

The logo for TABB GROUP is located in the top right corner. It consists of the word "TABB" in a bold, white, sans-serif font, with a small red triangle above the letter "A". Below "TABB" is the word "GROUP" in a smaller, white, sans-serif font. The entire logo is contained within a dark grey rectangular box with a thin white border. The background of the entire page is a dark blue with a complex pattern of glowing lines, dots, and binary code (0s and 1s) in various colors like cyan, orange, and white, suggesting a digital or data-driven environment.

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Bond Market Automation:

The Next Step in the Fixed Income Electronic Evolution

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Table of Contents

Introduction	3
A History of the Ecosystem	4
A Perfect Storm	5
The Age of Automation.....	6
Harder, Faster, Stronger	8
Thinking Little, to Think Big	9
Conclusion	10
About.....	11
TABB Group	11
TABB Group Fixed Income Practice	11
The Author.....	11

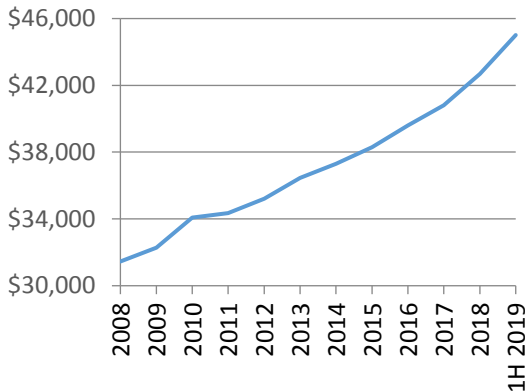
Introduction

The increasing role that data plays in the execution desk’s workflow is central to the electronic transformation occurring within the US fixed income market. This report details the transformative steps execution desks are taking to rethink the ways in which automation can be applied to traditional workflows and how execution protocols such as requests for quote (RFQs) help participants navigate the modern fixed income landscape.

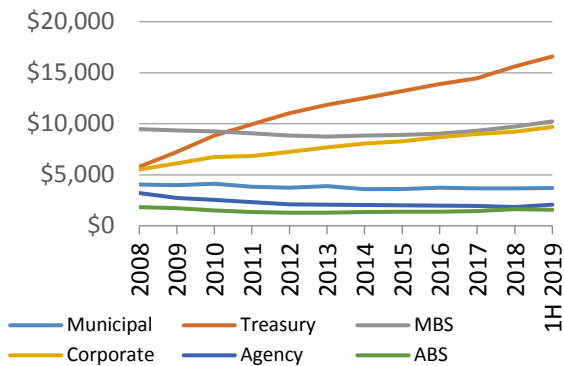
All of this change has occurred within the context of tremendous growth for the majority of the US fixed income markets. For US Treasuries and US corporate credit securities in particular, notional volume outstanding has had major growth in the post-crisis years with UST notional outstanding more than doubling since 2008 (Exhibits 1 & 2).

Exhibits 1 & 2: US Fixed Income Market Notional Outstanding, \$ Billions

Total US Bonds



FI Bonds by Market Segment



Source: TABB Group, SIFMA

The evolution of the market from manual to electronic to automated (and what comes next) is therefore of vital importance as we consider the ways in which a growing market meets ever-expanding demand, and how markets for some of the most essential financial assets in the world move toward modernity.

A History of the Ecosystem

The process by which most of fixed income has been electrified so far has been piecemeal, and most often reserved for highly liquid products whereas new methods of trading have developed more organically (only for swaps has the change been broadly mandated).

Historically, the interdealer US Treasury market was the first fixed income market in which participants on both the buy and sell side embraced new electronic workflows on a large scale. As these mechanisms developed, within the interdealer on-the-run (OTR) securities market in particular, speed became the name of the game. In the early 2000s, central limit order books (CLOBs), which match bids and offers on a price-time priority basis similar to an exchange, experienced a surge of adoption.

The pre-2008 financial crisis environment was a principal driver of this trend. That is, banks were still the primary liquidity providers (LPs) in the U.S. Treasury market and engaged in both proprietary trading and agency trading on behalf of clients. The 2008 financial crisis set in motion the next stage of US Treasury market evolution. New, harsher regulations were established and the freedom with which banks were once able to make markets significantly waned.

However, as banks retreated new participants stepped forward. Banks quickly came to rely on liquidity from new, sophisticated trading firms to reduce risks to the balance sheet as well as continue executing orders on behalf of institutional clients. These independent market makers and proprietary trading firms (PTFs) accounted for increasing percentages of overall market volumes in more liquid, low latency markets, and market velocity increased again.

At the same time, the emergence of new institutional products was changing the underlying dynamics of the marketplace. Over the past five years, fixed income exchange-traded funds (ETFs) have completed the transformation from a retail-oriented product into a cross-asset, institutionally accepted financial instrument. Using ETFs for portfolio management, tactical exposure, access to unique markets, hedging opportunities, as well as using an ETF liquidity sleeve for strategic exposure has been a major draw for asset managers, pension funds, and insurance companies. Underpinning this primary/secondary structure is the creation/redemption process — which has precipitated a surge in overall trading volume and an explosion in volume of smaller trades. As of June 2019, assets under management for bond ETFs exceeded \$1 Trillion, and now account for roughly 20% of ETF AUM globally.

Although the instances of electronification are different in each of rates, credit, derivatives and equities, the broad themes remain: markets are getting faster, trade count is increasing, and desks are getting smaller, and lighter. Market participants are finding a greater need to be increasingly agile.

A Perfect Storm

This combination of factors — growing electronification, quickening speed of trading, and the proliferation of smaller trades as headcount reduces — has created the most compelling environment yet for automating trading.

Clearly the most liquid and simplest trades are the easiest opportunities for electronic intervention and innovation. However, as this report examines, growing comfortability with automation is changing definitions of what constitutes a “simple” trade, with notional value traded starting to steadily increase.

This has implications for the way a market, which was used to putting relationships at its center, will operate in the future. Unlike other asset classes within the US capital markets that have been electronic for some time, the fabled connection of fixed income markets has led to its own distinct evolution that differs from foreign exchange as well as equities. As an example, the recent surge in growth of direct streams in on-the-run (OTR) Treasuries, which link new counterparties to each other bilaterally, the dynamic is changing along with technology.

It therefore seems counterintuitive that automation technology is actually being developed to reinforce relationships. Seeing the same opportunity to take the smallest liquid bonds off their trades’ plate to afford them more time to focus on difficult trades, dealers have relied more heavily on auto quoting capabilities to respond to RFQs.

AllianceBernstein has been one of the most vocal proponents for the bond market to further transform. Jim Switzer, who heads credit trading at the company was quoted by the Financial Times earlier this year stating, “The bond market is going to look radically different in three years’ time.” Abbie — an AllianceBernstein “bot” has gained attention this year for its capacity to automate workflow and assist portfolio managers within the firm trade more effectively and autonomously scan for opportune bonds. It is currently limited to the junk bond market, but

AllianceBernstein is optimistic the capacity can be extended to the larger bond market universe.

Most importantly for market participants is that these tools are becoming available on a wider distribution scale. For instance, Tradeweb's Automated Intelligent Execution (AiEX) tool can be implemented within a day for buy-side firms already active on the firm's platform. Tradeweb points out that a major driver of adoption and success with the AiEX system is its access and offering of tools that require minimal change to existing workflow and technology infrastructure. Bloomberg's RBLD for example is a revamped version of a previous tool that allows clients to utilize the automation through their TSOX portal.

The Age of Automation

The increasing appetite for technological differentiation, efficiency tools, and automation solutions underscore a greater truth about the future of execution within US fixed income markets: processes can always be simplified. As a natural extension of this principal, electronic trading platforms are best positioned to provide the most effective and easiest to onboard automated trading environments.

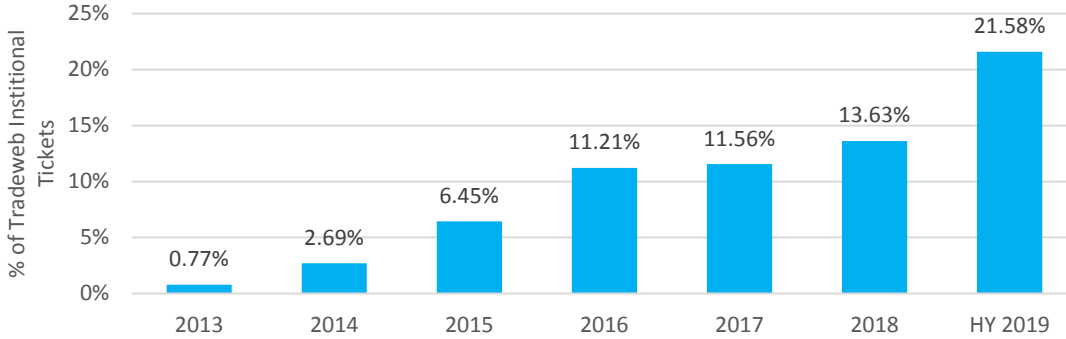
In recent months, automation tools have made several headlines as firms roll out new or expanded automation systems for clients and touted surging volumes that are executed through automated systems. Tradeweb's AiEX has recently garnered attention with a strong uptick in trading through its tool. AiEX, which was initially designed to automate highly liquid low-touch trading in US Treasuries as far back as 2013, has expanded across 26 different rates, credit, equities, and derivatives products, while continuing to expand with comprehensive rules and parameters.

The solution accommodates the fact that there is no "one-size-fits-all" across the spectrum of clients looking to automate their workflow. Asset managers, hedge funds, ETF desks, and dealer desks (to name a few) all approach the same markets from different angles. For instance, Tradeweb has taken a module-based approach with AiEX. This allows for the rules that clients set in place to replicate their decision-making process to be as simple or complex as needed — depending on the analytical data utilized.

Although the *where* and *how* clients are automating vary, the recognition of its benefits is equal across fixed income market participants. Recent growth of automated executions on leading fixed

income electronic platforms demonstrates this trend. Between 2013 and the first half of 2019, the percentage of institutional tickets executed on Tradeweb’s platform through automated systems increased from .77% to 21.58% (Exhibit 3).

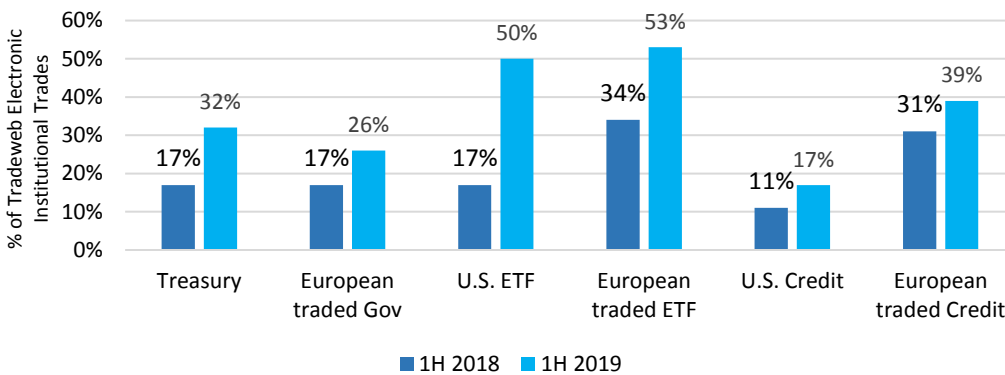
Exhibit 3: Tradeweb Automated Trading Growth



Source: Tradeweb, TABB Group

The scope of fixed income products supported by these new tools vary from provider to provider; however, the core application and adoption momentum has been with credit, rates, and certain interest rate and credit derivatives applications focused on auto-executing or reducing the manual intervention needed for eligible trades. In fact, these automated systems are considered standard for most government bond desks and are also increasingly mainstream in cash credit market making (Exhibit4).

Exhibit 4: AiEX Adoption by Market Segment



Source: TABB Group, Tradeweb

The first hurdle for buy-side firms looking to implement automation strategies is to determine which products they are active in are eligible. Once this is determined, it is key to discover which and how many dealers put in competition. Depending on the client type, the size of the trade, and

various other factors such as market liquidity and time sensitivity, a trader can elect a number of ways to approach the broader market participant tool.

Using Tradeweb's AiEX ecosystem as an example, for an appropriately sized credit trade, a client might determine that he or she want to send the order to Tradeweb's all-to-all pool first to see if the client can attract both traditional (dealer) and non-traditional (non-dealer) interest. Alternatively, the same client might prefer to send an order to a select group of dealers he or she has a relationship with.

This dealer selection process is significantly improved through the robustness of a platform's pre-trade tools such as the availability of dealer axes and composite pricing engines. Once the number of quotes (and to which dealers) the trader wants to solicit is established, a client can set a time limit for how long he or she is prepared to wait for a quote and acceptable levels for the quotes that return. In this way, the granular variables of an already straightforward process of traditional voice RFQ can be systematically performed — and uniquely as a result — systematically interpreted to improve future trades.

Harder, Faster, Stronger

Proponents of automation, agnostic of offering would agree that a key benefit of the electronic progress seen within the fixed income marketplace is an aggressive approach to reducing manual intervention. Clearly, one of the most significant benefits of automation after all is faster execution (in the realm of hundreds of RFQ trades in seconds). Removing time-consuming manual labor from the easier trades (which is the original and simplest use case for these automation tools) can free up a significant amount of the trader's time to focus on more difficult trades.

Another benefit of setting specific parameters for automation process is the enhancement of the best execution process. New solutions that utilize a combination of electronic trading metadata, internal estimates, and public data such as liquidity-scoring mechanisms and pricing engines can easily be integrated with the automation rule decision making process — which ultimately reduces the potential for human error or guesswork that can occur especially with illiquid, hard to price markets.

Finally, the growth in these tools helps foster greater access. Until recently, buy-side firms that might have been interested in incorporating automation tools into their workflow also have had

to weigh the benefits against significant technological limitations principally the up-front costs of setting up the internal electronic infrastructure. Historically, the largest users of this technology today have (unsurprisingly) been the largest asset managers across the markets — with the technology resources and wallet to build out customized solutions. As we considered earlier in this paper, the strength of automation offerings across dealers, investors, and platforms alike help to straighten out this asymmetry of access.

Thinking Little, to Think Big

The pieces are already starting to come together to shape a future in which automated trading is not limited to executing smaller-sized trades. Although block trading is still certainly reserved for traditional voice trading in which a trader can leverage dealer relationships to receive dealer color and capital, the traditional <\$5MM cap on automated trading that many clients initially implemented has significantly increased across all markets. Within some segments, automated trades are regularly executed well above \$100MM.

Although the figures above do not demonstrate growth in trade size, it does reflect an increased willingness on the part of investors to trust an automated system with a greater percentage of business. That trust is the first step in increasing the baseline trade size thresholds for automated trading. Recent examples of this trend are the adoption of Swaps Execution Facilities (SEFs) in the Interest Rate Derivative (IRD) market as well as the recent growth in activity on electronic corporate bond trading platforms — in which a period of onboarding and performance analysis is required before wholesale adoption. Recent interviews with buy side treasury traders suggest that, in general, as the momentum of electronic trading builds, we will likely continue to see a gradual increase in the percentage automated large trade volume — a percentage that is modest but growing.

Conclusion

In the twenty years since Tradeweb launched the first fully electronic multi-dealer RFQ platform for the US Treasury market, modern fixed income innovations are still being built upon that platform's founding principle: find a process that works and make it easier.

The reality today is that for an increasingly technology-conscientious fixed income market, it is becoming clear that two different traders with the same strategy and same goal can potentially experience drastically different results based on their use of the data, tools, and protocols. Varying methods with which platforms have begun to apply analytics to internal and public trade data and metadata have resulted in a rich ecosystem of actionable data for electronic participants. New liquidity metrics, granular counterparty comparison tools, pre-trade data streams, and fixed income trade cost analysis (TCA) innovations continue to improve as the pool of participants and level of trading occurring on electronic venues grows.

Automation solutions that offer a rules-based approach to tailoring the data to execution expectations are the next step in taking full advantage of an electronic trading ecosystem. A surge in volume traded via automated systems is a clear appeal to a widening pool of participants. Although automated trading's initial application may have been limited to gaining efficiencies for "simple trades", the broader history of electronification in fixed income markets suggests that the benchmark for "simple" will rapidly change in sophistication as the pool of users continue to grow.

The extent to which automation technology and electronic trading solutions will integrate with or replace traditional trade workflow will not only impact the way in which fixed income trades, but the skillsets required of the traders themselves. As the benefits of these tools is additionally recognized, and use of them continue to spread across disparate fixed income markets such as rates and cash bonds (and increasingly in new classes such OTC interest rate and credit derivatives and ETFs), a new class of generalists will be required to bridge the electronic process gap between disparate yet increasingly interconnected electronic markets.

About

TABB Group

TABB Group is a financial markets research and strategic advisory firm focused exclusively on capital markets. Founded in 2003 and based on the methodology of first-person knowledge, TABB Group analyzes and quantifies the investing value chain, from the fiduciary and investment manager to the broker, exchange, and custodian. Our goal is to help senior business leaders gain a clearer understanding of issues and trends within financial markets, so they can better grow their businesses. TABB Group members are regularly cited in the press and speak at industry conferences. For more information about TABB Group, visit <http://www.tabbgroup.com/>.

TABB Group Fixed Income Practice

TABB Group's Fixed Income research examines trading, operational and technology issues impacting corporate bonds, treasuries, swaps, and other credit and rate derivatives in North America, Europe and Asia. This includes deep dives on market structure, business models, execution venues, central clearing, prime brokerage, technology, market data, and compliance. Our research is used by legislators, regulators and market participants worldwide to make strategic and policy decisions surrounding fixed income trading and OTC derivatives reform.

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Colby Jenkins joined TABB Group in August 2012. Before joining TABB, he was a Global Academic Fellow at New York University Abu Dhabi in the UAE, serving as a faculty member in their physics and mathematics departments. He graduated from New York University, earning a BS in physics with additional focus on mathematics. As an analyst, Colby works within both the TABB consulting service and the fixed income research group.

