

## Article

## Algorithmic Trading: its growth and limitations?

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Algorithmic trading is defined as “placing a buy or sell order of a defined quantity into a quantitative model that automatically generates the timing of orders and the size of orders based on goals specified by the parameters and constraints of the algorithm”.

Trading systems use very advanced mathematical models for making transaction decisions in the financial markets. The strict rules built into the model attempt to determine the optimal time for an order to be placed that will cause the least amount of impact on a price of the financial instrument.

Within the equities markets large orders for shares are usually purchased by dividing any share block into smaller lots, allowing the complex algorithms to decide when smaller blocks are to be purchased. Algorithmic trading is most commonly used by large institutional investors as a result of the large amount of shares they purchase daily. Complex algorithms allow these investors to obtain the best possible price without significantly affecting the stock's price and increasing purchasing costs.

The term “algorithm” has unfortunately been stretched to include everything from complex mathematical trading models to simple techniques, which break down the size of order for execution. Each of these techniques can achieve the desired results if used appropriately. But they are not designed as algorithms are to anticipate volume curves, react dynamically to complex signals, and trade with stealth to minimise impact.

At best, algorithms are powerful efficiency tools. Over and above deciding which order is suitable for trading through which strategy and at what point in time to execute, many traders do not necessarily want to have to consider too many other factors—it may, in fact, be counter-productive. As a result, algorithms are optimised to deliver the best performance without any additional input from the end-user. Relatively few brokers offer such algorithmic tools and for many traders this approach works perfectly well.

Algorithms' importance relative to traditional methods of execution and research should not be overstated—algorithms are simply advanced trading tools that serve to make both buy-side and sell-side trading operations that much more efficient. They cannot replace the human elements or make interaction redundant.

Algorithmic trading differs from sequential rules-based trading developed during the late 1990s by offering greater flexibility obtained through newer technologies. The volume, sizes or the time intervals for portfolio trading can be programmed in a dynamic, non-sequential manner with in-built logic and feedback processes. Algorithmic trading takes rules-based trading and enables individual shares or a portfolio to be worked by the desk with complete insight into the bigger picture within the firms and across the spectrum of activity in that share. In reality it is little more than a logical extension of rules-based trading. The rules deployed by execution agents have become increasingly sophisticated. Algorithmic trading enables dynamic monitoring of performance until execution is complete. When combined with automated order handling and compliance systems via FIX, algorithmic trading of the cash instruments can be linked to the leading derivative markets to provide a better liquidity profile surrounding the execution of individual stocks or portfolio.

The ability to create versatile, trading algorithms is driving the rapid growth in electronic trading. Recent research from the Tabb Group indicated that in the USA, perhaps 60% of Investment Managers use or experiment with algorithmic trading.

While the US currently leads the way with electronic trading and leveraging OMSs, in the European markets the EU's Markets in Financial Instruments Directive (MiFID) may act as a catalyst for algorithmic trading. MiFID will introduce pre-trade transparency for trades below specified size thresholds and for trades that take place outside the order book. The technology servicing algorithmic trading could help compliance with this burdensome regulation, if

the industry is unable to persuade the Financial Services Regulators to adopt equivalent regulations or that it does not stack-up after a cost benefit analysis.

The most perplexing concern about the proliferation of algorithmic trading is the possibility of slavish adoption of very standard models. These eliminate any human judgement but ultimately cannibalise markets. Models have to be adopted or calibrated to different environments. They are not a panacea for the capricious behaviour of financial markets. Technology vendors of algorithmic software will, I am sure, bear this in mind as they anticipate the rise in demand for their software products and services.

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