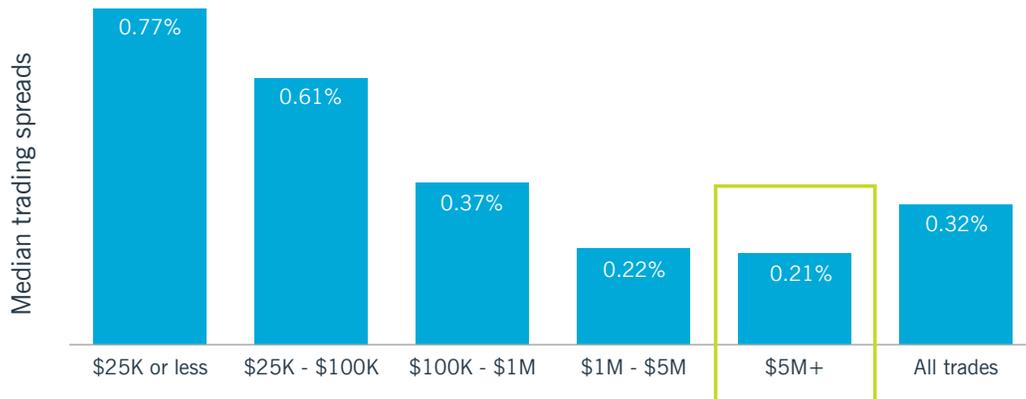


Individual investors are at a pricing disadvantage

The municipal securities market is an institutionally dominated and negotiated market characterized by inefficient pricing. There is no central location to trade municipal bonds. This can make it difficult for retail investors to obtain the best prices. In general, the larger the trading block, the lower the trading costs.

In a low yield environment, pricing matters

Median spreads in fixed coupon municipal securities 1 Jan 2017 - 31 Dec 2017



Lowest trading costs:
large institutional investors

Source: Municipal Securities Rulemaking Board, Nuveen Asset Management, based on the most recent data available. This illustration provides estimated monthly price spreads as a percentage of the principal amount traded for fixed coupon municipal securities based on the size of the trade. Nuveen Asset Management conducted a study of daily municipal bond trades to calculate estimated spreads for fixed coupon municipal securities. Each file was sorted by CUSIP to find multiple trades on a given day. For each CUSIP that appeared multiple times in one day, the algorithm searched to see if both a sale to a customer and a purchase from a customer occurred on that day. If there were multiple sales and purchases on a given day, the average was taken for each category. The estimated spreads were calculated for each CUSIP by subtracting the average purchase price from the average sale price of the CUSIP. Transactions between dealers were excluded. Spreads for some security-days appeared too large or small to be anything but data errors, so we sorted security days by the size of the spread and deleted observations with the largest and smallest 0.5% of spreads. Institutional size trades were separated from the retail trades and the median spread was taken by category (\$25K or less, \$25K – \$100K, \$100k – \$1M, \$1M – \$5M and over \$5M). For example, the \$25,000 or less dataset contains all instances where there was at least one customer purchase of principal amount of \$25,000 or less and at least one customer sale of principal amount of \$25,000 or less on the same day in the same security. Negative spreads (average purchase price greater than the average sale price from the customer) and zero spreads were excluded from the calculation.

Data is based on past performance, which is no guarantee of future results. Other methods may produce different results and the results for the individual portfolios and for different periods may vary. Institutional trade execution applies primarily to municipal bond trading as part of ongoing account management and generally does not include sales of legacy securities contributed to new or existing accounts or in connection with termination and liquidation instructions. See next page for more information.

Active management can add value

Nuveen Asset Management believes five key differentiators are important to creating portfolio growth.

1 CREDIT RESEARCH

The experienced research team evaluates municipal bonds and sectors, seeking to find value in bonds that the general public may have overlooked.

2 INSTITUTIONAL ACCESS

Nuveen Asset Management navigates the inefficient municipal bond market through established relationships with more than 100 national and regional dealers.

3 INSTITUTIONAL TRADE EXECUTION

A large presence in the market provides greater access to inventory to find bonds in appropriate sizes and at institutional prices.

4 TAX-AWARE INVESTING

The ability to trade at institutional prices allows the team to efficiently capture tax losses and use them to offset gains.

5 ACTIVE PORTFOLIO OVERSIGHT

By actively trading bonds, the team seeks to sell appreciated bonds, capture gains and purchase bonds that have the potential to enhance overall portfolio returns.



A rich heritage spanning 120 years remains focused on relative value, principal growth and tax-aware investing.



As one of the industry's largest credit research teams, 25 analysts averaging 19 years experience are dedicated to municipal investing.



Market power and institutional pricing provide an advantage when evaluating and purchasing bonds.

Leading the way in municipal bonds Since 1898, Nuveen has been a pioneer in municipal bonds, helping to build lasting value for investors. This municipal bond heritage is reflected in the way Nuveen Asset Management manages portfolios today.²

For more information, please visit nuveen.com.

¹ Nuveen Asset Management credit research analysts and municipal fixed income assets under management as of 31 Dec 2017

² Nuveen, LLC traces its history back to 1898. Nuveen's asset management business was established in 1989.

This material is not intended to be a recommendation or investment advice, does not constitute a solicitation to buy or sell securities, and is not provided in a fiduciary capacity. The information provided does not take into account the specific objectives or circumstances of any particular investor, or suggest any specific course of action. Investment decisions should be made based on an investor's objectives and circumstances and in consultation with his or her advisors.

A word on risk

An investment in any municipal portfolio should be made with an understanding of the risks involved in investing in municipal bonds, such as interest rate risk, credit risk and market risk, including the possible loss of principal. The value of a portfolio will fluctuate based on the value of the underlying securities. Credit risk refers to an issuer's ability to make interest and principal payments when due. When interest rates rise, bond prices fall; so the value of, and income generated by municipal bonds will decrease and increase based on changes in market interest rates. Clients should contact their tax advisor regarding the suitability of tax-exempt investments in their portfolio. If sold prior to maturity, municipal securities are

subject to gain/losses based on the level of interest rates, market conditions and the credit quality of the issuer. Income may be subject to the alternative minimum tax (AMT) and/or state and local taxes, based on state of residence. Income from municipal bonds held by a portfolio could be declared taxable because of unfavorable changes in tax laws, adverse interpretations by the Internal Revenue Service or state tax authorities, or noncompliant conduct of a bond issuer. There can be no assurance that any asset class or strategy will provide positive results.

Institutional trade execution applies primarily to municipal bond trading as part of ongoing account management and generally does not include sales of legacy securities contributed to new or existing accounts or in connection with termination and liquidation instructions. Nuveen Asset Management, LLC ("NAM") seeks to expeditiously and efficiently effect sales of legacy securities contributed to new or existing accounts or in connection with termination and liquidation instructions, generally by directing the execution of sale to the relevant broker-dealer/custodian designated by the client's managed account program, subject to program limitations. Primarily due to the time constraints and lot sizes applicable to these transactions, and because the full range of trading techniques is generally not available (including aggregation), the prices received in these transactions may be less favorable than the prices that could be attained for sales of securities selected by NAM as part of ongoing management. Clients always reserve the right to fund accounts with cash as opposed to legacy securities and to keep any securities in their accounts upon termination of services.

Nuveen Asset Management, a registered investment adviser, is an affiliate of Nuveen, LLC.