

FIXGlobal Algorithm Panel: Q&A



Participants:

Nick Weir, Managing Member, Principia Capital Management and I2M Solutions: Principia Capital Management, a New York-based investment management firm, specializes in model-based trading. I2M Solutions, a subsidiary of Principia, offers real-time, process-based trading solutions to the investment management community.

Sean MacKenzie, Director, Global Equity & Co-Head, Electronic & Portfolio Trading, RBC Capital Markets: RBC Capital Markets is an international corporate and investment bank, offering a broad range of products and services to institutions, corporations, governments and high net worth clients around the world. With nearly 3,000 professional and support staff, we serve clients through 33 offices in 11 countries. We are part of one of the world's largest providers of financial services, Royal Bank of Canada (RBC).

David Mortimer, Executive Vice President, Vie Financial Group, Inc.: Vie Financial Group, Inc. is an agency-only broker that differentiates itself from other players in institutional brokerage by employing sophisticated trading algorithms to secure liquidity across portfolios or single securities more intelligently and at a lower total cost.

Scott Thornton, Managing Director, Trust Company of the West : TCW is a multi-disciplined asset management firm that has product offerings in virtually all US equity, us fixed income, international and alternatives asset classes.

Eric Goldberg, CEO, Portware: Portware is the global securities industry's leading developer of broker-neutral, algorithmic and automated portfolio trading software for global equities, futures, options and FX.

Gavin Little-Gill, Senior Analyst of Investment Management, TowerGroup: TowerGroup is the leading advisory research and consulting firm focused on the global financial services industry. A respected source for trusted information and advice, TowerGroup brings many of the world's leading financial institutions, technology companies, and professional services firms a deeper understanding of the business and technology issues impacting their organizations.

How are algorithms used in your daily activities?

Nick Weir (NW): At Principia, we apply algorithms at two different levels of our trading process. First, at the strategy level, a statistical arbitrage model statistically generates the baskets to be traded at any given moment of any given day. Once a basket has been created, a second algorithm generates and manages orders to the market. The second algorithm is implemented within our vendor-supplied solution and is designed to execute the basket contingent on a model signal with minimal market impact.

Sean MacKenzie (SM): Both our proprietary and agency trading desks use algorithms extensively. On our agency desks we employ both strategic and tactical algorithms. Strategic algorithms are designed to achieve investment objectives while tactical algorithms are designed to achieve execution objectives. Algorithms help us get best execution for our clients by automating manually and quantitatively intensive processes allowing our traders to focus on other activities where they can add value.

Dave Mortimer (DM): Vie Securities' entire agency-only business model was built on this new paradigm - algorithms are at the core of everything we do for our clients. We offer nine base algorithms, covering time and volume sensitive strategies, price-predictive strategies, and combinations of both. Additionally, we have developed customized solutions for several highly quantitative hedge funds. All trades done with Vie are executed through these algorithms.

Scott Thornton (ST): At TCW, we use algorithms in two ways. The first is for basket trades that account for a relatively small percentage of a stock's average daily volume; often times, we will use a VWAP program for these trades to slice order flow into smaller pieces and work them at a measured pace. The second way we use algorithms is to work a portion of a large block trade, which are typically run through a more sophisticated algorithm than VWAP.

Is algorithmic trading purely an equities play, or is there a place for it in other asset classes?

Gavin Little-Gill (GLG): Algorithmic trading requires two key ingredients: fragmented liquidity and electronic trading. These two ingredients characterize the US equity marketplace and have driven its growth. Algorithms are already spreading to equity derivative markets in

conjunction with trading strategies. Continued competition and "electronification" of derivative markets in particular, make these the next area for algorithmic trading growth.

Eric Goldberg (EG): A distinct need for algorithmic trading existed in US equities, where scattered sources of liquidity and lack of transparency had left the trader spending his day pressing buttons. Since that need has been addressed through automation, we're already seeing demand for algorithmic trading of global equities, futures and FX as traders look to increase capacity, gain more control over their trading, and achieve consistent performance. A lot of this demand is being driven by traders who need to trade multiple assets and conduct multiple asset strategies from a single desktop.

ST: We trade equities only, but my assumption is that trading in any asset class where an electronic marketplace exists, small trade sizes are prevalent, and extensive connectivity to a large investor pool is common would be improved by algorithmic trading.

DM: There is certainly a place for certain components of our quantitative execution strategies in several other asset classes. For example, as global markets become more "electronic", and trading floors become museums, these markets have lent themselves to our trading abilities.

Will the buy-side eventually develop their own algorithms or continue to use those provided by brokers?

SM: Absolutely. Buy-side firms have been using and developing their own algorithms for years and as algorithmic trading becomes more popular and algorithmic trading technology becomes increasingly accessible, more and more buy-side firms will internalize development of their algorithms in the same way they've internalized research analysis.

ST: Yes, we believe the buy-side will begin to develop their own algorithms. There will be a co-existence with broker/dealer-supplied strategies of course, but it only makes sense that the trading strategy be a function of the investment strategy and that both responsibilities rest on the shoulders of the buy-side.

DM: We think that in five years a mixture of both internally and externally provided algorithms will exist. The key driver

will be the need for speed - the ASP model will not work with the speed necessary to compete for prices in the future. Even today, certain larger index funds and hedge funds are operating relatively advanced, homegrown, trading algorithms. We will see this early trend filter down to quantitative money managers and even the traditional money management community.

NW: I think the economics make it inevitable that buy-side firms will develop their own algorithms, or at the very least, license pre-developed but customizable algorithms that run on their own order execution systems. Significant resources, both technical and market-specific, were formerly required to develop sophisticated trading algorithms and the systems to run them. Brokers and only a handful of managers were able to scale over the barriers. Today, however, there are platforms available that provide a very accessible environment and tool set for algorithm development.

GLG: Robust algorithms focused on trading to benchmarks require extensive historical pricing and security correlation data. The resources necessary to manage these ingredients are beyond the capacity of the vast majority of buy-side shops. That said, in the hedge fund world today, we do see a number of firms building rules-based or arbitrage trading capabilities with the assistance of third-party solutions. These solutions integrated with smart-order routers blur the lines with algorithmic solutions.

EG: Even as traders increasingly use algorithms provided by more and more brokers, we are seeing the beginnings of a trend toward the buy-side developing execution algorithms in-house. The increased control over the order, combined with anonymity and the recent availability of third party tools make it inevitable that the trader will want control over their algorithms.

How does a trader determine what algorithm is best suited for a given situation?

DM: Through a detailed analysis of the client's historical trading activity, and in consultation with our client, we have been able to develop accurate, customized pre-trade tools to determine which strategy should be applied to each order or sub-set of orders. Thus far, neither Vie nor its clients have seen any off-the-shelf, pre-trade analysis tools that were statistically accurate enough for investment purposes.

SM: On our agency desks, the execution process begins and ends with the client. When working an order for a client our only objective is to get the best execution for that client. If we choose to use an algorithm to execute an order in whole or in part, it's because we believe it is the best way to get best execution for our customer. The decision to use an algorithm is driven first and foremost by the client's execution objective. Certain execution objectives like VWAP and constant proportion of market volume lend themselves well to algorithmic trading as these execution strategies are quantitative in nature and computationally intensive. The second factor is liquidity. Most algorithms work best in liquid markets. Generally speaking, the less liquid the market, the less effective algorithmic trading is.

GLG: The reality is that most traders do not know what algorithm is best for a given situation, and most rely on a small number of algorithms they have become comfortable with. We are seeing growth in arrival price algorithms as traders experiment beyond volume-weighted average price (VWAP) and "beat the close" algorithms from traders supporting daily valuation.

EG: Brokers are offering algorithms which are optimized for minimizing impact given combinations of alpha expectation, benchmarks and liquidity constraints. Various pre-trade analytics assist in choosing the set of parameters to use for each algorithm. Unfortunately, there are few standards that exist and traders have, in some cases, become overwhelmed by the many algorithms now available.

Why has algorithmic trading grown so quickly in popularity?

EG : Three words - control, capacity, and costs.

NW: Two reasons, I think. First, the brokerage community has been very successful in marketing and demonstrating the value of some of their own proprietary execution algorithms. Then software providers like Portware have stepped in and made the development of fully customized trading algorithms within the reach of virtually any investment manager.

GLG: Beyond the fragmentation of the equity market, three factors have contributed to the growth in electronic trading: Access has been facilitated by order management systems providing access via the trading blotter, commissions rates have declined and hover at or below those of program

trades, and brokers providing algorithms have engaged in exceptional public relations efforts around their solutions. These three factors will continue to drive the algorithmic growth trajectory we have seen over the past 24 months.

DM: It's a "no-brainer" - better execution performance at lower cost has created market demand.

SM: There are a number of factors that have contributed to the growth of algorithmic trading but I believe the biggest drivers have been market structure, increased awareness of transaction costs, the growth of hedge funds and advancements in automation. Over the past decade equity markets, especially in the U.S., have become more fragmented. Fragmentation combined with decimalization has made the market more difficult to trade by hand. At the same time clients have become much more aware of market impact and other implicit transaction costs and are increasingly using benchmarks like VWAP to measure best execution and guide their trading. The ability to short, use leverage and derivative products allows hedge funds to employ investment strategies that have traditionally been off-limits to buy-side institutions. Many of these investment strategies are best executed using automated algorithmic trading systems and the trading technology required to do algorithmic trading has become much more accessible.

ST: Because it is easy, anonymous and the market impact is relatively small.

Do you see any risks / obstacles to algorithmic trading?

ST: I think it is important to realize that algorithms written by large broker dealers might not be as anonymous as we on the buy-side believe them to be. We don't always know the methodology by which an algorithm trades, and that creates risks. There is a possibility that broker-supplied algorithms can be gamed by other algorithms if we're not careful.

NW: Certainly algorithmic trading without the proper risk and compliance controls in place could be a recipe for disaster. But as long as developers and traders pay the same careful attention to those aspects of the trading process as they do to, say, market-related rules, I don't foresee any obstacles to the widespread adoption of this technology. It's simply too valuable to ignore.

GLG: Reputation risk remains the wild card in the algorithmic trading market. If we were to see definitive proof showing algorithms to be less effective than currently advertised, firms' reverse-engineering algorithms, or inappropriate use of algorithms by those offering them, algorithms would be tripped up and growth would fall off. Barring these events, TowerGroup sees the ease of access and commissions pricing driving algorithmic trading growth from 3% of buy-side trading volume in 2003 to 16% of trading volume in 2006.

DM: Clients need to understand that algorithmic trading is only a tool - albeit an important one - but a tool nonetheless in a buy-side trader's arsenal. For example, a poorly chosen algorithmic trading strategy can decimate a trade in a thin, small-cap stock scenario. Additionally, if the algorithmic provider is not careful in disguising his order placement method he will be found out and disadvantaged by other market participants.

Are current OMS providers well-suited to handle algorithmic trading?

GLG: As algorithms move beyond equities, it is less clear how OMSs, which tend to be used for security-specific trades, will support cross-asset-class algorithmic trades. The real challenge, though, is for those firms supporting proprietary OMS solutions and on building the front-end and custom FIX messages to integrate algorithmic trading with the trading blotter.

SM: No. Currently most of the mainstream order management systems are only capable of attaching a limited set of execution and handling instructions to orders and are not suited to handle algorithmic trading. This is part of the reason why the buy-side continues to use broker/dealers to provide algorithms.

DM: We have seen some initial problems adjusting to the volume of message traffic inherent in algorithmic trading strategies. We were asked by several institutional clients to roll-up our execution reports to free up the OMS providers bandwidth; these early problems now have largely been addressed however.

EG: The OMSs on the market today, while well-suited to handle order management functionality, are not particularly strong in the area of algorithmic trading and trade

management. To date, OMS providers have offered algorithmic trading support primarily through integration with a broker's remote algorithms or through integration with third-party algorithmic trading platforms.

What role has the FIX protocol played in the spread of algorithmic trading?

DM: Decimalization and the availability of FIX are the two key drivers in the recent success of algorithmic trading.

EG: FIX, as a standardized protocol, has made it possible for independent software vendors to provide destination-neutral systems for electronic trading. As proliferation of FIX continues to increase the use of electronic trading worldwide, algorithmic trading won't be far behind. In recent years we've seen the acceptance of FIX in equities grow tremendously. Even more recently, we've seen the lightning fast acceptance of FIX for futures, options, FX and, over the next few months, we'll even see FIX order routing gain in popularity for fixed income securities. As use of FIX grows, so will the use of algorithmic trading.

NW: It's played a huge role, by setting the standard upon which the entire brokerage and financial technology community could build upon. Without a large, accessible market, which such a standard creates, fewer service providers would have been willing to step up and provide the tools and services needed to make this practice bloom.

ST: Simply put, without FIX, algorithmic trading would not be possible.

SM: FIX has had a huge impact on securities trading as a whole and I believe that the advances that we've seen to date are just the tip of the iceberg. As an electronic, program and algorithmic trading specialist I foresee many more innovations as the FIX protocol and other electronic trading technologies become more ubiquitous. The continued spread of algorithmic trading is just one of these effects.

Does the use of algorithmic trading help measure, control and compare risk and performance?

NW: Yes. By imbedding the appropriate rules, algorithms can certainly be used to control both the market and compliance risks of execution. And by virtue of being purely process-based, their risk and performance may, over time, be objectively measured and compared to one another,

unlike discretionary approaches, which are subject to too many variables over time. I think investment managers will find these particular features of algorithmic trading increasingly important.

GLG: For most buy-side firms, the percentage of trades executed through algorithms remains a small percentage of overall trading volume. Furthermore, the customization of those algorithms to meet the specific trading requirements of a specific trade in a specific time frame makes comparison of trades virtually impossible. As algorithmic trading develops, the onus is on brokers to prove the value added by their specific algorithms and for buy-side shops to integrate that data into their broader strategies related to the distribution of trades to those algorithms.

SM: Absolutely. One of the primary reasons algorithmic trading evolved in the first place and has grown in popularity is because it helps measure, control and compare risk and performance. A lot of algorithmic trading is benchmark-related and stems directly from clients' desire to minimize market impact and other implicit transaction costs that contribute to implementation shortfall.

DM: It certainly helps to control "benchmark risk" when the benchmark, like VWAP, is universally measured. It does not, however, help to compare executions against an implementation shortfall type of benchmark, where various parties have different methods of measurement.

EG: The information inherently available via algorithmic trading allows in-depth, real-time and post-trade analysis of each execution. Implementation shortfall, slippage, and exposure may be monitored and algorithms tweaked to adjust for market anomalies. Over time, data may be gathered to compare the performance of different algorithms over various orders in distinct market conditions. **FIX**

Any thoughts on this or other articles?

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