Municipal Bond Market Investing

Executive Summary

This white paper provides a guide for institutional investors seeking to understand and invest in municipal bond markets. Approximately, $310.25 billion in municipal bonds were issued in 2018[1], with $3.8 trillion in total outstanding municipal debt.[2] Municipal bonds are traded OTC (over the counter) instead of an exchange, similar to other fixed income securities, with both a primary and secondary market. Like other fixed income securities, municipal bonds can provide a source of income for institutional investors. This white paper will comprehensively detail the following aspects of municipal markets and investing:

- Municipal Bond Types
- Municipal Credit Analysis
- Understanding and Investing in Municipal Markets
- Regulatory Overview

Why Municipal Bonds?

Municipal bonds will generally provide enhanced yield over Treasury and Agency securities. The reason for this is that municipal bonds carry additional credit and liquidity risk. Credit risk can vary depending on the rating of the bonds that are being purchased. Although municipal bonds are not risk free, purchasing investment grade municipal bonds reduces risk. If an investor focuses on AA-/Aa3, stable rated or better bonds, the historical percentage of a default is only .01% throughout history, according to Moody's. Liquidity risk is more of a factor as the bid/ask spread is wider on Municipal bonds and is subject to change based on economic conditions along with market supply and demand. The tradeoff for greater bid/ask spread is enhanced yield compared to Treasury and Agency securities.

Holding municipal bonds in rising rate environment can be advantageous compared to Treasury or Agency investments. Instead of purchasing securities at par or a discount, many municipal bonds will have a larger coupon, usually 5%. A Buyer will need to pay a premium (above par) for higher coupons, however a premium bond will not depreciate as quickly as par or discount securities and the total return, which included coupon payments, will be much higher.

Municipal Bond Types:

1. General Obligation
   a. Unlimited – A municipality has the ability to raise taxes an unlimited amount in order to make the bond payments.
   b. Limited - Limited GOs have a maximum limit to raise taxes to make the bond payment. Factors to consider prior to purchasing a Limited GO is the size of the municipality and the change in population. Also it helps to look at how much the state is subsidizing the issuer.
   c. Double Barrel - paid by taxes and revenues. These bonds are not as prevalent compared to plain GOs, but the revenue backing adds a layer of security to the payment of the bonds.
2. Revenue
   a. Bonds that are backed by pledged revenues. There are many different types of revenue bonds which all need to be looked at closely. The safest are the essential service utilities that provide critical services to maintain public health and safety, such as electric, water and sewer. These services are vital to life and the last bill residents will stop paying, making them the most secure of revenue bonds. Non Essential Service revenue bonds may include toll roads, airports, etc.
3. Advance/Current Refundings
   a. A refunding is a new borrowing that pays off an old borrowing. The purpose of refundings is to achieve debt service savings, restructure debt service or free up existing funds.
   b. In an advance refunding, the issuer is able to refund or pay off a prior bond issue more than 90 days in advance of its first call date. The Tax Cuts and Jobs Act from Dec 2017, eliminated tax-exempt advance refundings.
   c. In a current refunding, the prior bonds are refunded within 90 days of the first call date. These bonds are retired, and removed from the issuer's balance sheet. The principal and interest will be earned on the securities

that are now in an escrow account. The escrow can contain any safe security that is deemed feasible by the investment policy and should be disclosed in the escrow statement. Typical securities are:

- Treasuries: Safe and secure.
- State and Local Governments (SLUGS): The treasury sells these securities only to State and local governments.
- Cash: Non-interest bearing, so it's not as good as treasuries.
- There are others, but they are rarely utilized in a current refunding.

4. A variable rate demand note (VRDN) is a long-term municipal bond which is offered to investors through money market funds. The notes allow a municipal government to borrow money for long periods of time while paying short-term interest rates to investors. As VRDNs are issued in minimum $100,000 denominations and the rates reset daily to weekly. The vast majority of VRDNs are revenues with only a few being GOs.

5. Municipal Commercial Paper (CP) is Short-term obligations issued by municipal entities usually backed by a line of credit with a bank that mature within 270 days. The issuer typically pays maturing principal of outstanding commercial paper with newly issued commercial paper, referred to as a "roll over," thereby borrowing funds on a short-term basis for an extended period of time. Rate reset periods may vary from one to 270 days and different portions of a single issue of commercial paper may simultaneously have different reset periods.

Tax Status

In a normal market, entities and individuals that are taxed, are the main buyers of Tax exempt municipals, as they provide a tax shelter for investment income. A variation of Tax Exempt is Bank Qualified bonds. These are usually a little more expensive than normal Tax Exempts, because banks are able to invest and write off a portion of the interest. In order to be Bank Qualified, the main factor is the issuance size needs to be under $10 million to help incentivize banks to support local municipalities. Generally taxable bond issuance makes up less than 10% of total issuance, due to issuers not wanting to have to pay the extra interest needed to entice investors. Generally investors in taxable municipal bonds do not pay taxes (such as public unit investors), or are astute enough investors to identify taxable yields that still exceed tax exempt yields after taxation (such as insurance companies). Banks will also buy taxable bonds in effort to help local municipalities, and in search of strongest yields. Taxable issuance spiked due to the introduction of Build America Bonds (BABs) in 2009-2010. Outside of the 35% federal subsidy behind BABs or pension obligations; there usually isn't a strong incentive for widespread issuance of taxable bonds in general.

Municipal Credit Analysis

When evaluating credit, let the basics be a guide. Look at the revenues collected and see if they are increasing year over year. If they are not, look at the line items for what has dropped and investigate. Also look at state subsidies, if the municipality is relying too heavily on the state, make sure the state is in good financial health. Illinois is a good example; the municipalities that are relying on the state are not getting the money the need in a timely manner and may also be in financial difficulty. Next, examine the expenditures to evaluate the recent trends. Ideally, they are decreasing, but hopefully if they are increasing; it's at a slower rate than revenues are increasing. If it's a larger increase, examine the trend to determine the cause. For example, is it a one-time expense or a problem budgeting. It also helps to look into the 10 largest tax payers as to make sure that one taxpayer isn't significantly more than the others. The reason for this is if a corporation pays a large percent of the bonds and goes bankrupt, moves, or renegotiates for a tax cut, the bond holders will suffer.

It's also helpful to read the Moody's or S&P reports to see their analysis and thoughts on the municipalities. Since the mortgage downfall in 2009, their reports have become more thorough and provide more details. They also provide a Positive, Stable or Negative credit watch now in addition to the rating to give advance warning if the rating will change. While these ratings, and the accompanying credit reports, can provide a good indication and understanding of a municipality's credit strength, it is advisable that the investor develop some independent understanding of how to evaluate a municipality's credit prior to investing.

When municipalities default it is not an instantaneous event, but a long drawn out process. The rating agencies will look and re-evaluate the credit and provide warnings. Rarely will bonds drop by more than one rating notch, but it is possible. When the credit is put on negative watch, the issuer's financial health will be evaluated to see if its rating should be maintained.

Investors can leverage https://emma.msrb.org/ to pull much of the pertinent information on a specific municipal bond particularly on secondary market offerings, as these will not have a fresh OS containing pertinent bond information. Reportable events, financials, trade pricing history are all included on EMMA.

Reportable Events must be reported by municipalities, and disclosed by brokers to investors. These can range from a municipality neglecting to update its financial records on EMMA, a rating change, and reporting a fraudulent misallocation of funds—resulting in a shortfall of revenue need to pay debt holders. It is also recommended to run the municipality through a search engine prior to investment to ensure there isn't a negative material event that has yet to be reported to EMMA.

A municipality's financial statements are required to be posted on EMMA annually, which they will post typically 180 or 210 days from the end of their fiscal year. However, some can be up to a year. The filing date can vary upon issues and can be found in the OS. The issuer's financials should be taken into consideration and must be current for the last 5 years at a minimum to provide a track record to analyze.

An OS should also be available on EMMA to review industry standard disclosures related to specific municipal bond issues.

It is generally recommended that investors avoid bonds that have not been rated in over two years. Ratings can become stale, and give an inaccurate indication of a municipality's credit strength.

Bond insurance is commonly available for municipal bonds. It is best not to rely on insurance, as they have failed in the past. Prior to 2008, the majority of the bond insurers were rated Aaa/AAA and they underlying security was commonly disregarded. Unfortunately in the 2008 financial crisis, the instability of the market caused the rating agencies to look into the insurers and found they had too much exposure into mortgage backed bonds causing the insurers ratings plummet. Many bond holders were frantic because they had no idea what the underlying credit was worth now that their AAA bond was now Baa or lower and were forced to evaluate the credit or sell the position. Many sold at unreasonably low levels, costing them a lot of money. Focus on the Issuer's underlying credit to determine the worthiness of the bond. The two viable bond insurers today, BAM and Assured Guaranty, are both rated AA by S&P.

State Enhancements and school fund programs are different than insurance. These programs are either have state backing the bonds with state funding or a pool of funds set up to aid the schools in case of financial difficulties.

In general, investors can focus on two types of bonds to reduce risk, General Obligations (GOs), or essential service revenue bonds. Specifically, seek out GOs backed with an ad valorem tax levy or have the full faith and credit of the issuer pledged to pay the bonds. This is for the security of the payment and to make sure the municipality isn't relying on the state for subsidies. Take Illinois for example, if a municipality is depending upon the state subsidy too heavily in order to pay their debt, and not keeping enough in reserves, then Illinois is late in dispersing payments, the issuer will be in trouble. Essential service revenue bonds would include municipal services like water and sewer. These get their name from being essential day to day needs for municipal residents, and have a stronger likelihood of being paid compared to other municipal revenue based services, and arguably are a stronger credit than many general obligation bonds.

While, its highly beneficial for an investor to have an independent knowledge base to understand municipal bonds and credit, brokers are required to disclose various information about a bond they are selling to the customer prior to sale.

Understanding Municipal Bankruptcies

Here is an overview of the highest profile municipal bankruptcies:

Detroit - This bankruptcy was telegraphed. Here are several contributing factors to the Detroit bankruptcy:

- Population collapse occurred over decades. In 1950 there were 1.8 million people, down to 702,000 in 2010. With all the people leaving there were 78,000 abandoned buildings.
- Highest unemployment rate in the country.
- Detroit had an incredibly high $18 billion in GO debt and $3 billion in unfunded pension liabilities. They also had 12,000 public workers, more than any other city in the country; there was 1 for every 55 residents. Comparatively, Indianapolis had 1 for every 115 residents. They could not afford to hire enough police, so crime rates were extremely high, driving tax payers out of the city.
- The bankruptcy court's decision for Detroit concluded that the Water and Sewer and Police and Fire Pension bonds were the only issues to get paid 100% back. The GOs were only paid out 74 cents on the dollar. See detailed breakdown of bond holder payouts:

Table 3: City of Detroit Plan of Adjustment payouts as of May 5, 2014

CREDITOR	PAYOUT COMMENTARY
Pensions: General Retirees	Payout of 73 to 95.5 cents on the dollar; lower if "no" on plan
Pensions: Police and Fire	Payout of 100 cents on the dollar with partial COLA reduction
Pension COPs	Payout of zero cents on the dollar; validity of claim subject to litigation
General Obligation Bonds	Payout of 74 cents on the dollar
Swap Termination Payment	Payout of 30 cents on the dollar
Water and Sewer Bonds	Payout of 100 cents on the dollar
Detroit Institute of Art	Art deaccession placed on hold

Jefferson, Alabama - The County was required by court order to bring the aging sewer system up to environmental standards. The County took on more debt than was needed to mitigate the sewer problem as it added capital projects that were unrelated and ill-advised. Liquidity problems ensued when variable rate debt suffered liquidity problems resulting in failed remarketing's, accelerated repayment provisions and ratings downgrades. Unlike the Detroit bankruptcy, Jefferson County unraveled relatively quickly. See the following timeline:

- April 1, 2008: Initial default when the County fails to make a principal payment on sewer warrants (bank bonds) held by liquidity providers.

- September 15, 2008: County fails to make principal payment on General Obligation (bank bond warrants) held by liquidity providers.

- March 16, 2011: State Supreme Court finds Jefferson County's 2009 Occupational Business and License Tax unconstitutional, effectively removing 40% of County General Fund revenues.

- November 2011: Jefferson County files for Chapter 9 bankruptcy protection.

- April 1, 2012: County misses payments on non-bank held General Obligation warrants.

- December 3, 2013: County formally emerges from bankruptcy; by the end of 2013 refinances all outstanding sewer warrants and outstanding variable rate general obligation warrants with new issues of $1.785 billion and $105 million par respectively. The emergence from bankruptcy in December 2013 was facilitated by a very large refinancing of the sewer debt and a more modest one for the Series 2001B variable rate GO warrants resulting in 54% sewer and 88% general obligation recoveries resulting for bond holders.

Puerto Rico - Puerto Rico bankruptcy started in 2014 and is still getting worked out in courts. The major arguments are who should be allocated funds from which issues and how much as the wording in the Official Statements is being scrutinized. These bonds are backed by the US government so it will be interesting to see how much they are willing to pay.

Items brokers must disclose:

- Confirmation that the bonds meet the minimum requirements of the investment policy.
- The purpose of the bonds and source of funds used to pay debt.
- If it's a limited GO, the limitations should be described.

• The issuer should be current on its annual financial disclosures and any material event notices need to be defined.
• The Bond's rating and any recent changes should be presented, along with insurance or credit enhancements.
• The price, yield, and interest should be clear.
• Tax implications and call schedule, if any.
• If the bonds are purchased in the primary market the POS or OS should have been sent, or a link to the EMMA page where they can download the documents.

Offering Statement and Preliminary Offering Statement

When a new issue is coming to market a Preliminary Official Statement (POS) is created to explain what the purpose of the bonds is, what it's backed by, disclose Financial Statements, and all other pertinent issuer information. The POS will have a blank scale for the maturity range, and will have preliminary numbers for the sources and uses of funds. Competitive deals will have the conditions for underwriters to submit bids. Once the deal has been brought to market, the scales will be filled in and the exact dollar amounts will be entered for sources and uses of funds, which will create the Official Statement (OS). It is recommended to look into these documents for the purpose of the bond, security of payment, risk factors, top 10 Taxpayers, and any other information that is not understood from the description of the bonds.

Trading Municipal Bonds

Purchasing

1. Primary issues-New issues that are brought to the market. Will usually settle in the next 1-3 weeks.

a. Negotiated- Brought by a single underwriter with predetermined levels that have been negotiated between the underwriter and the issuer. Rule of thumb is negotiated deals are lesser known issuers or they have lower credit ratings. These typically come at a higher yield than comparable competitive deals. The underwriter will start out by sending out the preliminary structure for indications of interest (IOI) to see if the deal is priced correctly. They will modify the scale, if necessary, then release it for a set time called the order period. Once the order period is over, the underwriter will look at the orders and allocate bonds to the buyers. If a maturity is oversubscribed, the amount is usually divided equally to the buyers.

b. Competitive- The issuer will have underwriters compete for their issue. The issuer will give certain parameters that they require for the deal, then will have a set date and time for all the underwriters to turn in their deal structure and bid. Rule of thumb about issuers on competitive deals is they are well known names or have high credit ratings. They are more liquid names that will interest more underwriters. Since the underwriters are competing against each other, the yields are a lower compared to negotiated deals. To configure their scale, underwriters will send out levels they believe they can sell to prospective buyers in attempt to catch orders. Depending on the feedback they received, the underwriters will adjust their scales right before the due time to be the winning bid. There will be an order period after the underwriter has been decided for the bonds that there have not been orders against. This order period is usually first come, first served.

2. Secondary market:

a. Offer side- more expensive way to purchase munis. Seller will offer bonds at the price they want to sell at. The levels are usually derived from where comparable bonds are being offered or new issues. They can be bid back depending on the seller, but they will take into account: how they purchased the bonds, the quantity they have vs the amount the order is for, if they have sold any and the price they sold it at, where comparable bonds have traded, if they have a position hedging the bonds and how that is working, etc.

b. Bid Wanteds- seller is putting out a list without prices looking for the best bid from every buyer on the street. The bids are due at the Around time or a Sharp/Firm time. An Around time is a rough time that the bids are due and late bids are accepted if the bonds have not traded. A Sharp/Firm time is bids are due at the Sharp time and late bids are not accepted. The bidder cannot back out of his bid until the Firm time is over, no matter what happens in the market during this period. This is an effective way to buy bonds at better yields, but the bid wanteds are subject to other buyers coming in at better levels or the seller not choosing to sell the bonds.

c. Account Inquiries- Go to brokers with a specific inquiry and have them look through end account inventories (institutional accounts, insurance companies, etc.) and see if the owner would be interested in selling that position. It is extremely useful to have a target yield for an indication for sellers, instead of blindly asking.

Liquidating Bonds

To liquidate bonds there are two ways to go about selling that depend on how much time there is to sell the bonds. If you have a day or more, it's worth offering them out at the price that is slightly better that the current market prices to make it attractive to buyers. If traders like the offer it catches an order, then they will lift the offer or bid close to the offer's level. If the bonds need to be liquidated immediately they will need to be sold as bid wanteds. This allows traders to bid at levels they would be interested in buying and shelving the bonds, so they will have extra spread to counter the risk.

Trading Volumes

Day to day trading volume is an indicator to look at for why the market moved. On high volume days the move is more likely to stick than on low volume days, where the market is more likely to rebound the next day. The new issue supply will tell you the amount of bonds coming to market. Excluding all other factors, if the calendar heavier than usual there will be an oversupply of bonds making the market yields a little higher. When the calendar is lighter, there is a lack of bonds causing the market yields to tighten. This can be looked at and applied to the overall market supply or state specific supply.

Sources to find bonds

Unlike the stock exchanges there is no centralized exchange that posts everyone's offers. Instead there are many different platforms and websites that show a portion of the offers. The main source is Bloomberg, where dealers usually post most of their inventory. There are different sources to find offers in Bloomberg. There is a main general offering screen that allows buyer to see offers without the dealers having to allow access. There are also the dealer's inventory pages that you have to be allowed access to see. Finally, there are messages that will get sent with offering runs and new purchases that have not been posted to other places yet.

Aside from Bloomberg, there are online platforms fighting for screen space from brokers and traders. These platforms all have a different fee structure for their clients, where sometimes the buyer pays and others the seller pays or they have a set monthly fee. The platforms have different wirehouses (national retail brokerage firms) backing them, so they will all have some overlap, but many different offers available.

Brokers and traders will also use Broker's Brokers, who do not inventory positions, but instead will assist in facilitating trades. Broker's Brokers want to have relationships with every firm that owns munis and wants to know what they have in their inventories. They were extremely useful before technology came into play because they were one of the only resources that knew what firms owned and at what levels. They still exist, but play a diminished role in current municipal markets.

Best execution

To get best execution on a bond in the secondary market, it is beneficial to know the pricing history of the bond. EMMA is a government site that provides market transparency, including pricing history of municipal bonds. It is a resource to find information on issuers, issues and individual bonds. Through EMMA the last price and date the bond has traded will be posted. All municipal trades are reported to RTRS (Real Time Reporting System) within 15 minutes of execution, and updated in close to real time on the EMMA website, providing fresh trade data. This knowledge can be used to your advantage. For instance, you have an order on 500m bonds that are priced at 2.00 net, but you see that 5mm bonds were purchased at 2.15. The seller isn't going to negotiate much away from his offer because it will cheapen up his entire position. However, if you see instead that just 500m were purchased at 2.40, then you have negotiating room. Not only are you purchasing the entire position, but there is a large mark up in the bonds. If you bid the bonds back you should end up buying them at a better yield.

If a broker is executing as agent, they will be providing a commission dollar amount on your trade confirmation. If they execute the trade as principal, a mark-up is included in the total trade proceeds of your investment, but not broken out at as a separate line item. By looking at EMMA pricing you can determine how much your broker is charging you regardless of the method of trade execution and disclosure. This information will allow you to evaluate whether the broker is taking a reasonable commission or fee. Do take into account that brokers must cover various clearing and regulatory fees in addition to profit needed to operate a business.

Managing Broker Relationships

To get best execution it helps to have relationships with brokers. You want to have at least a few brokers that you can go to, so you have a diversification of offers that they will show at competitive rates. If only one broker is used as a go to, you're limited to the singular portfolio of what the broker is willing to show at a yield that doesn't have competition. Another problem with only using one broker is yields can't be compared to make sure you're getting best execution. It is also advisable not to use too many brokers, as rapport is difficult to build and there is not enough business to trade with all of them at high enough volumes to make an impact. What works best is to have a handful of brokers that are used as main sources, and then let other brokers try to earn your business. When there is repetitive business and rapport has been built with a broker, they are usually more willing to negotiate on price. A potential problem that occurs when there are too many relationships are clearing problems will occur. Even though most trades are done electronically, human error will still exist with putting in the correct information. When trades are done infrequently, errors tend to happen more often.

It is also helpful to have relationships with a variety of sizes of firms. Wirehouses, regional, and boutique firms all have their advantages. Wirehouses have a notional presence and will have a larger inventory and will bring more new issues to market. They can also provide daily market outlooks, commentary, and research. Regional are similar to wirehouses, but have a smaller presence and a more in depth knowledge of their region. Boutique firms will not have large inventories or the marketing of their larger peers, but are more willing to work with and guide you. Minority owned firms have the advantage in new issues, where underwriters are encouraged to allocate bonds to their orders.

Municipal Advisors

A Municipal Advisor is a person or firm who advises municipalities on bond offerings and bond proceeds management. All Municipal Advisors must be registered with the MSRB and SEC and are subject to a fiduciary duty and other regulations. Prior to the new rule Self-identified "independent financial advisors" operated within a largely unregulated environment and were not licensed by any regulatory body. Currently, to invest bond proceeds the broker/dealer must be a Municipal Advisor uphold to the investment policy of the municipality. The commissions or fees need to be disclosed for every trade for greater transparency.

Regulatory Overview:

The municipal market is subject to oversight from three regulatory bodies: U.S. Securities and Exchange Commission (SEC), Financial Industry Regulatory Authority (FINRA) and the Municipal Securities Rulemaking Board (MSRB). The MSRB is a regulating body which creates rules and policies for investment firms and banks in the issuing and sale of municipal bonds, notes, and other municipal securities. MSRB also operates the Real Time Reporting System (RTRS).

Citations:

1 *https://www.bondbuyer.com/list/top-25-municipal-issuers-of-2018*

2 *https://www.janney.com/File%20Library/Insights/Muni-ETFs-Feb-2019.pdf*

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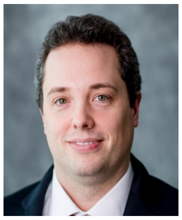

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