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European Market Monitor:

Market Participants Anticipate Dramatic Shifts As Trading Moves From Exchanges to Newer MTFs

LONDON — Competition among European trading venues unleashed by the Markets in Financial Instruments Directive (MiFID) that took effect last November has accelerated much faster than the similar increase in trading venues witnessed in the US in the 1990s following Reg ATS and more recently Reg NMS.

As three new multi-lateral trading facilities (MTFs), **Turquoise, Nasdaq OMX Europe** and **BATS Trading**, prepare to launch their European platforms in September, competition will likely drive down trading costs. The MTF arena, currently dominated by **Chi-X Europe Ltd.** which has been operating for more than a year, awaits the debut of several more entrants, among them **NYSE Euronext**'s MTF, called Octopus, to launch in November alongside their block-trading facility, **Project SmartPool**. The NYSE Euronext MTF will be modeled on a central limit order book. Also in the works is **London Stock Exchange** and **Lehman**'s MTF called Baikal. **Börse Berlin** has introduced **Equiduct**, using an entirely different market model. Other dark pools include **NYFIX Euro Millennium** and **SWX Swiss Block**, a non-displayed liquidity service from SWX Europe, the London-based securities exchange owned by **SWX Swiss Exchange**.

The sudden mushrooming of MTFs puts great pressure on the primary markets to improve their technology and performance or risk losing trading volume.

European market participants' approach should be flexible, says Ralston Roberts, Senior Vice President of Liquidity Services, **SunGard Trading Business**. "We realized from the experience in the US how fast prices change on venues, and the costs of trading on them, as well as how fast where liquidity and technology are present changes," he says. "We also realized that technology solutions should allow firms to modify them overnight or sometimes intra-day. We enhanced our routing technology to dynamically optimize routes to marketplaces based on the information that the router sees, such as where stocks are trading on dark markets or displayed markets, where we see price improvement and what our fill ratios are. This provides price improvement and the least trading cost, which results in a lower total cost of ownership of every single trade we execute in the marketplace."

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INDUSTRY ALERT

Dark Pools Harbor Signs of Information Leakage

NEW YORK — While institutional traders may be looking for ways to put back together fragmented liquidity and liquidity dispersed among dark pools (*Global Investment Technology*, June 9, 2008), liquidity aggregators may not necessarily be more useful than single dark pools, according to research by agency brokerage **ITG Inc.** on evaluating dark-pool trading performance. “Waiting for an order to bounce around all the dark pools is not necessarily beneficial relative to going to a single dark pool, although it is beneficial relative to the diversity of trading styles,” says Ian Domowitz, Managing Director at ITG and Chief Executive Officer of the ITG Solutions Network. “That the costs are climbing across all these dark pools suggests that the notion of information leakage, even though people believe they’re trading in the dark, has some legs.”

While trading in dark pools adds value relative to the alternatives, there is an increased risk of slippage in using liquidity aggregators.

While trading in dark pools does add value relative to the alternatives, there is an increased risk of slippage in using liquidity aggregators, and differences in execution quality across the dark pools, according to Domowitz. Fragmentation of dark pool liquidity does not add value for generating block-size executions, he adds, citing ITG’s new research evaluating 12.6 million orders (resulting in 75 million trades) executed through liquidity aggregation and crossing systems during the first three quarters of 2007. A forthcoming study for the same period in 2008 is likely to produce similar results and insights, according to Domowitz.

ITG evaluated transaction costs based on order duration within the collected dark pool trading execution data, for 10 dark pools, including its own POSIT Now, POSIT Match and POSIT Alert. Generally, after 60 minutes, the costs, measured in basis points, rose significantly higher for all the venues to some extent, notes Domowitz, while orders completed in 30 minutes or less had significantly lower costs, with the POSIT venues, **Pipeline Trading** and the **Morgan Stanley** dark liquidity pool having positive cost outcomes of single-digits in basis points. “I cannot say whether it’s better to bounce around for two hours in a liquidity aggregator versus being out in the open market for 30 minutes, but my conjecture is that it’s still better to work in the dark,” says Domowitz.

Looking at trading across a diversity of styles, it now costs an average of 18 basis points to get an order done.

Crossing systems do not necessarily cause more slippage than liquidity aggregators, adds Domowitz. “Some people believe that crossing mechanisms, especially point-in-time matches, are not useful in high volatility,” he says. “The data says otherwise. Looking at trading across a diversity of styles, it now costs 18 basis points to get an order done, on average. When volatility goes up, it’s more difficult to do the trade, more costly and more slippage. On other hand, the dark pool algorithm still is only 8 basis points down. The crossing system only costs 1 basis point and POSIT still results in a gain.”

Fragmentation of dark pool liquidity has not increased the number of shares or the number of block-size trades getting executed, explains Domowitz. While POSIT Alert had an average execution size of 29,143 shares for trades executed in less than 30 minutes; and Pipeline Trading had an average size of 27,140 shares for the same duration, according to the ITG data, the other non-ITG venues had average execution sizes of 649 shares and lower. The other venues included **Level ATS**, **ISE** Midpoint Match, **Knight** Match, Morgan Stanley’s MS Pool, **NYFIX Millennium** and the **UBS** Price Improvement Network. The average execution sizes stay similar for durations of 30 up to 180 minutes. ❑

EDITOR'S COMMENT

Somewhere Also Lies Buried Ethics

One of the most important debates that will certainly take shape next year, once the US elections have been decided and a new President takes office, will not be the future US military presence in Iraq, but the role of a different kind of disciplinary agent much closer to home: regulatory oversight of the financial system. It is natural for financial industry participants with their free-market spirit to shudder at the mention of the "R" word. Indeed, regulators have immense power to foster or stave off competition and innovation, energize rewarding transformation or encourage the status quo, thus preserving business monopolies and entrenched interests.

Hence, regulatory agencies must exercise as much discipline and restraint in how they oversee their wards, just as they must also act to prevent anything that harms the safety or soundness of the system.

Recent regulatory changes in the securities marketplace have fostered market changes and the evolution of a 21st century electronic marketplace, on the one hand. On the other, the steady erosion of transparency and constant clamor for thinly regulated or even unregulated sections of the securities business — such as hedge funds — presents its own risks. That is where both market participants and regulatory authorities will have to perform a balancing act to reach a compromise that preserves confidence in US financial markets, while ensuring its growth and global eminence.

The collapse of Bear Stearns, the US takeover of Fannie Mae and Freddie Mac, and continued fears that another major Wall Street firm could fall over the cliff are already sounding warning bells. History tells us that it takes a severe crisis to usher in radical change.

The big question is whether fragmented regulatory jurisdictions should be consolidated, as has been accomplished in the UK under the Financial Services Authority. Some suggest that the role of the Federal Reserve should be expanded — an approach that would avoid a catfight between the Securities and Exchange Commission and the Commodity Futures Trading Commission. Others fear the emergence of a monolithic regulator and point out that the reason the Fed has been so effective is because of its limited focus — something that once was also true of the SEC, until it became more political as an agency.

One thing is for sure, thinly regulated players can lead to unchecked risk-taking, while over-regulation can kill innovation and vital initiatives. Best practices emerge only when different voices can be heard, and ethics re-assert a prime position in daily life.

Sincerely,

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FX TRADING

Rising FX Liquidity Inviting More Sophisticated Algos

NEW YORK — Algorithmic trading in foreign exchange (FX) could eventually reach the impact it has in equities trading, according to a study of FX trading conducted by Sang Lee, Managing Partner of consultancy **Aite Group**. About 7 percent of all FX trading is now being conducted using algorithms in both investment and execution-based trading strategies, while execution algorithms are being used for 25 percent of equities trade, according to Aite Group research. The penetration of electronic algorithmic trading in FX will reach about 15 percent by 2010, according to Aite Group.

"FX is an incredibly liquid marketplace with established electronic trading capabilities being used by all key players," says Lee. "Continued participation of actively trading firms, the global nature of FX in general, and additional push by broker-provided algorithms will be key drivers for FX algorithm adoption."

The penetration of electronic algorithmic trading in FX will reach about 15 percent by 2010 according to Aite Group.

FX is proving to be enough of a growing market [with daily turnover rising from $1.2 trillion in 2001 to about $3.2 trillion at the end of 2007] that new electronic venues for FX trading are not noticeably hurting the banks and investment firms that were previously engaged in FX trading business, explains Lee. "The incredibly active FX market has been beneficial for all key market participants," he says. "Even on the FX ECNs, the flow is coming from those individual banks themselves. Over the last few months, the single banks have managed to build very sophisticated pricing engines and infrastructure to interact in various execution venues as well as provide essential FX prime broker services to boost additional trading volume in the marketplace."

"One area of interest for the long run could be algorithms developed for less liquid and/or emerging market currency pairs."

The rise of algorithmic trading in the FX market is being driven by several factors, according to Lee:

- Lackluster equities market. Has forced market participants to look at alternative investment opportunities, including FX.
- Increased adoption of electronic trading. Overall electronic trading of FX has risen from about 35 percent in 2001 to more than 50 percent in 2005, and is projected to pass 70 percent by next year.
- Growing transactions from actively trading market participants. The share of total turnover between dealer-to-dealer transactions fell from 59 percent to 43 percent, between 2001 and 2007.
- Adoption of FIX. The use of FIX standards for FX trades increased from about 12 percent of trades in 2004 to a projected figure of more than 33 percent by the end of this year.

At present, **Deutsche Bank** is the largest electronic FX trading venue, while **EBS** and **Reuters** are innovators on inter-bank FX, says Lee. **Hotspot, Currenex** and **FXall** are among the leaders in multi-bank ECN type FX trading forums, he notes. "The CME [**Chicago Mercantile Exchange**] has done a tremendous job of building up the FX futures market, which in turn has also benefitted the OTC FX spot market as well," says Lee.

"While algorithms have certainly found a place within the FX market, it is not clear who will lead the charge in driving the mainstream adoption of FX algorithmic trading," adds Lee. "One area of interest for the long run could be algorithms developed for less liquid and/or emerging market currency pairs." ❏

SPOTLIGHT

T. Rowe Price Supports Growing Investment Mandate With New Technologies and Global 24/7 Availability

Baltimore-based T. Rowe Price has grown steadily over the past three years, increasing its assets under management from about $260 billion at year-end 2005 to nearly $388 billion as of June 30, 2008. This growth has posed operational challenges for the firm as it invests in an ever-more global context, including expansion of its offices and staff and a need for more IT support. With an IT budget of more than $200 million, management of technology strategy at the firm now also includes consideration of innovations such as mobile technologies and collaboration tools. *Global Investment Technology* spoke with James Mazarakis, Chief Technology Officer, at the investment management firm.

What we thought was 24/7 ten years ago and what is 24/7 today are very different because the number of hours that we trade is constantly expanding.

The number of locations where people need access to the system is expanding, while the time we have to respond to a problem or disruption is shortening.

GIT: *How do the challenges of growth, globalization and complexity affect how T. Rowe Price approaches infrastructure support?*
JM: Growth means higher volumes of transactions. It also means higher numbers of transactions in terms of dollars or currency. It also means that there are more people that you need on-board and not quite as much time to train them in everything. So we need to simplify the environment, get them up to speed faster and get them to be useful sooner, and guide them through the various aspects of their daily jobs.

Globalization means that our environment, our technology, our support and our systems need to be available pretty close to 24/7 now. What we thought was 24/7 ten years ago and what is 24/7 today are very different because the number of hours that we trade is constantly expanding, the number of locations where people need access to the system is expanding, while the time we have to respond to an issue, a problem or disruption, is shortening. So globalization brings that type of challenge to our people and our infrastructure.

Complexity means that as you have an issue, it's not unidirectional any more; it's multi-dimensional. You need to examine different aspects — is it network related, is it bandwidth related, is it application related, is it expertise-related, is it dependent on another application or transaction happening somewhere else in the system? There's a lot more monitoring of the environment happening and a lot more sophistication to the tools that we use and our associates need to be trained in to ensure that everything is working as expected.

GIT: *What are the major components of T. Rowe Price's global investment management platform? How does it empower the firm and its traders?*
JM: Obviously, trading systems are important because they are a fundamental element of what we need to do. Our client service applications are also a major component because everything we do separates between the manufacturing side of the business — which requires portfolio analytics, trading systems and compliance systems — and the distribution part of the systems. That involves all the client applications, servicing applications and reporting applications. The servicing side has always been very important to T. Rowe Price because everything that we do goes back to how we improve client service. The focus has been on both trading systems and servicing systems. We buy trading systems and compliance systems externally. We build analytics systems and servicing systems internally. Those technologies have not changed in a significant

way, other than upgrading to newer versions of existing software packages in the past few years.

GIT: Could you outline your technology strategy and the drivers behind it?
JM: As T. Rowe Price becomes more global and the firm increases the number of transactions that we need to place or the risk that we need to monitor, we constantly upgrade those applications. We build layers of additional software on top of our existing environment to simplify their use and lower the amount of training time needed. For example, we developed new servicing software that allows our service associates to support our clients through a single interface for all the functions they may call about. So most of this facilitates the business strategy of T. Rowe Price and is not a separate IT strategy. For 2008-09, [the IT priorities are] increasing the hardiness of our environment, allowing for larger transaction volumes, and continuing to build more redundancy in our applications. At the highest level, it's higher volumes, higher resiliency and agility.

Mazarakis: *Anticipating new business drivers.*

GIT: Have trading or investment strategies changed, for which support needs to be created?
JM: We have not made significant additions of new asset classes, but we have added a lot more countries. In the last couple years, we've probably transacted in about 30 more locations overall than we had in previous years. So our applications and systems need to understand technical issues in those countries' settlement cycles, risk management, market data and other functions.

GIT: How have T. Rowe Price's risk management practices changed in the light of the sub-prime and credit crisis?
JM: First of all, I take my hat off to our fixed-income division because they have done a fantastic job of credit risk management across all the instruments that they have been managing in a very difficult environment. The best risk management system is to have people in your organization who look a little beyond what everybody has envisioned. [In the sub-prime crisis], securities that were assumed to be low-risk had huge amounts of underlying risk that no one stopped to recognize. Our best risk management system in the past year has been our fixed-income risk management team and the people who did early reconnaissance on what securities could turn toxic. From a risk management perspective, we provide more analytics, so the analytics that we do for the fixed-income group helps them in risk management. But the risk management systems were not our first level of defense.

We buy trading systems and compliance systems externally. We build analytics systems and servicing systems internally.

In the last couple years, we've probably transacted in about 30 more locations overall than we had in previous years.

GIT: What are some of the projects that you've focused on related to securities trading? What is the business value that they will deliver?
JM: We're looking at securities transactions happening in different time zones and how we can make our systems available as early as possible to accommodate around-the-globe transaction processing. In effect, we're looking at our infrastructure to ensure early availability, primarily in Asia, of applications that typically work on London and Baltimore time zones. If we can make our trading environment available earlier in the morning, that's probably the biggest benefit we can provide. Typically, most of our volume in the past has been happening in the US and Europe, but now Asia is coming on in a very fast and strong way. We just need to make everything available earlier. We have trading teams across the globe, but all trading system support is out of Baltimore.

SPOTLIGHT

GIT: What is your view of business intelligence? Has T. Rowe Price turned to this to achieve efficiencies with customers? Have you seen beneficial effects from its use?

JM: It's early days for beneficial use, but business intelligence certainly has the potential of providing a significant amount of business information, through different types of tools. For example, one of the tools that we're using is Visual Sciences [an analytical software product offered by Omniture Inc.], which gives us a good view of the various people accessing our website. The first step to using this information is to educate the different business groups on the amount of information that is available, which is staggering. All this information is available in real-time so you can ask a question and get an answer right away. You can define parameters to change the nature of the question and exchanges with clients, such as the bandwidth that they're using and the locations that they call from, and have an answer right away without needing someone to create a report then wait a couple weeks to see the results.

Our best risk management system in the past year has been our fixed-income risk management team and the people who did early reconnaissance on what securities could turn toxic.

GIT: What new securities trading technologies are you watching that you think will benefit T. Rowe Price and your clients?

JM: Collaboration tools. We need to use these tools as much as possible, and they will probably open huge horizons for us. We have internal and external customers. Our clients may want to talk to other clients who are in similar circumstances, in the same way that now if you decide to buy something as expensive as a car on the Internet, you want reviews of the person who's selling it or the person who's buying it from others, so you have a trusted network that shows how the seller or buyer will really service you or work with you. So from a collaboration perspective, you may want to tap your network of people to understand if something is a good or bad buy and what your experience has been with that particular company or product. We have a lot of very bright people working at T. Rowe Price. Each of them individually can be extremely bright but many of them collaborating together can make much smarter decisions. They can make those decisions in near-real time because they talk about it and can come together on a quick decision without being in the same room.

Typically, most of our volume in the past has been happening in the US and Europe, but now Asia is coming on in a very fast and strong way.

GIT: Is there any other new technology that is also of interest?

JM: It's going to be the million and one ways that we're going to use the Internet and cell phones. Unified communications will change availability and our understanding of how people connect to come to a resolution on a business issue or answer a question. In the future, an average company may have almost all its business done through the Internet. Now most firms have investor centers, call centers and Internet. In the future, I don't see that the personal side is going to go away. But the phone interaction might change very drastically.

GIT: From an IT and workflow perspective, what's your vision of what the business may look like in three to five years?

JM: In three to five years, it will not be drastically different from where we know it today. Things in our environment don't change too drastically in that amount of time. What would be different? Certainly, transacting in the global environment will be prevalent. There will be very few asset managers who are not going to be doing that. So globalization will certainly be a key driver in the future. We will continue to compete with more international companies as well. So it's going to be us transacting in more global markets and us competing in more global markets and against other players that are not US firms. ❑

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EUROPEAN MARKET MONITOR

Continued from page 1

More alternative venues will enter the European marketplace, predicts Roberts. "Taking the US markets as an example, volume will move off the exchange and on to these alternative venues because they are cheaper," he says. "As that occurs, that will drive the exchanges to change their pricing. Once they change their pricing, it will be competitive race and then they will probably need to acquire some of these alternative venues to regain their market share."

For these new venues, there are limits to competing on price, observes Roberts. "There's only so low you can go. Then you bottom out," he says. "My understanding is that there's still some movement or room in these prices to trade on the exchanges and these alternative venues are taking advantage of that. Liquidity is going to where the cost is the least. That will drive change."

The ripples of this new competitive landscape for European trading include difficulties with transparency, because trades can be reported anywhere, explains David Morgan, Marketing Director for Trading and Client Connectivity at **GL Trade**, a financial industry trading solutions provider.

The sudden mushrooming of MTFs puts great pressure on the primary markets to improve their technology and performance or risk losing trading volume.

"There have been a number of reported instances of what appears to be deliberate obfuscation of trading activity in reporting a trade in what might seem to be the most obscure venue, like a small exchange 2,000 miles away from where the trade took place," he says. "It's therefore very difficult if you also add on that we are seeing an explosion of dark pools. The end result is that now it's difficult in many cases to know where the market is both in price and physically, geographically where it is."

The proliferation of trading venues made possible by MiFID has also led to an opening for competition for trade reporting. "You can report a trade on any registered trade reporting venue, which might mean any European exchange or an MTF set up specifically for that purpose," says Morgan. "If the buy side wants a complete picture of what's happening, it has to pay for that additional service that it didn't have to pay for before."

"Taking the US markets as an example, volume will move off the exchange and on to these alternative venues because they are cheaper."

The new MTFs will also face a challenge in attracting dark liquidity, according to Morgan. "They assume the clients will send smaller, non-controversial orders directly to their public order book; while the clients will try to work a larger trade via their dark pool," he says. "But exactly how they will manage that commercially or encourage market makers to place large liquidity in the dark pool, I don't know. Up until now, dark pools have been very much an individual broker phenomenon as distinct from the market-center neutral-platform approach, especially operating alongside a public order book."

Pricing, however, is a key to the success of the MTFs and alternative venues' ability to compete with the primary markets, Morgan emphasizes. "Chi-X has been very aggressive in its pricing — more aggressive than some of the other MTFs plan to be," he says. "We've already seen responses in tariff changes at both the LSE and Euronext. So there's a very clear effect of price competition. There is also performance competition in that Chi-X and BATS, which has a huge track record in the US, are both promoting the performance of their platforms. We already have also seen LSE and Euronext make moves or plan to lower latency on their core trading platforms and introduce faster pipes in and out. Already we've seen a pace of change in commercial and technical progress that shows that competition has an effect. I'm sure we'll see that continue to play out as the competition spreads to the other exchanges in Europe."

On September 3, Nasdaq OMX Europe announced a revised pricing structure even before its planned September 26 launch as a new MTF. Nasdaq OMX Europe will offer two pricing models — one for routing orders and one for matching orders. The routing technology will allow participants to send orders to Nasdaq OMX Europe's order book, which if unmatched, will route out to other MTFs and exchanges for execution. The revised routing pricing will include an all inclusive fee of 0.65 basis points (bps) to trade on the London Stock Exchange. "We are excited to launch an aggressive pricing strategy that will, in most cases, make it less expensive to route an order through our market than to trade directly on the primary markets," says Charlotte Crosswell, President of Nasdaq OMX Europe. "By routing through Nasdaq OMX Europe, we will offer the opportunity to access liquidity on our own order book as well as a greater likelihood of gaining best execution and price improvement at a lower cost."

Nasdaq OMX Europe will offer two pricing models — one for routing orders and one for matching orders when it launches on September 26.

The pricing for matching orders will follow a "maker/taker" model which will see it provide a rebate of 0.2 bps of the order value for participants who add liquidity on the market by posting sale or purchase orders on the book, and charge 0.3 bps for participants who remove liquidity from the market, or match orders on the book, Crosswell explains.

To lower latency and achieve better performance in trade execution among the number of venues, smart order-routing could take hold, explains Kevin McPartland, Senior Analyst at consultancy **The Tabb Group**. "Most firms are putting a lot of thought into smart order-routers and making sure they're ready, so as liquidity does fragment, that infrastructure will be in place," he says.

While few brokers have implemented smart-routing technology, more will do so to reach the liquidity being traded away from the primary markets.

Smaller brokerage firms also will turn to smart order-routing in Europe, not just large firms, according to Valerie Bannert Thurner, Managing Director, Skyler Europe, a unit of **Skyler Technology Inc.**, a market data analytics provider serving broker-dealers, asset managers and hedge funds. "A lot of smaller firms that used to go through a third-party broker are considering going into the order-routing business and therefore the direct execution business," she says. "It's considered a competitive advantage, even though there is a significant infrastructure investment."

While few brokers have implemented smart-routing technology to contend with the burgeoning number of venues, more will do so, especially to reach the liquidity being traded away from the primary markets, according to Richard Balarkas, Chief Executive Officer of **Instinet Europe**, which operates Chi-X Europe. "The one thing that surprises me is that there are so few smart routers in operation," he says. "Some of the world's biggest brokerage houses and investment banks simply do not use this technology yet in Europe. A clearer divide is arising between those brokers who, like Instinet, are pure agents. When we take advantage of the price opportunities that arise on new venues, 100 percent of that advantage is given back to our clients. We are pure agents. Like any agent in a transaction, it would be foolish of us not to want to look at every possible liquidity opportunity to execute well for our clients." ❏

[*To be Continued*]

FOCUS ON LATENCY

29West Busts Latency With High-Speed Trading Solutions

CHICAGO — Just like attention is being focused on key states for winning a highly charged US national election, IT professionals at hedge funds and investment management firms find their attention riveting to a critical software in devising winning technology solutions for high-speed trading strategies: middleware.

High-speed messaging middleware currently used by several of the major electronic exchanges and by many dark liquidity venues also offers hedge funds and investment managers the ability to take advantage of very tiny variations in securities prices in microseconds. When a corporate event triggers price changes, and before other participants can jump into action, those with the technological advantage could already have reaped the gains in milliseconds.

One such middleware solution, called Latency Buster Messaging (LBM), is offered by **29West**, based in Warrenville, Ill., 29 miles west of Chicago. "It is also used by people building algorithmic trading applications or electronic market making applications trading against those exchanges or pools," says Matt Meinel, Global Director of Business Development at 29West. "Our biggest customer base is definitely hedge funds because they are aggressive and need to make decisions quickly."

Forex Capital Markets (FXCM), a New York-based FX brokerage with 150,000 registered traders worldwide and 25,000 to 75,000 traders trading regularly online depending on the time of day, must ensure that prices sent to its traders are never delayed, says Alexander Ryssiouk, Director of Development, FXCM. "Whatever market moves, it is our experience that there are delays in market data," he says. "The 29West technology provides us with a solution." Retail traders are about 90 percent of FXCM's customers and the remaining 10 percent are institutional traders who trade for their own customers or companies. FXCM has been using 29West's products for just over two years.

"We like its speed, ease of integration and price," says Ryssiouk. "We looked for reliable multicasting and found several providers. We found 29West was more suitable for us because it is very light. With other providers, we would have had to completely re-write our system. Using 29West gave us the ability not to change our system a lot, but still use it advantageously."

Mark Mahowald, founder and President of 29West, devised a "cloud-based" design that works without central servers. "Our product is something that application developers use to build trading platforms," says Meinel. "It is effectively a software library we give to customers. Their experience applications incorporate our software and provide high-speed messaging."

Pure messaging and complex event processing is 29West's focus, according to Meinel. "We have products that work in the clouds that pre-arrange that," he says. "We don't have a central messaging server. We just have applications that send and receive messages with each other using interesting protocol techniques. We allow everybody to connect to everybody that needs to be connected."

LBM can be used with the trading platform for a large investment bank, which operates a crossing network, for instance. They provide buy-side clients with a way to access their net-

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work. They connect the various pieces of this platform with the LBM product and 29West's data center to get high-speed messaging. The data center contains 30 to 40 servers. The applications have to be connected to terminals that communicate quickly so end-to-end latency, from first sight (of a price) to getting an order confirmation back after being matched and crossed, is less than 5 milliseconds.

A hedge fund, for example, could decide as part of their active trading strategy they want to build their own smart order-router. Their strategy is that every time a news article comes out about a research analyst changing his recommendation on a stock upgrade or downgrade, they would take advantage of what they think the general investor will do with that news. They want their computer to process that data as quickly as possible by trying to jump ahead of the news.

"We like its speed, ease of integration and price. It is very light, and gave us the ability not to change our system a lot, but still use it advantageously."

Typically, messaging is used for quotes, where if they are not delivered to everyone who was interested, it is not catastrophic for business, according to Meinel. But messages concerning customer orders cannot be lost, he adds. "We introduced 'persistent messaging,' which guarantees that the message is going to get there by ensuring it is written to the disk," he says. Persistent messaging will work through power failures or down time.

The addition of Ultra Messaging Desktop Services allows an easy way for desktop applications to communicate seamlessly with the ultra low latency, high-speed messaging backbone.

"We have taken the disk write out of the data path and provided something we call 'parallel persistence,'" says Meinel. This 29West product, Ultra Messaging for the Enterprise (UME), is in use at several banks and exchanges, and these firms often use a combination of LBM and UME. FXCM customers can download software to access its trading platform, using the 29West LBM and UME technology on its back end.

FXCM's Ryssiouk notes low latency is less important in a regular slow market. If markets move, however, the number of messages can increase by factors of tens or sometimes hundreds. News-based trading strategies can give traders the most recent prices and allow them to jump ahead of others in the same market, Ryssiouk says.

The current standard technology can cause delays in news-based trading strategies, however, which can lead to some data being dropped if the technology cannot keep up with the volume of message traffic, observes Ryssiouk. As a result, traders would be trading based on incomplete data.

It can be difficult to execute trades on other systems during the market moves when message volume spikes, observes Ryssiouk. "In our system, in the fastest market, we give you a price on time," says Ryssiouk. "We offer a kind of user-level API. Our traders can create their own software. It is their own automated trading program."

On September 2, 29West announced the addition of Ultra Messaging Desktop Services (UMDS) to its product suite, extending the messaging solution to diverse desktop networks throughout the enterprise. "As we were working with a number of the larger banks on large, high performance backbones, we were asked if we could extend our messaging framework to allow slower machines — those that could not connect to the multicast backbone — to share in the topic space and communicate across the enterprise," explains Mark Mahowald, founder and President of 29West. "With UMDS we have a solution that allows for centralized management and an easy way to deploy desktop applications that can communicate seamlessly with the ultra low latency, high-speed multicast messaging backbone." ❑

ON THE EXCHANGES

London Stock Exchange Moves to Reduce Data Latency

NEW YORK — The **London Stock Exchange** (LSE) has launched a new Exchange Hosting service that will give US participants in its market a faster and closer route to the exchange as trading competition in Europe begins to heat up in a rapidly transforming marketplace. As early as August 2006, **Deutsche Börse** began offering co-locating or proximity services to give clients faster access to data (see "Arms Race Over Milliseconds Drives Data Management," *Global Investment Technology*, September 4, 2006).

Round-trip trade execution and market data transmission times will be reduced by about 1.5 milliseconds, improving support of high frequency algo trading.

The London service allows firms to physically locate their servers at the LSE's data center to gain sub-millisecond access to the LSE's TradElect matching engine and Infolect market data. Its first phase begins this month and will be followed by a second phase increasing its capacity and service, in February 2009. "For a number of US firms, who potentially don't have a presence in London, this makes our market more accessible to them by being able to locate their servers and applications within our data center," says Wendy Morgan, Head of Real Time Data at the LSE. "The number of clients in the US who are looking at and using our market data is growing. [The service] builds on pent-up demand to be physically closer to us." The service promises to reduce latency in trading and improve the LSE's support of high frequency algorithmic trading, according to Morgan. "We always recognized that a lot of the growth in our markets is driven by algorithmic trading and algorithmic trading strategies, and we always catered our strategy toward that particular client segment," he says.

Exchange Hosting will benefit international customers, particularly US clients, because they can eliminate the distance component of network latency.

The service eliminates network latency through co-location, according to Morgan. "We expect that to reduce the round-trip trade execution and market data transmission times by about 1.5 milliseconds," she says. "Performance benefits will vary but they can be even greater for clients using connections or who are located outside Central London. So we see Exchange Hosting as especially beneficial to international clients and particularly US clients, because it means they can eliminate the distance component of network latency." The first phase of the Exchange Hosting Service is being launched along with upgrades to TradElect capacity and latency. TradElect capacity doubles to 10,000 continuous messages per second in the first phase, and will double again to 20,000 continuous messages per second in October. Also at that time, end-to-end execution latency on TradElect will be reduced by 50 percent, from 6 to 3 milliseconds. ❑

THE NEWS NETWORK

CREDIT SUISSE, LEHMAN LINK POOLS TO BOOST LIQUIDITY ACCESS

NEW YORK — Credit Suisse and Lehman Brothers have linked their US dark pools, Credit Suisse's Advanced Execution Services (AES) CrossFinder and Lehman Brothers' LX. The firms are calling the linkage an effort to address the challenge that buy-side firms face in locating liquidity in a fragmented equity market. "AES clients have directly benefited from access to LX, and our CrossFinder ATS liquidity has improved thanks to the order flow from Lehman Brothers," says Dan Mathisson, Managing Director and Head of Credit Suisse AES. Credit Suisse and Lehman Brothers began a relationship leading up to this link about one year ago, and in July, LX and AES CrossFinder collectively achieved record daily volume above 300 million shares, representing more than 20 percent of the total dark pool volume executed in US equities, according to research by The Tabb Group. "It is becoming ever more important for clients to incorporate all available pools of non-displayed liquidity into their workflow to achieve the best possible execution," says Frank Troise, Managing Director and Head of Americas Equities Electronic Trading Products at Lehman Brothers. "Linking Lehman Brothers' LXS and AES CrossFinder has been incredibly successful in terms of delivering one of the largest pools of available liquidity to our respective clients."

Credit Suisse and Lehman Brothers began a relationship leading up to the link a year ago and in July together executed more than 20 percent of US dark pool trading volume.

ORC UPDATES GATEWAY TO DUBAI INTERNATIONAL EXCHANGE

STOCKHOLM — Advanced derivatives trading and connectivity solutions provider Orc Software has updated its gateway to the Dubai International Financial Exchange (DIFX) and its OMX X-Stream trading platform. "Orc provides advanced trading solutions and liquidity access to our members, while the exchange also relies on Orc's CameronFIX solution as a part of our new trading platform," says Dean Noble, Vice President and Head of Market Operations at DIFX. "The high performance and proven reliability offered by Orc makes their new market gateway an ideal choice for DIFX trading members and market data providers, as they prepare for the next-generation X-Stream trading platform." The DIFX has seen explosive growth since its launch in 2005, and lists shares, structured products, and Sukuk (Islamic) and conventional bonds. The DIFX is planning to launch equity derivatives trading and more equities listings. "The DIFX is at the center of a booming financial market, and their demand – as well as support — for Orc technologies is a milestone for our efforts to advance Orc's business in the Middle East region," says Anders Henriksson, President Benelux, Central and Eastern Europe, and the Middle East, Orc Software.

Same-day payment deadlines will make Asia-Pacific settlement as efficient as those Clearstream offers for US dollars, euros and other major currencies.

CLEARSTREAM TO OFFER SAME-DAY OPERATIONS IN ASIA-PACIFIC

FRANKFURT — Clearstream, the post-trade arm of Deutsche Börse Group, plans to offer a same-day operating environment for its customers in the Asia-Pacific region throughout their working day, as well as same-day currency deadline for major Asia-Pacific currencies. Clearstream will develop its planned same-day Asia-Pacific environment during 2009. "This is a natural progression in our servicing of our Asia-Pacific customer base and supporting their regional, crossborder settlement needs," says Philippe Metoudi, Member of the Executive Board, responsible for Relationship Management for Asia-Pacific, Middle East and Africa. Although time-zone differences will require Asia-Pacific customers to pre-fund or finance settlement operations, same-day payment deadlines will make the settlement solutions as efficient as those Clearstream offers for US dollars, euros and other major currencies. ❑

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- The global economic forecast and emerging global investment strategies
- Market structure and technology leading to the rise of electronic trading
- Municipal securities regulation, including EMMA, auction rate securities, bond insurance ratings, and short-term debt transparency

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Henry M. Paulson
Secretary
U.S. Department of the Treasury

Dr. Lawrence Summers
Former United States Treasury Secretary and Harvard President

Paul Begala
Counselor to President William J. Clinton and CNN Analyst

Lynnette Hotchkiss
Executive Director
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Harvey L. Pitt
Chief Executive Officer
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Robert Greifeld
President & Chief Executive Officer
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John Lipsky
First Deputy Managing Director
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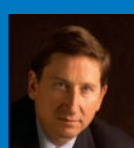
Karl Rove
Former Deputy Chief of Staff and Senior Advisor to President George W. Bush, 2000-2007 and Fox News Contributor



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