CDIAC CALIFORNIA DEBT AND INVESTMENT ADVISORY COMMISSION

Alternative Trading Systems in the Municipal Market: Progress, Challenges, and Future Directions

Zannatus Saba, Ph.D.

INTRODUCTION

In 2016, CDIAC published, Alternative Trading Systems: Solving the Liquidity and Pricing Transparency Problems in the Municipal Market, an issue brief which examined how electronic trading platforms were beginning to reshape transparency, price discovery, and market access in an otherwise fragmented and largely over-the-counter municipal securities market. The brief highlighted the early promise of alternative trading system (ATS) adoption while acknowledging the structural constraints, diversity of municipal security types, inconsistent disclosures, limited pretrade transparency, and the continued reliance on dealer intermediation that constrained overall market efficiency.

Over the past decade, electronic trading has continued to become an increasingly important part of the municipal securities market. ATSs, electronic request-for-quote platforms, portfolio trading, algorithmic execution, and exchange-traded funds (ETFs) have expanded broadly. In the municipal bond market, ATS platforms can improve transparency, strengthen price discovery, and link geographically dispersed buyers and sellers. Yet many of the structural challenges to municipal market liquidity remain.

While the evolution of ATSs has not eliminated the fundamental liquidity challenges of the municipal market, the technology has largely adapted to the market's underlying structure, creating new ways to connect buyers and sellers while preserving an important role for dealer intermediation and other forms of negotiated trading. This article provides an update on how municipal market trading and regulatory activity have evolved since the earlier emergence of ATSs, what electronic trading has accomplished, and what challenges remain as the market continues to become more technology driven.

CURRENT ATS ACTIVITY IN THE MUNICIPAL BOND MARKET

Recent analysis by the Municipal Securities Rulemaking Board (MSRB) of 2024 trading activity found that institutional investors now account for at least 50% of transactions of $100,000 or less. This partly reflects the growing use of separately managed accounts (SMAs), which are classified as institutional accounts even when they manage assets for individual investors. As more individual investors access municipal securities through SMAs, the traditional distinction between retail and institutional trading becomes less clear, and more smaller trades may enter institutional electronic channels. Consistent with this trend, the share of customer trades executed on ATSs increased from 13% in 2021 to 21% in 2025, indicating that electronic execution has become more common in customer-facing municipal trading.[1] During the third quarter of 2026, ATS activity accounted for 27% of interdealer volume traded and 52% of the number of interdealer trades underscoring their growing role in municipal market liquidity. Average trade size also declined from approximately $221,000 in 2025 to $205,000 in the first half of 2026, consistent with the market's continued movement toward smaller transaction sizes.

Despite the progress, the municipal market remains far more fragmented than corporate or Treasury markets. Improvements in electronic trading tools, dealer connectivity, and automated execution have expanded access to market information and streamlined execution, but liquidity remains dispersed across many issuers, securities, and trading venues.

ATS activity remains concentrated in smaller trades for structural reasons. MSRB research shows ATS usage is highest for small and medium-sized trades, while large institutional block trades continue to be executed primarily through dealer-mediated RFQs, broker's brokers, and negotiated trading channels.[2,3]

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[1] Municipal Securities Rulemaking Board, *Institutional Customer Activity and Use of Alternative Trading Systems in the Municipal Securities Market* (Washington, DC: Municipal Securities Rulemaking Board, March 2026), 2, www.msrb.org/sites/default/files/2026-03/MSRB-Institutional-Customer-Activity-and-Use-of-ATS.pdf.

[2] Dealer-mediated RFQ platforms are electronic trading venues where institutional investors buy or sell large blocks of financial instruments by requesting price quotes directly from market makers/dealers. Many institutional investors prefer these methods because dealers can locate hidden liquidity, work the order over time, split execution across multiple counterparties, minimize price impact. Process: A buy-side investor selects a financial instrument and quantity. The investor chooses specific dealers (usually 3 to 5) to receive the request. Selected dealers provide blind, executable buy/sell prices within a tight time limit. The investor selects the best price to execute the trade or lets the quotes expire. Benefits: Enables trading of complex, low-volume bonds that lack continuous exchange pricing. Provides a clear digital audit trail proving the investor sampled multiple dealers for the best price. Prevents information leakage by only revealing trade intentions to selected participants.

[3] Simon Z. Wu, *Characteristics of Municipal Securities Trading on Alternative Trading Systems and Broker's Broker Platforms* (Washington, DC: Municipal Securities Rulemaking Board, August 2021), 15, MSRB report.

Although modern ATS and electronic RFQ platforms can support larger trades, the probability of ATS execution declines sharply as trade size increases, creating a two-tiered market in which small trades benefit most from automation while large trades depend on dealer balance-sheet support.[4]

RECENT REGULATORY DEVELOPMENTS

As electronic trading has become more prevalent, regulators have also updated reporting, transparency, and market infrastructure requirements to support evolving market practices. In the past decade, there have been some important regulatory developments regarding electronic trading. For municipal issuers, the most significant recent developments involving (ATSs) center on increased market transparency, improved trade reporting, and continued modernization of municipal market infrastructure rather than major new ATS-specific regulation.

The MSRB has continued to enhance the transparency and efficiency of the municipal secondary market through updates to trade reporting and data dissemination. Beginning July 1, 2026, dealers are required to report transactions to the Real-Time Transaction Reporting System (RTRS) as soon as practicable within the existing 15-minute reporting framework.[5] The MSRB also amended Rule G-47 to clarify dealers' time-of-trade disclosure obligations and codify prior interpretive guidance.[6] These changes are designed to improve the speed and quality of transaction data reaching the market, strengthening electronic price discovery and enhancing the reliability of ATS-related trading information.

At the federal level, in 2025 the SEC withdrew its proposal to expand Regulation ATS to certain fixed-income electronic and municipal communication protocol systems.[7] Had the proposal been adopted, many municipal trading platforms could have been subject to significantly more burdensome exchange-style regulation. Instead, municipal electronic trading venues continue to operate under existing broker-dealer regulatory frameworks, preserving the current structure of the municipal ATS marketplace.

The municipal market has also adapted to the industry's transition to T+1 settlement, which became effective in May 2024.[8] The shorter settlement cycle requires dealers and market participants to rely on highly automated electronic workflows and same-day trade processing. These changes reinforce the broader trend toward increased automation and electronic execution across municipal securities markets, including ATS platforms.

For issuers seeking greater visibility into secondary-market activity, the MSRB's ongoing modernization of the Electronic Municipal Market Access (EMMA) platform may be particularly important. Recent enhancements include an ATS Special Condition Indicator that identifies inter-dealer trades executed through ATSs and improved security mapping that connects trading activity with issuer disclosures.[9] Recent enhancements also include automated yield calculations that improve consistency and usability of transaction reporting data.[10]

Overall, the regulatory environment has remained supportive of electronic municipal trading while focusing on disclosure, reporting and operational efficiency. For municipal issuers, the key takeaway is that ATSs are becoming more visible through enhanced reporting and EMMA data tools, allowing issuers to better understand secondary-market activity without facing major new regulations that would significantly alter the structure of electronic municipal bond trading.

HOW ATSs OPERATE TODAY

Modern municipal ATSs are multi-layered electronic trading venues that connect dealers, institutional investors, and algorithmic systems through diverse trade-execution models. Rather than relying primarily on phone-based negotiations, today's ATSs support multiple trading models that enable market participants to locate liquidity, compare prices, and execute trades more efficiently. The comparison in Figure 1 highlights how transparency, technology, liquidity, and regulation have changed as ATSs have matured since CDIAC's initial brief in 2016.

For municipal issuers, ATSs increasingly facilitate electronic price discovery through dealer-to-dealer and dealer-to-client trading networks. These platforms allow investors to request competitive quotes from multiple dealers simultaneously, often through electronic request-for-quote (RFQ) systems, while anonymous trading protocols help minimize information leakage and preserve confidentiality when trading larger positions.

ATS technology has become more sophisticated with algorithmic routing and smart order routing tools that can automatically identify potential liquidity sources and direct orders to venues offering the most favorable execution. In some cases, trades can be auto executed without human interven-

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[4] Wu, *Characteristics of Municipal Securities Trading on Alternative Trading Systems and Broker's Broker Platforms*, 15.

[5] Municipal Securities Rulemaking Board, *SEC Approves Amendments to MSRB Rule G-14 on Reporting of Transaction Prices, MSRB Notice 2025-05* (Washington, DC: MSRB, September 17, 2025), MSRB Notice 2025-05.

[6] Municipal Securities Rulemaking Board, *SEC Approves Amendments to Rule G-47,* MSRB Notice 2024-10 (Washington, DC: MSRB, July 12, 2024), MSRB Notice 2024-10.

[7] Securities and Exchange Commission, *Withdrawal of Proposed Regulatory Actions*, Release No. 34-103247 (June 17, 2025).

[8] Municipal Securities Rulemaking Board, *MSRB Notice 2023-06* (May 2023) and *MSRB Notice 2024-03* (February 2024), implementing T+1 settlement and same-day affirmation requirements, effective May 28, 2024, MSRB Notice 2023-06 and MSRB Notice 2024-03.

[9] Municipal Securities Rulemaking Board, *EMMA® Website Enhancements* (Washington, DC: Municipal Securities Rulemaking Board, February 2025), EMMA Website Enhancements.

[10] Elizabeth Lambert Clark, "New MSRB Rule Will Increase Available Information Regarding Trades of Municipal Securities," *Butler Snow*, June 18, 2015, www.butlersnow.com/news-and-events/new-msrb-rule-will-increase-available-information-regarding-trades-of-municipal-securities.

Figure 1

ALTERNATIVE TRADING SYSTEMS: THEN VS. NOW — COMPARISON

ASPECT	ATS - THEN	ATS - NOW
TRANSPARENCY	• Limited pre trade transparency; no centralized pricing. • Investors relied on dealer quotes and EMMA post trade data, which was difficult to interpret. • Inconsistent issuer disclosure reduced price clarity.	• Significant expansion of trade reporting and EMMA enhancements (automated yields, ATS indicators, centralized mapping). • More realtime visibility through live quote aggregation, Bids Wanted in Competition (BWIC) activity, and algorithmic pricing tools. • Still no National Best Bid and Offer (NBBO) or centralized order book, but more transparency across fragmented venues.
TECHNOLOGY	• ATSs emerging but dealercentric; limited automation. • Platforms like Bloomberg, Ipreo, and TMC Bonds focused on data access and basic electronic execution. • Manual workflows dominated; limited API integration or automated compliance.	• Advanced systems with electronic RFQs, smart order routing, autoexecution, algorithmic pricing, Financial Information eXchange (FIX) Protocol connectivity, and cross platform API integration. • AI-assisted surveillance tools and advanced analytics. • Greater interoperability between ATSs, Order Management System (OMS)/Execution-Management Systems (EMS), compliance systems, and ETF portfolio trading tools.
LIQUIDITY	• Market remained illiquid and fragmented; most trades were Over the Counter (OTC). • Small issue sizes, heterogeneous structures, and buyandhold behavior limited natural liquidity. • Electronic trading captured only a modest share of smalllot trades.	• ATS activity accounts for more than half of interdealer trades by count; strong growth in small and mediumsized electronic tickets. • Declining average trade size reflects shift toward automated execution. • Persistent "twotier" liquidity structure: small trades electronic; large blocks still dealernegotiated due to informationleakage risk.
REGULATORY	• MSRB's EMMA improved access to disclosures and posttrade transparency. • Implementation of fairpricing and bestexecution rules helped narrow bidask spreads.	• MSRB changes: MSRB rule G14 modernization, Rule G47 clarifications, T+1 settlement (accelerated settlement cycle where securities transactions must settle one business day after the trade date), more granular ATS trade tagging for better transparency, EMMA data architecture upgrades to improve data ingestion, processing, and distribution systems. • Regulatory focus expanded to electronic workflows, automation, transparency of markups, and improving data accuracy. • Withdrawn SEC proposal avoided shifting ATSs into full exchangelevel oversight, preserving flexibility for fixedincome systems.

tion when predefined pricing conditions are met, improving efficiency and reducing execution times. Portfolio trading addresses another dimension of market fragmentation by allowing multiple municipal securities (CUSIPs) to be priced and executed as a basket rather than negotiated individually. This can improve execution speed and help large asset managers rebalance portfolios.

Another major advancement is the integration of ATS platforms with broader investment management infrastructure. Through standardized interfaces and automated data connections, trading activity can flow directly into portfolio management, order management, compliance, risk management, and settlement systems. This connectivity supports the industry's move toward greater automation, particularly following the transition to T+1 settlement.

Technology is also playing a growing role in market surveillance and oversight. Advanced analytics and artificial intelligence tools are increasingly used by regulators and market participants to monitor trading activity, identify potential market abuse, track disclosure-related risks, and improve compliance monitoring. While these capabilities continue to evolve, they reflect a broader trend toward data-driven oversight of electronic municipal trading.

Finally, ATSs operate within a larger ecosystem that includes municipal bond exchange-traded funds (ETFs), portfolio trading, and electronic liquidity networks. ETFs provide investors with a liquid vehicle for implementing investment strategies related to municipal credit and interest-rate expectations, while electronic trading platforms help connect fragmented pools of municipal bond liquidity. Because municipal ETFs generally hold bonds that can support efficient creation and redemption activity, they may provide pricing signals that are more reflective of larger and more liquid securities. Together, these developments contribute to more dynamic pricing and increased transparency across the municipal market.

ONGOING CHALLENGES FOR ELECTRONIC TRADING

Despite substantial advances in electronic trading, many of the structural characteristics identified in the 2016 article remain. The municipal market continues to consist of nearly one million outstanding securities issued by thousands of borrowers, with individual bonds differing significantly in credit quality, structure, maturity, and trading activity. Most securities trade infrequently, creating natural limits on liquidity and price discovery.

Electronic trading has successfully reduced many operational inefficiencies. ATSs, electronic RFQs, portfolio trading, algorithmic pricing, and automated workflows have improved transparency, increased competition among liquidity providers, lowered execution costs for many transactions, and expanded access to liquidity. However, technology cannot create trading interest where none exists. Large block trades present a different execution problem as broadcasting block orders electronically risks information leakage and price deterioration; so institutional investors continue to rely on discreet, dealer-intermediated or voice-negotiated workflows.

As a result, some of the solutions discussed a decade ago, including centralized exchanges, consolidated order books, or municipal National Best Bid or Offer (NBBO) style systems, have not emerged as dominant market structures. Instead, the market has evolved toward a network of interconnected ATSs, RFQ platforms, portfolio-trading systems, and dealer-mediated execution venues that collectively improve market efficiency while preserving the decentralized nature of municipal trading. A centralized order book requires sufficiently continuous and concentrated buying and selling interest. Because municipal securities vary greatly in structure, credit quality and may trade infrequently, the market generally does not provide that depth. Large institutional transactions also require controlled information environments to limit signaling and adverse price effects.

The experience of the past decade suggests that the primary contribution of electronic trading has not been to eliminate fragmentation, but rather to make a fragmented market more transparent, connected, and efficient.

FUTURE CHALLENGES FOR MUNICIPAL MARKET STRUCTURE

Although electronic trading has improved efficiency and connectivity, several structural bottlenecks continue to limit the evolution of the municipal market structure. First, implementation of the **Financial Data Transparency Act (FDTA)** joint data standards will require issuers to adapt to increasingly standardized and machine-readable disclosures. While standardization is essential for automated analytics and pricing engines, it imposes a significant compliance burden and risks oversimplifying highly localized credit characteristics that investors depend on. Balancing machine-readable data with the market's inherent credit complexity will remain a major structural challenge. Greater reliance on automated pricing evaluation also introduces data-quality and model-risk concerns. Sparse trading activity and the diversity of municipal bond structures can limit the reliability of model outputs, particularly when market conditions change rapidly.

Second, persistent market fragmentation remains difficult to overcome because thousands of municipal securities trade infrequently or not at all. The proliferation of ATSs, RFQ platforms, execution systems, and analytics providers may also fragment electronic liquidity across competing networks. Connecting to multiple systems can raise integration and data-management costs for dealers and investment managers.

Finally, although ATSs have become highly effective for smaller transactions, large institutional trades often continue to rely on dealer intermediation because of liquidity constraints and concerns about information leakage. These challenges suggest that, even as technology improves efficiency and connectivity, the municipal market will retain a hybrid structure in which electronic and dealer-mediated trading coexist for the foreseeable future.

ISSUER'S ROLE IN PROMOTING EFFICIENCY

Although issuers cannot control the secondary market for their bonds, they can take steps to make their securities easier for investors to evaluate and trade. The recommendations in the original article remain relevant, particularly those related to transparency, disclosure, and bond structure. In today's increasingly electronic municipal market, issuers can further support market efficiency by improving the quality, accessibility, and timeliness of information available to investors. Issuers should consider the following practices:

- PROVIDE TIMELY, HIGH-QUALITY DISCLOSURE: Provide clear, comprehensive, and easily accessible financial and operating information promptly so investors can better evaluate credit risk and value securities. Empirical results published in the *Journal of Financial Economic Policy* show that regulatory disclosure intervention significantly improved trade price efficiency in municipal securities secondary markets as daily trade price differential and volatility both declined market-wide after the disclosure intervention.[11]
- MAINTAIN AN ACTIVE INVESTOR-RELATIONS PRESENCE: Maintain a dedicated and current investor-relations (IR) website combined with ongoing communication regarding financial performance, projects, and material developments, helps investors better understand an issuer's credit profile.
- ISSUE MARKET-FRIENDLY BOND STRUCTURES WHERE PRACTICAL: Benchmark-sized issues and straightforward bond

[11] K. D. Dzigbede, "Disclosure-Based Regulation and Municipal Security Trade Prices," *Journal of Financial Economic Policy* 16, no. 2 (2024): 137–161, https://doi.org/10.1108/JFEP-09-2019-0186.

structures can broaden investor participation, improve comparability, and make securities easier for investors and electronic trading systems to evaluate and price.

- UNDERSTAND ELECTRONIC MARKET STRUCTURE: Issuers do not need to operate trading platforms themselves, but understanding how ATSs, electronic RFQs, portfolio trading, and other electronic execution mechanisms affect the secondary market can help issuers consider the marketability of their securities when designing and issuing debt. This awareness can inform decisions about bond structure, size, and features that may improve marketability in an increasingly electronic environment.

The objective is not for issuers to create liquidity themselves, but to reduce unnecessary barriers to analysis and trading. Better disclosure, accessible information, and thoughtfully structured bonds can make municipal securities more transparent and easier for market participants to evaluate within an increasingly electronic market.

CONCLUSION

A decade after alternative trading systems were identified as a potential solution to the liquidity and transparency challenges of the municipal securities market, electronic trading has become an increasingly important part of municipal bond market structure. ATSs, electronic RFQ platforms, portfolio trading, algorithmic execution, and ETFs have improved access to information, expanded trading opportunities, and made many transactions more efficient.

However, technology has not eliminated the fundamental characteristics of the municipal market. The large number of securities, diverse bond structures, fragmented liquidity, infrequent trading, and continued importance of dealer intermediation make a single centralized trading model difficult to achieve. Instead, the market has evolved toward a network of electronic venues and execution tools that complement rather than replace traditional dealer-based trading.

The experience of the past decade suggests that the role of technology is not to eliminate the structural challenges of the municipal market, but to reduce their effects where possible. Continued improvements in electronic execution, data quality, disclosure, connectivity, and market transparency can further improve the efficiency of municipal bond trading while recognizing the unique characteristics of the market.