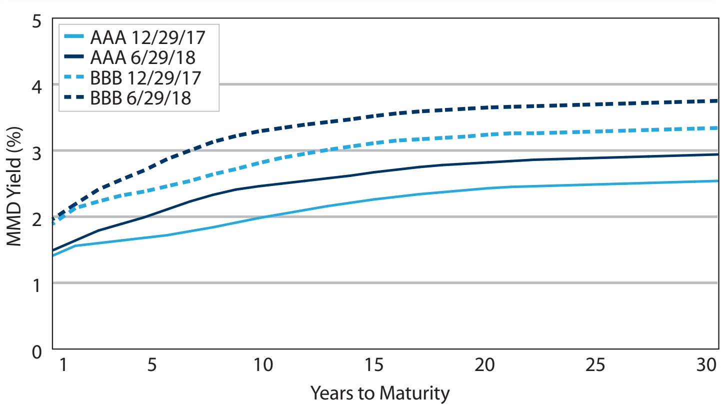
Relative Value

- **Risk-Adjusted Returns:**
  - In six of the last eight time periods (covering calendar years 2011-2017 plus the 6-month period ending 6/30/2018), investment-grade or high-yield munis have been the top performer on a taxable equivalent, risk-adjusted basis.
    - In fact, investment-grade munis and high-yield munis have been the best and second best performers, in some order, in five of the last eight time periods, highlighting the value of municipal tax-exemption, low historical default rates, and low relative volatility.
  - Over the last 10 years, municipal bonds (both investment-grade and high-yield) have offered superior returns per unit of risk (standard deviation) (see Figure 6).
- **MMD/Treasury Ratios:** AAA Muni/Treasury ratios cheapened slightly in the first half of the year, increasing the attractiveness of tax-exempt income.
- **Yield Curve:** Yields increased across the curve increased in the first half of the year. At the same time, the 1-10 year portion of the curve steepened slightly while the 10-30 year portion flattened. By the end of June, the 10-30 year slope was near historic lows at 44 bps compared to a five-year low of 42 bps.

6/30/18	**10yr**	**30yr**
AAA Muni	2.45%	2.94%
Treasury	2.86%	2.99%
Ratio	**85.70%**	**98.29%**
12/29/17	**10yr**	**30yr**
AAA Muni	1.99%	2.54%
Treasury	2.41%	2.74%
Ratio	**82.77%**	**92.81%**

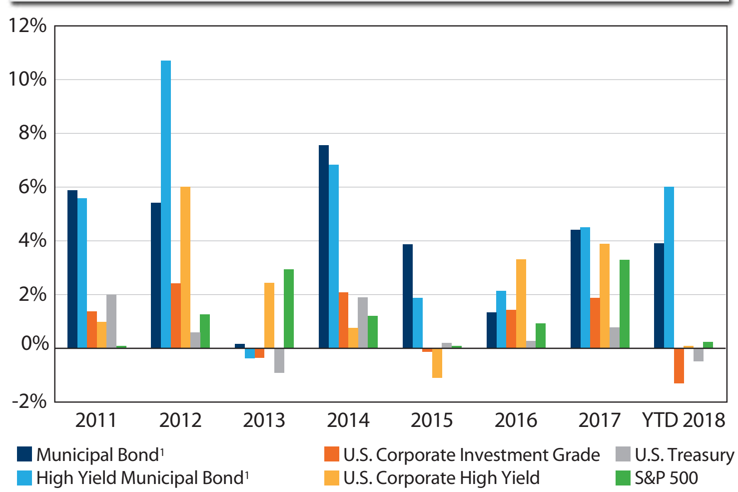
Source: Barclays

Figure 1 – MMD Yield Curves



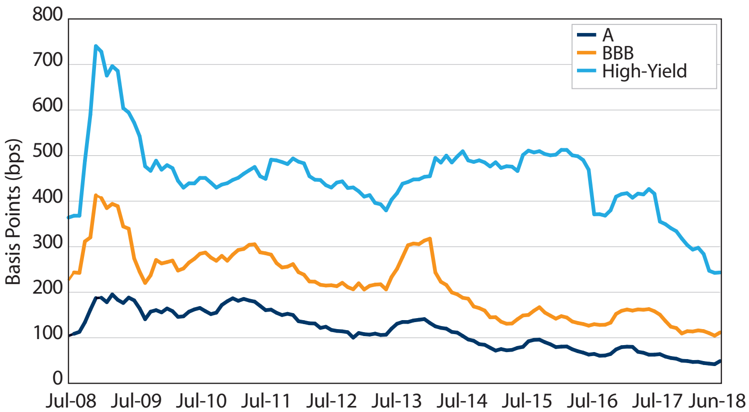
Source: Municipal Market Data (MMD).

Figure 2 – Risk-Adjusted Returns



Source: Bloomberg, Barclays. YTD as of 6/30/18. Risk-adjusted returns are calculated by dividing total return by volatility, or the degree of daily price swing variation, giving a measure of income per unit of risk. Past performance is no guarantee of future results.

Figure 3 – Municipal Credit Spreads Relative To AAA Municipals



Source: Bloomberg Barclays 6/30/08 through 6/30/18.

Figure 4 – Correlation of Municipal Bonds to Other Asset Classes

U.S. Equities	0.04
U.S. Corporate High-Yield Bonds	0.34
U.S. Treasury Bonds	0.41
Emerging Market Sovereign Bonds	0.43
Mortgage-Backed Securities (MBS)	0.45
U.S. Corporate Investment Grade Bonds	0.63

Source: Bloomberg Barclays 6/30/08 through 6/30/18. The historical correlation of the asset classes is for illustrative purposes only and not indicative of any actual investment. Diversification does not guarantee a profit or protect against loss. An index cannot be purchased directly by investors. The asset classes shown here offer different characteristics in terms of income, tax treatment, capital appreciation and risk.

Figure 5 – Moody's Average Cumulative Default Rates from 1970-2016, Corporate vs. Municipals

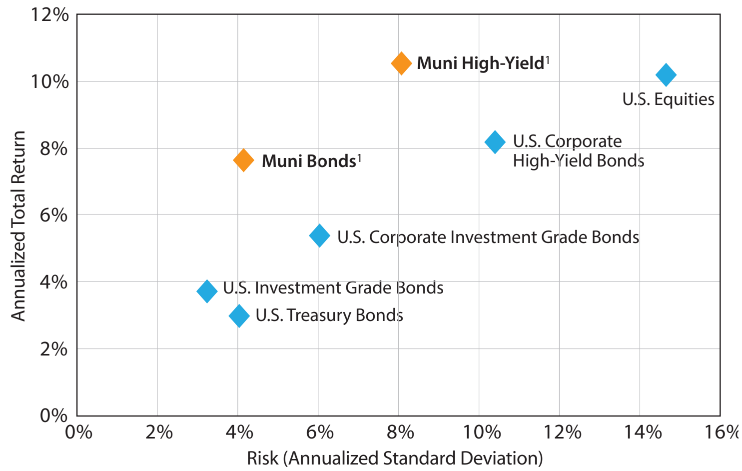
	5-Year			10-Year		
Rating	**Corporate**	**Municipal**	**Difference**	**Corporate**	**Municipal**	**Difference**
Aaa	**0.09%**	0.00%	0.09%	**0.38%**	0.00%	0.38%
Aa	0.30%	0.01%	0.29%	0.78%	0.02%	0.76%
A	0.77%	**0.03%**	0.74%	2.22%	**0.07%**	2.15%
Baa	1.63%	**0.16%**	1.47%	3.93%	**0.40%**	3.53%
Ba	8.39%	2.34%	6.05%	16.28%	4.23%	12.05%
B	21.90%	12.43%	9.46%	36.17%	17.77%	18.40%
Caa-C	35.59%	20.26%	15.33%	50.31%	26.41%	23.90%

First Time MMA Municipal Default Trends

	2018		2017		2016	
	Number	**$ Billion**	**Number**	**$ Billion**	**Number**	**$ Billion**
YTD	12	2.67	22	16.5	29	5.98
Total	12	2.67	45	33.62	70	23.68

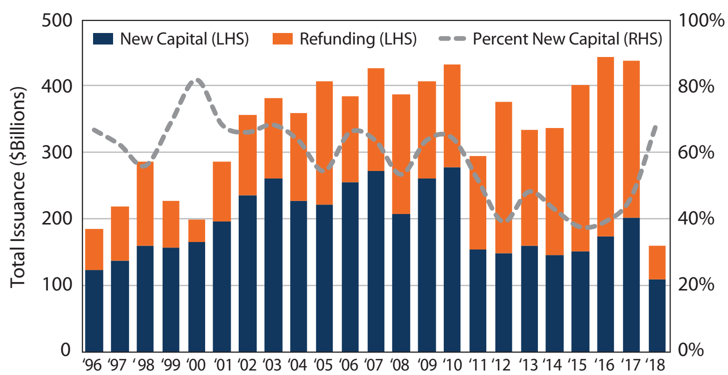
Source: Moody's Investors Service, Special Comment: U.S. Municipal Bond Defaults and Recoveries, 1970-2016; Municipal Market Analytics (MMA) as of 6/30/18.

Figure 6 – Returns and Volatility of Municipal Bonds vs. Other Asset Classes



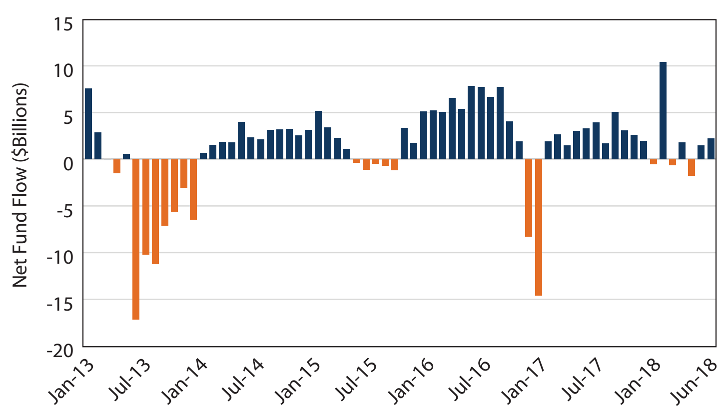
Source: Bloomberg Barclays 6/30/08 through 6/30/18.

Figure 7 – Municipal Bond Issuance



Source: Barclays, through 6/30/18.

Figure 8 – Net Municipal Fund Flows



Source: Barclays, through 6/30/18.

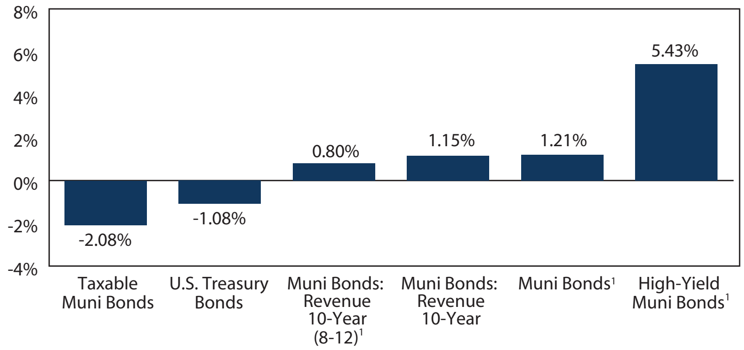
All charts shown herein are for illustrative purposes only and not indicative of any investment. The performance illustrations exclude the effects of taxes and brokerage commissions or other expenses incurred when investing. Past performance is not indicative of future results and there can be no assurance past trends will continue in the future. See last page for index definitions.

First Half Year Review

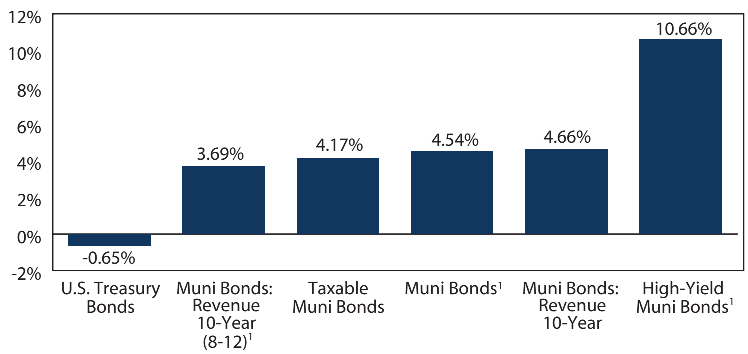
In the first six months of 2018 investment-grade tax-exempt bonds outperformed treasuries modestly while high-yield munis outperformed treasuries by over 6%. Taxable munis lagged both treasuries and tax-exempt munis. On a trailing twelve-month basis, the story is much the same with the only difference being that taxable municipals are more in line with tax-exempt varieties.

Amongst a diverse array of asset classes, the highest returns over the last twelve months were in equities. Outside of equities, municipal bonds, both investment grade and high-yield, are clear outperformers.

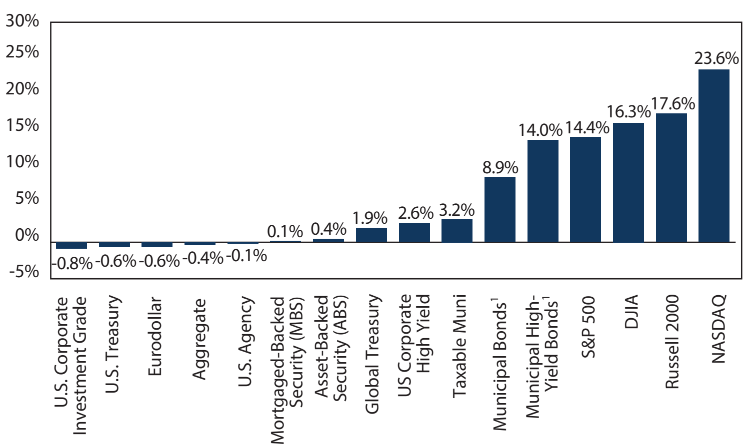
Total Return Trailing Six Months Ended June 29, 2018



Total Return Trailing Twelve Months Ended June 29, 2018



Total Return Trailing Twelve Months Ended June 29, 2018



Source for all charts on this page: Bloomberg Barclays. For illustrative purposes only and not indicative of any actual investment. The illustrations exclude the effects of expenses incurred when investing. Past performance is no guarantee of future results. See last page for index definitions.

New Issue Supply: Year to date, new issuance in the municipal market has declined by 21% to $159 billion. Underlying that, the nature of supply shifted drastically with new money accounting for 69% of total issuance YTD 2018, an increase from 48% at the first half of 2017. In total, new money issuance increased 15% while refunding issuance declined 53%. A combination of tax reform limiting advance refunding for municipal borrowers and persistently lower muni rates caused an abnormally large amount of refunding activity to occur in 2017, especially in the last few months. With the pool of potential refunding deals exhausted, refunding activity dropped significantly (see Figure 7).

Retail Demand: Retail demand for the first half of 2018 totaled $13.6 billion of inflows, nearly identical to the last six months of 2017 where inflows totaled $13.8 billion. Inflows have been consistently supportive since the beginning of 2017. In those 18 months, there have been just three months of net outflows. The steady demand has provided a supportive environment for municipals (see Figure 8).

Credit Quality: Municipal credit quality trends remained favorable in the first half of 2018. Through June 30, 2018, using MMA data, first-time municipal defaulters totaled just 12 borrowers compared to 22 and 29 in 2017 and 2016, respectively. In addition, the par value of first time defaults declined to $2.7 billion compared to $16.5 billlion and $6.0 billion in the first half of 2017 and 2016, respectively. Various Puerto Rico-related borrowers will distort par value, especially in 2016 and 2017 as they first defaulted, but we have treated them an isolated concern and that appears to be borne out by the data (see figure 5). Moody's credit rating upgrade vs. downgrade ratios also suggest favorable credit trends, with the number of credit rating upgrades exceeding downgrades in each of the last three quarters and six of the prior seven (for the quarter ended March 31, 2018).

US Supreme Court Rulings: The US Supreme court decided two cases that will have implications for the municipal market:

- *Janus v. AFSCME:* The Supreme Court ruled that compulsory union dues for nonmembers were unconstitutional in the public sector which is expected to significantly curtail public union bargaining power in the future. In essence, public sector union membership and revenues are expected to decline in future years as a result of the Supreme Court decision. However, it could take many years or even longer for the full effects to be felt but it should provide states with unfunded pension liabilities more room to negotiate. We also believe that even with weakened union bargaining power, states that move forward too aggressively risk backlash. The majority of teacher strikes in the first half of 2018 were wildcat, or strikes that were undertaken by unionized workers without union leadership's approval.
- *South Dakota v. Wayfair:* The Supreme Court ruled that a physical presence in a state is not a requirement for states to compel retailers to collect sales taxes on sales made in the state. As a result, sales tax collections could increase moderately for online sales. Amazon, by far the largest online retailer, already collected sales taxes on sales made in states with sales taxes so the ruling won't necessarily be transformative. The US Government Accountability Office estimated that the positive effect of the verdict will be between $8-$13 billion combined for all states (or 2-4% of prior year's state and local total gross sales tax receipts).

Outlook for Remainder of 2018

Healthy U.S. Growth Statistics: For the remainder of 2018, we see continued overall strength in economic data including payroll increases and wage growth. We expect that the labor market continues to steadily strengthen at a moderate pace in line with recent history. Wage growth remains slow but steady and recent inflation statistics are higher and close to Fed targets, and we expect the economy to grow during the remainder of the year. Issues to watch include:

Gradually Rising Rates. The Federal Reserve increased the Fed Funds rate by 25 basis points in March and June and the market fully expects the Fed to continue normalizing short term rates. We believe the Fed is likely to raise the Fed Funds rate three to four times in total in 2018. We see the 10-year U.S. Treasury yield ending the year between 3.00% and 3.25% from its June 29th, 2018 level of 2.86%. Further influencing 2018 will be the Fed continuing to shrink its $4.5 trillion balance sheet through the tapering program it announced in late 2017. As the Fed has stated, Fed rate actions will be data dependent, with a focus on supportive economic data including jobs and wage growth, inflation and inflation expectations.

Decrease in new issue supply. We expect new issue supply in 2018 to be down dramatically from the $448 billion that came to market in 2017, ending the year somewhere between $290 and $330 billion. Because the supply of issues eligible for refund has shrunk, we think new issue supply could be over $100 billion lower than in 2017.

Positive, but volatile fund flows. Despite our expectation for higher rates in 2018, we believe flows into municipal bond funds will be positive, but volatile, particularly if yields move sharply or unexpectedly higher. We believe that any sustained outflows that lead to higher yields will be interpreted by investors as an attractive buying opportunity in view of the relative attractiveness of risk-adjusted municipal yields versus other asset classes.

Stable municipal credit quality. We expect municipal credit quality to remain broadly stable in 2018. We have positive sector outlooks for senior living, toll roads, airports and special tax districts backed by residential real estate assets. We remain cautious on hospitals, especially those located in states that adopted the Affordable Care Act (ACA) and possess high exposures to Medicaid coupled with weak operating cash flow and debt service coverage. While attempts to outright repeal the ACA were unsuccessful, there are continuing efforts to undermine it that could, over time, begin to destabilize the individual marketplace and cause patient bad debt to again rise. We have favored revenue bonds over general obligation bonds in states with growing economies and stable credit profiles such as California, Florida and Texas while under weighting revenue bonds in states with weaker economies, balance sheets, pension-related issues and legacy liabilities such as Illinois and New Jersey. With the U.S. economy growing moderately, these large borrowers appear to have some time to get their fiscal houses in order, but legislative leaders need to implement service cuts and tax increases to reach true budgetary stability. These borrowers will remain particularly vulnerable should the U.S. economic growth begin to falter.

Continued Geopolitical Risks. The US administration has instituted tariffs on billions of dollars of goods across many of its largest trade relationships including Canada, Mexico, the EU, and China. In addition, tens of billions of additional tariffs have been threatened if certain undefined goals of "trade fairness" are not met. The market has mostly chosen to ignore the trade rhetoric thus far. However, if future rounds of tariffs occur on a large scale, projected GDP growth and inflation expectations would likely change.

Strategy and Recommendations

In spite our expectation for gradually higher interest rates in final six months of 2018, we believe there are attractive opportunities in municipal bonds relative to other fixed income asset classes and that municipal performance will be positive.

- Regarding high yield municipal bonds, given the tightening already experienced, we believe intermediate high yield munis will experience positive total returns of between 3.5% and 5.0% for the whole of 2018.
- This analysis assumes no change in credit spreads or trading activity that could potentially add or detract from performance. Because of active portfolio management and the flexibility we have to tactically adjust duration, credit quality, industry/sector allocation, and yield curve positioning as market conditions change, we believe our portfolios could outperform these estimates.

Given the low correlation of municipal bonds to other major asset classes such as U.S. equities (10-year correlation of 0.04) (see Figure 4), as well as, their attractive taxable-equivalent yields and favorable risk-adjusted returns (see Figure 2), we view municipal bonds as a foundational component of a diversified portfolio. Given our expectation of higher rates, we believe total return oriented investors should consider positioning their municipal portfolios more defensively by underweighting longer duration and leveraged strategies, and moving to the intermediate portion of the municipal yield curve. Bonds in this area of the curve are typically less interest-rate sensitive, benefit from the steeper yield curve slope, and are less sensitive to Fed rate hikes than shorter dated bonds. We also believe longer duration (i.e. more interest rate sensitive) open-end strategies such as mutual funds and ETFs could experience more selling pressure (i.e. outflows or share redemptions) in a persistent period of rates up.

On the credit side, we continue to favor "A" and "AA" rated bonds over "AAA" and "BBB" rated munis. We increased exposure to "A" and "AA" rated bonds in the first six months of 2018 and decreased exposure to "BBB" rated bonds due to credit spread compression in this category. We also continue to find value in select below investment grade and non-rated securities given encouraging municipal credit fundamentals. We also favor essential service revenue bond sectors such as special tax, senior living, charter schools, and utilities which, in our view, have additional default-risk insulation because of the borrowers' essentiality in their local communities.

All opinions constitute judgements as of the date of release and are subject to change without notice. There can be no assurance that any forecasts will be achieved. Data is taken from sources we believe to be accurate and reliable but we do not guarantee its accuracy or completeness.

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Index Definitions

Municipal Bonds are represented by the Bloomberg Barclays Municipal Bond Index which is a rules-based, investment-grade, market-value-weighted index engineered for the long-term tax-exempt bond market.

Municipal Bonds: Revenue Bond – Revenue bonds that are part of the Bloomberg Barclays Municipal Bond Index.

Municipal Bonds: BBB – BBB-rated bonds that are part of the Bloomberg Barclays Municipal Bond Index.

Municipal Bonds: Revenue 10-Year (8-12) – Revenue bonds that have a final maturity between 8 and 12 years that are part of the Bloomberg Barclays Municipal Bond Index.

High-Yield Municipal Bonds are represented by the Bloomberg Barclays Municipal High Yield Index which is composed of publicly traded municipal bonds that cover the U.S. dollar-denominated high-yield short-term tax-exempt bond market. To be included in the Index, a bond must have a nominal maturity of 1 to 10 years.

U.S. Treasury Bonds are represented by the Bloomberg Barclays U.S. Treasury Index which includes public obligations of the U.S. Treasury with a remaining maturity of one year or more.

U.S. Corporate Investment Grade Bonds are represented by the Bloomberg Barclays U.S. Credit Index which measures the performance of investment-grade corporate debt and agency bonds that are U.S. dollar-denominated and have a remaining maturity of greater than one year.

U.S. Corporate High-Yield Bonds are represented by the Bloomberg Barclays U.S. Corporate High Yield Index which is composed of U.S. dollar-denominated fixed-rate, publicly issued, non-investment grade debt.

U.S. Investment Grade Bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index which covers the investment-grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass throughs), ABS, and CMBS.

Mortgage-Backed Securities (MBS) are represented by the Bloomberg Barclays U.S. MBS Index which measures the performance of investment grade fixed-rate mortgage-backed pass-through securities of Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC).

Emerging Market Sovereign Bonds are represented by the Bloomberg Barclays Capital EM USD Aggregate Index which includes U.S. dollar-denominated bonds that have maturities longer than one year and that were issued by emerging market governments and government related issuers.

U.S. Equities are represented by the S&P 500 Index which is an unmanaged index of 500 stocks used to measure large-cap U.S. stock market performance.

Global Treasury is represented by the Bloomberg Barclays Global Treasury Index which tracks fixed-rate, local currency government debt investment grade countries, including both developed and emerging markets.

The **Bloomberg Barclays Municipal Bond AAA Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. The Index tracks general obligation bonds, revenue bonds, insured bonds and pre-refunded bonds rated Aaa by at least two of the ratings agencies: Moody's, S&P, Fitch.

The **Bloomberg Barclays Municipal Bond A Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. The Index tracks general obligation bonds, revenue bonds, insured bonds and pre-refunded bonds rated A by at least two of the ratings agencies: Moody's, S&P, Fitch.

The **Bloomberg Barclays Municipal Bond BAA Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. The Index tracks general obligation bonds, revenue bonds, insured bonds and prerefunded bonds rated Baa by at least two of the ratings agencies: Moody's, S&P, Fitch.

The **Russell 2000 Index** is a small-cap stock market index of the bottom 2,000 stocks in the Russell 3000 Index.

The **NASDAQ Composite** is a stock market index of the common stocks and similar securities listed on the NASDAQ stock market.

Asset-Backed Security (ABS) is represented by the Bloomberg Barclays Asset-Backed Securities Index which includes assets back by credit and charge cards, autos and utilities.

U.S. Agency is represented by the Bloomberg Barclays U.S. Agency Index which is comprised of debt issued by U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government.

The **Dow Jones Industrial Average (DJIA)** is an index that shows how 30 large publicly owned companies based in the United States have traded during a standard trading session in the stock market

Aggregate is represented by the Bloomberg Barclays Aggregate Bond Index which is a broad-based index that includes Treasury securities, Government agency bonds, Mortgage-backed bonds, Corporate bonds, and a small amount of foreign bonds traded in U.S.

Eurodollar is represented by the Bloomberg Barclays Eurodollar Index which consists of fixed-rate investment grade U.S. dollar-denominated securities that are registered outside of the U.S.

Taxable Muni Bonds is represented by the Bloomberg Barclays Taxable Municipal Bond Index which is a rules-based, market-value-weighted index engineered for the long-term taxable municipal bond market.

[1] Taxable-equivalent measures illustrate approximately what an investor would have to earn on taxable investments to equal the tax-exempt annualized return using the highest federal tax bracket (37.0%) and another 3.8% for the Medicare Tax for 2018. State and local taxes have not been considered. This information is based on law as of the date of calculation and does not account for any proposed changes in tax rates. This information does not account for limitations on deductions, the alternative minimum tax or taxes other than Federal personal income tax. It is important to note that there are differences between the investment objectives and risks of municipal bonds versus the asset classes shown.