Q2 2019

The Modernization of Municipal Bond Trading

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DATA | ANALYTICS | INSIGHTS

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12–15%

OF MUNICIPAL BOND TRADING IS DONE ELECTRONICALLY

WHILE MARKET STRUCTURE IS TOO COMPLEX TO ASSUME THAT E-TRADING IS THE SOLE DRIVER OF BETTER LIQUIDITY, THE IMPROVED TRANSPARENCY AND MARKET ACCESS IT PROVIDES CERTAINLY HAS A STARRING ROLE

Executive Summary

The municipal bond market is viewed by many as frozen in time. Bond issues are generally small and numerous, and local relationships around the country play a big part in finding investors for many of those bonds. Innovation has been focused primarily on corporate bond and U.S. Treasury trading, with the growth in electronic trading and data availability increasing the competition among the platforms often making news. It's time for the quiet but impressive evolution of municipal bond trading to enter the spotlight.

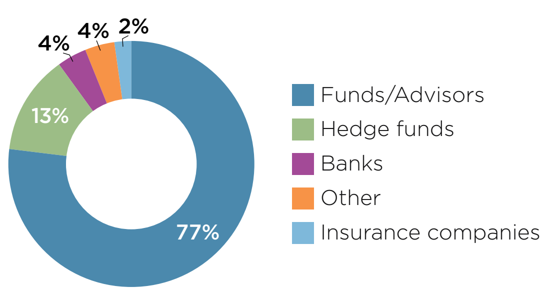
Greenwich Associates data shows a significant increase in focus on institutional e-trading within the municipal bond market in 2018, with more than 60% of buy-side participants reporting electronic trading. Electronic market makers are increasingly a major force in municipal bond trading as well, boosting the market's turnover and overall liquidity. As electronic trading has grown, so too has the data available to market participants, with both executable and evaluated prices now available for a huge portion of the issues outstanding. Given the investments made in this market by electronic market makers along with those running the e-trading platforms, this evolution is only just getting started.

METHODOLOGY

In 2018, Greenwich Associates interviewed 105 institutional municipal bond investors in the United States, including asset managers, hedge funds, regional banks, and insurance companies.

TOTAL TRADING VOLUME

Distribution by Type of Investor



Source: Greenwich Associates 2018 U.S. Fixed-Income Investors Study

Introduction

While corporate and government bond markets exist in nearly every developed, emerging and frontier market around the world, the U.S. municipal bond market is truly one of a kind.

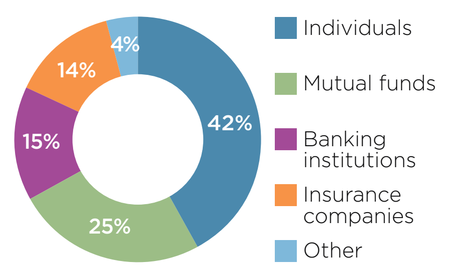
Individual investors hold 42% of municipal bonds (by value). This compares to only 13% of U.S. Treasuries and roughly 8% of U.S. corporate bonds—markets dominated by institutional investors. At the end of February 2019, the municipal bond markets had 1,023,438 available bonds to trade; that's 30 times more than in the corporate bond market. At nearly $600 billion[1], California—the largest municipal bond issuer, with 15% of outstanding bonds by notional amount—has more debt outstanding than all but the top five government bond issuers in the European Union. And, of course, for those that live in the same state as the issuer, returns generated on municipal bond holdings are completely tax free.

These and other characteristics have led the U.S. municipal bond market to grow to over $3.9 trillion[2] in value, with roughly $12 billion[3] worth of bonds trading daily. Yet the market's unique characteristics have left it to evolve quite separately from other U.S. bond markets.

Corporate-credit and interest-rate trading desks at banks and investment teams on the buy side rarely cross-pollinate with their peers focused on municipal bonds. And, until recently, electronic trading tools and data packages targeting the municipal bond market were built for only that purpose, and had little to do with similar offerings for U.S. Treasury or corporate bond trading.

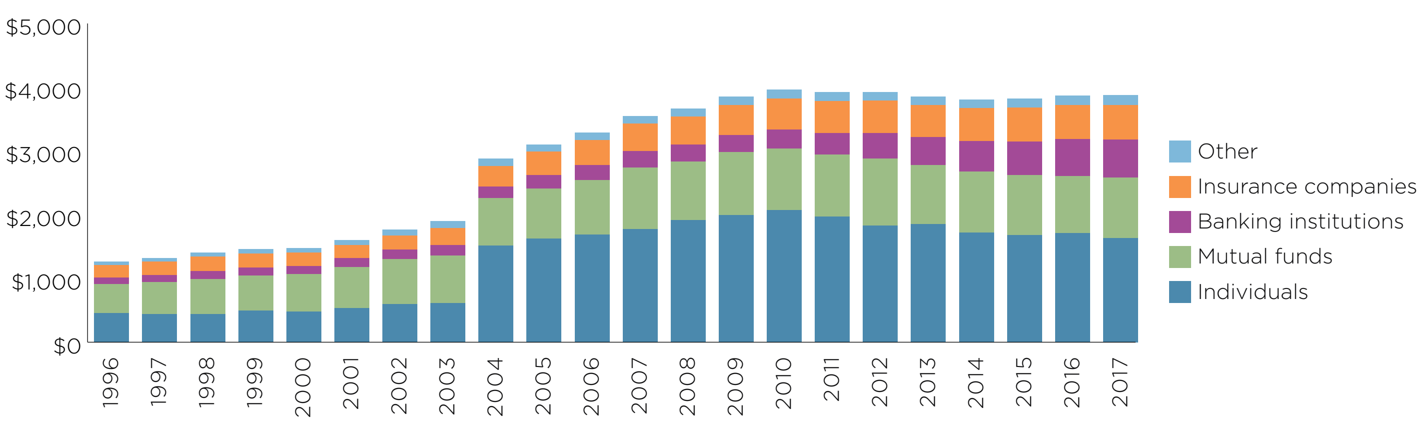
The municipal bond markets had 1,023,438 available bonds to trade; that's 30 times more than in the corporate bond market.

MUNICIPAL BOND HOLDERS
Q3 2018



Source: SIFMA

MUNICIPAL BOND HOLDERS
In billions



Source: SIFMA

[1] Source: ICE Data Services
[2] Source: SIFMA
[3] Source: MSRB

While these unique qualities will persist in the coming years, the municipal market is starting to wake up to the opportunities presented by market structure and technology evolutions in tangential bond markets. Taxable and non-taxable trading is slowly coming under one management structure, electronic trading is growing, market participation is expanding via non-traditional liquidity providers, and investors are more willing than ever to factor new data into their decision-making. As such, this often-forgotten market is undergoing an evolution that will increasingly present opportunities to those willing and able to participate in the change.

Understanding the Municipal Bond Market

To understand the market's evolution, it is important to know how your local school district's borrowing needs for a new school bus or a city's need to repair the subway leads to an investable asset.

Municipal borrowers are driven by their capital needs but also by the supply and demand within a given state. High-tax states such as California and New York see higher demand from their residents for municipal bonds, given their triple-tax-exempt status. This demand helps keep borrowing costs down for the municipalities, which are then more inclined to tap the market for the needed funds.

New municipal bond (muni) issues are underwritten by banks in a process very similar to that in the corporate bond market. Regional banks are more apt to handle smaller, more local deals, while the largest borrowers, such as New York, California and Texas, often work with the largest banks, which have a wider reach to help place those bonds with investors.

For corporate bond deals, large institutional investors—asset managers, pensions, hedge funds—receive the lion's share of new issue allocations. While those large investors are also big buyers in the muni market, wealth managers play a special role here, given strong demand from their clients—individual investors. This "retail" link goes back to demand from residents within the states/municipalities issuing the bonds.

This can create an interesting situation in which the buy side and sell side are competing with one another. Whereas the sell side provides new issue allocations to asset or wealth managers based on the demand of their high-net-worth clients, that same sell-side firm might also hope to provide those new bonds directly to that same client via their brokerage account, effectively cutting out the buy side as middleman. While this dynamic does exist in other markets, it is most prevalent in munis.

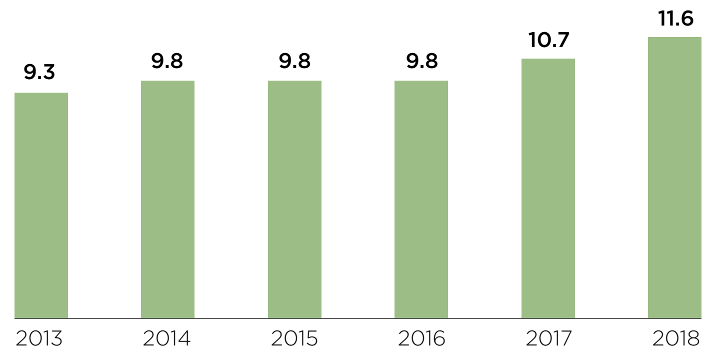
MUNICIPAL BONDS: DID YOU KNOW?

- The first municipal bonds were issued by New York City in 1812 to build a canal. New York State followed suit a few years later to build the Erie Canal.
- By 1880 there were $1 billion in municipal bonds outstanding. That equates to $25 billion today.
- Municipal bonds were used to build the Golden Gate Bridge during the Great Depression.
- The market has over 50,000 issuers yet a default rate over the past 10 years of only 0.18%.

Source: MSRB, Wall Street Journal

Trading in the secondary market is generally separated into retail and institutional, with the average trade size hovering around $200,000[4]. Based on Greenwich Associates research, the majority of trades are actually much smaller—closer to $100,000—but the larger and less frequent institutional block trades increase the overall average. Retail investors can look to buy or sell through their broker-dealer or wealth manager, who in turn looks to the electronic platforms for liquidity from both bank and nonbank liquidity providers.

AVERAGE NUMBER OF MUNICIPAL BOND DEALERS USED*



U.S. Fixed-Income Market Share—Municipals[**5]**

Dealer	Statistical Rank
Citi	1 (tie)
Morgan Stanley	1 (tie)
Bank of America Merrill Lynch	3

Note: *Based on responses from 84 municipal bond investors in 2013, 89 in 2014, 91 in 2015, 90 in 2016, 101 in 2017, and 105 in 2018.
**Based on 105 respondents. Municipals includes tax exempt bonds, taxable bonds and derivatives.
Source: Greenwich Associates 2018 U.S. Fixed-Income Investors Study

Institutional investors work directly with the largest municipal bond dealers to execute higher value/larger size trades. These asset managers and hedge funds work with just shy of 12 dealers on average, up from 9.3 in 2013. Yet in 2018, 45% of trading by volume was still executed with the top three dealers: Citi, Morgan Stanley and Bank of America—all U.S. banks, unsurprisingly, given the local nature of the market[5].

It is important to note that the municipal bond market has a limited derivatives market, especially compared to those for corporate and government bond markets. This creates an environment where hedging individual portfolios and gaining synthetic exposure can be difficult. Municipal bond credit-default swaps (CDS) are used, but the market is small and reserved for larger players with the capacity to negotiate bespoke contracts. And while muni-focused ETFs have grown in popularity, our data shows that they too make up less than 6% of the fixed-income ETF assets under management and an even smaller portion of all ETFs.

It is also not possible to short municipal bonds. The lender of the bond would receive tax-free interest but pay the short-seller taxable interest. This effectively creates tax-exempt income for someone who does not hold the tax-exempt bond. And while shorting a muni ETF is possible, they can be hard to borrow and the capital charges punitive. In aggregate, these limitations for muni bond traders and investors hamper some behaviors common elsewhere in fixed income.

[4] Source: MSRB

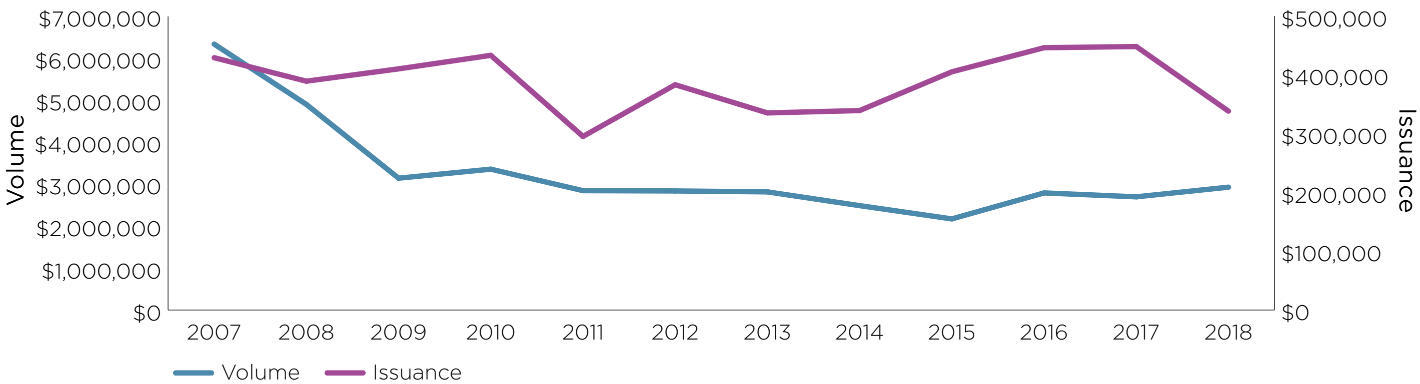
[5] 2018 Greenwich Leaders: https://www.greenwich.com/fixed-income-fx-cmds/ready-market-rebound-dealers-look-beyond-top-tier-trading-partners

A Decade of Change

While the muni market held up exceedingly well during the credit crisis a decade ago, like so many other markets, it has still gone through structural change in the years that followed. For instance, while issuance remains similar to pre-crisis levels, new issuance (as opposed to refinancing and similar activities) is down, as some municipalities have increased their use of alternative financing sources.

MUNICIPAL BOND ISSUANCE AND TRADED VOLUME

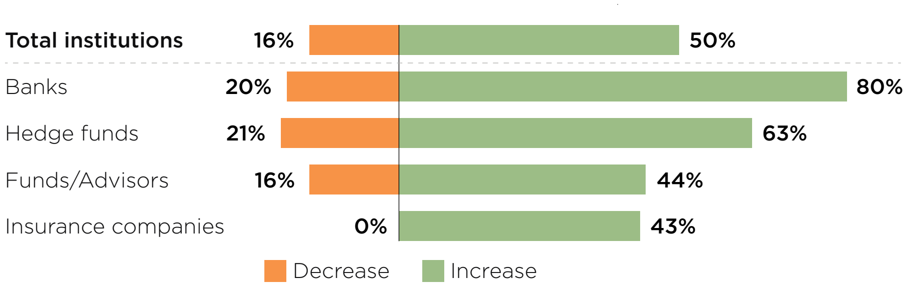
Millions USD



Source: SIFMA

Furthermore, on a notional basis, trading volume is down considerably from 10 years ago, as both institutional and retail investors have taken a more buy-and-hold approach to fixed-income investing. And while there is no evidence that secondary market trading levels will ever get back to where they were in 2007, the last two years have seen volumes grow. Greenwich Associates data derived from conversations with institutional investors suggest that volume growth will continue at least through 2019.

PERCENTAGE OF CLIENTS EXPECTING TO INCREASE OR DECREASE TRADING VOLUME



Note: Based on responses from 96 municipal bond and derivatives investors.
Source: Greenwich Associates 2018 U.S. Fixed-Income Investors Study

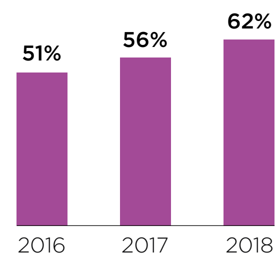
Dealer inventories for trading are also down since the crisis, similar to what has been experienced in other markets including corporate bonds. Changes in tax laws have made it more attractive, particularly for smaller banks, to hold more municipal bonds for investment purposes. That must be looked at separately from a bank's willingness to commit capital for the purposes of fulfilling a client's order, however—something that has reached a new normal well below pre-crisis levels.

But unlike in other bond markets, retail demand for munis has buffered the pullback of dealer capital, keeping demand steady. With interest rates at historic lows for the last decade, municipal bonds became part of the search for yield, offering actual returns even above their higher yields due to their tax-free status. That said, these were primarily buy-and-hold investors, so while demand stayed strong, trading volume has remained relatively subdued.

The Institutional Market

While the retail market is the single largest holder of municipal bonds, the institutional market makes these bonds available to retail investors. To that end, the ecosystem created by banks, nonbank liquidity providers and asset managers via their mutual fund and ETF offerings has and will continue to evolve considerably, making access to the end investor more efficient and affordable.

BUY-SIDE FIRMS TRADING ELECTRONICALLY



Note: Based on 83 respondents in 2016, 91 in 2017 and 90 in 2018.
Source: Greenwich Associates 2018 U.S. Fixed-Income Investors Study

Technology is playing a huge part in the market's evolution. Institutional investors—primarily asset managers and hedge funds—are increasingly looking to e-trading platforms for order execution. Slightly more than half the buy side did some electronic trading of municipal bonds in 2016. In only two years, that number has increased to nearly two-thirds. While electronic trading in the broader market is less frequent, accounting for 12–15% of total volume, the largest institutions are a leading indicator of technology adoption going forward.

The majority of this electronic trading is done via a number of platforms[6]. According to our research, ICE Bonds, a combination of recently acquired BondPoint and TMC, accounts for a majority of trading done via registered alternative trading systems (ATSs), with Tradeweb and MuniBrokers (which handles primarily interdealer trades) making up most of the balance. Bloomberg and MarketAxess are not registered ATSs but do account for additional electronic muni bond trading, with the former two focused mainly on institutional markets.

Order book trading is quite prevalent in municipal bonds, as it is well suited to the large number of participants and smaller trades common in this market. Amazingly, despite over one million bond issues available to trade, the biggest order-book-driven platforms offer quotes on over

[6] Source: MSRB Monthly Real-Time Transaction Reporting and Price Dissemination Statistics

100,000 instruments at any given time. These continuous prices are largely driven by the automated market makers—a feat made possible not only by new technology, but also the relative stability of muni prices as compared to other bond markets that trade based on the spread to Treasuries.

For block trades, request for quote (RFQ) and auction protocols are most commonly used. This market structure, where order book trading is dominant, is contrary to the corporate bond market, where RFQ still reigns and order-book-style trading remains limited.

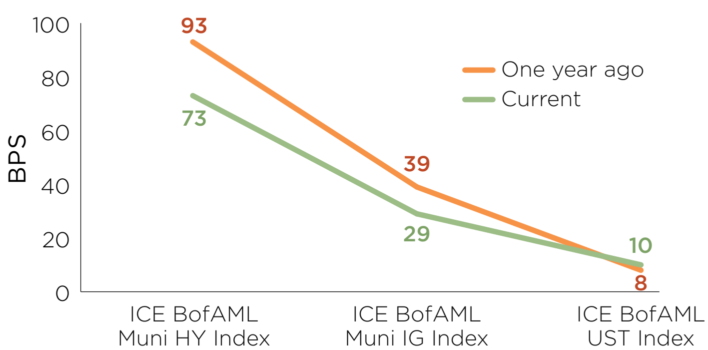
Coming Out of the Shadows

Institutional municipal bond trading is viewed by many as a market for which time stood still. Many major top-tier municipal bond trading desks are run by market veterans with four decades of experience, and relationships between regional muni dealers and their clients can feel like the last bastion of the old Wall Street. This stands in contrast to an increasingly large number of millennial-run desks, where transaction cost analyis (TCA) reports ultimately trump personal relationships.

But don’t let that façade fool you. Despite a lack of public attention, the muni market’s technological evolution is keeping pace with the rest of the bond market, while taking into account its unique market structure. In fact, some measures show that liquidity in the muni bond market has seen a notable improvement in the past year, which is in surprising contrast to the U.S. Treasury market, where liquidity has marginally declined. While market structure is too complex to assume that e-trading is the sole driver of better liquidity, the improved transparency and market access it provides certainly has a starring role.

MUNICIPAL BOND MARKET LIQUIDITY

ICE Liquidity Indicators™
Market Price Impact @ 1 day to liquidate (current)



Note: Data as of 3/6/2019. The ICE Liquidity Indicators™ service provides an independent, near-term view of relative liquidity—the ability to exit a position at or near the current value.
Source: ICE Data Services

To that end, the trading platforms are putting their money where their mouth is, and it is starting to pay off. Tradeweb bought BondDesk in 2013, MarketAxess launched municipal bond trading in 2016, and ICE recently acquired both BondPoint and TMC for a total of $1.085 billion. Continuous, evaluated pricing that was born in corporate bonds has now made its way to munis, providing more transparency to broker-dealers and investors than ever before. And as that and similar new sources of data become more readily available and trusted, the more market participants can apply technology to achieve faster, better and more efficient executions. The data-trading-data cycle is a virtuous one.

The first movers in this regard are the nonbank liquidity providers. Known more for their trading in liquid securities such as equities, FX and U.S. Treasuries, some of the largest independent fixed-income liquidity providers, including Jane Street, Headlands and Millennium, now play a large part in the muni market. It is their ability to automatically price even the most thinly traded securities via data-driven algorithms that allows ATSs to display prices on 100,000 bonds at any given time and investors to more easily access the liquidity they need.

It is important to note, however, that investors still place huge value on access to top sales people and strategists, with those dealers providing the best service highly correlated to those with the highest market share. The winners in this market over the long run need to be top of their class in both sales and trading, and use the best technology to do it. The technology story for trading is fairly obvious—pricing algorithms, fast response times, etc.—although non-trivial to implement. Sales technology is still emerging, utilizing market and client data to help the sales team provide clients with insights and ideas they couldn't get anywhere else.

"We are increasing our use of electronic trading platforms, so folks that are on board with electronic trading platforms will gain more of our business."

~U.S.-based asset manager

KEY SUCCESS FACTORS IN DRIVING BUSINESS TO DEALERS

Greenwich Quality Index: Qualitative Factor	Category	Correlation Coefficient*
Understanding and anticipating needs	Sales	0.75
Top 3 sales reps	Sales	0.66
Best at executing large trades	Trading	0.62
Useful market color	Sales	0.60
Providing consistent liquidity	Trading	0.60
Best at providing trade ideas	Sales	0.58

Note: Based on 81 responses from municipal bond and derivatives investors. *Correlation Coefficient shows the correlation of the qualitative factor and overall quality. These are outputs of the Greenwich Associates Quality Index model.
Source: Greenwich Associates 2018 U.S. Fixed-Income Investors Study

The next two years will see electronic trading and data quality increase, bolstering already strong natural demand from investors for municipal bonds. The sheer size of the market in terms of available issues will continue to present liquidity and electronic trading challenges. But as the past five years have shown, these complexities can be overcome with new ways of thinking about technology that was not available when many of these markets were launched over a decade ago. As a result, the municipal market's reputation as the last piece of the old Wall Street is about to change.

"In a lot of ways, our market and others especially have become more electronic, more automated, and there are a lot of tasks that can be replicated in that way. But in terms of the human interaction I think there is still value added there."

~U.S.-based asset manager

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