MUNICIPAL FIXED INCOME QUARTERLY UPDATE

September 30, 2017

Northern Trust's Municipal Fixed Income team seeks to construct high quality, well diversified, liquid investment portfolios within the guidelines of client-specified risk targets. We focus on relative value active management rather than taking outsized positions around interest rate expectations or overly aggressive credit risks. We believe our clients aim to use fixed income allocations in their portfolio for protection of principal, generation of current income and providing liquidity in case of need.

The group works to exploit opportunities in this inefficient market, reacting to changing conditions and positioning portfolios in an effort to obtain attractive returns. Our decisions reflect our views on the economy, fiscal and monetary policy, political developments, credit fundamentals and bond valuations, as well as our experience in managing the many technical factors impacting the market. We rely on independent, proprietary research to guide our credit decisions and do not utilize leverage or derivatives to achieve our results.

SUMMARY:

- **Municipals were nearly unchanged for the quarter, with continued light issuance and strong demand.**
- **Strong year-to-date performance, particularly in the lowest rated credits.**
- **Yield curve decisions helped our performance; high quality credit bias hurt us.**
- **Disasters have modest implications for municipal credit risk, especially for issuers that were stronger to begin with.**

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MARKET BACKDROP: GROWTH, LOW INFLATION

Global economic growth continued in the third quarter. Developed economies are all showing growth for the first time in seven years. President Donald Trump has released a proposed tax reform plan, and riskier assets performed well. The potential implications for municipal bonds are mixed.

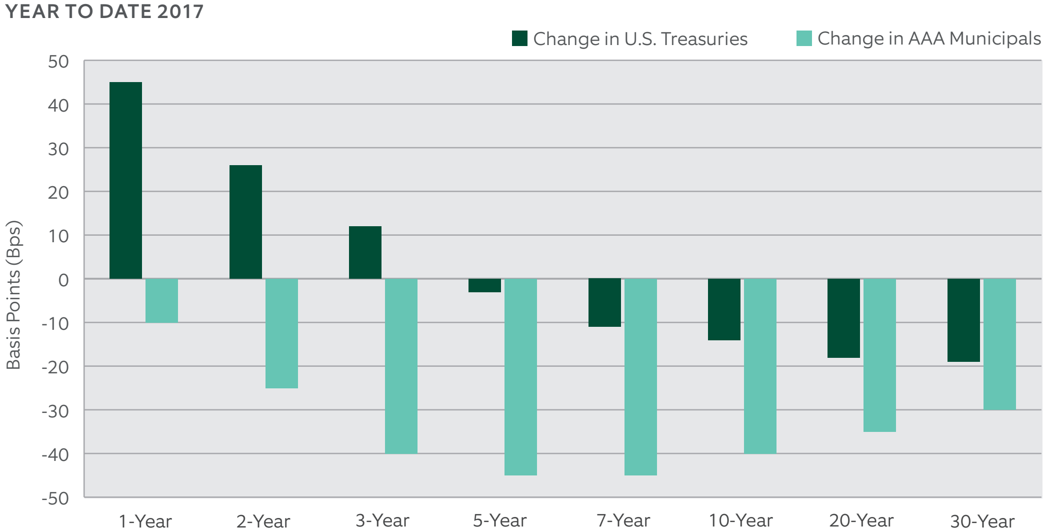
U.S. inflation peaked in January and has declined on a year-over-year basis since. Core personal consumption expenditures (PCE, the Federal Reserve's preferred metric) has been below the Fed's 2% target for all but three months since the 2008 global financial crisis.

INTEREST RATES: MUNICIPAL RATES FALL

In spite of modest growth and low inflation, the Fed projected additional short-term rate increases and also announced plans to begin reducing the size of its balance sheet. While the Fed has raised rates three times since December 2016, fixed income investors doubt they can repeat this in 2018. The market is pricing in fewer hikes next year than Fed members predict.

Both Treasury and municipal yield curves were nearly unchanged during the quarter. Year-to-date, Treasury rates have risen only in short-term maturities while municipals have fallen across the entire yield curve. The longest maturities (30-year bonds) are now 19 basis points lower for Treasurys and 30 basis points lower for municipals. The Fed wants to raise rates, but the markets do not see either inflation or excessive economic expansion on the horizon.

EXHIBIT 1: U.S. TREASURIES VS. AAA MUNICIPALS -CHANGE IN YIELDS YEAR TO DATE 2017



SOURCE: Northern Trust Fixed Income, U.S. Department of the Treasury

TECHNICAL FACTORS: LOW SUPPLY, HIGH DEMAND

Fourth quarter supply is expected to increase, and the year-to-date decline in yields and flattening of the yield curve may generate more refinancing volume. We continue to believe that demographic trends (an aging population desiring fixed income) and significantly progressive tax rates continue to give strong structural support to the overall demand for municipal bonds.

Municipal rates have unique market characteristics. Supply fell, with issuance down 25% for the quarter and 17% for the year. Bond issuance has been down compared to 2016 in every month since February. Refundings are down 40% for the year. New projects are being considered cautiously, given potential changes to tax policy and infrastructure funding.

Of the top three state issuers, only California had a (barely) positive year-to-date issuance compared to last year. Texas is down 35% and New York is down 12%.

Demand for municipal bonds in the quarter was consistent. Reinvestment cash from the June-August period (maturities, interest payments and call proceeds of existing municipal bonds) was $50+ billion greater than supply. Low supply and high demand provides a positive technical environment, and often leads to higher prices and lower yields.

PERFORMANCE & OUTLOOK: CURVE POSITIONING, HIGH QUALITY BIAS

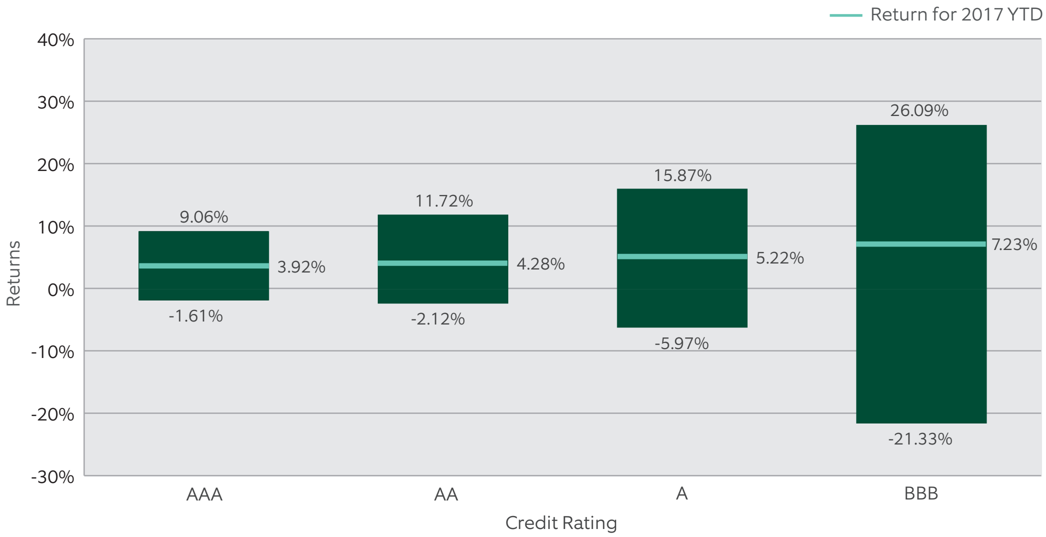
The Bloomberg Barclays Municipal Bond Index had positive returns in seven of the first nine months of the year. The September return was -0.51% and the index closed out the quarter with a 1.06% return. It gained 4.66% this year and had positive returns for 20 of the last 25 months.

Curve positioning was generally beneficial to our performance. The higher income flow of holdings beyond benchmark maturity ranges boosted relative returns. We used strong market performance to reduce duration during the third quarter. We anticipate reversing this positioning throughout the fourth quarter, as we expect more issuance that may provide attractive opportunities.

Strong demand for higher yield continues to lead many other investors to lower their credit quality standards. This has helped drive down lower rated investment-grade yields and credit spreads. For example, the best performing state index this quarter was Illinois!

This high quality bias detracted from relative performance. We remain committed to our high quality overweight, as we believe recent lower rated spread compression has been reflective of the strong technical environment rather than actual improving credit fundamentals. We continue to believe that municipal investors are not adequately compensated for the lower quality and higher volatility characteristics of many of these credits. This is particularly true in an asset class that is part of a "risk-control" allocation.

EXHIBIT 2: MUNICIPAL CREDIT RATINGS AND RETURNS
RANGE OF ANNUAL RETURNS: 2008-2016

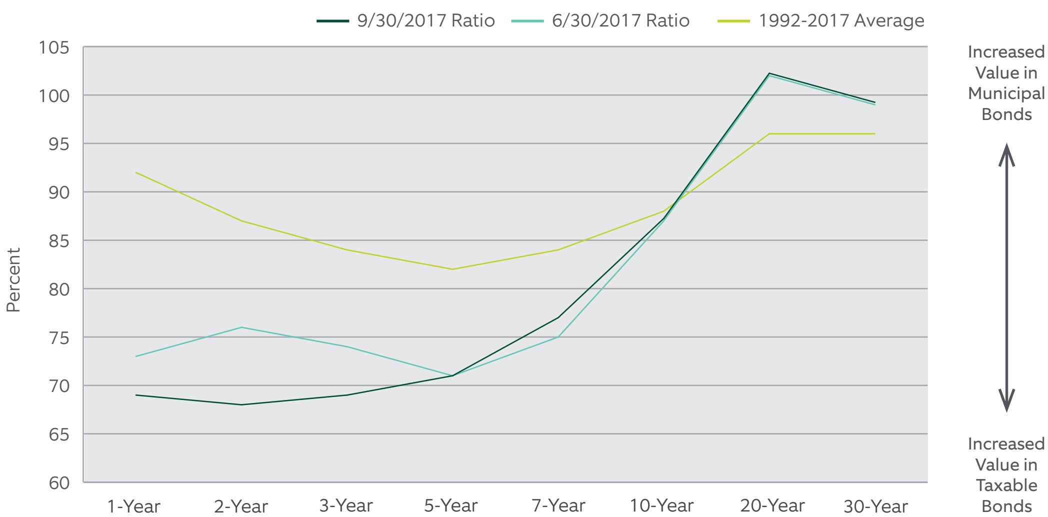


Data as of September 30, 2017 for BB Municipal Bond Index
SOURCE: Bloomberg Barclays

Selected state general obligation and essential service revenue bonds continue as top sector choices to start the fourth quarter. Lease revenue and appropriated debt should continue to be held to a minimum. We will look to take advantage of expected volatility and potential market dislocations.

Reflecting the modest rate moves, third quarter municipal/Treasury ratios barely changed. Only maturities 10 years and longer ended the quarter with ratios above historical averages. Ratios over 100% indicate municipal rates that exceed Treasuries on a gross, before-tax basis. Investors found that level only in 20 year maturities at September 30.

EXHIBIT 3: RATIO: AAA MUNI YIELD TO U.S. TREASURY YIELD



SOURCE: Northern Trust Fixed Income, U.S. Department of the Treasury

HURRICANES AND MUNIS

Credit analysis cannot predict the timing and severity of natural disasters, but we do consider the preparedness, credit strength, and resiliency of issuers. Storms can have long lasting impacts. A strong credit profile combined with the support of federal and state resources will facilitate repair and recovery.

Disasters, while infrequent, are especially damaging if they hit urban centers. Key risks and credit considerations when examining storm prone areas include:

- Underlying credit health: Is rebuilding worthwhile?
- Area profile: A small footprint or concentrated economy carry increased risk
- Disaster preparedness
- Revenue sensitivity: Certain revenues are more volatile under stressed situations.

For example, while Harvey will rival Katrina (2005) in reconstruction costs, the rebuilding of New Orleans and Houston are likely to be very different. Houston's larger population base, larger geographic footprint, higher credit rating, more diversified economy, and position as the anchor of the energy sector may position the city for a quicker and stronger recovery.

Florida accounts for the majority of U.S. hurricane landfalls. For the period 1851-2010, Florida was struck with 40% of the total. Category 2 and 3 hurricanes in Florida account for 53% of all U.S. strikes.

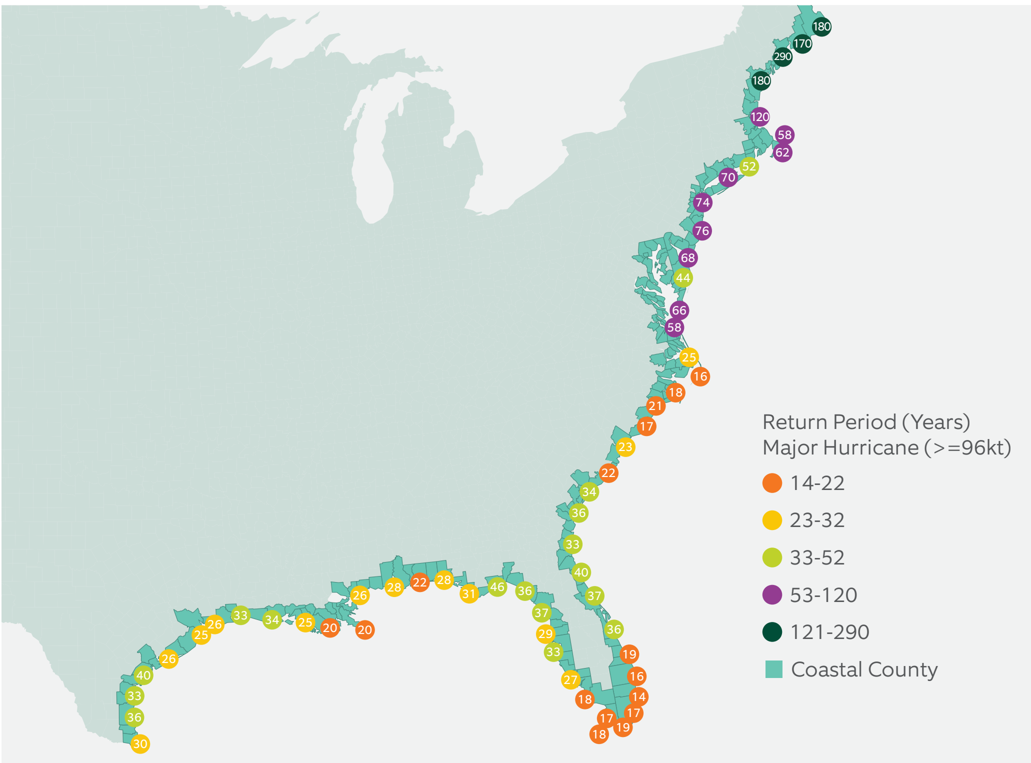
The Federal Emergency Management Agency (FEMA) should cover a minimum of 75% of emergency costs (preparations, safety, and cleanup). Historically, this has been over 100% of immediate costs and 90% for ongoing ones. Following Katrina, FEMA continues to reimburse Louisiana for 100% of certain project costs.

Notes

For additional details on our proprietary Municipal Credit views of natural disasters, please review ***Hurricanes Return to the U.S.***
https://www.northerntrust.com/insights-research/detail?c=96823cb83f26509a76334a4bd4cd6dcb

Northern Trust's economist, Carl Tannenbaum published ***Puerto Rico: Left On An Island.***
https://www.northerntrust.com/insights-research/detail?c=269723d426e413c34a42cade0c3d6d8b

EXHIBIT 4: RETURN PERIOD IN YEARS FOR HURRICANES OF CATEGORY 3 OR HIGHER (winds >111 mph)



Return period is the estimated time (in years) it takes a major hurricane to strike the same community again.
SOURCE: National Oceanic and Atmospheric Administration

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