

Ten algorithmic trading trends in the lead-up to 2010

As algorithmic trading enters the mainstream, Dr John Bates and Mark Palmer of Progress Software give 10 predictions for the future



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APAMA, A REVOLUTIONARY trading platform based on event stream processing (ESP) technology, has led the way in innovation since its entrance into the electronic trading scene in 2002. The adoption of Apama began with JPMorgan and Deutsche Bank and its advancement has presaged the evolution of the algorithmic trading market. Four years later, with algorithmic trading entering the mainstream of trading operations, our unique vantage point gives us pause to consider what is next.

Here are 10 predictions for the future of algorithmic trading, looking ahead to 2010:

1. Algorithmic innovation, not adoption, is state-of-the-art

Once the domain of only the largest institutions, algorithmic trading is now entering the mainstream, triggering an 'algorithmic trading arms race'. In 2002, having algorithmic tools was enough to generate alpha. Buy-side firms were content to use pre-packaged 'black-box' algorithms. However, the game has changed. Alpha now goes to the firm with the best algorithms – and what is considered 'best' changes by the day. Only the firms that can introduce new algorithms quickly will stay ahead. The future promises more of the same, with the landscape dominated by those who have the most effective, innovative, evolvable algorithm and algorithmic trading strategies.

2. The rise of the buy-side as an algorithmic powerhouse

The explosion of the hedge fund and alternative investment market has changed the competitive landscape, challenging sell-side institutions to optimise their client services. Concurrently, the buy-side is demanding increased anonymity and control over their trad-

ing strategies. With algorithmic trading being adopted by firms of various shapes and sizes, the need for technology that supports unique trading techniques will continue to grow.

3. Increased use of platforms based on ESP technology

The core foundation of Apama is ESP, a new technology that monitors streaming event data, such as market data feeds, analyses those streams and identifies patterns among those events. With ESP, traders can identify market patterns and use the information to develop trading strategies. Providing an alternative to potentially commoditised black-box strategies, ESP-powered platforms enable traders to modify, tweak, test and evolve algorithms. Also called complex event processing, ESP was originally applied to algorithmic trading. Now its reach is extending to real-time risk management, smart order routing, market making and fraud detection. There will be a greater uptake of ESP technology in coming years.

4. Algorithmic everything: the convergence of the front and back office

Historically, calculating risk exposure was often conducted in batch at the end of the trading day. Now, firms are beginning to incorporate traditionally back-office functions, such as changes to foreign exchange (FX) risk exposure, into their front-office operations. This reinforces the need for real-time risk monitoring. If performed in real time, value-at-risk (VaR) calculations can provide up-to-the-millisecond visibility into potential exposure, evaluating trades based on their potential risk impact. Should a trade push exposure over key levels, it can be prevented before the trade is executed. Firms will increas-

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ingly use algorithmic technology to execute real-time position evaluations, before deciding on an automated action.

5. Broad asset class adoption of algorithmic techniques

Equities was the first asset class to adopt algorithmic trading. During the next few years, other asset classes will follow suit; a prediction already realised by today's innovative firms, which are algorithmically trading not only equities, but also FX, futures and options and fixed income.

6. The optimal combination of algorithms

Pre-trade and execution analytics will be combined to create new strategies that give competitive advantage. For example, a strategy that uses VWAP techniques for historic volume-based slicing, but simultaneously hedges each slice with an FX position if the instrument is in a foreign currency, can create an innovative package of trades. In tandem, the sophistication of these new combinations requires detailed simulation and careful testing. Modern algorithmic trading platforms provide the tools to back-test, profile and tune new strategies in advance of deployment. The ability to test new algorithms against historical market conditions and simulate the impact on the market can help a firm to explore the prospective performance of strategies.

7. Managing the evolution of algorithmics

The development of new trading strategies can now be automated using the latest in algorithmic technology. Today's tools help to identify the cause and effect of trading techniques, to teach lessons from profit and loss, and to identify interesting market patterns

and suggest new combinations of algorithms. Consistent use of these tools over time enables traders to 'genetically tune' algorithmic trading systems. Like Darwin's survival of the fittest theory, algorithmic traders can run thousands of permutations of an algorithm, swap out the least profitable and replace them with more effective approaches.

8. Capitalising on market imperfection: the fragmented FX market

The growth of algorithmic trading outside of equities has created the demand for technology that meets asset class-specific requirements. In FX, for example, increased availability of electronic FX application programme interfaces (APIs) has stimulated interest. Banks, FX liquidity aggregators and electronic communications networks allow customers trading algorithms to connect directly to their systems through an electronic API, eliminating the need for a dedicated proprietary terminal. In FX there are many ways to connect to multiple pools of liquidity. For algorithms to gain a competitive edge, they need visibility of all pools of liquidity together in an aggregated view. This enables algorithms to route an order to market with the best price and potential arbitrage across markets.

9. Use of algorithms to meet regulatory requirements and monitor compliance

The need to ensure that trades comply with necessary regulatory compliance rules becomes more complicated in the world of algorithms. Firms must provide the best price, but how do they calculate this? How do market depth, risk and hidden liquidity factor into the calculation of best price? Over the coming years, firms will increasingly

harness the latest in algorithmic trading technology to address these issues. In parallel, regulators will begin to automate surveillance to monitor trading operations for patterns of abuse, for example, '1-2-3 go' trades, in which two counterparties execute counteracting trades simultaneously to generate volume.

10. The scaling of the trader

Algorithmic techniques call into question the evolving relationship between man and machine. Algorithmic 'auto trading' complements human traders, and can make them more effective. For example, by automating low-value, high-volume deals, traders can concentrate on designing new algorithmic techniques.

The future is algorithmic: what will not change?

When considering the future of trading and the role that algorithms will play, perhaps a sensible question is: what will not change? In the coming years, the evolution of the algorithmic landscape will result in firms re-evaluating and evolving their views on information technology, trading techniques, trading strategy, asset-class mix, the relationship between buy-side and sell-side, and the very composition and skills of the people they employ. Algorithms have sparked a fundamental change in everything – an exciting era of opportunity for those who innovate and peril for those who stagnate. ●

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