

The background of the page features a silhouette of industrial structures, possibly oil rigs or towers, against a vibrant sunset sky. The sun is a bright, glowing orb positioned behind one of the structures, creating a lens flare effect. The sky transitions from a deep orange near the horizon to a darker, more muted orange at the top.

The Impact of MiFID on Europe's Execution Landscape: Pre-trade and Post-trade implications

Sixteen months after the Markets in Financial Instruments Directive (MiFID) came into force, **Bob Currie** evaluates implications of the Directive for market efficiency and standards of investment protection

MiFID extends to customers the right to expect best execution from their financial intermediaries, requiring that intermediaries take into consideration all possible execution venues and not simply the domestic stock exchange. Under the Directive, investment firms are required to take all reasonable steps to deliver best efficiency to their customers, taking into account relevant considerations including speed, cost and the probability of execution and settlement.

On 3 November 2008, almost exactly 12 months after MiFID was implemented, the Committee of European Securities Regulators (CESR) launched an evaluation of the workings of the new regulatory framework and its impact on market structure, asking interested parties to forward their responses to CESR by 9 January 2009 (CESR, *Call for Evidence on the impact of MiFID on Secondary Markets Functioning*, 3 November 2008). In the secondary markets arena, MiFID is de-

signed to encourage competition between trading venues on the basis of market transparency and a regulatory level playing field. CESR's recommendations emanating from this review process will serve as preparation for a forthcoming evaluation by the European Commission of the impact of MiFID on market efficiency and investor protection.

Starting points

Chi-X Europe was early mover in entering European MTF space, launching its high speed, low cost institutional trading venue for European equities in late 2006 under the Instinet Chi-X banner. FSR has kept close watch on their development since inception (see, for example, *FSR*, Jan 2007, pp 6-7, *FSR*, Q1 2008, pp 46-60). "During the design phase of Chi-X Europe, we made it clear that we viewed the development as a process and not an event," says Hirander Misra, Chief

traded in these stocks across Europe's leading primary exchanges and MTF venues on peak days. Hirander Misra reports that Chi-X Europe has been able to deliver to customers more than 3.5 bps of average price improvement across their trading activity on the platform. "This illustrates that Chi-X Europe participants are getting not only cheaper execution but also fundamentally better pricing and that is key to the strong momentum that we carry into 2009," he says.

Turquoise, the independent pan-European equity trading platform backed by nine leading investment banks (namely BNP Paribas, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, Merrill Lynch, Morgan Stanley, Société Générale and UBS), went live with its MTF platform in August 2008, supported by central counterparty clearing from EuroCCP and settlement extended by Citi Global

There is a market for speed and price - which is supported by the visible, super-fast central limit order book that we deliver - and there is a market for size and price. We believe that these two avenues are complementary.

Operating Officer, Chi-X Europe. "Since going live with beta trading in November 2006, and with the full release of the trading operation on 30 March 2007, we have welcomed onto the platform a broad cross section of participants with substantially different trading strategies and smart order routing capabilities. It has been important to work closely with these trading participants in order to help them derive maximum efficiency from their use of the platform."

This diligence has been rewarded through a healthy build up of liquidity during the subsequent period, as confirmed by Chi-X Europe's Q4 2008 trading figures. These indicate that the platform has established substantial market shares in each of the major indices. During peak days over this quarter, Chi-X Europe accounted for a 22.74 per cent market share of trading in FTSE 100 stocks, 19.25 per cent of trading on the Dutch AEX25, more than 15 per cent on each of the CAC40 and FTSE 250, and more than 13 per cent of German DAX 30. In addition, the platform supports a selection of exchange-traded funds (ETFs) and accounted for more than 12 per cent of ETF volume

Transaction Services. This MTF offers a differentiated market model in which MiFID-compliant dark orders interact with visible orders in a single trading book. This is extended across 15 countries, with Spain the most-recent market to be added to its pan-European line up on 23 February 2008. After a lengthy incubation period, the platform attracted lively trading activity on release, with cumulative value of €10 billion traded within three weeks of launch, including €6 billion traded in the week of 15 September. The platform offers liquidity to traders of small orders at high frequency across more than 1200 stocks in the visible order book, with 329 stocks currently also supported in the dark order book.

On 2 February 2009, Turquoise introduced an enhanced rebate structure for its integrated market segment, which now accounts for over six per cent of trading across these 329 liquid stocks. Higher rebates will be paid for executed passive orders from members whose trading on the platform exceeds specified monthly thresholds on a country-by-country basis. Firms whose trading on Turquoise exceeds three per cent of market-wide

volume will receive a rebate of 0.22bps for passive executions, while firms exceeding two per cent will receive a rebate of 0.20bps. Liquidity takers will pay 0.28bps per aggressive execution. Duncan Higgins, Head of Client Relationship Management at Turquoise, indicates that this pricing schedule establishes Turquoise as the lowest cost destination for European equity trading. Trading in Austrian, Portuguese and Spanish stocks will receive a 0.24 bps rebate for passive execution, bringing the spread to 0.04 bps in these countries. "Turquoise is strongly competitive with its pricing in the integrated book because we look first and foremost to other business lines to generate revenues," he says. "The dark book trading works best if there is substantial visible liquidity on the platform, and the converse is also true. We aim to attract high levels of visible liquidity through our volume-based pricing – recognising that this will also draw in

gregate cost of slightly more than US\$3 million, a figure dwarfed by hardware and software development costs committed by some execution venues in recent times. BATS Global Markets, operating via BATS Exchange in the US and BATS Europe, now supports trading across 18 markets through an overall staff roster of just 80 people globally. This efficiency has been integral to the advance of BATS Europe's market share in European equities trading, with the platform on 27 February assuming a 2.13 per cent share of trading volume in the FTSE 100 and close to 1.50 per cent on the DAX and CAC 40. Williams expects this market share to continue to grow.

The platform extends a standardised pricing model, with a 0.2 bps rebate paid to firms that post liquidity to the platform and a 0.3 bps fee paid by liquidity takers on executing an aggres-



Hirander Misra,
Chief Operating Officer,
Chi-X Europe

Ultimately MiFID may trigger a move away from the "clear, fair and transparent" trading environment provided by regulated markets, instead encouraging trading on OTC platforms which offer no pre-trade transparency and reduced levels of surveillance compared with that provided historically by exchanges.

dark liquidity which is charged at a higher tariff to the liquidity taker" (see pp 31ff).

BATS Europe, subsidiary of Kansas City based financial markets technology specialist BATS Holdings, went live with its European MTF facility on 31 October 2008. Launching initially with 10 liquid UK ISINS, the platform has subsequently broadened its coverage across a range of European indices, including the FTSE 100 and FTSE 250, CAC40 and NEXT20, DAX30 and MDAX, along with the AEX25, AMX25 and BEL20. In December, the exchange added a range of the most-liquid Nordic securities from the Swedish (OMX30), Finnish (OMXH20), Danish (OMXC20) and Norwegian (OBX25) leading indices.

Key to the competitive advantage offered by BATS Exchange is the efficiency of its technology development, notes Randy Williams, Vice President, Sales and Communications at BATS Trading. The core trading platform was initially established by BATS' development team in Kansas City at ag-

sive trade. "A prominent sales point for the BATS platforms in the US and Europe is that we do not offer a tiered pricing structure," says Williams. "The price tariff is completely transparent and straightforward. The rate remains the same for all trading firms, regardless of whether they trade one share per day or one million shares per day. We recognise that the elevated tiers at some venues can be hard to hit for the small and mid-sized players – and we appreciate that our common tariff gets the best out of the customers. This has helped us to build healthy market penetration in the US and we intend to continue to replicate this model through our global extension."

The implementation of MiFID in November 2007 has prompted fragmentation of liquidity across transparent and non-transparent venues. A number of new MTF platforms have emerged in Europe that have drawn on trading innovations and expertise previously refined in the US market. But having seen a proliferation of execution venues since MiFID, it seems possible that we might move



Chris Smith,
Director, NYFIX International

relatively promptly into a consolidation phase. Ali Pichvai, CEO of capital markets technology specialist Quod Financial, highlights that prevailing economic conditions are not particularly favourable to new ventures, with investment banking firms having limited capital to support new trading platforms and private equity firms having little appetite to invest in the current financial climate. With these potential sources of capital broadly closed to MTF platforms, this consolidation phase is likely to advance more rapidly than many might have anticipated 12-18 months ago. Drawing on comparative experience from the US, it is unlikely that this phase of consolidation will then give rise to static equilibrium in the European trading layer. When the market has consolidated down to a smaller number of leading players, again there will be incentive for new execution venues to break into the market and to establish innovative new ventures that will compete on the basis of potential advantages in product and technical capability, pricing and service.

BATS Trading's Williams broadly endorses this point. Over time, it is likely that the execution landscape in Europe will increasingly model the

have a strong value proposition to offer trading participants in the US and Europe in the current economic environment."

In the dark pool segment, it possible also that dark liquidity venues may evolve in Europe along the lines mapped out in the US. However, Williams believes that one should not overplay the advance of dark liquidity pools in the US: while it is an important piece of displayed markets such as BATS Exchange, their growth has been dramatically overstated by some industry commentators. Though we see reference to 50 or 60 dark pools that have emerged in the US market, Williams suggests that, in reality, only two or three of these liquidity pools have attracted meaningful trading activity. Roughly 8 to 12 per cent of the daily volume executed on BATS Exchange in the US is dark.

Responding to the MTF challenge

MiFID has prompted the arrival of an enthusiastic family of new MTF platforms offering trading in liquid stocks across multiple European markets via a single platform. But regulated markets continue to do active business. The London Stock Exchange

Prevailing economic conditions are not particularly favourable to new ventures, with investment banking firms having limited capital to support new trading platforms and private equity firms having little appetite to invest in the current financial climate. With these potential sources of capital broadly closed to MTF platforms, this consolidation phase is likely to advance more rapidly than many might have anticipated 12-18 months ago.

path laid down in the US for publicly-displayed liquidity. For many years, the New York Stock Exchange retained a stronghold over trading in NYSE-listed securities. This took a long time to break, but when other execution venues were permitted to compete in this space, the landscape altered very quickly. In Europe, we might expect a similar transformation, with MiFID and other changes making it possible for new MTF platforms to challenge the dominance of the incumbent exchanges in the trading of liquid stocks. In doing so, Williams believes that they will benefit from the advantage of superior technology. "At BATS, we are confident that we have the best execution platform in the world, both at BATS Europe, as well as at BATS Exchange in the US," he says. "Add in the benefits of a competitive cost structure and high standards of customer service and we

(LSE) reports a dynamic market for trading in a wide range of securities, with the SETS UK electronic order book supporting daily average execution of 739,000 trades per day, equivalent to £8.3 billion average daily value traded. Adam Kinsley, Director of Regulation at the LSE, explains that the stock exchange has been active in the formation of MiFID since the process first began over eight years ago. However, it is open to question whether the market since MiFID's introduction is fundamentally a better one. "We have certainly seen innovation and technological development, but it is hard to establish whether [this has] occurred because of rather than in parallel to MiFID," notes the LSE in its 9 January 2009 submission to CESR.

A primary objective of MiFID, in relation to shares admitted for trading on regulated markets, was

to stimulate competition and to encourage the creation of new trading venues. "Increased competition should lead to better results for investors and a reduction in the cost of capital for issuers," states Kinsley. "It is clear to us that these outcomes have not been achieved. Indeed, to the extent that one can disaggregate MiFID effects from those of the financial turmoil in markets, there is evidence of deterioration in market quality and efficiency. For instance, since November 2007 search costs and implicit costs such as trading spreads have all increased markedly."

One of the starting points of MiFID for equities trading on regulated markets was to strip away competition rules and to encourage the formation of new execution venues. However, Michael Krogmann, Head of Sales at Deutsche Börse AG Cash Market, points out that for trading in German

to the market and a value that should be heavily defended by CESR subsequent to its Call for Evidence around the Impact of MiFID on Secondary Market Functioning.

For the LSE, it is possible that an excessive focus on competition between execution venues that has taken place in the shadow of MiFID may have distracted attention away from other, more interesting, dynamics in the market. One is an apparent decrease in competition between firms providing liquidity to the market. This competition, suggests the LSE, is the vital element that ensures that the price formation process is optimal, that spreads are kept tight and that investors receive the best price available. A decrease in this competition will therefore have negative consequences for investors. For example, FTSE 100 spreads were at 15 basis points on 1 November 2007 and have widened by 87 per



Artur Fischer,
Joint Chief Executive,
Equiduct Trading

We have made it our intention to work alongside the incumbent exchanges in order to extend the range of trading strategies available to the customer. The nature of a dark liquidity pool dictates that, despite our efforts to optimise matching efficiency, match rates will never fully mirror those secured on venues offering publicly-displayed liquidity. Unlike some of the new lit-book MTFs, that in many ways compete head-to-head with the incumbent exchanges, we offer potential to co-exist with Europe's dominant stock exchanges.

cash equities, there has long been a high level of fragmentation in Germany. The market did not have a concentration rule prior to MiFID and, thus, seven regional exchanges as well as various over-the-counter platforms had freedom to offer trading services in parallel with Deutsche Börse's Xetra electronic trading platform. In this context, institutional and retail investors have had considerable choice in the German market regarding where they execute their cash equities trades. "At Deutsche Börse, we believe that market efficiency can be increased substantially by concentrating this fragmented order flow through an open and transparent electronic market offering a single consolidated order book for each instrument," he says. "The Xetra order book is transparent and predictable in terms of price determination, with each trading participant able to view order sizes and prices for each security in real-time. Therefore, each trading member has access to the same information regarding what is happening in the order book." Deutsche Börse believes that this market integrity and transparency is genuinely beneficial

cent to 28 basis points on 1 November 2008. Another point of concern is that investment firms running their own trading venues – either independently or, even worse, in collaboration with each other – may create conflicts of interest which, if unchecked, risk posing serious damage to European markets. This, claims the LSE, may have more damaging effects on investors and corporate issuers' cost of capital than any marginal benefits ensuing from venue competition, where fees are a small and rapidly decreasing fraction of total transaction cost. "We believe that CESR should be concerned with the move of trading away from transparent well-regulated exchanges to OTC platforms/broker dark pools that evade important regulatory measures, not least the transparency provisions so vital to protect investors' interests," it notes.

Preserving technical advantage

Central to the appeal of new MTF venues as these have entered the market is that they have been able to compete aggressively with incumbent



Ignace Combes,
Deputy Chief Executive, Euroclear

exchanges around speed, capacity and price. But as technology evolves, competitive advantages in these areas typically begin to narrow.

Reflecting on Chi-X Europe's evolution since November 2006, Hirander Misra explains that in the early days of the company, the primary resource that Chi-X Europe extended to participants was the ability to deliver 'faster, cheaper and smarter' trading capability. As the market has evolved, and as other MTF platforms have entered to compete aggressively on price, Chi-X Europe is now being rewarded for the early mover advantage that it established. But Misra notes that speed is now becoming commoditised as new execution venues come to market. In the area of price competition, Chi-X Europe has delivered benefits to participants in terms of price improvement – but competition over trading costs can never be a race to zero since each competing execution venue must protect a stable revenue stream in order to become profitable. "In this context, our priorities lie in building liquidity across a wide range of European equities and ETFs," he says. "To complement this, we con-

tinue to push industry standards forward in terms in terms of product innovation and excellence in customer service."

Given the evolution of the lit book and dark pool trading segments, Turquoise's Higgins is also sceptical whether technology is likely to serve as a primary point of differentiation between execution venues in the longer term. We have seen intense competition around speed, capacity and price since MiFID was adopted – and Higgins believes that the comparative advantage that MTF platforms have established in these areas has clearly differentiated them from the existing stock exchanges. But leading MTF venues now have a comparable level of technology and the major exchanges are likely gradually to close the gap, whether through their own internal projects or by purchasing vendor-built platforms. In times ahead, competitive advantage will be generated not principally through speed and capacity but through innovative trading enhancements that support advances in users' trading strategies. For example, Turquoise has plans to extend the flexibility that it offers to

Bringing together liquidity makers and takers

The need to build liquidity on the platform through a balance of liquidity makers and liquidity takers has been fundamental to Chi-X Europe's strategy since inception. "We have achieved considerable success in building market share across Europe's leading share indices and the next stage has been move onto secondary indices in Europe's leading markets (for example the FTSE 250, the CAC Next 20, the MDAX)," says Hirander Misra, Chief Operating Officer, Chi-X Europe. "This has enabled Chi-X Europe to reach out to a new class of trading participants which specialise in trading these second tier indices. Also, Chi-X Europe remains the only MTF venue in Europe to support ETFs – including leading elements of the BGI Ishare and SG Lyxor range. "

Beyond this, Chi-X Europe is constantly looking to new product areas where there may be opportunities to deepen the quality of the order book. One such example is the extension of sponsored access, which was introduced by Chi-X Europe during Q4 2008. This may reach out, for example, to buy-side clients specialising in high-frequency trading strategies where success is reliant on low latency connectivity to the required pools of liquidity. Formally these buy-side firms will access the trading platform via a 'sponsored' link in the name of their prime broker but, in practical terms, the service will enable the firm to link to Chi-X Europe directly, thereby eliminating the latency incurred in routing via the prime broker.

With more than 90 participants live on Chi-X Europe platform, Hirander Misra believes that the company is now in a position to realise innovative new product openings with trading desks that may not have traded widely on exchange venues in the past. "We are very aware that liquidity attracts liquidity," says Misra, "and as we build liquidity across a wider range of stocks and markets, this contributes to a progressive rise in credibility accorded to the platform." Although, as an MTF, Chi-X Europe is not eligible to be a member of the Federation of European Stock Exchanges (FESE), the platform contributes on a monthly basis to FESE trading data statistics – and these comparative statistics reveal that, during the closing months of 2008, Chi-X Europe supported the fifth-highest turnover of aggregate equities trading volume in Europe, headed only by the London Stock Exchange, NYSE Euronext, Deutsche Börse and the Bolsas y Mercados Espanoles.

To support future expansion, Chi-X Europe continues to focus, inter alia, on boosting matching speeds on the platform, extending potential opportunities for co-location, and completing a series of enhancements to its market data feeds. Roundtrip latency for co-located customers is now 400 microseconds with capacity at 115,000 messages per second on a single matching engine instance.

support dark pool liquidity. Its integrated platform currently allows dark liquidity to integrate with the visible order book under the MiFID large-in-scale criteria. However, the large-in-scale waiver applies only to very large trade blocks and Turquoise is working to introduce reference price order types that will allow trading participants to place smaller orders into the dark pool.

For Deutsche Börse's Michael Krogmann, strong technology is a pre-requisite to compete with new MTF venues that have emerged in Europe since MiFID – and it is key to supporting the activities of high-frequency traders that are disadvantaged when trading on platforms that cannot offer low latency and short round-trip times. However, Deutsche Börse has been hosting the needs of the algo trader for many years on Xetra, providing the necessary speed and reliability to support their trading strategies. "We recognised the importance of this trading community many years ago, noting that high-frequency traders have attracted significant liquidity to the market and have brought trading benefits for all customers through narrower spreads, higher trading speeds and an attractive pricing schedule," he says. "We have offered rebate schemes whereby some algo traders have benefited from marginal discounts of up to 60 per cent on trading and clearing fees. Driven by

these incentives, the algorithmic trading community currently accounts for approximately 45 per cent of total turnover on Xetra equities."

Significantly, Deutsche Börse services a diverse cross-section of trading members that, in Krogmann's view, is substantially more broad than the high-frequency trading community that is the primary focus of many new MTFs. As a regulated market with more than 250 trading members, some of which are retail banks and brokerage houses, this has an important bearing on the enhancements that the exchange has introduced to its trading technology and market data services. "Whereas the MTFs have focused on trading in highly liquid stocks across leading European markets, catering predominantly to a professional trader community, at Deutsche Börse our development strategy has focused on the creation of products and services that deliver value for a broad range of customers in more than 370,000 instruments – thus catering for the needs of the German retail investor and the professional high-frequency trader," he says.

While not targeting his comments at any specific execution platform, BATS Trading's Randy Williams is unconvinced that technology differentials between trading platforms are narrowing

Deutsche Börse gears up for new Xetra Release

In June 2009, Deutsche Börse will roll out its new Xetra Release 10.0, which will extend two new trading interfaces that are already operational on Eurex, namely its Enhanced Transaction Solution and Enhanced Broadcast Solution. These are high speed interfaces to which trading members can link via a socket-based interface, rather than utilising the DB exchange API that it is offering to users currently. These new interfaces are destined to deliver a striking increase in speed and will be able to interlink directly with trading systems on the customer side, enabling (for example) high-frequency traders to programme their algorithmic engines directly against the exchange interface. From the performance of these interfaces on Eurex, Deutsche Börse estimates a significant decrease in round-trip times when these are introduced within Xetra Release 10.0. Alongside this development, it aims to introduce non-persistent orders within the new Xetra release in response to demand from its high-frequency trading customers.

In November 2008, Deutsche Börse introduced the trading of mutual funds on the Xetra platform. This facility, targeted principally at the European retail investor, follows the release 9.0 in

April 2008 of trading in structured products on Scoach, the joint venture with the Swiss Exchange. This reflects Deutsche Börse's strategy of bringing a specialist market model onto the Xetra electronic distribution platform. This has attracted a strong body of new trading customers that were previously unable to trade fund products on the FWB Floor trading platform in Frankfurt.

In addition, Deutsche Börse has witnessed impressive growth in trading activity in its exchange-traded fund segment. In the year to 31 December 2008, the exchange has seen assets under management on the ETF segment on Xetra grow by 25 per cent – during a period where the MSCI World fell by close to 42 per cent. Testament to the growing importance of ETF trading on Xetra is that, over several years, the volume of ETF transactions relative to overall share trading on the electronic platform has held relatively steady at between four and six per cent. During 2008, this ratio more than doubled, with ETF transactions in December 2008 representing more than 12 per cent of total equities transactions on Xetra. The exchange is working hard to sustain this momentum, expanding its range of ETFs listed on Xetra to 405 at the time of writing.



Michael Krogmann,
Head of Sales at Deutsche Börse
AG Cash Market

as quickly as some might contend. "Speed and capacity continue to represent an important differentiating factor between execution platforms supporting publicly-displayed liquidity," he says. "Though some stock exchanges have argued that the differential between platform technologies is disappearing, that is what you'd expect to hear from a long-established venue that is 25-30 times slower than BATS Europe. For the first time in many years, the incumbents are experiencing genuine challenge to their dominant position in their domestic markets."

BATS currently advertises latency of 400-500 microseconds, which is measured from outside the BATS firewall and describes the complete round trip from firewall to FIX handler to matching engine and back. "In the US, BATS has, since inception, been more transparent with respect to our latency

primary market. Chris Smith, Director of NYFIX International, indicates that the experience that NYFIX has acquired in managing crossing networks in the US has been invaluable in bestowing the FIX expertise and understanding of dark-pool liquidity required to develop Europe's first dark-only MTF. This has been achieved with active involvement of buy-side and sell-side firms sitting on NYFIX International's Advisory Board (which include Allianz Global Investors, Baring Asset Management, DWS Investments, Insight Investments, JPMorgan Asset Management, Resolution Asset Management, Schroder Investment Management and UBS, as well as BNP Paribas Securities Services, Citi, CA Chreuvreux, Credit Suisse, JPMorgan and Merrill Lynch), which have been integral to shaping what a execution platform should look like to meet customers' trading needs in the dark space in Europe.

Whereas the MTFs have focused on trading in highly liquid stocks across leading European markets, catering predominantly to a professional trader community, at Deutsche Börse our development strategy has focused on the creation of products and services that deliver value for a broad range of customers in more than 370,000 instruments – thus catering for the needs of the German retail investor and the professional high-frequency trader.

data than any other player in the market," states Williams. "This is principally because no competitor has been able to compete with the speed of the trading technology that supports BATS Exchange and BATS Europe." Alongside this, the resilience of the BATS trading platform is important. During Aug-Oct 2008, BATS Exchange did not experience one second of downtime – this being during a period when all other major US platforms went down on numerous occasions. The company has a bonus structure in place for operational efficiency that is paid out only if it has less than 60 seconds of downtime during any month. "It is a sign of our resilience that this bonus was paid out in 9 out of 12 months during 2008," he says.

Trading dark liquidity

Euro Millennium is a MiFID compliant, neutral dark pool for pan-European listed cash equities that went live in March 2008. Open to buy-side and the sell-side communities, Euro Millennium's continuous real-time matching algorithms are designed to execute trades within the best bid/offer of the

On completing the design and launch phases, Smith explains that the first significant test for the Euro Millennium platform was inevitably whether it would be able to reach out to new users and build liquidity in the early months of its operation. Europe's recent history is decorated with a series of platform launches from eager young execution venues that arrived with fanfare but then struggled to attract trade flow. "We were told repeatedly prior to going live that the task of attracting and retaining liquidity would be a major challenge for a dark-only venue setting up in Europe," he explains. "But we were confident that we had a strong business proposal that would be valued by the market, offering something substantially different to a wave of new execution venues offering publicly-displayed liquidity that were under construction in Europe."

Fundamental to this process was the need to ensure simple and standardised procedures for linking new customers – and development work that had been done in the US on NYFIX Millennium provided an effective template that could be re-

deployed in Europe to deliver FIX connectivity for Euro Millennium. Also, the company has worked closely with order management system vendors (for example, Charles River and Latent Zero) and execution management system vendors (such as Fidessa and GL Trade) to ensure that, when new buy side and sell side users wished to link to the platform, their OMS or EMS would be able to support the link to the dark pool.

It is a mark of the advances that Euro Millennium has made since launch on 31 March 2008 that, by December, more than two billion shares of liquidity were available on a daily basis; and 251

million shares, representing €1 billion in value, matched over the course of the month, a 500 per cent increase on the November 2008 figure. Having achieved a peak single day record of 50.7 million shares and more than €150 million in value matched on the platform on 17 December, this record was eclipsed less than a month later, when more than €200 billion was matched on the platform on 13 January 2009. To build on this momentum, NYFIX International has advanced a dual strategy of extending the platform into new markets and broadening the range of equities supported by the dark pool. During the summer of 2008, Euro Millennium was released to cover equi-

Educating about dark liquidity

At NYFIX International, efforts to promote Euro Millennium have been accompanied by a concerted programme of education across the target-user community, under the title of "Experience the Dark", regarding how a dark-pool operates and how users can squeeze optimum benefit out of the platform. "A primary selling point for Euro Millennium is that it can deliver appreciable price improvement, while minimising leakage of information to the wider market," says Chris Smith, Director, NYFIX International. "Users need to know that a dark pool really does mean dark." Importantly, no other independent dark pool in the European marketplace is configured to work with the smart order routing software that firms will employ to seek out liquidity – and this has been a vital selling point to customers seeking best execution across light-book and dark pool trading venues.

Beyond this, NYFIX International has been working with users to improve understanding of how orders behave when they are fed into the Euro Millennium system and how they can refine their trading strategies in order to obtain a better match rate. "Our experience tells us that if customers are willing to reside their orders in the pool for slightly longer, rather than simply firing in orders to test whether there is liquidity available, then in many cases they will secure a much higher match rate," says Smith. Also, customers trading through the midpoint may find that they see a step up in the level of orders finding a match within the system.

The benefits appear to extend well beyond the small and mid cap equities that one might expect to provide the bedrock of Euro Millennium's business. The platform has made encouraging progress in attracting trading activity across more liquid blue-chips. Taking a single trading day in December 2008 as an example, Smith estimates that roughly 76 per cent of FTSE 100 daily trading activity was conducted on the London Stock Exchange. Of the remaining 24 per cent traded on alternative venues, Euro Millennium accounted for an impressive 1.5 per cent of total daily transactions on FTSE 100 stock – a figure

well in excess of even the most optimistic predictions that NYFIX International's management team might have made prior to launch. "For customers that aim primarily to see their orders filled, they will go first and foremost to a light-book," explains Smith. "For those that prioritise price improvement and the need to minimise market impact, they will target a dark book. And, in the latter category, we might expect clients trading blocks in a thinly-traded small cap stock to be primary users of a dark pool. So to secure 1.5 per cent of daily trading on the FTSE 100 was truly encouraging."

Latency considerations

In the light-book space, we have seen a combative latency arms race developing over the past 2-3 years. Though the pressure for microsecond turnaround times is less acute in the dark book arena, NYFIX International does not subscribe to the view that latency is unimportant in this segment of the market. "It was important to ensure that Euro Millennium was sufficiently fast that it would not be disadvantaged when smart-order routing software was seeking out liquidity across a broad range of liquidity sources across the market" says Smith. "We recognised that if we pitched in with a roundtrip time of 50 milliseconds, for example, we would be well down the list of venues that sought out liquidity by a smart order router. In this time, an SOR could go to and from some low latency light-book MTFs five or six times and that would be a clear obstacle to the advance of our platform."

The low latency architecture that Euro Millennium is currently running on is now the foundation for a new generation of the US platform, called Millennium HPX (or Millennium High Performance). With the new architecture in place, Millennium HPX is a faster, more resilient and higher throughput dark pool capable of responding to client orders in sub 3 milliseconds. Millennium HPX is expected to provide clients more opportunities for matches and greater price improvement.



Duncan Higgins,
Head of Client Relationship
Management, Turquoise

ties listed in Germany, The Netherlands, France, Portugal and Belgium. To support this expansion, the company's management and sales personnel have been liaising closely with major sell-side customers in order to attract more resident order flow onto the platform.

Turquoise offers an integrated market model where MiFID-compliant dark orders interact with visible orders in a single book. This integrated trading model has evolved on the basis of feedback from the nine investment banks that were initial shareholders in the company. Subsequently, notes Duncan Higgins, this model has been validated through hundreds of conversations with Turquoise's members and potential members.

One challenge pertaining to dark-only platforms is the potential difficulty in securing execution. For trading parties that are looking to execute against other blocks of liquidity, the opportunities

our user groups that there is demand to trade stocks from (for example) the FTSE 250, the CAC Next 20 or the MDAX in the visible book, then we will consider promoting these stocks accordingly."

Though Chi-X Europe is confident that the bulk of trading liquidity for listed equities will remain within the visible order book, its management team is well aware of the potential importance of dark pool liquidity to meet a small proportion of trade flow, particularly for customers wishing to minimise information leakage when trading blocks of small and mid cap stocks. To test the water in this area, Chi-X Europe has, since September 2008, offered trading of hidden order types on the platform under the MiFID large-in-scale criteria. "There is a market for speed and price – which is supported by the visible, super-fast central limit order book that we deliver – and there is a market for size and price," says Misra. "We believe that these two avenues are complementary. With this

In the US, the principal of platform interconnectivity has effectively been mandated by the financial regulators. Thus, any price that appears in the consolidated tape can be hit by any trading party, regardless of which execution venues they are linked to directly... In Europe, there is currently limited appetite for a 'trade through' rule of the form that exists in the US. Quite correctly, it is recognised in Europe that obtaining a good execution is substantially more complicated than simply sending every order through to the venue where the best price is available.

to find a match are, by definition, more sporadic. By bringing dark orders into the light book and allowing these to interact with the visible order flow, these block trades can trade gradually against visible orders while they are waiting to find the large match that they are seeking. "With this system, participants do not need to have the sophisticated liquidity-seeking technology required to link to multiple dark pools and to sound out whether there is available liquidity in each case," explains Higgins. "Instead, everything is consolidated together in one trading location, providing the benefits of dark execution alongside the opportunity to interface with the visible order book."

Turquoise is currently evaluating the potential for moving selected stocks from the dark pool into the integrated market segment. "Currently, we support approximately 1200 stocks in the dark book, with another 300 supported in the integrated order book," he adds. "As we receive confirmation from

in mind, we will continue to monitor the advantages of releasing innovative new dark order types via the platform to sit in parallel with the expertise in publicly-displayed liquidity that we have offered since inception."

In November, Deutsche Börse introduced a new facility on Xetra Release 9.1 that allows trading members to trade approximately 1500 equities and ETFs at the mid-point of the bid-offer spread on the Xetra open order book. The exchange is quick to emphasise that this is not a dark pool – it is a reference price matching system that allows traders to secure anonymity and price improvement, while still having full predictability since they will be able to see the best bid and offer at point of trading. Xetra Midpoint orders can be implemented with minimum order sizes of €25,000 for DAX stocks and €10,000 for other stocks offered through the service. Traders have the benefit of trading within a fully regulated market

environment and will be supported by the central counterparty service of Eurex Clearing.

Though the service has prompted considerable interest from traders, Krogmann believes that prevailing economic conditions and historically high levels of market volatility may not be conducive to a sharp rise in execution through Xetra Midpoint in the short term. Though the service offers potential for price improvement by allowing the trader to execute at the midpoint, current market conditions dictate that many will prefer to immediately execute in the visible order book, thereby raising probability of execution, rather than having the order sitting at the midpoint with the danger that it does not get executed.

Deutsche Börse is clear that Xetra Midpoint represents a valuable addition to the service offered on the electronic platform, but will not ever represent a core expertise for the exchange. "Xetra Midpoint offers full transparency of bid and offer pricing, but we are sceptical whether a regulated market should maintain a full dark pool service," says Krogmann. "In the US, some dark pools have been relatively successful, but these have tended to be predominantly sell-side driven, with sell-side firms bringing their sizeable order flow to the service. The core expertise for Deutsche Börse lies in extending the visible order book to its trading members, thereby supporting full transparency and a high level of market integrity."

The London Stock Exchange is more aggressive in voicing its concerns about dark liquidity in its 9 January response to CESR – though the LSE continues work on its own dark pool initiative, Baikal, that it launched originally in partnership with Lehman Brothers prior to the latter filing for Chapter 11 bankruptcy protection last September. The LSE reports that liquidity captured by dark pools is being diverted away from the optimal matching of supply and demand that pre-trade transparency is intended to provide. This may not represent a problem when liquidity in each dark pool has sufficient depth, or when smart order routing technology can locate the best price from a number of different venues. But ultimately MiFID may trigger a move away from the "clear, fair and transparent" trading environment provided by regulated markets, instead encouraging trading on OTC platforms which offer no pre-trade transparency and reduced levels of surveillance compared with that provided historically by exchanges. While dark pools may pose few systemic or structural

concerns when attracting only a limited percentage of total market share, the LSE believes that regulators will need to monitor impact on market quality if dark pools are allowed to proliferate.

In contrast to this position, NYFIX International has long maintained in its business plan that the Euro Millennium dark liquidity pool is complementary to the trading services offered by established national stock exchanges across Europe. "We have made it our intention to work alongside the incumbent exchanges in order to extend the range of trading strategies available to the customer," says Smith. "The nature of a dark liquidity pool dictates that, despite our efforts to optimise matching efficiency, match rates will never fully mirror those secured on venues offering publicly-displayed liquidity. Unlike some of the new lit-book MTFs, that in many ways compete head-to-head with the incumbent exchanges, we offer potential to co-exist with Europe's dominant stock exchanges." To illustrate this intent, NYFIX International announced a partnership with SWX Europe in December 2007 which enabled customers to execute their trading book through an integrated strategy whereby lit-book trades would execute at SWX Europe and dark orders could be traded at Euro Millennium.

This point is endorsed by Tim Wildenberg, Managing Director and Head of European Direct Execution at UBS, who confirms that UBS has taken advantage of liquidity building on Euro Millennium to offer dark pool execution in parallel with execution at other venues. UBS' trading algorithms, particularly UBS Tap, is designed to access Euro Millennium in combination with all other sources of liquidity, including a broad array of light-book venues.

In December 2008, Turquoise announced that it will be developing a Liquidity Aggregation Service, which is scheduled for launch during the first half of 2009 subject to regulatory approval. This aggregation service is being developed in consultation with operators of leading European providers of internal broker liquidity and will complement the dark liquidity service currently offered by Turquoise. This provides an avenue through which users will have access to dark liquidity wherever it is residing, whether this is within the Turquoise dark pool or in other locations. Commenting on the announcement, Eli Lederman, Turquoise Chief Executive, said: "Many of the most sophisticated trading firms have developed internal dark pools to make their operations more efficient and to improve execution quality. Our independent,



Diana Chan,
Chief Executive, EuroCCP

Facilitating access to multiple pools of displayed liquidity

Börse Berlin Equiduct Trading is awaiting “final completion of third party deliverables” prior to going live with an MTF facility that will offer trading in liquid securities listed on the UK, German and Euronext markets. Artur Fischer, Joint Chief Executive of Equiduct Trading, notes that the fragmentation of liquidity that has occurred in Europe since MiFID implementation in November 2007 has presented new challenges to trading parties charged with delivering best execution within this environment. No single execution venue will continuously deliver best price. Thus, trading parties are confronted by the need to build connections into multiple execution venues – using smart order routing software to access liquidity at best price across these trading locations – and to connect to the central counterparties that support clearing on these venues.

This requirement is costly to establish and complex to manage – and, for this reason, may only be available to sizeable trading firms that support substantial order flow. Smaller players may struggle to provide linkages to the multiple liquidity sources (MTFs and regulated markets) necessary to deliver best execution to their customers – and may, in turn, be forced to route orders via larger brokerage firms that have required connectivity in place and can secure volume discounts at the execution venue by aggregating order flow.

In the face of these technical and financial constraints, Equiduct Trading has developed an alternative route to market, through which trading customers may access multiple execution venues offering liquidity at best price via a single connection into Equiduct’s PartnerEx Model. To support this service, the firm launched its OrangeVBBO service in early December 2008, thereby providing a ‘consolidated tape’ for liquid equities. Artur Fischer confirms that this will aggregate market data from key execution venues (currently including the London Stock Exchange, Chi-X Europe, Turquoise, BATS Europe, Nasdaq OMX, Deutsche Börse Xetra and NYSE Euronext) into a single order book – thereby allowing traders to use this as a benchmark for best execution. In its role as a trading venue, Equiduct’s PartnerEx will execute flow against participating market-makers at the best available consolidated price for their order size.

“At Equiduct, we have opted to follow a different route to that pursued by other MTF platforms in Europe insofar as we have market makers that allow us to set the price,” says Fischer. “Normally the price is set by the market maker, but through the OrangeVBBO service the best price will be set by the orange line which represents an aggregation of the best volume-weighted bids and offers across the seven execution venues. In effect, the customer achieves the same end result as it would through linking to each of these trading venues individually – but with the Equiduct service, we remove the challenge of establishing these linkages, bearing the associated transaction costs, and needing to connect to multiple clearing houses. The PartnerEx model will provide single point of entry to multiple liquidity pools, providing order-by-order best execution

across the full European trading theatre.” In doing so, Equiduct will extend the additional advantage of competitive clearing, extending to its users the option of clearing centrally via LCH.Clearnet Ltd in the UK, LCH.Clearnet SA in France and via SIS x-clear in the German market. Alternatively, counterparties can opt to turn off this central clearing facility and instead to settle trades bilaterally, should this align with their trading strategy and risk management needs.

OrangeVBBO

In the absence of a recognised ‘consolidated tape’ for European markets, Equiduct has built an innovative electronic system for capturing incoming reference data and for generating a benchmark price at standard market size (SMS) and retail market size (RMS). Through a partnership with Fixnetix, a provider of low latency market data, the company aims to ensure that the benchmark price reflects the current market situation on a real-time basis.

In explaining the origins of the OrangeVBBO service, Artur Fischer explains that Equiduct has been calculating and publishing VBBO for SMS and RMS since 1 April 2008. The model will extend to users volume-weighted best bid and offer as the guaranteed best price, calculated on the basis of simulated partial executions on key reference markets (see the list opposite).

As fragmentation within Europe’s trading landscape has increased, Equiduct has recognised that this is a service that can be marketed commercially. Fischer suggests that Equiduct Trading is the only service provider in Europe that is currently in position to deliver a consolidated feed which illustrates best price and depth of market across seven exchanges. Though other vendors have extended a pricing data service, these may do little more than represent data from the individual exchanges on a common screen – they do not provide VWAP and illustrate the aggregated volume in a specific stock. The result is that the user still needs to do its own computation to identify the best price that it could secure for a particular volume on a stock across the European theatre.

Equiduct’s pricing structure across the hybrid book is based on a maker/taker model that bears similarities to that employed, for example, by a number of MTF venues including Chi-X Europe and Turquoise. At PartnerEx, liquidity is provided by the market maker, who does not receive a ‘maker fee’ directly from Equiduct but will capture return on the spread on cross-trades generated from the associated trade flow. The aggressor will pay a 0.7 bps charge for each trade match on the platform. Fischer explains that the premium paid by the aggressor (over and above the 0.35bp liquidity taker fee paid at some other MTFs for example) provides a return to Equiduct on the substantial calculation work required to compute the consolidated tape across seven execution venues. Also, this reflects the flexibility extended to the customer through competitive choice in the clearing layer.

centralised infrastructure offers a meeting point for otherwise fragmented liquidity and a place where institutional size trades will execute securely. Turquoise's liquidity aggregation service will cover a pan-European universe of stocks and will enforce a large minimum order size related to each instrument's liquidity. Orders will be routed and distributed to connected dark pools in accordance with a range of rules-based distribution algorithms, and stringent anti-gaming logic will be employed. The service will operate in accordance with the applicable MiFID requirements."

Building a level playing field?

Summarising some of the main conclusions advanced by the London Stock Exchange in its 9 January response to CESR, Adam Kinsley suggests that MiFID has facilitated the formation of cross-border trading platforms and it has enhanced transparency in jurisdictions that did not previously have comprehensive trade disclosure rules. MiFID has also accelerated harmonisation of investor protection rules across locations, thus encouraging movement towards a common framework.

Helping Traders to sharpen their Execution Decision Making

One impact of the fragmentation of liquidity that we have observed in the US market is that pricing transparency has reduced – and we are now witnessing a comparable trend being replicated in Europe, notes Ali Pichvai, CEO of Quod Financial. Traders are making greater use of hidden orders permissible under transparency waiver provisions in MiFID – and, thus, those sending aggressive orders cannot rely wholly on pricing from the displayed market to identify the best location to execute their trades.

When the Financial Services Authority (FSA) introduced transparency waivers in the UK market, it did so before smart order routing software had been refined to its current level of sophistication, enabling traders to seek out and grab liquidity across a wide range of competing liquidity pools. Had this been available, Pichvai believes it improbable that the FSA would have introduced the full range of transparency waivers under MiFID that exist currently. If dark pools continue to claim a rising market share of trading in liquid stocks, it is probable that financial supervisors may review the types of hidden order that are currently permitted under MiFID.

Quod Financial has been working with trading parties to collate real-time post trade execution data that will assist them in structuring their execution strategies, enabling the trader to construct a consolidated profile of liquidity distributions across light and dark pools. "When a trade has been executed in a dark pool, there is heightened probability that there may be more liquidity sitting in the same location," says Pichvai. "As a result, based on post-trade execution information, our Adaptive Smart Order Routing (ASOR) technology will often return to the same dark pool in search of further liquidity."

A primary objective of the ASOR technology is to build greater efficiency into the way that customers execute their trades. This will evaluate how long it takes for passive orders to be executed in a liquidity pool, thus providing a statistical measure of the efficiency of the execution venue. Typically a trader aims to minimise

execution risk, particularly in a volatile market. If the market has moved substantially in the course of execution, this serves as an indicator that the trader is not getting the best out of its execution decision-making. By monitoring market slippage, Quod Financial aims to help the trader to eliminate these shortcomings, drawing on a broad suite of post-trade execution data to identify the most efficient passive and aggressive execution venues for that trader's strategy at any point in time.

In sum, we have seen equities trading markets becoming more dynamic, less transparent and, in light of current economic conditions, characterised by a high level of pricing volatility. Quod Financial's adaptive trading technology is designed to manage each of these trends in parallel. This will allow customers to revise their trading algorithms frequently and at short notice, using API-type toolkits that can be managed by traders rather than requiring specialist reprogramming by IT professionals.

Multi-asset capability

Given the transformation of Europe's trading landscape for liquid equities, the primary focus of Quod Financial's research since MiFID has been in supporting greater efficiency in equities trading. However, the company is developing multi-asset execution technology that will support equities, futures and options. At the current time there are barriers to genuine competition in the futures and options segment, given that exchange-traded derivatives tend to be built around highly customised contracts available only on the primary exchange and not fully fungible at clearing level. In the future, however, this is destined to change. We are likely to see leading exchanges supporting trading in multiple asset classes and also the extension of hybrid platforms designed to support the benefits of exchange-based and OTC trading. Quod Financial aims to help customers to adapt to these advances through enhancements to its Adaptive Execution Platform and ASOR technology, extending to the futures and options world some of the innovation in trading technology developed to support other asset classes.



Ali Pichvai,
CEO, Quod Financial

However, the LSE is less positive when asked to reflect on the barriers that remain to creation of a pan-European level playing field across multiple trading venues. MiFID has created a systematic internaliser regime with the objective of capturing the order flow that was internalised by investment firms and subjecting them to pre-trade transparency obligations. However, one year after MiFID, the LSE reports that only 12 firms are formally registered as systematic internalisers in the CESR database when perhaps a greater number might have been expected. Also, in the LSE's view, some of the firms that are registered as systematic internalisers are not currently fulfilling their pre-trade obligations. Quotes are sometimes not timely or do not accurately reflect market conditions – for instance, in some cases reflecting too wide a spread.

Moreover, the LSE draws attention to an influx of broker crossing networks that appear to be doing the business of organised venues but are operating under an over-the-counter banner and therefore bypass pre-trade transparency obliga-

ample under the 'large in size' transparency waiver which is permitted under MiFID). "Some national regulators continue to highlight some order types which are not MiFID compliant but which are being implemented on other execution platforms in Europe," adds Krogmann. "We believe that the relevant Competent Authorities must act fully and promptly to eliminate these inconsistencies, which continue to provide opportunity for some platforms and trading members to benefit from regulatory arbitrage in Europe. Without moves to enforce a level playing field, the intended benefits offered to retail and institutional customers under the MiFID Directive can never be fully delivered."

Building on the CESR Call for Evidence

In light of these deliberations, what are the primary findings that we can expect from the November 2008 CESR Call for Evidence and its subsequent Advice to the European Commission? For Chi-X Europe's Hirander Misra, the execution and post-trade landscape has changed substan-

A sizeable share of trades executed on Xetra, LSE and Euronext should have been executed at Chi-X Europe if the investment firm had executed at best price at that moment in time. Likewise, a (smaller) portion of trades that were executed on Chi-X Europe should have been executed at an alternative venue... Had all trades been routed to the execution venue that displayed best price at the time of order, Equiduct estimates that investors would have saved €1.33 per trade or €3.5 million in total across that single day.

tions. Such platforms, it believes, take a liberal interpretation of the MTF category under MiFID and purposely structure themselves in a way that is not captured by this definition.

In more guarded tones, Deutsche Börse shares concerns that there is still not a genuine level playing field regarding pricing transparency and trading of dark liquidity. "When MiFID was implemented, we trusted regulators to deliver full consistency of application across regulated markets and MTF platforms, but in reality this consistency has not been delivered," says Michael Krogmann. In responding to the CESR Call for Evidence, Deutsche Börse observes that, until recently, Chi-X Europe has offered a hidden order type that was not fully compliant with MiFID. This hidden order was fully non-displayed (for price and size) and was not subject to order-size restrictions (for ex-

tially in Europe since MiFID was implemented in November 2007 and it is important for the Commission and national regulators to revisit the supervisory framework in order to accommodate these developments.

Three key areas are particularly salient. The first is best execution. Chi-X Europe believes there is need for greater clarity around what best execution means in practice. "Under current interpretation of this principle, it is possible for a sell-side firm to operate a best execution policy that involves little more than simply routing client trades to the primary exchanges," says Misra. "Though we do not advocate a highly-prescriptive solution such as that operated in the US under Regulation NMS, we would support a middle ground whereby we move away from the current principles-based regime to a situation where we have greater clarity around how

best execution should be interpreted and implemented. In parallel with drives in this area coming from the European Commission and financial regulators, we believe that pressures will emerge from the marketplace, whereby more and more buy-side firms will question why their brokers have executed their trades at a particular venue when more favourable pricing was available elsewhere."

A second point for review lies in the supervision of dark liquidity pools. There is a need to ensure that dark pools operated by broker-dealers and MTF venues are regulated in a consistent manner – and that we see a re-evaluation of existing arrangements, whereby slightly different regulations are applied to broker firms and to MTFs regarding the dark liquidity functions that they can deliver. "Here we see what the brokers are doing as the right model that the MTFs should be allowed to follow," indicates Misra.

Also, further attention in Europe must be given to the delivery of aggregated market data and how this consolidated tape is extended to the market. Misra indicates that Chi-X Europe currently supplies its market data to users free of charge, with no per user fee or licence fee attached to this service. The availability of a consolidated tape will enable users to access market data at low cost and this will improve transparency around how trading firms manage their best execution policies. Though Chi-X Europe supports commercial delivery of a consolidated data feed, it recognises the need for common standards and a level of regulatory audit in order to ensure this operates according to a clearly-defined framework whereby users can be confident about what is (and is not) included and that necessary checks are in place to eliminate double reporting.

Is there a place for regulators to oversee delivery of a consolidated tape for key European venues? Equiduct's Trading's Joint Chief Executive Artur Fischer thinks not. "We believe that in Europe commercial forces should have freedom to compete and to deliver the best solution," he says. "If regulators were to intervene, this would suffocate competitive ideas and would hold back future innovation. As a result, it is probable that the market would end up with a second-rate solution."

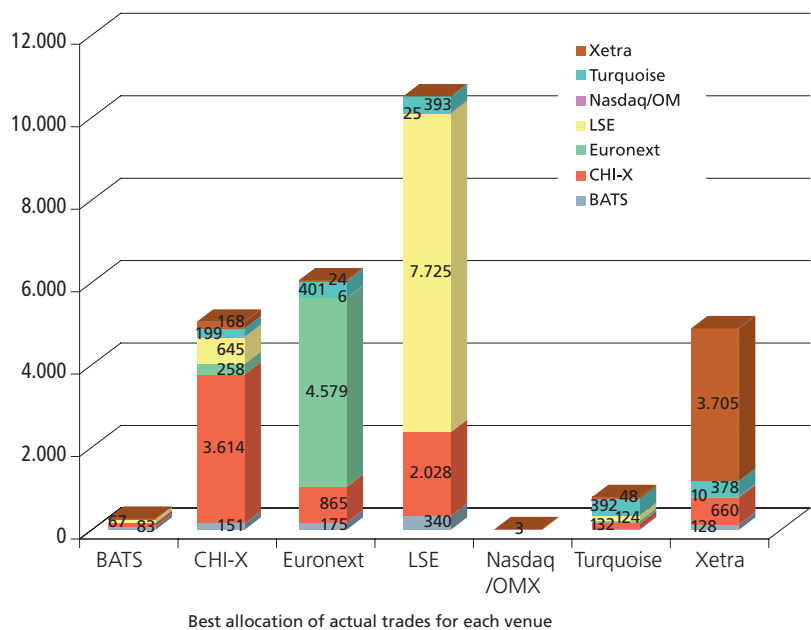
This said, in Equiduct's view, restrictive pricing and contractual policies of the regulated markets do not provide for normal commercial delivery of a consolidated tape that delivers an aggregated view of the underlying feeds. Equiduct estimates that a

consolidated price feed that comprises data from the LSE, Xetra and Euronext alone would cost €332.5 per month across the three exchanges (LSE £157.50, Euronext €90.00, DBAG and European Stars €76) without taking into account the cost of generating the consolidated feed. This is different from US arrangements, where a consolidated tape price is determined first, at a fraction of the price outlined above, and revenues are then shared among the exchanges that contribute to this price finding exercise.

In the US, notes Turquoise's Duncan Higgins, the principal of platform interconnectivity has effectively been mandated by the financial regulators. Thus, any price that appears in the consolidated tape can be hit by any trading party, regardless of which execution venues they are linked to directly, since if a trading platform does not offer the best price itself, it will route the bid on to the execution venue where this is available. In Europe, there is currently limited appetite for a 'trade through' rule of the form that exists in the US. Quite correctly, it is recognised in Europe that obtaining a good execution is substantially more complicated than simply sending every order through to the venue where the best price is available.

This said, in Higgins' view it is evident that a sizeable volume of trading in Europe still takes place on primary exchanges when a better price may be available on an alternative platform. Many trading

Fig 1: Actual Market Share in €millions on 25th Nov 08



Source: Equiduct

firms remain cautious about extending new trading memberships and building new connectivity in this volatile economic climate. Also, many are keen to see a build up of liquidity on new execution venues before committing their own business. In recent months, this has served as a barrier to expansion for some MTF platforms. "But, as investment conditions improve, trading firms will recognise that, through relatively moderate investments in technology and connectivity, they can dramatically reduce their overall costs of trading through routing their transactions to Turquoise and other new execution platforms," he says.

Equiduct's Artur Fischer advances a comparable point. Referring to Figs 1-2, which illustrate total volumes executed in the 500 most-liquid instruments listed on NYSE Euronext, LSE or Deutsche Börse on the most active trading day of last year (25 November 2008), the graph illustrates that new entrants, particularly Chi-X Europe, have been able to capture significant market share. This data also demonstrates that trades are not always executed at the most appropriate venue in line with best execution requirements. For example, a sizeable share of trades executed on Xetra, LSE and Euronext should have been executed at Chi-X Europe if the investment firm had executed at best price at that moment in time. Likewise, a (smaller) portion of trades that were executed on Chi-X Europe should have been executed at an

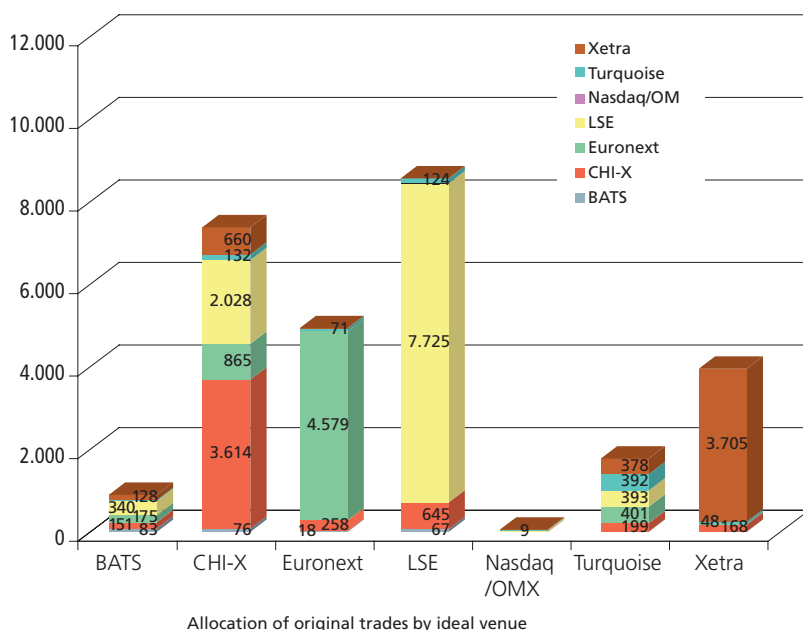
alternative venue. The overarching message from this analysis is that the amount of order flow that is 'misdirected' is significant. Had all trades been routed to the execution venue that displayed best price at the time of order, Equiduct estimates that investors would have saved €1.33 per trade or €3.5 million in total across that single day.

Equiduct observes that a number of the incumbent exchanges, particularly the London Stock Exchange, have been vocal in resisting regulatory intervention in the area of market data consolidation. Equiduct broadly endorses the LSE's position that there is no requirement for heavy handed regulatory intervention that would seek to install a US-style government regulated utility to generate or distribute a consolidated tape. Rather, the market stands to gain from enabling competing providers to offer competing benchmark products, thereby allowing the industry to select the most appropriate standard on the basis of price and quality of benchmark. However, Equiduct does not take the view that further action in this area is unnecessary. MiFID has reinforced the importance of consolidated price information in the face of increasing fragmentation across the execution layer. Articles 44 and 45 of MiFID require regulated markets to provide access to their pre-trade and post-trade information "on reasonable commercial terms and on a non-discriminatory basis". This is repeated in Article 32 of EC Reg 1287/2006 (10 Aug 2006), which makes it clear that the publication "must facilitate the consolidation of data with similar data from other sources".

On balance, we have seen a slow but discernible increase in competition for exchange data, concludes Fischer. "Three years ago, there was a virtual monopoly for Level 2 data in each major jurisdiction in Europe and there was little opportunity to break that monopoly. As a result, the incumbent exchanges could charge inflated prices for access to their exchange data. Today, we see that the consolidated tape through the OrangeVBBO service represents a credible alternative to the data feeds from the primary markets. We believe that financial regulators have a responsibility in each country to ensure a fair and level playing field in this area."

Presenting a contrasting viewpoint, Deutsche Börse's Michael Krogmann comments that, in supporting secondary trading in liquid equities, MTF platforms continue to rely heavily on the pricing established on the regulated markets. In major European cash equities markets, 80 per cent or more of open order book turnover is traded through the regulated mar-

Fig 2: Theoretical Market Share based on Available Liquidity in €millions on 25th Nov 08



Source: Equiduct

kets and these stock exchanges provide the primary locus of price formation. This, he notes, is why the market data supplied by the regulated markets has strong commercial value. Although several MTFs provide market data to their trading members free of cost, in reality this often has limited value since their pricing typically references the price finding function performed at the regulated market.

Settlement certainty and counterparty risk

Best execution under MiFID is broadly guided by Article 21(1) of the Directive which imposes on investment firms: "An obligation to execute orders on terms most favourable to the client. Member States shall require that investment firms take all reasonable steps to obtain, when executing orders, the best possible result for their clients taking into account price, costs, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to the execution of the order. Nevertheless, whenever there is a specific instruction from the client the investment firm shall execute the order following the specific instruction."

In light of the collapse of Lehman Brothers in September 2008 and a sharp rise in post-trade uncertainties in some markets during the third quarter, many observers have highlighted that settlement efficiency, counterparty credit risk evaluation and robust safekeeping of cash and securities have assumed additional importance in subsequent weeks and months (see further in pp 54-68 in this issue). For example, the UK Investment Managers Association, representative association of the UK asset management industry, reports that "settlement certainty and counterparty risk have more recently often become the most relevant factor in the provision of best execution following the collapse of Lehmans and the unprecedented number of trade failures in the London market." IMA members agree that in normal circumstances price and volume (ie likelihood of execution) are typically the most important factors when selecting an execution venue. However, in current market conditions, the most relevant factors have become settlement likelihood and counterparty risk – and this is likely to remain the case for some time.

Building on this observation, Chi-X Europe's Hirander Misra notes that appetite for bilateral risk taking across European trading markets has fallen substantially as firms' ability to put up risk capital to support their trading activities has diminished. This has worked to the advantage of execution venues that

have central counterparty clearing facilities in place since the CCP framework offers a high level of surety in managing a possible default and efficiency benefits in, for example, managing margin requirements.

In this context, Chi-X Europe is committed to the potential benefits offered by competitive clearing in each of the markets in which it is active. Having developed a clearing relationship with European Multilateral Clearing Facility (EMCF) from its inception in 2007, Chi-X Europe announced on 3 Feb 2009 that it would offer a user choice clearing model, providing participants freedom to clear through multiple CCP firms subsequent to an interoperability agreement signed by EMCF and SIX x-clear.

EuroCCP, the wholly-owned subsidiary of DTCC, launched its central clearing service in August 2008 to support trading on the Turquoise platform, with 15 firms initially granted approval as clearing participants. In February 2009, it began clearing and settling trades for SmartPool, the European dark pool for block trading created by NYSE Euronext, BNP Paribas, HSBC and JPMorgan. In early March, it went live with its clearing facility for the NYSE Arca Europe high frequency trading platform, which launched trading operations across 11 markets in Europe.

Beyond these relationships, EuroCCP has been appointed to provide clearing services for a number of MTF platforms that are soon to begin active trading. In January, SecFinex named EuroCCP as central counterparty for securities lending and borrowing for the UK market, the largest securities lending market in Europe. That service is expected to launch in the third quarter of this year, subject to regulatory approval. Also, EuroCCP is working with market participants in Denmark, Finland and Sweden to clear trades executed on the Nasdaq OMX exchange in these locations (see further on pp 54-68 in this issue).

EuroCCP is platform-neutral in that it does not give economic interest to or receive economic interest from platforms, explains Diana Chan, Chief Executive of EuroCCP. "This policy ensures all trading platforms using EuroCCP are on a level playing field and do not need to worry about relying on a critical service supplier owned by a competitor," she says. EuroCCP has a pricing structure which is currently unique in Europe. Volume thresholds apply to all trading platforms and all clearing participants, regardless of their size. Consequently, if the aggregate volume of transactions processed by EuroCCP



averages above the pricing threshold for the full month, all clearing participants will benefit from a reduction in fees, regardless of where they execute these trades or how much they trade individually. "EuroCCP does not cut special deals with clients, so all firms know they are paying the same equitable low price for processing their trades," she adds. "As new platforms and clearing participants link to EuroCCP, trading volumes cleared through EuroCCP will rise and market participants will collectively pay the lower 2.50 euro cent per transaction clearing tariff achieved when aggregate trades pass the next threshold of 800,000 daily transactions."

In the face of recent global economic instability, a number of CCPs have received requests to set in place arrangements for clearing interoperability. In some instances these have come from firms wishing to find an alternative to the clearing relationships that they have in place with the European Multilateral Clearing Facility

stability, Chan indicates that EuroCCP has received multiple requests to set in place arrangements for clearing interoperability because users want alternatives to CCPs they are no longer comfortable clearing with. A CCP's users are potentially exposed to margin money left in the bank account of a CCP, or securities collateral they cannot retrieve easily, if the CCP becomes insolvent.

Given this significant level of demand for a safer and more robust alternative from the market, EuroCCP's Board elected to review its position and, in early December, granted approval for EuroCCP to interoperate with other CCPs. "With this provision in place, we are now waiting for other CCPs to enter into negotiation with EuroCCP in order to review the mutual benefits of offering interoperability across the platforms," says Chan. "Though EMCF has recently confirmed that it will interoperate with SIS x-clear, it has so far not come to the table to discuss comparable arrangements with EuroCCP."

With trading volumes significantly down, exchanges are experiencing revenue contraction. To fill the shortfall, they may look to revenues from captive and profitable clearing, but in doing so they will need to compete with the new MTFs that are using lower cost, third-party CCPs... CCPs have proven their utility to users in the cash equities market; and exchanges might soon use less of captive clearing as a cash cow and more of competitive clearing to win in the trading space.

(EMCF), the CCP majority-owned by Fortis Bank and NASDAQ-OMX, which has been partially in government-ownership since Fortis Bank's operations were nationalised by the Dutch government in October 2008. On 3 February 2009, SIS x-clear and EMCF announced that they had signed an MoU confirming a commitment to offer competitive clearing under a dual CCP model to any trading platform they have links with.

As customer needs in the European clearing landscape have evolved, EuroCCP has elected to review its stance on CCP interoperability. "On designing our central clearing service, EuroCCP's Board of Directors initially took the decision that we should not interoperate with less robust CCPs," says Chan. "Clearing interoperability, they believed, might expose our users and shareholders to potential risks should we be interoperating with a CCP that fell into difficulties. With hindsight, this has proven to be a sound decision at the time." However, in the face of recent global financial in-

On reviewing post-trade requirements prior to the initial launch of Euro Millennium, NYFIX International recognised the need to establish service partnerships at clearing and settlement level that could deliver a high level of consistency and could offer pan-European market coverage in order to support the expansion of the dark pool into new jurisdictions. BNP Paribas Securities Services met these criteria effectively in the settlement arena – and, as a service partner, has helped NYFIX International in setting up operations in new markets, in opening and managing customer accounts, and in providing support for the company's "Experience the Dark" programme that ran during the fourth quarter of 2008.

As the product has evolved, NYFIX International has refined the clearing arrangements that it has in place to support clients trading on the platform. "As trading volumes have grown, it made sense to provide customers with the option to clear trades via a central counterparty, thereby offering netting efficiencies and enhanced risk management

capabilities to those who elected to use this CCP service," says Chris Smith. In line with this commitment, NYFIX International issued RFPs to eligible providers in mid-2008 and subsequently appointed SIS x-clear to provide a CCP service for trades executed on Euro Millennium. As such, users have the option of central clearing via x-clear, or employing bilateral clearing and settlement arrangements if this approach is preferred for certain counterparties. Projecting ahead, NYFIX International remains sympathetic to extending competitive clearing relationships with other CCP providers and will review opportunities to extend its clearing relationships on a case-by-case basis.

Though most dark liquidity pools that were established pre-MiFID did not use CCPs, EuroCCP's Chan observes that we are now, in the wake of the

business from buy-side customers that have limited experience in using a central clearing facility and in managing margin calls. Thus, a level of educational support may be necessary to familiarise buy-side customers with central clearing arrangements and the potential merits of connecting via a GCP.

In the settlement and asset servicing layer, Ignace Combes, Deputy Chief Executive of Euroclear, indicates that the fragmentation of trading liquidity that has been observed in Europe since MiFID has demanded that Euroclear support clients' post-trade activity across a growing number of trading locations. As noted, we have also seen a gradual extension of interoperability in the clearing layer, with a number of European execution venues supporting competitive clearing arrangements through two or more central counterparties.

Though some trading parties will be attracted by opportunities for anonymous trading and price improvement available via a dark pool, when the market is volatile many will prioritise the need for fast and efficient execution. A trading participant may generate tens of basis points of impact on the market if they do not slice their orders efficiently. In contrast, the intra-day volatility of the market may be as high as 300-400bps. In these conditions, the primary goal for many trading members will be to minimise the impact of volatility by ensuring that the trade is executed promptly in the visible order book.

financial crisis, finding more dark pool venues providing users with the option of central counterparty clearing. From a CCP perspective, the task of supporting central clearing for a dark pool may require a different pricing model to that applied to venues offering publicly-displayed liquidity. Whereas most CCPs operate a transaction-driven pricing schedule, with scaled-rebates offered for processing volume, trading in a dark pool typically generates a low volume, high ticket order flow. As a result, the CCP may support a relatively high level of fixed cost in extending the clearing service, while generating only moderate revenue from a transaction-based model that has no ad valorem component.

Market participants may also need to put up significant margin to cover their trading commitments in a dark pool: dark pools typically accommodate block trading in less liquid stocks – and, thus, a CCP will need to set its margin relatively high to cover risk on these relatively illiquid securities. More generally, dark pools may attract significant

In responding to these dynamics, Euroclear's strategy has been to support settlement activities across multiple trading venues, from a growing list of central counterparties and instruments. "This has characterised our strategy in the Euronext markets, the UK, Sweden and Finland," says Combes. "With MTF venues supporting secondary market trading in stocks listed on multiple European exchanges, and with local stock exchanges continuing to attract listings and trading activity, we are working to deliver greater settlement efficiency to our customers through market-practice harmonisation in Europe, and by extending economies of scale through settlement platform consolidation. With the release of Euroclear Settlement for Euronext-zone Securities (ESES), market participants in Belgium, France and the Netherlands can, for the first time, process transactions via a single settlement platform, with cross-border trading across these markets being processed as domestic transactions." This development, suggests Combes, is key to delivering the benefits of NYSE Euronext's Single Order Book for

equity transactions on the Amsterdam, Brussels and Paris exchanges by providing a harmonised settlement infrastructure for this activity.

As a young company that has been live since August 2008, EuroCCP's priority is to continue to build business on the CCP platform, while maintaining high standards of risk management and processing efficiency. EuroCCP now has 24 clearing participants, with 14 of these being general clearing participants (GCPs). "The membership criteria established by a central counterparty represent its first line of risk management – and the participatory standards established by our user steering committee at incep-

trading space. "CCPs have proven their utility to users in the cash equities market; and exchanges might soon use less of captive clearing as a cash cow and more of competitive clearing to win in the trading space," she comments.

Closing thoughts

In charting the evolution of publicly-displayed and dark liquidity venues in Europe, the high level of market volatility that we have seen in recent quarters is likely to have a significant bearing on the trajectory that this transition process will follow. Though some trading parties will be attracted by opportunities for anonymous trading and price

Euroclear to acquire Xtrakter from ICMA

In November 2008, Euroclear signed an agreement with the International Capital Markets Association through which it agreed to acquire 100 per cent of Xtrakter Ltd, owner of TRAX, the trade matching and regulatory reporting system. This deal is awaiting final regulatory approval and is expected to be completed during Q1 2009. The transaction extends Euroclear's presence into the pre-settlement space. Xtrakter currently enables customers to match trades in a straight-through processed environment, as close as possible to the point of execution for fixed-income, repo, equity and derivatives transactions. By the end of 2009, trade data already input into the TRAX system will be processed automatically and straight through to settlement at Euroclear, thereby eliminating trade matching duplication, reducing settlement fails, costs and risks.

The Xtrakter acquisition will also ease the burden for Euroclear

customers of meeting post-trade reporting requirements under MiFID, enabling users to deliver end-of-day regulatory reporting on their daily activity direct from the Xtrakter database. Through its market and reference data service, Xtrakter also offers reference pricing for trades generated across a broad range of execution venues across Europe.

Ignace Combes, Deputy Chief Executive of Euroclear, says that by extending its focus upstream to trade matching, Euroclear is continuing to increase efficiency and reduce back-office costs for clients by streamlining processes and eliminating fragmentation. Euroclear continues to broaden the post-trade processing services that it offers to customers across new markets and instrument types, as exemplified most recently by its LoanReach multi-currency post-trade facility for syndicated loans and its settlement and safekeeping service for carbon emission reduction rights.

tion represent the most demanding for any clearing house in Europe," claims Chan. "It is important that the CCP is completely transparent about its membership, providing full clarity to users regarding all clearing members utilising the platform."

In concluding, Diana Chan raises searching questions about how economic pressures at trading level might shape the evolution of Europe's clearing landscape. With trading volumes significantly down, exchanges are experiencing revenue contraction. To fill the shortfall, they may look to revenues from captive and profitable clearing, but in doing so they will need to compete with the new MTFs that are using lower cost, third-party CCPs. Ultimately, Chan anticipates that exchanges may need to open up their trade flows to the low-cost CCPs in order to remain competitive in the

improvement available via a dark pool, when the market is volatile many will prioritise the need for fast and efficient execution. In quantitative terms, Quod Financial's Ali Pichvai estimates that a trading participant may generate tens of basis points of impact on the market if they do not slice their orders efficiently. In contrast, the intra-day volatility of the market may be as high as 300-400bps. In these conditions, the primary goal for many trading members will be to minimise the impact of volatility by ensuring that the trade is executed promptly in the visible order book. In adapting to this environment, Quod Financial has developed trading technology whereby execution performance analysis is built into the liquidity seeking algorithm. As a result, the trader does not require two separate technology packages to handle two distinct processes, one to slice the orders in a bid to minimise market move-

ment and the other to seek out liquidity. Rather, both of these goals are met through a common liquidity-seeking algorithm that will also optimise execution performance.

In adapting to this changing environment, buy-side firms are now employing a more sophisticated array of tools to manage their trading. NYFIX International's Chris Smith notes that prior to the credit crisis, significant levels of broker capital were available to support trading for buy-side customers. However, the limited broker capital now available to cover these activities is resulting in buy-side firms seeking new, and in some cases more direct, ways of managing their trading needs. "If, at Euro Millennium, we can demonstrate good liquidity in a small or mid cap stock and we can potentially add very significant price improvement on individual stocks and an average of between 12-15 bps of price improvement, then most buy-side desks will be motivated to take this offer seriously," says Smith.

harbours reservations about the tangible benefits delivered to users since MiFID was implemented. "We continue to question whether increased competition post-MiFID has, in reality, resulted in genuine reduction of overall trading costs," he contends. The greater competition generated by the entry of new MTF platforms with aggressive market entry strategies has resulted in lower explicit trading costs. But, conversely, greater competition has prompted fragmentation of liquidity and, so far, the reduction in explicit costs has not been sufficient to offset the wider spreads observed over this period. "Given the volatile economic conditions at the current time, it is hard to isolate the impact that individual factors have had on overall trading costs," he concludes. "But, considered in the round, there is no evidence as yet that MiFID has delivered a tangible improvement in market efficiency. Rather, we have seen spreads widen in all markets over this period."



Each new launch needs to bring something innovative to the user – and, given that resources are limited across sell- and buy-side firms, there is limited appetite at this time to link to venues that cannot deliver new efficiencies or service enhancements. In this respect, we see barriers to entry progressively rising across the sector. New trading platforms that do little more than replicate existing trading functions will need to question whether it makes sense for them to join an increasingly crowded marketplace at the current time.

Reflecting on developments post-MiFID, Chi-X Europe's Hirander Misra recalls that in the early months after MiFID implementation, the regulated markets appeared initially to dismiss the challenge from the MTF segment as being unimportant. These stock exchanges had never previously been subject to genuine competition for liquidity within their national markets – and they demonstrated few signs that they regarded new MTFs as a threat to their dominant position. Gradually, however, we are now seeing signs of reaction. For example, the LSE has revised its tariff model in order to introduce rebate pricing for passive liquidity. "From a Chi-X Europe standpoint, we welcome this development since it now makes it easier to draw comparison between the fee schedules on our own platform and those on the regulated markets," says Misra. "As a result, it has become evident to observers that our model is substantially cheaper."

However, Deutsche Borse's Michael Krogmann

Projecting forwards, Misra believes that the competitive landscape in European trading will prompt a number of execution venues that have launched recently, or that are planning to launch, to look carefully at whether their business cases add up in the current economic climate. "We have seen overall trading activity increase across Europe since MiFID, but business strategies that simply mirror the functions extended by other live trading venues are destined to struggle," he says. "Each new launch needs to bring something innovative to the user – and, given that resources are limited across sell- and buy-side firms, there is limited appetite at this time to link to venues that cannot deliver new efficiencies or service enhancements. In this respect, we see barriers to entry progressively rising across the sector. New trading platforms that do little more than replicate existing trading functions will need to question whether it makes sense for them to join an increasingly crowded marketplace at the current time." ■ *FSR, 3 March 2009*