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Municipal Securities Rulemaking Board

APRIL 2026

Transaction Costs for Municipal Securities Odd-Lot Trades

Finally, Table 5 further breaks down the average effective spread for odd-lot trades by the NTBC flag in addition to the executing dealer type. While the NTBC flag may reflect the practice of the sales credit and explain some of the discrepancy in the average effective spread, Table 5 shows that even after segregating the odd-lot trades by the NTBC flag, odd-lot customer trades by institutional dealers continue to have a significantly lower effective spread than odd-lot customer trades by other dealers.

Table 5. Effective Spread for Odd-Lot Customer Trades in Fixed-Rate Municipal Securities As a Percent of Midpoint Price (In Basis Points), 2025 Data

NTBC Flag?	Institutional Dealers?	Number of Trades	Percent of Total Trades	Effective Spread: Average
Yes	Yes	607,049	16.8%	17.1
No	Yes	1,254,639	34.7%	4
Yes	No	450,360	12.5%	
No	No	1,301,580	36.0%	

Source: MSRB analysis with data obtained from MSRB's RTRS database.

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CONTENTS

Abstract[1]

MSRB updated research conducted in 2025 to understand how transaction costs continue to evolve in the municipal securities market, with a particular focus on smaller trade-size groups ($100,000 par value or less, or odd-lot trades). After declining for more than a decade, the average effective spread for municipal securities transactions shot up to 63 basis points in May 2022 as inflation and interest rates surged before starting a gradual decline again. This increase in interest rates was the first meaningful rise in recent decades. Unlike the March 2020 COVID-19 market crisis, where the effective spread rose rapidly before swiftly coming back down and resuming the long-term downward trend, the 2022 surge persisted for much longer. As of late 2025, the average effective spread was approximately 50 basis points, still higher than the low of 42 basis points reached in late 2021 when rates and volatility were dramatically lower.

When examining the average effective spread for different trade-size groups, the three odd-lot trade-size groups experienced a faster decline since the 2022 peak while the two largest trade-size groups (the intermediate and block trades) did not sustain any meaningful decrease. As a result, while the difference in effective spread between odd-lot customer trades and block customer trades remains wide—the effective spread for odd-lot customer trades is 2.4 times that for block customer trades—it shrank in 2025 in comparison to the previous three years. Within the odd-lot trades group, the average effective spread is similarly lower for dealers who almost exclusively execute trades for institutional customers than it is for other dealers. Both the average and median effective spreads for odd-lot customer trades executed by other dealers are nearly 2.7 times as much as those for odd-lot customer trades executed by institutional dealers.[2]

[1] The views expressed in the research papers are those of the author(s) and do not necessarily reflect the views and positions of the MSRB Board and other MSRB staff.

[2] As discussed below, individual customer trades are more likely to include sales credit on a trade, a form of compensation for financial advisers providing financial advice than are trades with institutional investors.

Introduction

From the financial crisis of 2007-2008 through the end of 2021, the average effective spread for municipal securities market customer trades declined steadily,[3] only briefly arrested by the June 2013 "Taper Tantrum"[4] and the 2020 COVID-19 pandemic crisis. However, in 2022, as interest rates rose due to rising inflation, the average effective spread also surged. Unlike previous episodes, the most recent increase in effective spread has persisted for much longer, with the effective spread declining only gradually from its peak between 2022 and 2025.[5] This is not entirely surprising, given the gradual decline in interest rates despite the more significant decline in inflation since 2022.[6]

In addition to the overall trend, previous MSRB research identified that larger-sized customer trades, predominated by institutional investors, consistently had a lower effective spread than smaller-sized customer trades traditionally favored by individual investors. However, smaller-sized customer trades, such as odd-lot trades ($100,000 par value or below) may not entirely be initiated by individual investors, as the growth of separately managed accounts (SMA) accounts means many of these trades are also conducted by SMA accounts that are managed by institutions.[7] Accordingly, this paper first examines recent trends in customer transaction costs by accounting for the latest developments in the macro environment and in the municipal securities market. The paper then focuses on odd-lot customer trades and investigates whether a similar difference in effective spread exists between odd-lot customer trades executed by dealers with exclusively institutional customers and by other dealers with a combination of individual and institutional customers.

Methodology and Data

Methodology

As previously explained, transaction costs are an important metric to monitor for two reasons. First, transaction costs are important to investors because they impact net investment returns, as high transaction costs diminish returns. Second, market-related contributing factors to transaction

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3 *See* Appendix A.

4 When the Board of Governors of the Federal Reserve System indicated future tapering of its quantitative easing policy.

5 *See* Wu, Simon and Nicholas Ostroy, "What Has Driven the Surge in Transaction Costs for Municipal Securities Investors Since 2022?" MSRB Research Paper, August 2023; and Wu, Simon and Nicholas Ostroy, "A Comparison of Transaction Costs for Municipal Securities and Other Fixed-Income Securities," MSRB Research Paper, March 2025.

6 In the meantime, the municipal securities market has continued to experience heavy trading volume since 2022. In 2025, the annual number of trades reported to MSRB's Real-Time Transaction Reporting System (RTRS) exceeded all previous records dating back to the 2005 implementation of the RTRS system.

7 *See* John A. Bagley and Marcelo Vieira, "Convergence of Individual and Institutional Trading Dynamics in Small Size Trades," MSRB Research Paper, February 2025.

costs, such as market liquidity and volatility,[8] usually affect trading costs across many asset classes, including municipal securities. Economists and other industry researchers therefore use transaction costs as one measure to capture a dimension of market liquidity,[9] with higher transaction costs generally suggesting less liquidity, all else being equal.[10] Consequently, analyzing transaction cost trends provides unique insight into the secondary market for municipal securities.

Unlike the equity market, where trading activity typically is facilitated by an exchange, the municipal securities market and other fixed income markets such as the corporate bond and agency securities markets function as over-the-counter marketplaces where investors place their orders with dealers directly without a centralized facility. Dealers either execute orders by committing dealer capital (principal trades) or by searching for an intermediary in the market to facilitate transactions. Investors then normally pay the dealer either a markup, a commission or an annual fee for a fee-based account[11] to compensate dealers for providing intermediary services and/or for taking on and bearing principal risk.[12] Contributing factors to transaction costs generally include the characteristics of individual securities, liquidity, volatility, counterparty search cost and dealer-customer bargaining power resulting from information opacity,[13] as well as other macro-environment factors. To quantify the transaction costs paid by investors to execute their trades, financial economists and market participants use spread as a common measure, which could be based on pre-trade quote data (bid-ask spread) or actual trade data (effective spread).[14]

MSRB has previously used the effective spread from secondary market trade data to compute transaction costs.[15] This analysis similarly uses effective spread as a measurement for transaction

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8 *See* Green, Richard, Burton Hollifield and Norman Schürhoff, "Financial Intermediation and Costs of Trading in an Opaque Market," Review of Financial Studies, Volume 20, 2007; and Harris, Larry and Michael Piwowar, "Secondary Trading Costs in the Municipal Bond Market," Journal of Finance, Volume 61, 2006.

9 Other measures of liquidity include total trading volume and price impact from a given size of a trade.

10 For more background information on transaction costs, please refer to Wu, Simon Z., "Transaction Costs for Customer Trades in the Municipal Bond Market: What is Driving the Decline?" Research Paper, Municipal Securities Rulemaking Board, July 17, 2018. (The 2018 MSRB Research Paper)

11 Trades conducted as a part of a fee-based account (such as a separately managed accounts) may incur less or no transaction costs as the costs are typically incorporated into the account fee assessment.

12 *See* footnote 10.

13 *See supra* Footnote 6; Cuny, Christine, "When Knowledge Is Power: Evidence from the Municipal Bond Market," Journal of Accounting and Economics, August 4, 2017. "Search cost" is defined as the cost investors and dealers incur when seeking a counterparty to trade, while "information opacity" refers to the cost of gathering fundamental information that affects an investor's bargaining power with dealers.

14 In the municipal securities market, actual transaction costs incurred by investors can also include brokers' commissions for a small percentage of agency-based trades. MSRB's RTRS converts the commission amount to the same units as dollar price and computes and disseminates a net dollar transaction price to customers inclusive of commission amount. *See* Specifications for Real-Time Reporting of Municipal Securities Transactions Version 4.1, November 2022.

15 *See supra* Footnote 4 and Footnote 10.

costs, as opposed to the bid-ask spread based on pre-trade quote data. In fixed-income securities markets, pre-trade quote data are not universally available or nationally consolidated. Effective spread is calculated daily for each fixed-rate bond as the difference between the volume-weighted average dealer-to-customer buy and sell prices, then averaged across bonds using equal weighting. Therefore, for each trading day, a security must have at least one customer purchase and one customer sale to be eligible for the analysis.[16] Effective spread in this paper is computed as a percentage of the average of customer purchase price and customer sale price (Mid-Point Customer Trade Price) and expressed in basis points.[17] Variable-rate municipal securities were excluded from this analysis, as they are typically traded by sophisticated institutional investors at par and with no markup. For more background on the municipal securities market or a detailed description of effective spread and transaction costs, please refer to the 2018 MSRB Research Paper.[18]

Data

The RTRS database is used to derive the effective spread calculation.[19] With a few exceptions, all municipal securities trades are currently reported to MSRB's RTRS within 15 minutes of a trade.[20]

[16] Out of 1 million or so outstanding municipal securities, roughly 26,700 total municipal securities were traded on any given day in 2025, or 26,300 fixed-rate municipal securities. Only 6,900 of those fixed-rate securities (26%, or about one in four securities traded) had both customer buy and customer sell trades on an average day.

[17] For example, if the average customer purchase price for a municipal security is 100.25 and the average customer sale price is 99.75, then the effective spread is calculated as (100.25–99.75) / 100 = 0.5%, or 50 basis points. For analyses of customer trades by different types of dealers or by other special indicators, each customer trade is compared to the Mid-Point Customer Trade Price and the difference (buy customer trades minus Mid-Point price or Mid-Point price minus sell customer trade) is then multiplied by two to arrive at the equivalent of a full effective spread.

[18] *See supra* Footnote 10.

[19] MSRB complements the RTRS database with proprietary and third-party security descriptive data ("security master database"). The security master database shows an individual security's relevant characteristics, such as coupon, bond price and yield, call feature, insurance status, type of issuance, tax status and maturity date, supplement the analysis.

[20] RTRS was first implemented by MSRB in January 2005. Prior to 2005, the trade reporting system maintained by MSRB, TRS, only required dealers to submit trades to TRS by the end of a trading day. Exceptions to the 15-minute rule include trades part of a new issuance that are identified as list offering price (LOP), short-term instruments that mature in less than nine months and dealers reporting an "away from market" trade.

Summary of Findings

The findings of this paper are bifurcated into two distinct sections. The first section analyzes the effective spread movement for the period of January 2021 through December 2025.[21] This analysis provides an update from the March 2025 MSRB Research Paper[22] for all municipal securities as well as for each of the five trade-size groups (Table 1): $10,000 par value or less, $10,000 to $25,000 par value, $25,000 to $100,000 par value, $100,000 to less than $1,000,000 par value and $1,000,000 par value or more. This paper identifies odd-lot trades as trade sizes of $100,000 or below, subdivided into the three trade-size groups noted above, while the $1,000,000 par value or more trade-size group is known as block trades. The over $100,000 to $999,999 par value trade-size group is defined as "intermediate" trades in this paper.

Table 1. Trade Size Groups

Size	Par Value Amount
Odd-lot 1	$10,000 or less
Odd-lot 2	$10,000–$25,000
Odd-lot 3	$25,001–$100,000
Intermediate	$100,001–$999,999
Block-Trades	$1,000,000 or more

For the second section, the analysis is limited to the odd-lot trade-size groups only, and the effective spread is calculated separately for odd-lot customer trades executed by dealers who exclusively trade with institutional customers and odd-lot customer trades executed by other dealers. In addition, the effective spread is also separately calculated for odd-lot trades that carry a Non-Transaction Based Compensation (NTBC) flag, i.e., no markup/markdown.[23]

Transaction Costs for Municipal Securities Market in Recent Years

From 2009, during the financial crisis, until the end of 2021, the average effective spread for the municipal securities market, when measured as a percentage of daily mid-point customer trade price, declined steadily from 173 basis points in October 2009 to a historical low of 42 basis

[21] Except for Table 2, which covers from January 2019 through December 2024.

[22] *See* footnote 5.

[23] "'Non-transaction-based compensation arrangement transaction' means for the purposes of [MSRB Rule G-14] a transaction with a customer that does not include a markup, markdown or commission." MSRB Rule G-14(d)((x). The NTBC indicator applies to both principal and agency trades. The indicator was designed primarily to deal with wrap accounts where there is compensation but not in the form of a markup/down or commission, and later guidance says that it also applies where there is no compensation at all (i.e., an "accommodation" where the dealer effectively does the trade for free, or where there is a different kind of separate fee like a remarketing fee). *See* Q3 at https://www.msrb.org/sites/default/files/2016-19.pdf.

points in November 2021 (Chart 1 and Chart 4 in Appendix A).[24] The long-term decline was only briefly arrested by the June 2013 Taper Tantrum and the 2020 COVID-19 pandemic crisis. In early 2022, however, U.S. fixed-income securities entered a bear market, resulting from rising inflation and interest rates as well as volatility, which coincided with increasing effective spread, reversing the long-term downward trajectory in transaction costs. Chart 1 shows that the average effective spread peaked at 63 basis points in May 2022 before beginning a gradual decline. Unlike the previous episodes where the effective spread eventually resumed the long-term downward trend, the 2022 surge in effective spread has persisted for much longer, and as of late 2025, the monthly average effective spread was still higher than the low achieved in late 2021. This is not surprising considering the slow and steady decline in interest rates from mid-2022 through late 2025 in spite of the faster decline in inflation,[25] with both yields and volatility still higher in 2025 than they were in 2021. In addition, the average monthly effective spread fluctuated more widely in 2025 than in 2023 and 2024, possibly influenced by macro events starting from April 2025, though the fluctuation was not extraordinary by historic standards (see Appendix A).

Chart 1. Effective Spread for Fixed-Rate Municipal Securities Customer Trades, January 2021–December 2025

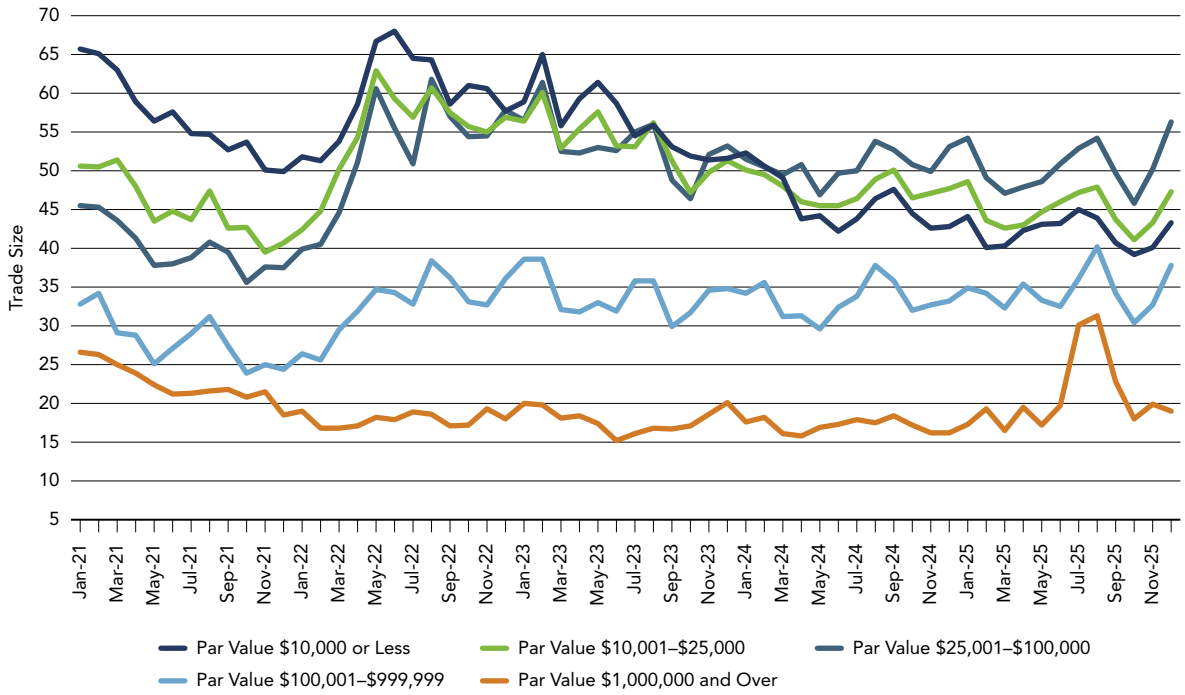
Source: MSRB analysis with data obtained from MSRB's RTRS database.

[24] Please also refer to Appendix A for the average effective spread of fixed-rate municipal securities customer trades from January 2009 through December 2025, as well as the two-year and ten-year Treasury yields during the same period.

[25] Part of the reasons that interest rates have been declining at a slower pace than inflation could be the expectation that the inflation may increase again in the future. In addition, interest rates may also reflect other macroeconomic and credit risk factors.

Chart 2 shows the effective spread for five trade-size groups during the relevant period. Four out of the five trade-size groups experienced a rise in effective spread starting in January 2022, with the exception of the $1,000,000 par value or more trade-size group, or block trades, traditionally executed by institutional investors, which did not show an increase in effective spread. For the four trade size groups that saw an increase in effective spread in 2022, the speed of reverting downward after 2022 has been inversely related to the trade size, with the intermediate trade-size group barely budging between 2022 and 2025, while the $10,000 par value or less trade size group saw a rapid decline over the same period. In fact, the $10,000 par value or less trade size group is the only group that achieved a lower average effective spread at the end of 2025 than the comparable average at the end of 2021. Finally, while previously there had been a uniformly inverse relationship between trade size and effective spread, as shown in Chart 2, this was no longer true for the three odd-lot customer trades groups. The effective spreads for those three trade-size groups started converging around late 2022, with very little difference between the three trade-size groups by mid-2023. Subsequently, starting in April 2024, for the first time ever, the three odd-lot customer trades groups have demonstrated a positive relationship between trade size and effective spread, with the $10,000 par value or less trade-size group having the lowest effective spread and the $25,000 to $100,000 par value group having the highest effective spread among the three groups. One possible explanation is that smaller-sized odd-lot trades are increasingly executed from fee-based accounts that charge little or no markup, although the overall percentage of customer trades with the NTBC flag only increased from 24.5% in 2021 to 27.6% in 2025. In addition, the magnitude of the increases was comparable among the three odd-lot trade size groups, as well as among the intermediate and block trade size groups.

Chart 2. Effective Spread for Fixed-Rate Municipal Securities Customer Trades—By Trade Size, January 2021–December 2025



Source: MSRB analysis with data obtained from MSRB's RTRS database.

Overall, larger trade-size groups, such as the block customer trades group, continue to have a lower average effective spread than the three smaller odd-lot customer trades groups. Table 2 shows that the difference in effective spread between odd-lot customer trades and block customer trades remains elevated as of December 2025. However, the ratio of the effective spread between odd-lot trades and block trades has contracted since 2019 and reached a low of 2.2 in 2021. While the ratio widened significantly to 3.4 in 2022, it started declining again after 2022 and settled at 2.4 in 2025, nearly back to the 2021 level. There is anecdotal evidence that the growth of SMAs and electronic trading has made the market more liquid, making it easier to execute odd-lot customer trades.[26]

Table 2. Share of Trades by Trade Size, January 2019–December 2025

Year	Par Value $100,000 or Less	Par Value $1,000,000 and Over	Ratio
2019	72.3	17.4	4.2
2020	78.0	26.8	2.9
2021	50.0	22.9	2.2
2022	61.2	17.9	3.4
2023	58.4	17.8	3.3
2024	51.9	17.1	3.0
2025	50.4	21.1	2.4

Source: MSRB analysis with data obtained from MSRB's RTRS database.

Odd-Lot Trades

A recent MSRB publication[27] (Bagley and Vieira 2025) on odd-lot customer trades found that dealers who transacted almost exclusively with institutional clients ("institutional dealers") had a substantial number of odd-lot customer trades with institutional investors. A question arises on how odd-lot customer trades' transaction costs would differ between odd-lot customer trades executed by institutional dealers and by other dealers who likely have a mix of institutional and individual customers.

Bagley and Vieira focused on the top 49 dealers and identified 21 dealers that traded exclusively with institutional customers. It should be noted that the actual number of dealers with all institutional customers could be even higher, as Bagley and Vieira limited the analysis to only

[26] *See* https://www.bondbuyer.com/news/electronic-trading-sees-slow-but-meaningful-growth.

[27] *See* footnote 7.

the top 49 dealers who executed trades in municipal securities and had over 93% of all odd-lot customer trades in 2024. Those 21 identified institutional dealers had a total of nearly 3 million odd-lot customer trades, accounting for 44% of odd-lot customer trades among the top 49 dealers,[28] as shown in Table 3, or 41% of all odd-lot customer trades in 2024.

Table 3. Percent of Odd-Lot Customer Trades for Fixed-Rate Municipal Securities by Identified Institutional Dealers Among Top 49 Dealers in 2024

Insitutional Dealers?	Number of Dealers	Percent of Odd-Lot Customer Trades
Yes	21	43.9%
No	28	56.1%

Source: MSRB analysis with data obtained from MSRB's RTRS database (Bagley and Vieira 2025).

How does the average effective spread for odd-lot customer trades executed by institutional dealers compare with those odd-lot customer trades executed by other dealers? The prior analysis indicates that larger block customer trades ($1,000,000 par value or more), used almost exclusively by institutional clients, continue to have a lower average effective spread than smaller odd-lot customer trades, with the average effective spread for odd-lot customer trades being about 2.4 times as much as the average effective spread for block customer trades in 2025. If the lower effective spread for block customer trades is the result of economic volume discount and/or the sophistication of institutional investors, among other factors,[29] would the numbers differ between the odd-lot customer trades executed by institutional dealers and by other dealers with a mix of institutional and individual customers?

Table 4 shows that a similar gap in effective spread exists between odd-lot customer trades executed by the same list of identified institutional dealers and those executed by other dealers in 2025. Both the average and median effective spreads for odd-lot customer trades executed by other dealers are nearly 2.7 times as much as those for odd-lot customer trades executed by institutional dealers. The ratio of 2.7 is close to the ratio of 2.4 for the effective spread between odd-lot customer trades and block customer trades as shown above. Partially, the reason that the effective spreads are smaller for odd-lot customer trades executed by institutional dealers is because fewer of these trades are likely to have a sales credit added on to pay financial advisors than odd-lot customer trades executed by other dealers. This is because individual customer trades likely incur higher sales credit than institutional customer trades,[30] as individual investors

[28] The percentage of odd-lot customer trades involving institutional clients is likely substantially higher than 44%, as it is probable that a portion of the odd-lot trades executed with dealers that have individual investor clients were sold to institutions as well (Bagley and Vieira 2025).

[29] Liquidity would be another factor that differentiates block customer trades and odd-lot customer trades, though it may have the opposite impact, where the average effective spread would be higher for block customer trades than for odd-lot customer trades because of the higher liquidity premium for block customer trades.

[30] *See* Cuny, Christine, Omri Even-Tov, Edward M. Watts, "From Implicit to Explicit: The Impact of Disclosure Requirements on Hidden Transaction Costs," Working Paper, November 27, 2024. Authors noted that conversations with industry professionals indicated that the adviser's component contributes significantly to the markup individual investors incur.

are likely to receive more services than institutional investors. Among odd-lot customer trades by institutional dealers, 32.6% of those had an NTBC flag with less or no markup/markdown,[31] as compared to 25.7% of the odd-lot customer trades executed by other dealers.

Table 4. Effective Spread for Odd-Lot Customer Trades in Fixed-Rate Municipal Securities, As a Percent of Midpoint Price (In Basis Points), 2025 Data

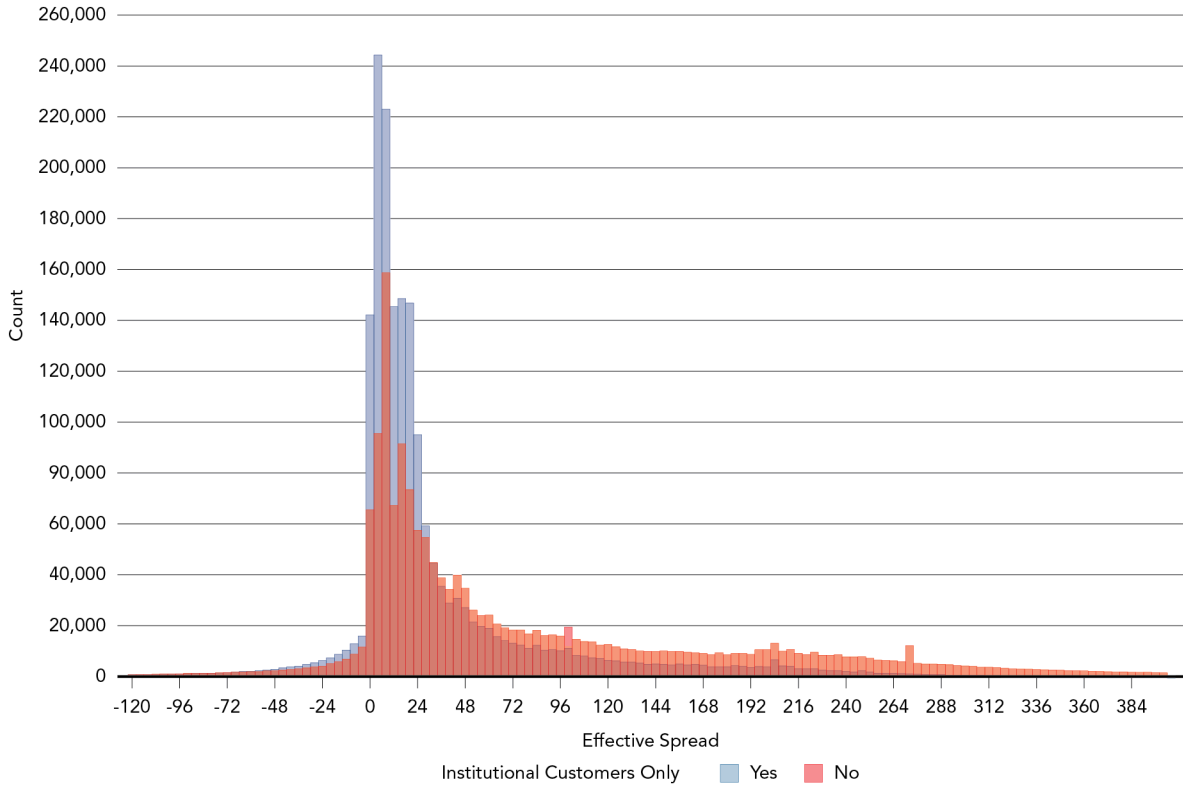
Insitutional Dealers?	Number of Trades	Percent of Total Trades	Effective Spread	
			Average	Median
Yes	1,861,688	51.5%	32.7	5.6
No	1,751,940	48.5%	88.1	41.7
All	**3,613,628**	**100.0%**	**59.5**	**21.6**

Source: MSRB analysis with data obtained from MSRB's RTRS database.

In addition to calculating the average and median for the two groups of odd-lot customer trades, we further examined the distribution of the effective spread by plotting a histogram for the two overlaying bar groups in Chart 3. The red bars represent the effective spread for odd-lot customer trades executed by institutional dealers while the blue bars represent the effective spread for odd-lot customer trades executed by other dealers. The distributions of the effective spread are not symmetric, with both centers of the curves leaning left and their right tails being much longer than the left tails, which explains the higher values for the averages than for the medians. In addition, between the two distributions, the effective spread for odd-lot customer trades executed by other dealers (red bars) has a much longer and larger right tail than the effective spread for lot odd-customer trades executed by institutional dealers (blue bars). Overall, in addition to having a higher average and median effective spread, as Chart 3 illustrates, the effective spread for odd-lot customer trades executed by other dealers has a much wider dispersion than the effective spread for odd-lot customer trades executed by institutional dealers.

[31] Trades with the NTBC flag are much more likely to be from a managed account where fees are assessed based on assets, not on a transaction-by-transaction basis.

Chart 3. Distribution of Effective Spread for Odd-Lot Customer Trades for Fixed-Rate Municipal Securities, As a Percent of Midpoint Price (In Basis Points), 2025 Data



Source: MSRB analysis with data obtained from MSRB's RTRS database.

Finally, Table 5 further breaks down the average effective spread for customer odd-lot trades by the NTBC flag in addition to the executing dealer type. While the NTBC flag may reflect the practice of the sales credit and explain some of the discrepancy in the average effective spread, Table 5 shows that even after segregating the odd-lot trades by the NTBC flag, odd-lot customer trades by institutional dealers continue to have a significantly lower effective spread than odd-lot customer trades by other dealers.

Table 5. Effective Spread for Odd-Lot Customer Trades in Fixed-Rate Municipal Securities, As a Percent of Midpoint Price (In Basis Points), 2025 Data

NTBC Flag?	Insitutional Dealers?	Number of Trades	Percent of Total Trades	Effective Spread	
				Average	Median
Yes	Yes	607,049	16.8%	17.1	7.5
No	Yes	1,254,639	34.7%	40.2	18.6
Yes	No	450,360	12.5%	47.9	23.4
No	No	1,301,580	36.0%	101.9	52.9

Source: MSRB analysis with data obtained from MSRB's RTRS database.

Conclusion

After declining for more than a decade, the average effective spread for municipal securities transactions shot up to 63 basis points in May 2022 when inflation and interest rates spiked, before beginning a gradual decline. Unlike the COVID-19 market crisis, where the effective spread rose rapidly before swiftly coming back down and resuming the long-term downward trend, the 2022 surge has persisted for much longer, and as of late 2025, the average effective spread was still higher than the low of 42 basis points achieved in late 2021. In addition, the average monthly effective spread fluctuated more widely in 2025 than in 2023 and 2024, possibly influenced by macro events and resulting market volatility starting from April 2025.

MSRB examined the average effective spread for different trade-size groups and found that, with the exception of the largest trade-size group (block trades), the speed of reverting downward after the 2022 peak has been inversely related to the trade size. The smallest trade-size group ($10,000 par value or less) experienced the fastest decline while the intermediate trade-size group did not observe any meaningful decrease. In fact, the $10,000 par value or less trade size group is the only group that achieved a lower average effective spread at the end of 2025 than the comparable average at the end of 2021. As a result, while the difference in effective spread between odd-lot customer trades and block customer trades remains substantial as of December 2025 at 2.4 times, the gap decreased in 2025 when compared to the previous three years, though it is still higher than in 2021.

A similar gap in effective spread also exists among odd-lot customer trades between trades executed by institutional dealers and those executed by other dealers in 2025. Both the average and median effective spreads for odd-lot customer trades executed by other dealers are nearly 2.7 times as much as those for odd-lot customer trades executed by institutional dealers. The difference is only partially explained by the higher percentage of customer trades carrying the NTBC flag for institutional dealers. Even after segregating the odd-lot trades by the NTBC flag, odd-lot customer trades by institutional dealers still have a lower effective spread than odd-lot customer trades by other dealers.

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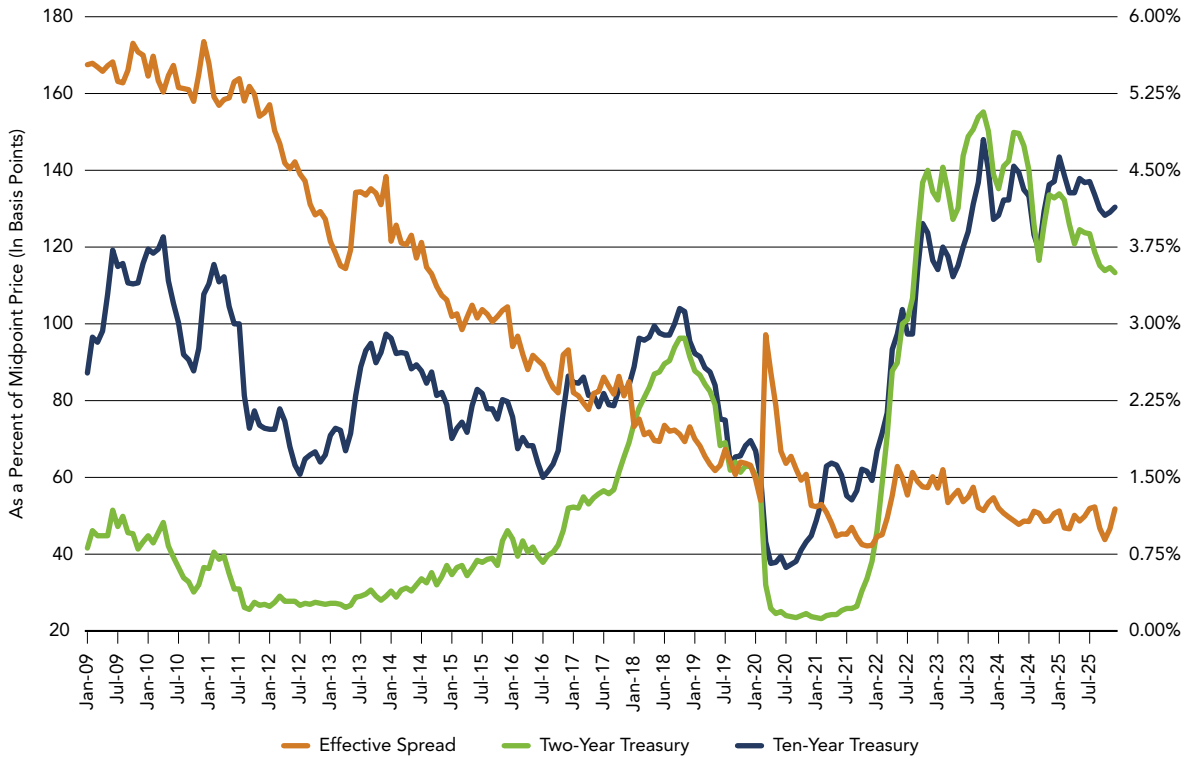
Appendix A

Chart 4. Effective Spread for Fixed-Rate Municipal Securities Customer Trades, 2-Year Treasury and10-Year Treasury Yields, January 2009–December 2025



Source: MSRB analysis with data obtained from MSRB's RTRS database and the Board of Governors of the Federal Reserve System.

ABOUT MSRB

The Municipal Securities Rulemaking Board (MSRB) was established by Congress in 1975 with the mission to protect investors, issuers and the public interest and to promote efficiency, competition and capital formation. MSRB is a private, self-regulatory organization governed by an independent board of directors with market knowledge and expertise. MSRB does not receive federal appropriations and is funded primarily through fees paid by regulated entities. MSRB is overseen by Congress and the Securities and Exchange Commission.

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