Municipal Quarterly Update
4th Quarter 2016

Municipal Securities Team

4th Quarter 2016 Municipal Market Performance and Highlights

- Municipal market returns were decidedly negative for the fourth quarter as U.S. Treasury rates spiked upward immediately following the U.S. presidential election and municipal rates followed. For the three months ended December 31, 2016, the Barclays Municipal Bond Index generated a total return of -3.62% compared to the Barclays U.S. Treasury Index return of -3.84%. In spite of the dramatic increase in rates during the quarter, municipal performance was still positive for 2016. For the twelve months ended December 31, 2016, the Barclays Municipal Bond Index returned 0.25% and the Barclays Non-Investment Grade Municipal Bond Index returned 2.99%.
- New issue supply decreased during the quarter as refunding activity fell due to the climb in rates. For the three months ended December 31, 2016, new issue volume totaled $105 billion versus $115 billion for the previous quarter to bring the twelve-month total to $446 billion – a 10.7% increase over the total new issue supply of $403 billion for 2015. The new issue volume of $446 billion set a record, breaking the old mark of $433 billion set in 2010.
- Retail demand turned negative in the 4th quarter. After 10 straight months of inflows (totaling $51 billion), municipal mutual funds and ETFs experienced large outflows starting in November, that continued through year-end. For the quarter ending December 31, 2016, fund outflows totaled $26 billion bringing 2016 fund net inflows to $25.5 billion.
- Credit fundamentals remained stable, with one caveat. Defaults in 2016, both in number and par value increased, but the increase was primarily attributable to Puerto Rico and its corporate affiliates.
- By the end of the fourth quarter, higher rates and wider credit spreads resulted in a more attractive investment environment, in our opinion, with 10-year AAA and BBB yields at 2.31% and 3.23% (Municipal Market Data) respectively, which equates to taxable-equivalent yields of 4.08% and 5.70%.

2017 Outlook and Strategy

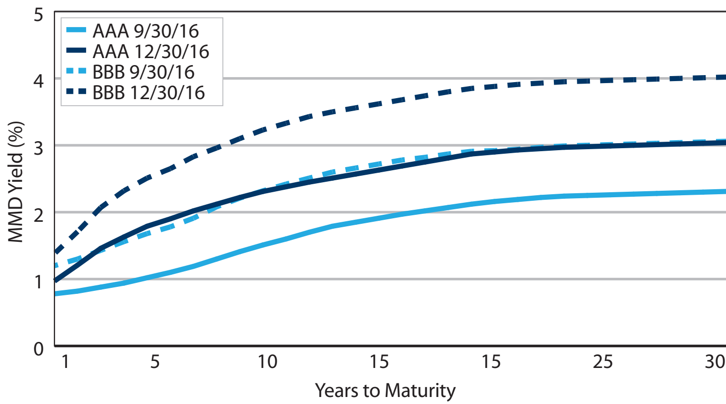
- In spite of our expectation for gradually higher rates in 2017, we believe intermediate maturity bonds will generate positive total returns of approximately 2.50% for the year. This is based on applying our total return analysis to bonds in the intermediate portion of the municipal yield curve.
- After raising the Fed Funds rate 25 basis points (bps) in December, we believe the Federal Reserve ("Fed") will increase the Fed Funds rate twice for a total of 50 bps in 2017. We also see the 10-year U.S. Treasury yield ending the year between 2.75% and 3.00%. Fed rate action will be data dependent, however, with an eye towards jobs and wage growth, fiscal stimulus and inflation expectations, in our view.
- We expect new issue supply in 2017 to be down dramatically from the $446 billion issued in 2016. We see new issue supply ending the year somewhere between $350 billion and $375 billion. We base this on not only higher rates, which will likely lead to less refundings, but also the fact that a substantial number of deals were accelerated before the November elections and the December Fed rate hike.
- With our expectation for higher rates, we believe flows into municipal bond funds are likely to be volatile in 2017, particularly if yields move higher and bond prices decline for a persistent period of time at some point during the year. Given the relative attractiveness of risk-adjusted municipal yields versus other asset classes, we believe any sustained outflows that lead to higher yields will be viewed by investors as an attractive buying opportunity.
- We expect municipal credit quality to remain stable, but will watch for weaker states and territories such as Illinois, New Jersey and the Virgin Islands where credit spreads could continue to widen.
- We will watch to see how "Repeal & Replace" of the Affordable Care Act (ACA) impacts hospital bond cash flows and balance sheets.
- 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
• 8-12 year maturities • 13-20 year maturities priced to a 7-9 year call • 5% (and higher) coupon bonds versus 3% and 4% coupon bonds	• "A" rated bonds over "AAA" rated bonds • Select below investment grade and non-rated bonds	• Overweight revenue bonds of essential service providers—special tax, senior living, charter schools, and utilities • Underweight general obligation bonds

Relative Value

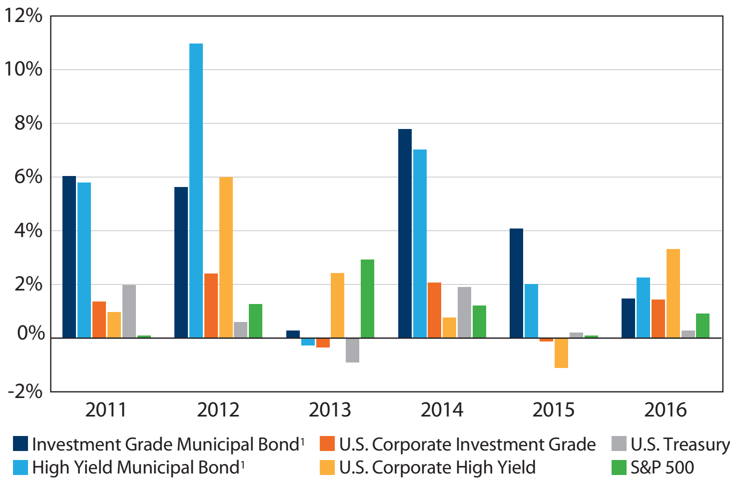
- According to Bloomberg valuations as of December 31, 2016, the taxable-equivalent yield[1] on "A" rated, 10-year municipal revenue bonds was 5.25% compared to 3.37% for "A" rated U.S. corporate bonds (Figure 4) – 188 bps of additional yield despite broadly stable municipal credit metrics. While municipals may be viewed as less liquid than similarly rated corporates, we believe the additional yield more than compensates investors.
- Risk-adjusted returns for municipal bonds remained attractive relative to other major asset classes. On a tax and risk-adjusted basis, for the twelve months ended December 31, 2016, the Barclays Municipal Bond Index and Barclays Non-Investment Grade Index returned, 3.49% and 7.26%, respectively. Municipal bonds have had superior risk-adjusted returns for three out of the past six years (Figure 2), highlighting the value of municipal tax-exemption, low historical default rate, and low relative volatility.
- Municipal-to-treasury yield ratios were essentially unchanged at the end of the fourth quarter from their third quarter levels. As of December 31, 2016, the 10-year ratio was at 94% while the 30-year ratio was at 99%, versus the 3-year historical average of 93.7% and 101.5%, respectively.

Figure 1 – MMD Yield Curves



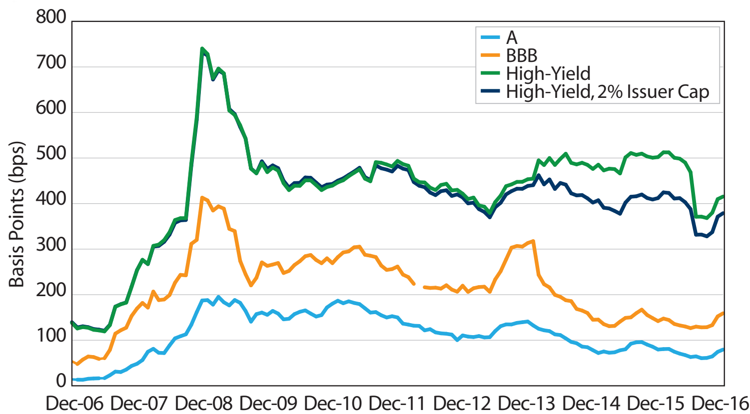
Source: Municipal Market Data (MMD) (Thompson).

Figure 2 – Risk-Adjusted Returns



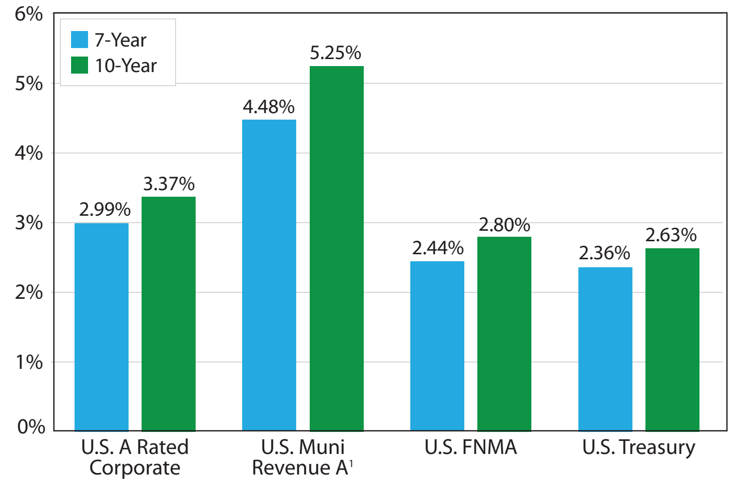
Source: Bloomberg, Barclays. Risk-adjusted returns are calculated by dividing total return by volatility, or the degree of daily price swing variation, giving a measure of income per unit of risk. Past performance is no guarantee of future results.

Figure 3 – Municipal Credit Spreads Relative To AAA Municipals



Source: Bloomberg, Barclays 12/31/06 through 12/30/16. For illustrative purposes only. Past performance is no guarantee of future results. See last page for index definitions.

Figure 4 – Comparative Asset Class Yields



Source: Bloomberg as of 12/31/16. For illustrative purposes only. Past performance is no guarantee of future results. U.S. FNMA yields are represented by the 7- and 10-year portions of the US Revenue A Muni BVAL Yield Curve. U.S. A-rated Corporate yields are represented by the Bloomberg U.S. Composite A BVAL curve. U.S. Muni Revenue A yields are represented by the Bloomberg U.S. Revenue A Muni BVAL curve. U.S. FNMA yields are represented by the Bloomberg U.S. Fannie Mae Benchmark curve. U.S. Treasury yields are represented by the Bloomberg U.S. Treasury BVAL curve.

Figure 5 – Correlation of Municipal Bonds to Other Asset Classes

U.S. Equities	0.07
U.S. Treasury Bonds	0.32
U.S. Corporate High-Yield Bonds	0.33
Mortgage-Backed Securities (MBS)	0.41
Emerging Market Sovereign Bonds	0.41
U.S. Corporate Investment Grade Bonds	0.56

Source: Barclays 12/29/06 through 12/30/16. 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. See last page for index definitions.

Figure 6 – Moody's Average Cumulative Default Rates from 1970-2015, Corporate vs. Municipals

	5-Year			10-Year		
Rating	**Corporate**	**Municipal**	**Difference**	**Corporate**	**Municipal**	**Difference**
Aaa	**0.09%**	0.00%	0.09%	**0.40%**	0.00%	0.40%
Aa	0.30%	0.01%	0.30%	0.81%	0.02%	0.79%
A	0.79%	**0.03%**	0.76%	2.31%	**0.07%**	2.25%
Baa	1.67%	**0.15%**	1.52%	4.03%	**0.38%**	3.65%
Ba	8.44%	2.33%	6.11%	16.45%	4.24%	12.21%
B	22.06%	12.50%	9.56%	36.28%	17.88%	18.40%
Caa-C	35.76%	19.77%	15.98%	48.03%	26.03%	22.00%

First Time MMA Municipal Default Trends

	2016		2015		2014	
	Number	**$ Billion**	**Number**	**$ Billion**	**Number**	**$ Billion**
YTD	65	27.51	57	3.93	63	9.35
Total	65	27.51	57	3.93	63	9.35

Source: Moody's Investors Service, Special Comment: U.S. Municipal Bond Defaults and Recoveries, 1970-2015; Municipal Market Advisors as of 12/31/16.

Fourth Quarter Overview

What started as a small decline in municipal performance in the third quarter of 2016 continued into the fourth quarter with increasing velocity in October and November. We attribute this to a number of factors. First, there was a sharp increase in U.S. Treasury yields immediately following the U.S. presidential election. We believe this led to a corresponding sell-off in the municipal market. Second, the prospects of increased federal spending and a rising federal deficit (which is currently expected to be approximately $600 billion this fiscal year) put additional pressure on the market, in our view. Third, after an exceptionally long period of over 52 weeks of municipal mutual fund inflows, there was a shift in investor sentiment as fund flows turned negative. Finally, with a new Republican president, as well as a Republican Congress, comprehensive tax reform is now part of the political narrative.

For the three months ended December 31, 2016, the Barclays Municipal Bond Index generated a total return of -3.62% while the Barclays Revenue Bond Index returned -3.90%. Municipal high yield bonds, as measured by the Barclays Non-Investment Grade Index, performed even worse during the period with a quarterly total return of -5.84% as high yield funds experienced large redemptions forcing the sale of below investment grade and non-rated securities at depressed prices. In spite of the challenges of the fourth quarter, municipal market total returns for the 12-months ended December 31, 2016 were still positive with the Barclays Municipal Index returning 0.25% and the Barclays Non-Investment Grade Index returning 2.99% during the period. Even with the disruption and back-up in the fourth quarter, municipal bonds also outperformed several other major asset classes on a tax-adjusted basis. The tax-adjusted 3.49% return on investment grade municipal bonds for the trailing 12 months ended December 31, 2016 beat mortgage- and asset-backed securities, government agency bonds and U.S. Treasuries (see chart below).

Asset Class Total Returns as of December 31, 2016

Source: Barclays. Past performance is no guarantee of future results.

In our view, the rise in interest rates in the fourth quarter was based on not only stronger U.S. economic data as demonstrated in growth in jobs, wages, manufacturing, and consumer spending, but also the potential for an expansionary fiscal stimulus policy that is expected to include corporate tax cuts, personal income tax cuts and increased infrastructure spending. By the end of December, 10-year U.S. Treasury yields had increased 85 bps during the quarter to 2.45%, while 30-year U.S. Treasury yields increased 74 bps over the quarter to a 3.06%. Municipal yields followed Treasuries with the Municipal Market Data ("MMD") 10-year "AAA" rated benchmark rate rising 80 bps during the quarter to close at 2.31% on December 31, 2016. For the three months ended December 31, 2016, the MMD 30-year "AAA" rated benchmark yield climbed 73 bps to end the year at 3.04%, while municipal-to-treasury yield ratios were 94% for the 10-year ratio and 99% for the 30-year ratio, versus their 3-year historical average of 93.7% and 101.5%, respectively.

For the three months ended December 31, 2016, new issue volume totaled $105 billion versus $115 billion for the previous quarter bringing the twelve-month total to $446 billion – a 10.7% increase over the total new issue supply of $403 billion in 2015. The new issue volume of $446 billion set a record, breaking the old mark of $433 billion set in 2010. Issuance was driven by a substantial pickup in refundings in the second half of the year as issuers wanted to lower their borrowing costs prior to the U.S. election, as well as the expectation of an interest rate hike by the Fed, in our view. Refundings represented 61.0% of all new issuance in 2016, but fell to just 58.0% for the fourth quarter. (Source: Barclays, SIFMA) On the demand side of the equation, after 10 straight months through the end of October of inflows totaling $51 billion, municipal mutual funds and ETFs saw massive outflows starting in November, continuing all the way through to year-end. For the quarter ending December 31, 2016, fund outflows totaled $26 billion, reducing 2016 fund net inflows to $25.5 billion (Source: Barclays, Investment Company Institute). As outflows persisted and municipal rates increased in sympathy with Treasury yields, credit spreads widened as higher yielding credits underperformed. According to Barclays, "BBB" rated municipals bond yielded 159 bps more than "AAA" rated municipals bonds at the close of December—31 bps wider than the spread as of September 30, 2016 and 11 bps wider than the long-term moving average (Figure 3).

In spite of some major concerns regarding structural budgetary imbalances, pension funding shortfalls and political paralysis, credit fundamentals remained generally stable. Defaults in 2016, both in number and par value, increased, but the increase, particularly with regard to par value, was attributable to Puerto Rico and its corporate affiliates, in our view. The total number of defaults for 2016 was 65, versus 57 reported in 2015. As we stated, possibly due to the performance of Puerto Rico and its affiliates, the par value of defaults for 2016 totaled $27.5 billion versus just $3.9 billion in 2015. We expect to see continued headline risk associated with well-publicized credits because of severe spending and budget imbalances, subpar pension funding, and politics around taxation. As negative stories in places likes Puerto Rico, Illinois, New Jersey, Virgin Islands, etc unfold, it is important to remember these issues have often been years in the making and rarely represent broader municipal market contagion. While some may present interesting buying opportunities under certain circumstances, investors could see higher volatility in these and similar names.

Outlook for 2017

As we look ahead to 2017, we see a year of change, volatility and opportunity. There is much on the horizon regarding new federal legislation that could potentially impact the municipal market, including tax reform, a national infrastructure proposal and the repeal and replacement of the Affordable Care Act. In 2017 we anticipate:

Rising Rates. After raising the Fed Funds rate 25 bps in December, we believe the Fed will increase the Fed Funds rate twice for a total of 50 bps in 2017. We also see the 10-year U.S. Treasury yield ending the year between 2.75% and 3.00%. Fed rate action will be data dependent, however, with an eye towards supportive economic data, fiscal stimulus and inflation expectations. Because municipal yields have been tethered to Treasuries, we believe general municipal yields will increase approximately 30 to 50 bps in 2017, with 10-year AAA general obligation bonds yielding between 2.55% and 2.85% by year-end (compared with 2.31% on December 31, 2016).

Decrease in new issue supply. We expect new issue supply in 2017 to be down dramatically from the $446 billion issued in 2016. We see new issue supply ending the year somewhere between $350 billion and $375 billion. We base this on not only higher rates which will lead to less refundings, but also the fact that a substantial number of deals were accelerated before the November elections and the December Fed rate hike. While refunding volumes will likely be down, we see new money supply increasing. The November elections saw voter approval of an estimated $60 billion of ballot proposals for new debt.

Volatile, but positive fund flows. With our expectation for higher rates, we believe flows into municipal bond funds are likely to be volatile in 2017. Given that nominal yields are low relative to historical levels and provide less income cushion to shield investors against rising interest rates, we believe any persistent increase in yields (decline in bond prices) could cause a substantial reduction in retail demand for municipals. Given the relative attractiveness of risk-adjusted municipal yields versus other asset that lead to higher yields will be ultimately viewed by investors as an attractive buying opportunity.

Stable municipal credit quality. We expect municipal credit quality to remain stable, but weaker states and territories such as Illinois, New Jersey and the Virgin Islands, where credit spreads could continue to widen, will need to be watched. With the U.S. economy continuing to grow, we expect credit metrics will improve, albeit at a more moderate pace for state and local municipalities. We also expect the number of defaults in 2017 to be similar to that in 2016, but the par value to be less. We have positive sector outlooks for senior living, toll roads, airports and special tax districts. Until we see how the repeal of the Affordable Care Act impacts hospital profitability, we are cautious on hospitals.

Strategy and Recommendations

In spite of our expectation for gradually higher interest rates in 2017, we believe there are attractive opportunities in municipal bonds relative to other fixed income asset classes and that municipal performance will be positive. Applying our total return analysis to our ETF and SMA strategies and assuming interest rates increase 30 basis points symmetrically along the yield curve during the course of the year, we would expect our SMA and ETF strategies to produce positive total returns of between 2.50% and 2.75% for 2017. In the event we're wrong and municipal rates stay unchanged, the total return analysis for our ETF and SMA strategies would produce positive total returns of between 3.50% and 4.00%. 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 0.07) (see Figure 5), 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. According to Bloomberg valuations as of December 31, 2016, the taxable-equivalent[1] yield on "A" rated, 10-year U.S. municipal revenue bonds was 5.25% compared to 2.63% for 10-year U.S. Treasuries and 3.37% for "A" rated U.S. corporate bonds (see Figure 4). This represents a positive 188 basis point differential over "A" rated corporate debt. When viewed in the light of broadly stable municipal credit fundamentals and low historical correlation to other major asset classes, we see this as a powerful argument for total return investors to be involved in municipal bonds.

Given our expectation for the Fed's stated propensity to raise rates, which is likely to lead to higher yields, 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, in our view. The very short end of the municipal yield curve could be vulnerable to the volatility associated with Fed activity related to Fed fund rate hikes and related monetary policy guidance. We would also be wary of long duration, leveraged portfolios with a heavy emphasis on high-yield and less liquid assets, as we believe these strategies are more susceptible to price declines in a sustained market sell-off. In light of this, we continue to position our portfolios defensively. Specifically, we favor bonds with maturities of 8-12 years and bonds maturing in 13-20 years but priced to a 7-9 year call. We also favor 5% and higher coupon bonds versus 3% and 4% coupon structures that help mitigate volatility and portfolio duration. On the credit side, we continue to overweight "A" rated bonds, and select below investment grade and non-rated securities given the current stable 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.

Index Definitions

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

High-Yield Municipal Bonds are represented by the 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 Barclays U.S. Treasury Bond Index which includes public obligations of the U.S. Treasury with a remaining maturity of one year or more. This index is the U.S. Treasury component of the Barclays U.S. Government Index.

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

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

U.S. Investment Grade Bonds are represented by the Barclays Capital 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 are represented by the Barclays U.S. MBS Index which measures the performance of investment grade fixed-rate mortgage-backed pass-through securities of GNMA, FNMA, and FHLMC.

International Bonds are represented by the Barclays Global Aggregate ex US Index which is an unmanaged index that provides a broad-based measure of the global investment grade fixed-income markets excluding the US dollar denominated debt market.

Emerging Market Sovereign Bonds are represented by the 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.

The **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 prerefunded bonds rated Aaa by at least two of the ratings agencies: Moody's, S&P, Fitch.

The **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 prerefunded bonds rated A by at least two of the ratings agencies: Moody's, S&P, Fitch.

The **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 **Barclays Municipal Bond High-Yield Index** is the municipal high-yield component of the Barclays Municipal Bond Index which is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market.

The **Barclays Municipal Bond High-Yield 2% Issuer Cap Index** is the Barclays Municipal High-Yield Index, the municipal high-yield component of the Barclays Municipal Bond Index, in which no market value weighted exposure to any single issuer exceeds 2% of the index.

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.

U.S. High Yield is represented by the Barclays U.S. Corporate High Yield Index which covers the universe of fixed-rate, non-investment-grade debt

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

U.S. Agency is represented by the 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 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.

U.S. Treasury is represented by the Barclays U.S. Treasuries Index which tracks Treasury performance

Eurodollar is represented by the 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 is represented by the Barclays Taxable Municipal Bond Index which is a rules-based, market-value-weighted index engineered for the long-term taxable 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 (39.6%) and another 3.8% for the Medicare Tax for 2016. State and local taxes have not been considered. This information is based on present law as of the date of publication 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.