US Taxable Municipal Bonds: Beyond the Basics

Preferential capital treatment, low correlations, stable ratings, and ESG friendly credits, have renewed interest in the asset class.

Many white papers have explained US municipal bonds to institutional investors in recent years. This paper focuses on why taxable municipal bonds have attracted foreign institutional investors in particular, and why appetite for these bonds remains keen, despite rising currency hedging costs.

US retail investors have long dominated the US municipal bond market, but over the last decade, institutional interest in the sector has soared, particularly outside the US. So far, these non-traditional investors have been rewarded. Over the last 10 years, taxable US municipal bond returns have beaten all but one major bond sector, municipal high-yield (Figure 1). Consequently, the sector’s 6.9% annualized total return for the period handily outperformed the 4.6% return on US corporate investment-grade bonds, a staple in most institutional portfolios (see Figure 1). But strong returns are just one of many reasons that non-traditional investors have ventured into the asset class. Taxable municipal bonds are also garnering interest due to their high quality ratings, longer durations, inefficient pricing and low correlations and diversification to other asset classes.

FIGURE 1: TAXABLE MUNICIPALS OUTPERFORMED MOST SECTORS
Annualized Total Return Post-Financial Crisis (%)

As of December 31, 2009-December 31, 2018
Please see disclosures in Appendix for additional information related to indices.
It is not possible to invest directly into an index. Past performance is not necessarily indicative of future results.
New Interest in an Old Sector

Non-traditional appetite for US municipal bonds was whetted in 2009, when the Obama Administration created the Build America Bond (BAB) program to stimulate an economic recovery from the Great Recession. At the time, many states and cities were having difficulty tapping the traditional, tax-exempt municipal bond market to fund capital projects. As a solution, BABs subsidized the interest cost on taxable municipal bonds to make them affordable to issuers and broaden their potential investor base. Over the two years the program was in effect, issuance of taxable municipal bonds surged from $24 billion in 2008 to $85 billion in 2009 and $152 billion in 2010. (SIFMA.org; US Municipal Issuance)

Supply piqued demand. Non-traditional investors learned that taxable municipals offered an array of structural benefits and can offer incremental returns due to inefficient pricing in a fragmented market. Simply stated, what municipals lack in liquidity they make up for in higher yield spreads and total return potential. Diversification benefits and the possibility of lower capital charges have resulted in increased foreign demand of taxable municipals, as well as foreign ownership has more than doubled from $51 billion in 2008 to nearly $106 billion as of September 30, 2018. (Figure 2).

MUNICIPALS—A PRIMER

US municipal bonds are the primary funding source for US infrastructure. State, county and local governments and agencies issue these tradeable debt instruments to build highways, airports, water and sewer plants, and other structures that provide essential services to the public. With nearly $3.9 trillion in outstanding bonds, municipal bonds make up nearly 10% of the value of the $40.8 trillion U.S. bond market.

Interest income from most municipal bonds is not subject to federal income tax, so individual US investors have long dominated the market; today, individuals own about two-thirds of the municipal bonds outstanding. Some taxable US institutions, such as nuclear decommissioning trusts, have also invested in the asset class for decades. Tax-exempt US entities and non-US investors that aren’t subject to US taxation have generally stayed away, because the yields on tax-exempt municipal are generally lower than yields on other bonds with similar duration.

But not all muni bonds are tax-exempt: The US tax code strictly limits the volume of tax-exempt municipal bonds for each of the thousands of issuers, and restricts the eligible purposes for issuing them. Issuers that need to issue more debt than allowed, or to fund a non-permitted purpose, tap the taxable municipal bond market. Institutional investors’ recent increased appetite for municipal bonds is focused on the taxable category, which generally offers higher yields because their interest payments aren’t tax exempt. $480 billion in taxable municipal bonds were outstanding at the end of the second quarter, 6/30/2018. (SIFMA: Municipal Bond Credit Report August 2018)

Municipals can also be categorized by their security features. About 45% of municipal bond issuance in 2018 to date are “general obligation bonds,” supported by the full faith and credit of the issuer. The rest are “revenue bonds,” supported by a dedicated revenue stream, such as highway tolls or municipal water charges. Recently, a number of US public-private partnerships (P3s) have issued both taxable and tax-exempt revenue bonds to build infrastructure projects. US P3s are still scarce, and differ in some aspects from P3s in Europe, which are generally less leveraged, based on our experience in analyzing these credits.
Today, many institutional investors say they see taxable municipals as an attractive late cycle asset class. With the US economic recovery now longer than all but one in history, and the global economy still fragile, many of these investors welcome the higher credit quality and more reliable ratings stability of municipals versus other fixed income sectors.

In addition, non-US insurance and reinsurance firms like the potential for reduced capital charges. The European Union’s Solvency II Directive could potentially reduce the capital charges on investments in bonds designated as “infrastructure corporates” by up to 25% relative to corporate bonds. While the regulatory scheme applies only to EU-based insurers, it is becoming the de-facto risk framework throughout the world. For instance, many companies and regulators in Asia are closely following the development, with a view to obtaining similar regulatory treatment (e.g., Japan) or adopting elements of Solvency II in their own risk-management initiatives.

An allocation to taxable municipal bonds that meets Solvency II criteria could improve the capital efficiency of these insurers’ portfolios. This may potentially alleviate some of the rising cost of currency hedging for non-US investors. In addition, clients are exploring ways to use cross currency swaps as an alternative to the more standard three month FX Forward rolls. There are many long term implications of switching to this hedging instrument that should be carefully considered (see Appendix).

While many investors have been focusing on the corporate bond and equity markets for their Environmental, Social and Governance (ESG) investment strategies, we believe that the municipal bond market is a natural fit for strategies with ESG considerations. Municipal bonds are the primary funding source for infrastructure projects in the United States. Many of these projects address environmental and social considerations and are also aligned with the sustainable development goals, including conservation projects for water and wastewater systems, wind farms, public education, non-profit hospitals, public transport and affordable housing. Our fundamental municipal credit analysis regularly takes ESG considerations into account when determining the underlying strength of a municipal credit (See Appendix).

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1 14th September 2017 the treatment for infrastructure corporates was published in the Official Journal of the EU, June 8, 2017.
2 Solvency II Implications for Asian Life Insurers, Ernst & Young, Copyright 2011 EYGM Ltd.
Market fragmentation, limited sell-side research and the prevalence of buy and hold investors often times leads to inefficient pricing. Pricing inefficiencies create opportunity for active investors with an edge in credit research and trading to extract greater yield and total return than the sector’s typical buy-and-hold investors reap.

**Competitive Yields and Long Durations**

Institutional appetite for yield has also driven the sector’s rapid growth over the last decade. With central banks around the world using quantitative easing programs to stimulate the global economy for much of this period, interest rates declined to historic lows. Yields on many sovereign bonds eventually fell into negative territory. Many investors have sought to enhance yields by increasing corporate or emerging-market credit risk. Taxable municipal bonds provided an alternative source of incremental yield, though spreads varied over time. In late November 2018, yields on double-A (AA) rated taxable municipal bond of eight years or longer were 114 basis points higher than yields on comparable Treasuries (Figure 4). Also evident is the yield advantage of Taxable Municipals over comparably rated US Corporates.

Duration is another key driver of growth. Because capital projects financed with taxable municipal bonds generally last for decades, they are typically financed with longer maturing bonds. Approximately 57% of taxable municipals outstanding have maturities of 10 to 25 years; another 16% are even longer (Figure 5). Corporate bonds, by contrast, are distributed fairly evenly across the maturity range. Institutions seeking to immunize their long-dated obligations have welcomed this source of long-duration assets to match their long-term liabilities.

**Low Correlations and Broad Diversification**

Municipal bonds also provide significant risk-reduction benefits. An allocation to municipal bonds may reduce fixed-income portfolio volatility because municipal bond returns generally have a low correlation to other fixed-income sectors (Figure 6). That’s been true over decades for traditional tax-exempt municipals. It was also true for taxable municipals, although to a lesser extent.

The taxable municipal market has far fewer issuers than the tax-exempt market, but is well-diversified in purpose. They fund toll roads, bridges, light rail lines, airports, university and government buildings, water and sewer systems, fiber-optic telecom lines and electric supply and distribution systems. The issuers are also diversified by region, credit rating and security structure (e.g., callable vs non-callable bonds). As a comparison, the Bloomberg Barclays taxable municipal index (ticker: BTMNTR) has 13 distinct investable sub-sectors; in contrast, the Bloomberg Barclays US Corporate bond master (ticker: LUACTRUU) has only three.

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**FIGURE 4: THE YIELD PICK UP IS COMPPELLING**  
Yield-to-Worst

- US Treasury
- US Corp AA
- Taxable Muni
- Tax-Exempt Muni AA

As of November 30, 2018  
*It is not possible to invest direct into an index.*  
Source: ICE BAML indices  
See Appendix for additional information.

**FIGURE 5: MOST TAXABLE MUNICIPALS ARE LONG BONDS**  
Maturity Distribution of Outstanding Bonds (In Years)

- **Years**
  - 1-3
  - 3-5
  - 5-7
  - 7-10
  - 10-25
  - 25+

- **Taxable Municipals**
- **Corporates**

As of April 30, 2018  
Source: Bloomberg, Bloomberg Barclays Municipal Index – Taxable Bonds, Bloomberg Barclays US Corporate Bond Index

**FIGURE 6: TAXABLE MUNIS DIVERSIFY OTHER BOND SECTORS**  
Correlation to Other Sectors

| Taxable Municipal Investment Grade Index | 0.10 |
| Pan-European Aggregate | 0.22 |
| JPM GBI (World) USD | 0.43 |
| U.S. Corporate Investment Grade | 0.56 |
| U.S. Treasury | 0.62 |
| U.S. Aggregate | 0.71 |

June 30, 2008-June 30, 2018  
*It is not possible to invest direct into an index.*  
Source: Bloomberg Barclays Indices.  
See Appendix for additional information.
High Quality Asset Class and Stable Ratings

The relative high-quality nature of municipal bonds is also attractive for risk-conscious investors and insurers seeking to meet their capital requirements most efficiently. Over 76% of US municipal bonds outstanding are A+ rated or better; only a tiny portion are below investment-grade. In contrast, only about 10% of the global corporate bond market is double-A rated, and nearly half is below-investment grade (Figure 7, above).

Municipal default rates have been significantly lower over time, even compared to corporates with higher ratings. Since 1986, the average default rate for municipals that Standard & Poor’s rated BAA was 0.81%, less than the 0.84% default rate for AAA-rated corporates.

By the end of 2017, the share of investment-grade corporates with a triple-B rating was 38%, up from 26% ten years earlier (Figure 8, to the right). We believe these bonds are vulnerable to being re-rated below-investment grade during the next economic downturn. Investors that can’t own below-investment grade debt would be forced to liquidate their holdings at inopportune times, pushing prices down further.
Historically, municipal bond ratings have been far more stable than corporate bond ratings, as Figure 9 shows. Why should this be? Some corporations are vulnerable to event risks, such as leveraged buyouts, that rarely affect municipal bonds. More generally, corporations have fewer options to cover their debt in times of stress. Municipal bond issuers have more latitude. State and local governments can raise taxes, if necessary, to support the general obligation bonds which are backed by the issuer’s full faith and credit. Revenue bonds, on the other hand, are backed by dedicated cash flow streams from tolls or other user fees for essential services. In many cases, these public enterprises are virtual monopolies. An airport or water/sewer system, for example, can often raise prices without losing customers.

**Infrastructure Issuance and Opportunities**

We expect strong issuance of taxable municipal bonds in the future. After decades of neglect, US infrastructure earned a D+ on The American Society of Civil Engineers (ASCE)’s 2017 Infrastructure Report Card. Bringing US infrastructure to a state of good repair would cost $4 trillion, the ASCE estimates. Although the federal government and some states have stepped up infrastructure investments in recent years, only 55% of the funds needed have been committed. Another $2 trillion in funding is needed over the next 10 years.

To meet this shortfall, the Trump Administration has proposed a $1.5 trillion plan to rebuild America’s infrastructure over 10 years. The federal government would provide a total of $200 billion, providing an incentive for municipalities, alongside public-private partnerships (P3s), to fund the rest. Because the US Internal Revenue Service limits the amount of tax-exempt debt state and local governments can issue (see primer, page 2), it is our belief that taxable municipal bonds would provide the majority of this new financing. This expected spike in issuance likely cannot be absorbed by traditional municipal investors, so new sources of funding/demand are needed. As such, overseas investors seeking to invest in infrastructure assets in what may be a potentially capital efficient manner, or other types of domestic investors looking to diversify their holdings into a high quality asset class, may help fill the void.
Making a Strategic Allocation to US Municipal Bonds
In conclusion, the addition of taxable municipal bonds may improve the risk/return profile of a diversified fixed income portfolio. Lower correlations, incremental yields and the potential to generate alpha in a highly fragmented asset class all contribute positively to a portfolio’s risk/return trade off.

Over the last ten years, an allocation to taxable municipal bonds has improved the return per unit of risk on a portfolio of diversified US bonds. We believe taxable-bond yields remain competitive and credit quality remains high; there are good fundamental reasons both to expect credit ratings to remain relatively stable, and correlations to other fixed income sectors to remain low.

FIGURE 10: HYPOTHETICAL ALLOCATION ADDING MUNICIPALS MAY IMPROVE PORTFOLIO RETURN ON RISK | GROSS OF FEES
January 2009-September 2018

Source: eVestment
See Disclosures in the Appendix for additional information
Hypothetical example, for illustrative purposes only. Please see Disclosures at the end of this presentation for important information. No representation is made as to the accuracy and completeness of information contained in this presentation that has been obtained from third parties.
Appendix

Municipals as Liquid Infrastructure Investments Under Solvency II

In 2009, the European Union introduced its Solvency II Directive, which takes a risk-based approach for calculating the capital adequacy of insurance and insurance firms. It gave insurers until January 2016 to meet its capital requirements. Solvency II allows insurers to calculate their capital requirements using a standard model, or via use of an internal model. The standard solvency capital requirement (SCR) formula takes a modular approach: Overall risk is broken down into sub-components, and diversification benefits (correlation matrix) are applied to derive the overall solvency capital requirement. The subcomponents include life underwriting risk, non-life underwriting risk, operational risk, as well as market risk.

The market risk subcomponent includes interest rate, equity, real estate, concentration, currency, and spread risk. For spread risk, the model assigns capital charges by multiplying the market value of the instrument by a risk factor, which incorporates both spread duration and aggregated rating class criteria. Risk factors are also sector specific. For example, European sovereign bonds have a risk factor of zero, regardless of rating, and thus are subject to a 0% spread risk capital charge. Highly-rated covered bonds have lower charges for spread risk than plain vanilla corporate bonds or loans, while credit derivatives and securitized debt have higher risk charges.

The spread charges for infrastructure investments are also favorable. Regulators correctly recognize that such debt is “typically characterized by higher recovery rates and low correlation of default and recovery relative to corporate bonds and loans”. 1 To qualify for favorable spread charges, infrastructure debt must “support essential public services” 2 and be located within a developed nation, as defined by the Organisation for Economic and Community Development. In addition, the insurer has to show its ability to hold the asset to maturity, and the debt must provide holders with the right to seize the project’s assets and that the “equity is (completely) provided to debt providers” in the event of bankruptcy.

In June 2017, additional amendments were made to the regulations for infrastructure investments, which created a new category called “infrastructure corporates”. Why? There’s a good case to believe that infrastructure linked companies should display less volatility and lower default properties than a standard corporate given their long term nature. As such, policy makers saw fit to broaden the definition beyond the very specific project criteria from the initial regulation. The EU removed the requirement that infrastructure investments be made through special purpose entities (SPEs) to gain favorable charges. They also took a more expansive view of security and pledged collateral arrangements. For example, investments where “pledge (of assets) prior to default is not permissible under the national law” 2 was broadened to allow additional security pledges (like maximum indebtedness) that benefit debt holders.

Furthermore, published reports 3 and our own observations suggest that infrastructure investments in the Eurozone are scarce, and that insurers are broadly under-invested in such debt. The US taxable municipal infrastructure market may help fill the void, as $ 3.9 trillion of outstanding bonds creates an “availability of assets ....with an attractive yield, which match the liability profile and risk appetite of insurers”. It is our belief that taxable U.S. municipal revenue bonds, the focus of this paper, should meet the new criteria and be eligible for reduced capital charges of potentially 25% compared to corporate bonds.

We would like to thank Ernst & Young for their advice and expertise in compiling information on Solvency II, specifically for application to infrastructure investments.

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1 Solvency II Implications for Asian Life Insurers, Ernst & Young, Copyright 2011 EYGM Ltd.
2 14th September 2017 the treatment for infrastructure corporates was published in the Official Journal of the EU.
3 GLIO Journal Issue 02 (page 11-17 Mission Critical and Complementary).
4 GLIO Journal Issue 01 (page 9 Listed Infrastructure- a natural choice for insurers).
Feature Story from The World Bank:

Risk and Capital Requirements for Infrastructure Investment in EM and Developing Economies¹

“Infrastructure is a natural match for insurers’ long-term liabilities. Long-term fixed income instruments fit well with the long-dated liabilities of insurance companies, especially for those offering life insurance and annuity products. Infrastructure projects tend to yield long-term, predictable cash flows, with low correlation to other assets and relatively high recovery value in case of repayment arrears. This match is so significant that some regulators provide special treatment for insurers that hold them to maturity.”

Considerations for FX Hedge of the Portfolio

For non-USD denominated investors, the appetite to capture higher yields on USD assets is currently challenged by the on-going FX hedging costs back to their base currencies. For example, EURUSD is recently cited as a particularly challenging risk for EUR investors to address. Why? One of the reasons is interest rates between Europe and the US have diverged, and not consistently across the maturity curve as displayed below:

FIGURE 11: SLOPE DIFFERENTIAL USD VS EURO SWAP CURVES

Source: Bloomberg

Traditional FX Hedging—Rolling FX Forwards

Asset managers and long term investors often use short dated FX forwards to hedge FX exposures. These are typically 1 or 3 months duration, with some very good arguments around the liquidity, ease and simplicity of trading in this market. While the FX risk is fully hedged by rolling the FX forwards every month or three months, utilizing this approach means the duration of the hedge does not match the duration of the underlying asset. Instead, it locks in the short-term funding rate and cross-currency basis differentials between the two currencies. Currently, the large interest rate differential at the short end of the EUR and USD curve leads to a “negative carry” on the hedge which is rather large by historical standards. Recently, on an annualized basis, this may exceed 3% per annum (Figure 12) assuming interest rate differentials, and the cross currency basis, remain near their current levels.

In an effort to reduce near term hedging costs and look at alternative ways to manage currency fluctuations, clients with long term investment horizons are exploring the use of fixed-fixed cross currency swaps. Why? Simply, because investors don’t want to deal with not knowing their hedging costs 6 to 9 months from now, so why not lock it in today. Investors that choose to use fixed-fixed cross-currency swaps are effectively locking in both today’s spot exchange rate for the maturity of the investment, as well as the funding rate differentials and cross-currency basis between USD and their home currency. This means that a fixed-fixed cross currency swap can reduce the investment return volatility and the investor is effectively switching USD duration to EUR duration, assuming a swap done to term of the investment.

There are several considerations that investors should bear in mind when contemplating the use of cross-currency swaps. Similar to the same conundrum that consumers face when purchasing a home and deciding whether to borrow money on a floating or fixed rate basis, there are times when one will be cheaper than the other. The same occurs when deciding whether to utilize cross-currency swaps- locking in today’s cross currency rates will work in some environments and not others. For example, should Euro and USD funding rates converge during the life of the swap, the investor who locked using FX swaps would not benefit since the funding rate was locked at the inception of the swap.

Mark to market valuations on cross currency swaps can also be quite volatile as interest rates, FX and cross-currency basis markets shift. Given the long dated nature and the funding differentials that can change over the life of the swap, margin calls on negative mark to market can be quite large. Investors would need to ensure they have adequate liquidity to cover these events.

Environmental, Social and Governance (ESG) Investing
While environmental, social and governance factors have often been part of credit analysis, increasing ESG accountability by clients has led many investors to consider ESG factors independently based on a rubric of criteria. Often the factors consider the use of bond proceeds for environmental, renewable and or sustainable purposes as well as governance considerations, including strong financial reporting, transparency and social consciousness. Below is an example of some of the key elements taken into account.
ESG Sample Risk Considerations

<table>
<thead>
<tr>
<th>ENVIRONMENTAL</th>
<th>SOCIAL</th>
<th>GOVERNANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change</td>
<td>Job Creation/Employee Relations</td>
<td>Transparency/Disclosures</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Human Rights</td>
<td>Audit Practices</td>
</tr>
<tr>
<td>Carbon Emissions</td>
<td>Community Relations</td>
<td>Board Expertise</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Product Responsibility</td>
<td>Independent Directors</td>
</tr>
<tr>
<td>Energy Resources &amp; Management</td>
<td>Health and Safety</td>
<td>Financial Policy</td>
</tr>
<tr>
<td>Biocapacity and ecosystem quality</td>
<td>Diversity</td>
<td>Business Integrity</td>
</tr>
<tr>
<td>Air/water/physical pollution</td>
<td>Consumer Relations</td>
<td>Transparency &amp; Accountability</td>
</tr>
<tr>
<td>Renewals &amp; Non renewables natural resources</td>
<td>Access to skilled labor</td>
<td>Shareholder Rights</td>
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<td></td>
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<td>Incentive Structure</td>
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</table>

The chart of ESG risk considerations presented above is provided for illustrative purposes only and is not intended to represent a fixed set of guidelines or requirements.

Disclosures

ADDITIONAL INFORMATION FOR FIGURE 1

ADDITIONAL INFORMATION FOR FIGURE 4
US Treasury: ICE BofAML US Treasury Index
US Corp AA: ICE BofAML AA US Corporate Index
Taxable Muni: ICE BofAML Broad US Taxable Municipal Securities Index
Tax-Exempt Muni: ICE BofAML AA US Municipal Securities Index

ADDITIONAL INFORMATION FOR FIGURE 6
U.S. Corporate HY: Bloomberg Barclays U.S. High Yield Index;
Pan-European Aggregate: Bloomberg Barclays Pan-European Aggregate Index;
JPM GBI (World) USD: J.P. Morgan Government Bond Index (GBI Global Unhedged USD);
U.S. Corporate Investment Grade: Bloomberg Barclays U.S. Corporate Index;
U.S. Treasury: Bloomberg Barclays U.S. Treasury Index;
U.S. Aggregate: Bloomberg Barclays U.S. Aggregate Index;
Taxable Municipal Investment Grade Index: Bloomberg Barclays Taxable Municipal Investment Grade Index

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ADDITIONAL INFORMATION FOR FIGURE 10
Investment Grade Credit: Bloomberg Barclays U.S. Credit Index;
HY Corp: Bloomberg Barclays US Corporate High Yield Index;
Taxable Munis: Bloomberg Barclays Municipal Index - Taxable Bonds.

Hypothetical Performance Disclosures
This material contains hypothetical analysis based on the stated indices. The returns identified in Figure 10 reflect a backward looking analysis of the returns for each of the indices stated, with their stated weights, for the identified time period. Each Portfolio identified does not consider portfolio rebalancing, does not take into consideration any fees or expenses, is based on historical data for the stated time period and ending on September 30, 2018, and assumes denomination in US dollar currency and is based on indices in which it is not possible to invest. MacKay Shields makes no representations that the identified portfolio allocation will actually reflect future results or that any investment will actually achieve results similar to those shown. These techniques do not predict future actual performance and are limited by assumptions that future market events will behave similarly to historical time periods or theoretical models.

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