

ALGO TRADING PARTNERING WITH THE CUTTING EDGE OF FIXED INCOME TRADING TECHNOLOGY

THE CHALLENGE

Algorithmic trading ('Algo Trading') improves trading outcomes through better pricing strategy design, testing, and execution, with the scalability afforded by automation. High quality and reliable sources of data are essential for the for the successful design and implementation of complex algorithmic pricing and trading models.

To consistently, effectively and profitably identify and execute live market opportunities requires a robust and reliable foundation of data to power the modelling, of any level of complexity. This challenge is compounded in fixed income by the varying degrees of firmness and types of liquidity and information across market segments.

For fixed income credit traders there are essentially four key areas of insight that need to be incorporated into successful Algo Trading strategies:

- The fundamentals of the credit the maturity, the rate, the callability and the rating or viability of the issuer
- The performance and trading flows of the market
- Trends within the wider economy
- Interest rates and credit risks

The relevant algorithmic trading strategies, created by Quantitative Analysts or 'Quants', can be developed, executed and generate profits at a speed and frequency that is many times higher than manual trading allows.

Building an Algo Trading system to normalise and interrogate data from the diverse sources required to trade effectively in credit is a complex and time-consuming process. It is further complicated by the need to manage data permissions and monitor all available transaction data along with the availability (and relative 'firmness') of respective competing quotes. In order to achieve a successful outcome when implementing Algo Trading in credit, the firm's ability to allocate sufficient ongoing resource and funding to the Quant strategy area is key. Therefore, leveraging existing relevant technologies that fulfil the requirement of 'building blocks' enables firms to more effectively allocate their capital. That is why partnering with an experienced and market proven Fixed Income specialist like AxeTrading can focus resources on the elements which will deliver the highest ROI, namely the Quant Team and modelling technology.



THE SOLUTION

For the sell side AxeTrading offers AxeTrader, the only fixed income dedicated Quoting and Execution Management System (QEMS) that provides unequalled market making, quoting, bond pricing and order execution capabilities by unifying various price-maker and pricetaker workflows and using the firm's real time, historic and external integrated pricing data it provides the fullest representation of the market and can handle all trading flow on one screen. The user configurable quoting engine is better suited to today's market and modern business needs enabling users to move beyond legacy technology.

AxeTrader is a dedicated fixed income system that enables more efficient trading on electronic bond markets and can be expanded for broader FICC coverage across Interest RateSwaps and Futures.

AxeTrader is fully scalable, from a single desk to a global enterprise, across multiple legal entities to support dedicated agency execution, prop trading and back-to-back ticketing for a global customer base with varying levels of centralised trading.

AxeTrader is not a trading venue, rather we free traders to make best use of their existing systems to interact seamlessly across venues and connect leading market data sources. The QEMS is fully integrated to ensure an efficient single point of access to the market, streamlining and safeguarding valuable desktop real-estate. It is agnostic to trading style as it provides a central order book that interacts with the quoting mechanisms of other platforms. It uses real-time data for sources of bond static information for existing securities and new issues. AxeTrading embraces the principles of interoperability to give traders seamless control of their business and ownership of their data.

By using AxeTrader, firms can have full control of their choice of inputs and be secure in the knowledge that they have the market leading technology put at their disposal to execute their Algo Trading strategies:

- Normalized market data
- Liquidity graded according to price `firmness'
- Transactional data
- Algorithmic pricing/tiering
- Rules based quoting and execution
- High degree of configurability enabling adaptation to a multitude of Algo Trading strategies

Some other providers look to constrain and create a walled garden forcing users to be dependent on a limited range of options. We at AxeTrading know there is an alternative. AxeTrading is not a trading venue, rather we free traders to make best use of their internal systems and trading strategies to access a diverse range of trading venues and bond market liquidity. We embrace the principles of openness, flexibility and interoperability to give traders seamless control of their business.

Through integration with pre-trade, middle and back-office systems AxeTrading aims to reduce operational risk, improve efficiency, enhance regulatory reporting and compliance. Algo trading integration, hedging and risk monitoring tools improve and streamlines the trading process. This broader offering and enhanced workflow creates new ways for the sell side to optimize their trading reach and better service their customers.



The AxeTrader Quoting and Execution Management System (QEMS) is the dedicated Fixed Income advanced trader workflow:

- Helps you unlock the true potential of your Fixed Income desk through the only fixed income dedicated market making and order execution workflow tool available on the market that can handle all trading flow, with tickets from all sources, in real time.
- We allocate our resources to meet your specific trading needs and objectives
- Delivers a quick and undisruptive implementation
- Gives you the freedom to act and gain unrestricted access to trading venues, third party trading resources and applications including market intelligence, market standard algos and your choice of algo construction tools.
- Our dedicated Fixed Income user configurable quoting and pricing engine is better suited to today's market and modern business needs
- Enabling you to move beyond legacy technology

We know that our cutting edge and flexible technology combined with our proven market experience demonstrates that we can effectively minimise the risk of change and deliver these benefits.

AxeTrader delivers the essential platform for firms to build the final element of their Algo Trading strategy. This enables them to focus their resources and expertise on the areas that will provide most benefit and add value.

By delivering access to and bi-directional communication with:

- Trading venues
- Trade negotiation and execution Workflows
- Bond price modelling and implementation
- Tiering Algo strategies
- Auto quoting and execution rules

By using the AxeTrader Transaction Monitor API, firms are able to interrogate and analyse their transaction data in real time to feed into their trading strategy thereby responding to market conditions with unmatched speed and insight.

This allows analysis not only of the trade as executed but the market depth and available liquidity throughout the entire lifecycle of the trade, capturing a full audit trail of all available pricing sources, to help deliver bestexecution and market conformity processes. By using AxeTrader's purpose-built rules and workflow engine, every detail of the pricing and trading strategy can be set to meet the objectives of the firm by using all their available external and internal data feeds. Trading parameters can readily be set and controlled, with adjustable levels of automation from complete auto pilot to fully hands-on by identifying the key data points in a transaction combined with analytics from external tools. With robust permission controls the system aggregates customers' own data but does not share it, unlike some other systems whose offering relies on aggregation and sharing of valuable data for their business model. AxeTrader's highly configurable client tiering and auto-quoting gives complete control of inquiries pricing, quoting and trading which improves client acquisition, service, and retention.

The rule engine in combination with conditional alerting functionality, allows for core risk parameters to be monitored and adhered to, driven by back-office settings and analysis.



One stand-out feature of AxeTrader is the ability to call out, using APIs, to other systems during the trading process to take advantage of the latest information right up to the moment the trade is executed. This exemplifies the core ethos of AxeTrading to provide the most flexible, interoperable fixed income trading solution.

By having full control of the key levers of pricing, timing and guoting, firms who build their Algo Trading infrastructure for credit with the AxeTrading solution will be in optimum control. With AxeTrader at the heart of quoting and trade execution, firms can accelerate their Algo Trading to new levels. Alongside interrogation of their own database, they can draw insights from:

- Integrating predictive modelling tools that looks at the probability that you will trade in a given range
- Automatic strategy adjustment along with wider market activity including non-executed • RFQs, missed trades and other prices available in the market
- Quoting and trading patterns that offer trading advantage
- Volume oriented strategies
- The frequency of trading segmented by types and individual clients

AXETRADER CORE CAPABILITIES AND FEATURES

PRICE DISCOVERY

- Pricing Sheets
- Market Data •
- Aggregated Market Depth •
- **Broker APIs**
- Desktop interoperability •
- Dynamic custom formulas •

TRADING WORKFLOWS

- Firm and Indicative quoting •
- Quotes monitoring
- RFQ/RFO/RFM
- **Dealer Axes Contribution** •

ORDER HANDLING

- Client orderbook •
- Order routing and guoting •
- Outbound RFQs integration •
- Orders crossing

Trading tools

in your hand



Fully in

control



Safety features









Full audit trail and STP

| High | |
|----------|----|
| levels | of |
| efficien | CV |

Price construction

Price distribution

SPECIAL WORKFLOWS

- RFQ forwarding
- B2B ticket automation
- Strips handling
- Mifid II reporting
- Sandbox pricing

ADMIN

- Bond Static management
- Counterparty Handling
- Unlimited client tiering
- Credit Limits integration



KEY VENUES AND MARKET DATA

AxeTrader is not a trading venue, rather we free traders to make best use of their existing systems to interact seamlessly across over 23 execution venues and liquidity sources, to connect to 11 leading market data and market intelligence providers using over 90 dedicated gateways.

- MarketAxess
- Bloomberg
- Tradeweb
- ICE
- MTS
- UBS BondPort
- Vienna Stock Exchange (Xetra)
- Boerse Stuttgart
- TMC
- SIX
- Refinitiv
- IDX ETP

- Euronext Trading
- Integral FX
- Neptune
- ARQA
- Fidessa
- FrontArena
- Kondor+
- Murex
- TRACE reporting to FINRA
- Inforalgo
- Tullet Prebon

TECHNOLOGY

The application is Java based and embraces open architecture and interoperability with existing tools. It is robust, flexible and easy to deploy so as users evolve AxeTrading enables growth. Clients profit from this efficient, modular and cost-effective system that adds value at every stage of the trade when others can't. It can be deployed on premise or in the cloud.

This highly resilient set-up means that all clients benefit from being on the most up-to-date version through our hosted gateway, when other vendors change their access or API our clients have quicker updates with more effective monitoring and testing without needing additional internal resources.

For further information please contact:

sales@axetrading.com

UNITED KINGDOM 26 Finsbury Square, London, EC2A 1DS GERMANY Werner-Heisenberg-Str. 1 39106 Magdeburg AUSTRALIA Level 4, 11 York St. Sydney, NSW 2000

SINGAPORE 71 Robinson Road,14F Singapore 068895

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