INVESTMENT MANAGEMENT

BUY SIDE INNOVATION

Key Issues and Drivers

- Hedge fund sector expanding
- Rapid growth in mass affluent
- Loss of consumer confidence in the investment industry
- Increasing regulation
- Evolving standards, inc. FIX, RIXML, MDDL & SWIFT

Implications

- Rising trade volumes
- STP is key to cost control
- Effective technology is the foundation
- The buy side is a significant market opportunity

Sun's Credentials

- Lowest cost, highest performance open technologies
- Market credibility
- The best partners in the industry facilitating complete solutions for the front, middle & back-office
- Encouraging innovation through investment
- Flexible pricing models

The Buy Side Trading Technology Revolution.

Traditionally talk about trading systems referred to the sell side. Indeed until recently decision making on buy side trading was mainly a manual process - an active fund manager would evaluate the balance of portfolios, consider market information and review research before deciding to buy, sell or hold. Trades would be manually input into an order management system or flowed directly to the market by a junior trader. The mainstay of computer support was in all likelihood a spreadsheet, particularly surprising as the buy side is the originating customer for the market! Passive trading strategies introduced concepts of automation, but overall the buy side has not been a leader in technology deployment. Various factors are now shifting this focus. Installing new order management systems has created pressure to extend automation for electronic execution by connecting to the sell side using the FIX protocol. Calls to measure and monitor performance are pushing technology deeper into a firm's decision infrastructure and technology is becoming integral to buy side operations. Also changing is the nature of the buy side's relationship with the market, increasing their expectations for technology support from the sell side trading venues and for outsourced middle and back office services.

The Advent of Hedge Funds and the Growth of the Mass Affluent Market

There is an explosion in the growth of hedge funds and investment boutiques, with over 7,000 cited as the global population. Often set up by ex sell side traders they adopt complex algorithmic, multi-asset class trading strategies. Until recently fund managers would flow orders to a few select brokers in return for research and soft commissions. Competition and regulation are now disturbing this comfortable, essentially symbiotic relationship. Increasingly automatic systems flow orders to whichever brokers and liquidity pools they can access electronically to achieve best price. Hedge funds tend not to have large administration functions. Many rely on prime brokers, outsourced administration and custodians for settlement, portfolio management and accounting services. The market is evolving to accommodate this – a transition far from complete today.

The mass affluent is another sector growing strongly. The number of mass affluent worldwide (i.e. those with liquid assets of between $100K - $1M) has seen a 50% growth in the last year to some

Sun microsystems

$25T (yes Trillion). Key is the ability to handle volume, while at the same time offering customized products – a balance between being able to charge premium prices for differentiated services and remaining competitive in a crowded market. While in general this sector chooses not to allocate sufficient time or expertise to managing investment portfolios it is knowledgeable enough to see that many of the combined products do not meet their needs in terms of flexibility, risk and diversification. It is discerning, well researched, focused and requires high quality service for a reasonable fee.

Loss of Consumer Confidence

There is also a crisis of consumer confidence in the pensions and investments industry. Although patterns vary around the world, depending on fiscal strategies, in general individual pensions have been trusted to final salary and money purchase schemes, with assets of underlying portfolios managed professionally. The global stock market crashes of 2000 following the end of the dot.com boom, and factors such as the withdrawal of dividend tax credit, under-funded company pension and failed investment schemes have substantially reduced the value of portfolios, damaging consumer confidence for the whole industry. Active managers have failed to "beat the market", questioning the value added by the industry. At the core of this is the lack of transparency, which can engender mistrust and a perception that fund managers are looking after their interests before their customers. Investors face a vast choice and there is no easy way for a retail customer, or even a corporate pension trustee, to make a rational choice between products and providers. Many advisors are paid on commission, raising questions of conflict of interest - with no easy answer, as remuneration has to be made somehow. Fees are seen as too high and paid regardless of the fund manager's performance. This seemingly anomalous scenario is now in focus and regulators are starting to introduce reforms, which will demand better treatment for clients (TCF: treat your customers fairly).

Straight Through Processing (STP) is Key

Execution is now a high volume, high velocity and increasingly low margin commodity business. The sell side has invested in sophisticated trading operations, which need high throughput to be viable. The buy side wants execution that is inexpensive, reliable and optimally priced. As Direct Market Access to electronic venues becomes a possibility questions are being raised about sell side value add versus execution cost. Consequently economies from Straight Through Processing (STP) are essential to the sell side's cost structures. Electronic client connectivity is important for the sell side to offer the product range and complexity, which combined with quality service are key to customer loyalty. As costs continue to fall it is possible to execute more, smaller trades. Smaller trades at tighter margins require reducing costs and higher volumes - an escalating spiral. So the sell side has to cope with high volume at low cost, while keeping the (expensive) trade execution factory fully utilized – never have STP economies of scale and efficiency been more important!

Increasing Regulation

The buy side has been underregulated by the authorities. Automated and faster trading is bringing compliance into focus. Trading compliance shows the investor that trading decisions and portfolio balancing have been to agreed mandates. Regulatory compliance monitors activity versus the regulations, including best execution, trade reporting, insider trading and anti-money laundering. New regulations are coming globally, for example the European MIFID directive will mean increased disclosure and transparency, heralding an overhaul of a firm's systems.

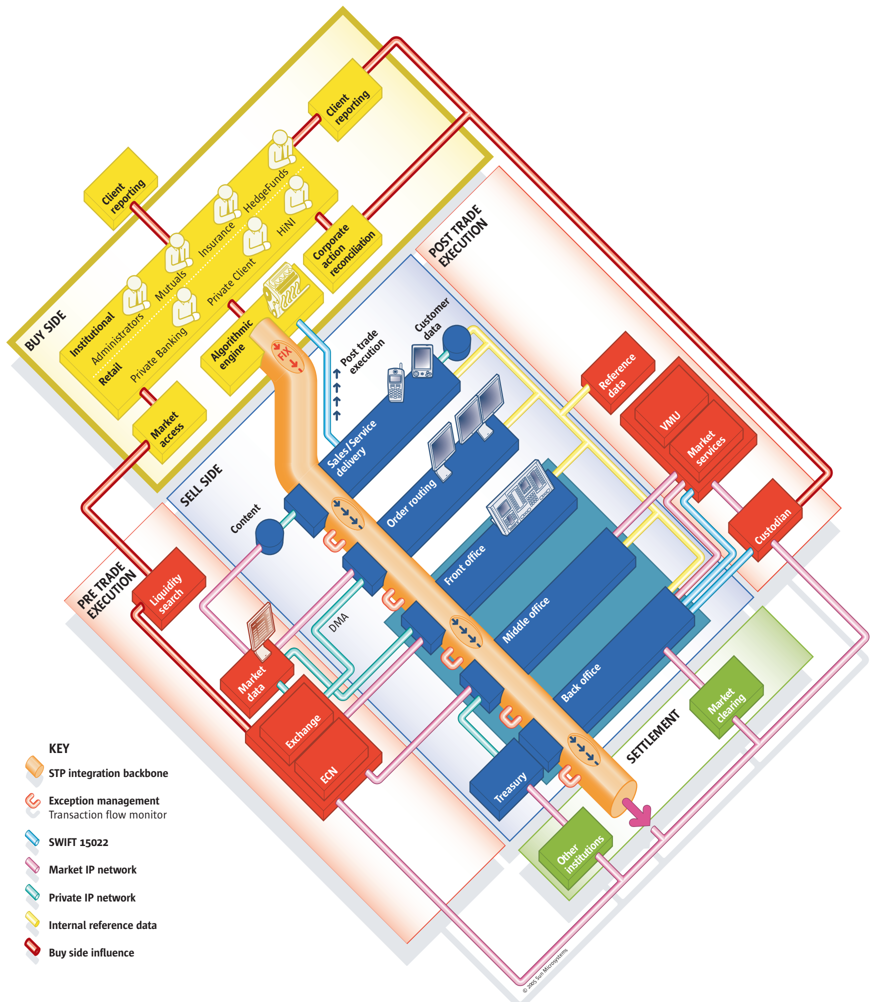
Opinion Management

A view is emerging that funds management is really an intellectual property business. Orders, trading, confirmation, settlement and accounting are all side effects of investment decisions. The real criteria are the quality of investment opinions, together with the ability to execute to the clients' best interest and run a profitable service. The opinion process is about forming and validating investment views. It covers top down opinions about asset categories and factors affecting them, such as stock levels and views on specific instruments. The roll out process generates orders from opinions, while taking account of fund mandates and compliance. It needs to incorporate any benchmark relativity, run risk and optimization models, estimate execution costs and impact on liquidity before generating the trades. It must be possible to look back and review the validity of decisions based on the criteria and assumptions at the time, providing a full audit trail for both the client and compliance. Positioning around "Opinion Management" is starting to be a clear way for investment managers to add value and to stand out from the crowd.

> Opinion Management - the value add in investment management.

Infrastructure & Technology Implications

So much for the markets' drivers – how does technology impinge? To achieve accuracy, low cost and transparency in this evolving, regulated, automatic trading environment requires real time access to and management of research, pricing and reference data across all domains (inc. market, risk and client data). A view evolving is that data management is now a core discipline. Intelligent middleware is needed for easy, flexible data transport between applications. The overall data topology will be a series of reliable connections between solution elements, linked to external data sources, with access to trading venues and liquidity pools and to external settlement and custodian services. Evolving market messaging and data standards such as FIX, RIXML, MDDL, FPML and SWIFT are vital enablers. Web Services and Service Oriented Architectures promise easier interoperability. Technology platforms must be open, flexible, resilient, scalable and secure. Key competencies for Sun, who offer choice of the most popular technologies, including the Solaris 10 (UNIX) operating system, Java, J2EE and Grid computing, together with support for Linux and Microsoft on powerful AMD Opteron processors and the Sun Sparc range offering massive scalability for the most demanding.



Influence of the Buy Side on the Trade Lifecycle

Solutions for the Buy Side

Traditionally the buy side has opted for the package approach. Today, in SUN's view, no single "best of breed solution" will meet their needs. As the buy side expands its breadth, influence and sophistication solutions will come in several forms. Prime services from a "benevolent" sell side, will look to underpin trade flows, while fund administrators and custodians will extend their offerings. Perhaps most interestingly, as technology lowers barriers to entry and the IT industry moves towards utility services - innovative new models will emerge. New pretenders will join the Omgeo, Reuters, SWIFT et al community. The buy side will reap the benefits, but beware Darwinian principles as the space gets crowded. Across the range SUN is easing this evolution, fostering the best platform performance in software applications. The majority - Advent, Apama, Flextrade, DSTi, Eagle and SunGard, to name a few, are powered by SUN's software and hardware combinations. The ground breaking "SUN GRID" proposition of $ per CPU per hour is poised to support new approaches to delivering services down the market's connectivity pipes.

Trading and Portfolio Management

Many leading Order Management and Portfolio Management Systems are available on Sun, including solutions from Charles River, DSTi, Eagle, Flextrade, LatentZero, LineData (with Longview), Macgregor and Portware. Some such as Beauchamp specialize in hedge funds, while others such as Rhyme Systems focus on the back office for fund managers. DSTi and Sapiens are leading the way in developing new trading systems based around Opinion Management. Others specialize in supporting algorithmic trading strategies with calculation engines capable of evaluating, pricing and simulating portfolio credit and market valuation and risk for large portfolios of even the most complex instruments in real time. They include Apama, CDO2, Flextrade, Quadrus Financial Technologies and Quantnet. As they become established they are being integrated into sell side Prime Services – becoming the next differentiator in the buy side / sell side courtship. When time is critical to execute on a market opportunity the industry has to solve the paradigm of maximizing speed (technology enabled) at acceptable cost.

Risk, Reference & Market Data

Achieving reliable, automated STP trading requires accurate reference data and up to date market data. Market price data is available from established providers and can now be managed by new technologies such as Caplin, Lightstreamer and Reuters. Reference data can be accessed via Asset Control, Golden Source, Cicada, Eagle, Fame and others. MRDS, a new reference data service from Accenture, is changing the supply dynamics by providing a full outsourced data management service, appealing particularly to firms without large scale in house people and systems resources. Risk data is provided by the likes of Algorithmics, iFlex, Infoshare, Quadrant, Reuters, SAS, Wall Street Systems, Murex and Iris Financial – with calculation engines from Quadrus and CDO2 driving faster calculation across massive data sets.

Connectivity & Middleware Support

Several companies provide "out of the box electronic plumbing" based on market standards (notably FIX at the business level and XML for web services). These include Cameron Systems, Century 24 Solutions and TransactTools. This middleware market is likely to grow as intelligent messaging, with translation between evolving formats, for both internal and external integration rises up the agenda. Providers such as Trace Financial, Polarlake, Magic Software, Gigaspaces, Seebeyond and Sonic join established leaders such as TIBCO in the deployment of connectivity based on core Java and JINI technologies. As connectivity becomes more pervasive, the pressure on the industry will be for more packaging to remove the engineering complexity, which has traditionally accompanied such technology.

Sell Side Trading and Settlement

STP is key to the efficiency, cost and scalability of brokerage functions. Many leading settlement systems run on Sun, including ADP Wilco, Coexis, DSTi, GL Settle, IDS, Rhyme Systems, Thomson Financial and SunGard. These "best of breed" solutions hold market position by progressive evolution, taking advantage of technology developments to improve price performance and flexibility.

Partnering with the Best in the Industry.

Client, Regulatory and Management Reporting

Clients, regulators and management all require clear and consistent reporting. Offerings from companies such as Actuate, Business Objects (inc. Crystal Reports) and Hyperion, provide the depth and breadth of reporting required by all interested parties. Companies, such as Kurtosys, are introducing new business models by providing report generation as an external ASP service. Client and management reports can be produced from disparate heterogeneous streams of data – a legacy of piecemeal growth across the market. The buy side therefore benefits from sophisticated reporting tools without the overhead of an in house install.

Custodian Services

Outsourced middle and back office services for the buy side from market leaders such as JP Morgan Chase, State Street and Mellon have Sun technologies and partners as their foundations. DSTi and Eagle are market favorites. Custodians are adopting more efficient vehicles for traditionally manual and expensive processes. Notably Claimonitor, developed in response to the ISITC proposals for automating settlement error claims is built on SUN's Solaris 10, Java and AMD with data management technologies from Metatomix. This new service is set to bring economies and improved efficiencies (i.e. reduced cost) to this end of the trade cycle.

Conclusion

With the best technology and a wide range of leading solution partners Sun has built a strong position in the banking and investment industry. It is ideally positioned to support the investment community and facilitate the adoption of innovative solutions. Sun is deeply involved with the investment industry. As a Platinum Member of FIX Protocol.org Sun is working on standards development. It is helping progress in the market with strategic investments to encourage innovation. With the buy side's increasing use of technology – the new "on demand" supply models being pioneered by Sun are coming into focus. As "utility computing" evolves from technology proposition to a business solution to aging market practices, Sun and its partners will be active in the mix!

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