
THE EVOLUTION OF THE BUYSIDE FIXED INCOME EXECUTION MANAGEMENT SYSTEM

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In 2018, from an asset management firm or long-only institutional investor perspective, the time to await change in the fixed income market has passed; not only has significant change occurred, but it continues to change at a rapid pace. Specifically, the electronification of both buy-side and sell-side bonds and swaps trading processes and workflows has combined with unprecedented levels of structural change to the global marketplaces for both types of instruments in the post-financial crisis period. This means that portfolio managers and execution trading desks are now increasingly challenged to adopt next-generation e-trading capabilities across a range of fixed income instruments.

“Buy-side trading desks are increasingly challenged to adopt next-generation e-trading capabilities.”

As a result, a new breed of fixed income-dedicated trading technology vendors now offer functionality that extends beyond the historically segmented nature of the interfaces between portfolio management systems (PMS), order management systems (OMS) and execution management software (EMS). Of these three components of the buy-side trading technology stack, the EMS arguably contains the most challenging functionality to successfully deliver within the context of a seemingly ever-changing bonds and swaps liquidity landscape.

The objectives for buy-side firms of all ilk remain clear. A fixed income EMS (FI-EMS) must offer buy-side traders the ability to provide their end-investor clients with best execution – in line with post-financial crisis regulatory requirements. The solution must, ideally, serve as a tool for the generation of alpha on a trade-by-trade basis by successfully identifying opportunities for the buy-side trader to execute on available liquidity across a variety of different order types regardless of the conditions in the marketplace at any given point in time.

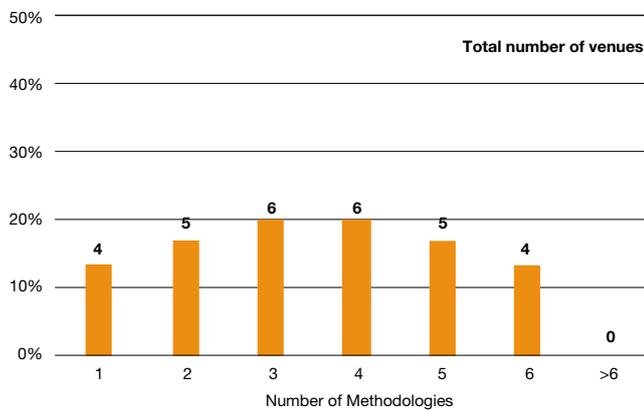
This article – which is the first of a series of three produced by GreySpark Partners analyst Willis Bruckermann on behalf of AxeTrading – examines how buy-side fixed income market participants are, in 2018, approaching a sink-or-swim moment in their embrace of e-trading capabilities and, consequently, succeeding or failing to develop an ability to survive in an increasingly competitive landscape.

The Buy-side Fixed Income Trader: Learning to Benefit from Market Complexity & Fragmentation

Historically, the electronification of buy-side trading desk processes and workflows through the increasing utilisation of PMS and OMS software was initially associated with the centralisation of trading functions within large asset managers, wherein heads of desks or chief operating officers oversaw a gradual replacement of manual blotters and trade tickets in favour of digital toolkits. Over time, PMS and OMS began to exchange information electronically – both with one another and with external liquidity providers – as the trading infrastructure and market structure at large matured to electronic, FIX-centric information exchange, first in equities, later in FX and most recently in bonds and swaps.

Figure 1: Trading Protocols per Bond Electronic Trading Venue

Source: GreySpark analysis



This increased uptake of FIX messaging – initially by bonds and swaps broker-dealers and then, subsequently, by fixed income multi-dealer trading platforms – incentivised and drove the fragmentation of both bonds and swaps liquidity across a multitude of venues – specifically, across more than 140 brokerage trading venues as of Q3 2018, up almost 20% in one year, according to GreySpark analysis. The fragmentation of fixed income liquidity naturally resulted in a dramatic increase in the complexity of the price discovery and liquidity aggregation process for buy-side bond traders, exemplified by the presence of multiple, competing price-makers on dealer-to-client (D2C) venues – roughly two-thirds of which permit buy-side firms to post liquidity and make prices in 2018 – as well as a range of other all-to-all (A2A) markets – using diverse trading protocols – on which all participants are price maker-takers.

In 2018, the effect of bonds liquidity fragmentation across a multitude of trading venues is exacerbated by the array of matching methodologies available on each platform (see Figure 1). As Tier I and Tier II investment banks continue their long-running, post-financial crisis retrenchment from holding risk on their balance sheets for all but the most valuable clients, buy-side fixed income traders are specifically challenged to execute block-size corporate and government bonds trades. Executing in block-size in the new market structure is further complicated by increasingly not-fit-for-purpose, legacy trading technology solutions. Specifically, fixed income PMS and OMS functionality designed for voice-based, broker-centric

trading interactions – which were often-times solutions that were simply amended by a vendor through the extension of equities and FX OMS and EMS functionality – now struggle to meet buy-side fixed income trader needs.

In place of these imperfect solutions, and in response to market structure change, GreySpark has also observed the emergence of the dedicated FI-EMS to not only manage, but also take advantage of the increasingly complex market structure for bonds and swaps trading. Yet to understand how an FI-EMS can create competitive advantage for a buy-side trading desk, the components of the fixed income trading technology stack must be understood within their historical origins and business functions (see Figure 2).

Mapping the Buy-side Front-office Fixed Income Trading Technology Stack

Traditionally, PMS were used to manage pre- and post-trade funds and portfolios servicing processes and workflows. In essence, PMS functioned as internal analytical and tracking tools and, where the PMS interfaced externally, this was to pass orders into the OMS or even EMS used by centralised trading desks or to receive trade execution information back.

Developed to meet the objectives of consolidated buy-side firm trading desks, it was the OMS that handled the required liquidity organisation – if any – and at-trade decision-making for the trade requests coming from fund and portfolio managers. Thus, the OMS historically interfaced between the internally-generated trades coming from the PMS and external counterparties and liquidity pools.

Further consolidation into multi-asset trading desks has, correspondingly, led to development and deployment of the multi-asset OMS, designed to consolidate workflows for these trading desks into a single application. While successful in this regard, such systems arguably sacrifice asset class-specific functionality in return for breadth of coverage achieved.

Moreover, as the buy-side trading desk electrifies, OMS originally developed and structured for a voice-trading environment now require significant redesign and refactoring to accommodate the data volumes and processing power associated with increasingly automated order entry and, ultimately, execution. GreySpark observes that buy-side market participants therefore increasingly demand a highly functional EMS in the most electrified asset classes, as legacy OMS do not function seamlessly under high-volume / low-latency trading conditions.

Figure 2: Functionalities Typically Included in a PMS, OMS & EMS

Source: GreySpark analysis

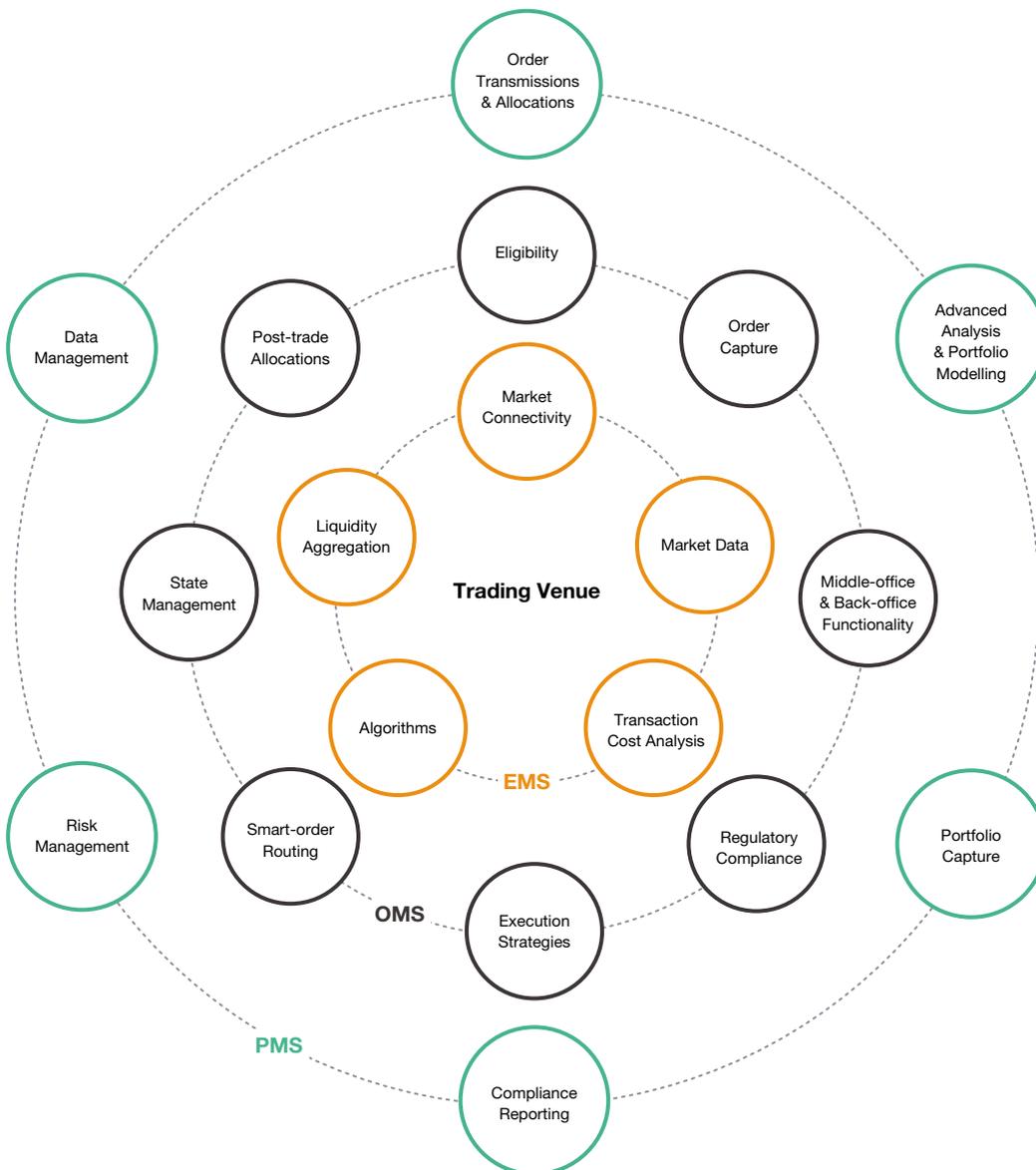


Figure 3: Trading Protocols in Various Asset Classes

Source: GreySpark analysis

Asset Class	Trading Protocols
Equities	CLOB, RFQ
Fixed Income (Bonds)	CLOB, RFQ, RFS, RFM, Auctions, Multi-stage price formation, Axes, Advertising Boards
FX	CLOB, RFQ, RFS, Auctions

The management of complex execution workflows across the reformed and heterogenous bonds and swaps liquidity landscape thus provides the buy-side bonds and swaps trader with an opportunity to distinguish themselves from competitors (see [Figure 3](#)). To do so, they require a FI-EMS capable of surmounting the increasingly fragmented and diverse pre- and at-trade offerings available before seamlessly handing off the required data for straight-through processing (STP).

Among key criteria for a FI-EMS are the capabilities to:

- ingest and process high volumes of market data on an on-going or even low-latency basis;
- reap the benefits of an internal, synthetic liquidity pool formed of orders emanating from the full range of fund and portfolio managers submitting orders to the execution desk;
- execute orders across a plethora of electronic venues, trading protocols and counterparties;
- understand the interrelationship of liquidity across venues, both in terms of pricing and quality of liquidity;
- ensure that execution is of the highest-possible quality while minimising cost;
- support regulatory reporting mandates; and
- offer STP functionality.

To competitively offer this range of functionality, a FI-EMS must be specifically designed with a focus on market data, historical order / trade data and pre- and post-trade analytics tools. Specifically, the FI-EMS must support the buy-side trader's need to evaluate the depth of liquidity available across various venues, broker-dealer liquidity providers and other types of counterparties to ensure that the insights derived from historical data associated with interactions on a pre- and post-trade basis can be fed back into a rules-based smart order router (SOR), enhancing the quality of future order execution decision-making. Given the cost and operational constraints on undertaking all such analysis in real time, GreySpark believes that FI-EMS may be best served by integrating best-of-breed specialists in Big Data analytics and TCA through appropriate APIs.

These depth-of-functionality challenges are amplified for bonds trading. A FI-EMS must contend with the ability to meet all the requirements of an electronic, multi-speed market – driven in large part by sellside technology offerings that are, in turn, strongly influenced by the experience of bulge-bracket broker-dealers in providing e-trading facilities for fixed income market-making – while also supporting voice-based workflows, as liquidity is fragmented across both voice and electronic markets.

Understanding Why Bonds E-trading Stands Apart

The challenge for medium- to large-size asset management firms and long-only institutional investors is that, in 2018, bonds and swaps e-trading is no longer optional; yet – unlike other asset classes – bonds and swaps e-trading venues and trading protocols continue to proliferate rapidly, particularly in light of MiFID II's trading venue regime.

Consequently, the complexity associated with achieving best-in-class order execution exceeds that once exhibited by the equities and FX markets at an analogous stage of electronification. As an asset class, fixed income has completed a second stage of electronification, according to GreySpark analysis (see [Figure 4](#)).

Figure 4: The E-trading Evolutionary Pathway

Sources: BIS, GreySpark analysis

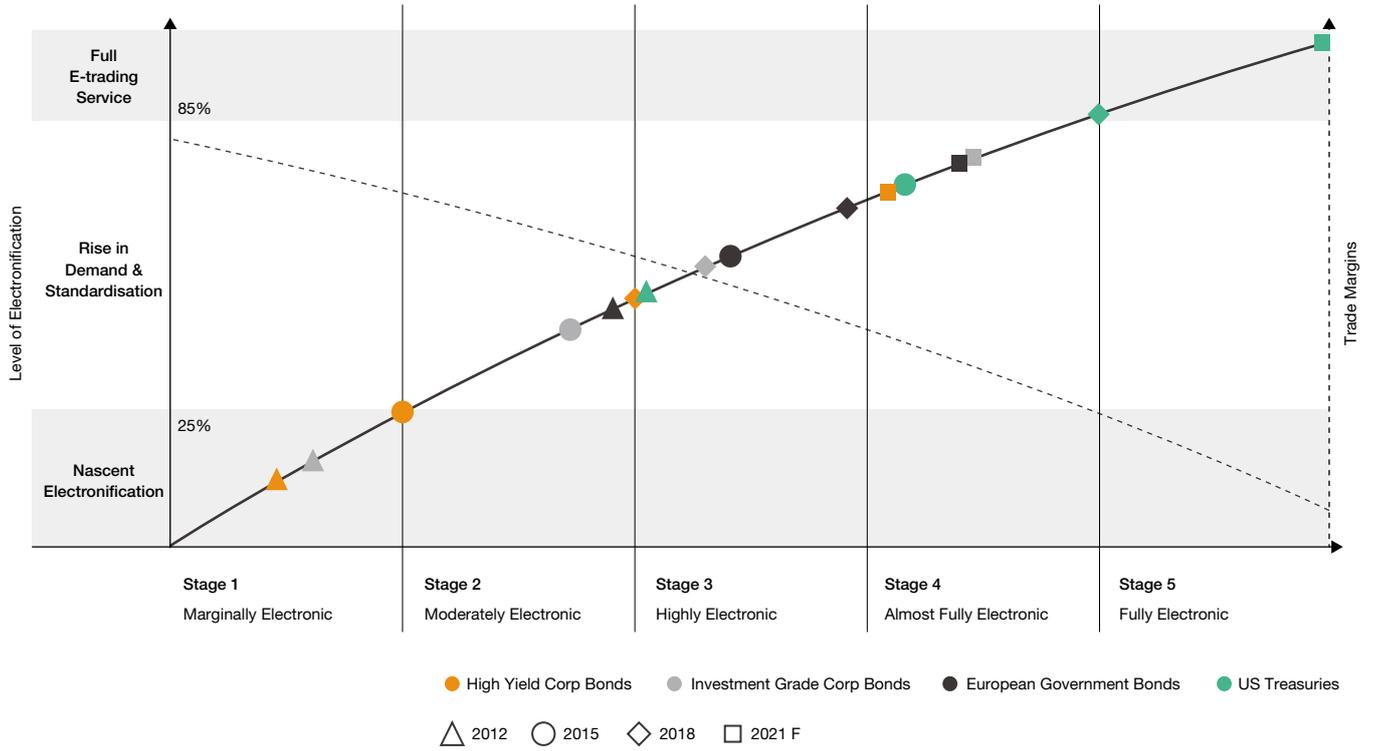
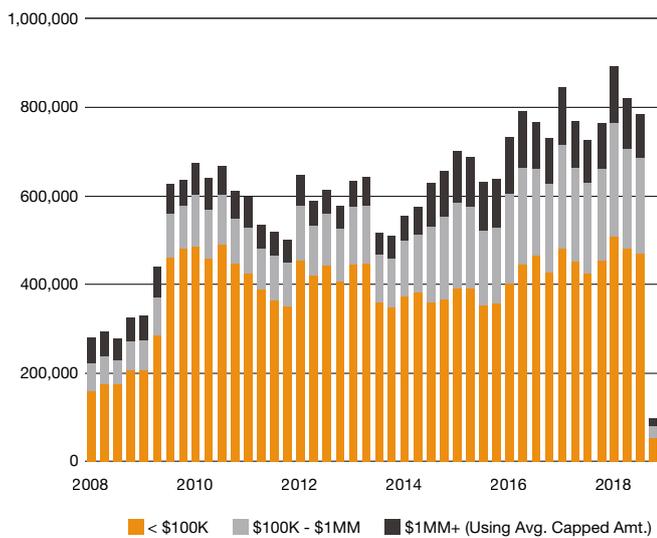


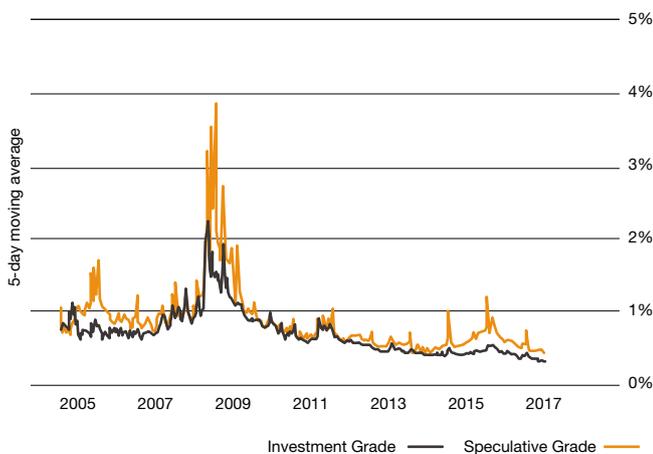
Figure 5: TRACE High-Grade Corporate Trade Count
Source: MarketAxess



Bonds and swaps trading are further along the curve: market-wide, the majority of on-the-run axed trades are now electronic, and the average size of electronically-executed orders originating with fund or portfolio managers is growing, making high-quality electronic execution increasingly important, even as these trades are no longer executed as a single transaction (see **Figure 5**). Consequently, in the daily search for alpha, periodic or regular block-size transactions are now increasingly challenging to work into the marketplace and typically complete over a longer time horizon than in the past, requiring sophisticated interaction tools to distribute child orders out across multiple venues and counterparties over time.

In doing so, buy-side trading business models are subjected to demanding cost pressures. The increasing shift from active to passive investment means active managers must become efficient in every part of their operations, including execution, in order to compete with passive investment vehicles' lower fee structure. Active managers are further challenged by the past decade's low-interest environment, which has challenged their ability to generate returns above and beyond those achieved by indices, in part by compressing bonds bid-ask spreads (see **Figure 6**).

Figure 6: TRACE Bid-ask Spread for Corporate Bonds
Source: US Federal Reserve

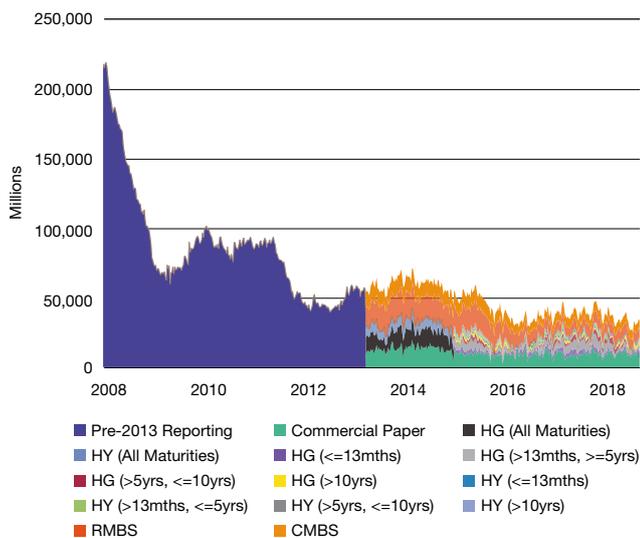


These cost pressures are amplified by the need of asset managers and institutional investors to acquire a range of capital markets capabilities, the functions of which were previously provided by sellside execution franchises. Where investment banks once offered their balance sheet to warehouse risk while identifying countervailing interest, today these institutions are increasingly unwilling to do so and extend this service to only the largest and most valued clients (see **Figure 7**).

Consequently, the ability to access A2A or exchange-like fixed income trading venues has become more important, but with no clear hegemon among A2A venues, bonds liquidity has fragmented across a large number of venues. Buy-side firms are therefore challenged to aggregate liquidity, both from the technical perspective of maintaining and processing data feeds but also, importantly, due to the ongoing cost of data feed subscriptions.

Figure 7: Primary Dealer Net Positions

Source: MarketAxess



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Conclusions

Buyside fixed income markets participants have become aware of the need to adopt a full, e-trading compatible front-office technology stack for purposes of operational efficiency, improved execution and reporting – to both end-investor clients and regulators. However, the asset and wealth management community should be expecting more advanced fixed income execution management and best execution solutions from their technology providers than they, for the most part, demand in 2018. A very small number of new technology providers already address these requirements.

Disparate data feeds – none of which is comprehensive in covering e-trading venues – must further be aggregated and evaluated across a wide range of trading protocols. GreySpark analysis of bonds e-trading venues identified a greater number of such protocols in use than in other asset classes. Yet, despite this broad offering, any liquidity aggregation remains incomplete if it cannot incorporate prices from bilateral voice and manual, chat-based negotiating tools, which remain crucial liquidity sources despite the increasing automation and electronification of bonds trading.

In addition to identifying available liquidity, the EMS SOR must be capable of directing action on that liquidity. In doing so, it must differentiate execution channels and direct the order for execution, regardless of whether the execution channel is an e-trading venue fully integrated via API, a manual electronic tool or voice-traded.

Both current and prospective users of vendor-provided trading technology often fail to appreciate that the fully-realised benefits of e-trading yield not only increased operational efficiency, best execution and reporting but also create a new source of competitive differentiation reflected in enhanced portfolio returns.

In the next two articles in this series produced on behalf of AxeTrading, GreySpark will illustrate how asset managers can transform fixed income markets complexity to their advantage by using best-in-class technology to differentiate themselves from competitors and to demonstrate that performance to end-investor clients. This article series will provide buyside fixed income traders, with an understanding of how to ascertain their own needs for FI e-trading technology and also how to evaluate vendor technology for its appropriateness in meeting those needs.



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