

EDITION

3

Best practice in foreign exchange markets

Including:

- An update on MiFID
- NDFs and best practice
- Electronic trading and best practice
- The rise of algorithmic trading
and its implications for best practice

in association with
EUROMONEY

FX your way



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introduction

We are once again delighted to be working in partnership with *Euromoney* on the development of the third edition of the Best Practice Guide for the foreign exchange market.

This year, the elements of best practice issues covered in this guide range across algorithmic trading, MiFID and non-deliverable forwards.

The ongoing discussions and debate on the role and importance of algorithmic trading have increased in the last 12 months and are likely to continue apace in 2007. While there are many views, what is important in best practice terms is that all participants have appropriate risk management tools in place, actively manage latency issues, and ensure that client confidentiality is maintained at all times. Increases in volume from alternative execution mechanisms contribute to the market's dynamic nature and the levels of innovation in terms of technology, functionality and client service.

We continue to see MiFID as one of the key challenges and indeed opportunities that is front of mind for the industry. For many participants there remains uncertainty over precise details of the directive's implementation while others see an opportunity for a more level playing field. Best execution has been on our industry's agenda for some time and in many ways MiFID is helping to apply consistency and clarity for our clients.

The substantial growth in the NDF market has contributed greatly to improvements in liquidity in emerging market currencies as well providing a useful and more accessible tool for those corporates looking to more actively manage their exposure in these markets. However, we need to continually evaluate the protocols, processes and controls around this rapidly changing part of our industry.

At FXall, we continue to retain our focus on delivering appropriate and leading-edge products, tools and information to our clients, all within the best-practice principles. The qualities that our clients place great value on – deep liquidity, efficient pricing, reliable and robust technology – as well as the core processing, analysis and reporting

tools are the guiding values for our strategy. This includes being a key driver in the introduction of Accelor.

Although the FX markets often sit outside the limelight, particularly when compared with the equity markets, our markets continue to change, often radically, with many new entrants and participants on an almost daily basis.

At FXall, we are excited to be at the centre of that change, contributing to the debate and delivering best practice for our clients.

Regards,

A handwritten signature in black ink, appearing to read "Philip Weisberg". The signature is fluid and cursive, with the first name "Philip" and the last name "Weisberg" clearly distinguishable.

Philip Weisberg
Chief Executive Officer

a Euromoney foreword

best practice in a changing market

Already worth more than an estimated \$2 trillion per day, the global foreign exchange (FX) market is the most transparent and liquid of the world's financial markets, and will become more so over the coming years, with some analysts projecting continued rapid growth. "This year is set to be when the FX market daily trading volume will break the symbolic mark of \$3 trillion," comments a report published in January by Celent.

Other forecasters share this bullish outlook for the FX market. TowerGroup, for example, has calculated that the global market will have doubled in size in the three years to 2007, with daily total turnover expected to reach \$3.6 trillion this year, compared with \$1.77 trillion in 2004.

Growth in trading for alpha

There are a number of explanations for the recent surge in global FX volumes. The key driver of exploding volumes, however, has been the emergence of FX as a mainstream asset class in its own right and the growing international community of FX investors. Among the investors that are now participating more actively in the global FX market, hedge funds aiming to generate alpha are among the most prominent. Between January 1999 and June 2006, the average annual return of the Parker FX Index, which tracks the performance of over 50 specialist currency managers, revealed a performance range of between -4.9% and 14.9%, suggesting that FX is an asset class in which good managers can add considerable value – which is why an important recent sub-theme of the FX market has been the increasing trend of outsourcing specialist management mandates.

While trading for alpha has been the principal engine of expanding volumes in the FX market, Celent's January 2007 report comments that 'real money' trading, notably from corporates and asset managers, has also grown, albeit at a slower rate. That, says Celent, may well change as new currency pairs such as euro-ruble grow in

importance, but for the time being the imbalance between the two sources of market growth is easy enough to explain: the growth in real money FX trading is closely correlated to the growth of international trade, while trading for alpha is relatively new, with many new participants and new liquidity venues in this space.

Continued growth in electronic FX trading

Much of the projected increase in FX turnover over the coming few years can be accounted for by a continued expansion in electronic FX trading, which in recent years has revolutionized the FX world and introduced efficiencies that the traders in the past would have marvelled at. According to a report by TowerGroup, the eFX market now represents 40% of all FX trade volumes, with 60% of spot trading accounted for by electronic trading.

FXall, the world's leading foreign exchange platform for institutional clients, saw its trading volume soar by 45% in 2006 alone to more than \$9.8 trillion. In the first quarter of 2007, volumes from asset managers were up 60% more than in the same period in 2006, active traders such as hedge funds and commodity trading advisers (CTAs) increased by 46%, while volumes from corporates rose by more than 40%. Forecasts from most independent analysts suggest that this trend will be maintained: The TowerGroup has forecast that more than 44% of global foreign exchange trading will be conducted electronically in 2007.

Search for best practice

Ever-rising volumes in the FX market have inevitably been accompanied by increasing commoditization in the major currency pairs, which account for the lion's share of daily volumes. More than any other sector within the global financial market, that process has made the FX business one that is characterized by very high volumes and tight spreads. As an inevitable consequence, the FX space is one in which market participants are increasingly demanding improvements in execution; in the high speed world of FX, the difference between good and best execution is measured in milliseconds.

Ensuring that technological progress is able to keep pace with the exacting demands of participants in today's FX market has become an even greater priority in light of the increasing influence in the market of algorithmic traders or autodealers. But speed of

execution is only one of a host of objectives that are commonly known as best practices. In 1995, the FXC identified the need for a check-list of these best practices that could “aid industry leaders as they develop internal guidelines and procedures to foster improvement in the quality of risk management”. Observing those best practices, added the FXC at the time, would also help to reduce risk across the FX industry as a whole and to keep operational costs down. In November 2004 the FXC published a list of 60 best practices in the management of operational risk in FX, subdivided into pre-trade preparation, trade capture, confirmation, netting, settlement, nostro reconciliation and accounting/financial control processes.

The FXC is by no means the only organization that has channelled considerable resources into defining and promoting best practice in the FX market in recent years. In the UK, the Bank of England’s Foreign Exchange Standing Committee (FX JSC) and the Financial Services Authority (FSA) have also made key contributions to the industry’s pursuit of a code of practice designed to minimize risks and maximize efficiencies in today’s FX market.

At a European Union (EU) level, meanwhile, the Markets in Financial Instruments Directive (MiFID), which is due to come into force at the start of November 2007, is recognized as one of the most extensive and significant of the European Commission’s financial services directives. MiFID, which replaced the EU’s Investment Services Directive (ISD), requires companies to implement – and to provide demonstrable evidence of – best execution for their clients in terms of price, venue, speed and cost across a broad range of financial instruments. Although few of the principles championed by MiFID apply directly to the FX market, their indirect long-term impact is likely to be significant. After all, much of what MiFID insists on represents no more than sound, strategic common sense as it aims to establish and maintain high standards of service and integrity across the board – standards which every bank with demanding customers and shareholders should be constantly striving to achieve, MiFID or no MiFID.

Electronic trading and best practice

Intuitively, electronic trading platforms represent the financial industry’s optimum response to calls for the highest standards of integrity and transparency in the trading of a wide spectrum of asset classes, ranging from equities to fixed income, derivatives and foreign exchange. Witness, for example, the clarity and comprehensiveness of the

audit trail that is created by a platform such as FXall after the completion of each and every trade. With FXall, post-trade amendments are processed in the most secure environment imaginable – with every action time, date and username stamped, with only authorized users having access to this functionality. Additionally, the full audit trail can be monitored by compliance staff in real-time.

That represents a very distant cry from the voice-based systems of the past and their dependence for verification on tape recordings. As Phil Weisberg, FXall's CEO, comments, "there is a recognition in the industry that automation is the key to meeting industry best practice standards, and our volumes growth is a reflection of that fact. It's fair to say that our functionality now appeals as much to compliance officers as to traders. Throughout forex trading organizations, participants are tightening their internal controls to ensure that they comply with local and international guidelines."

EUROMONEY

Preparing for MiFID: an update

Originally scheduled for introduction in April 2007, the start of November is now D-day for the implementation of the European Commission's Markets in Financial Instruments Directive (MiFID). This is aimed at:

- strengthening investor protection throughout the European Union (EU)
- improving the transparency and efficiency of European financial markets
- allowing investment firms to provide services across all member states based on the authorization of their home jurisdiction – the so-called 'EU passport' scheme

Pivotal to the objectives of MiFID is Article 21, which requires firms to “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 relevant considerations.”

Article 21, explains a briefing published by the law firm, Freshfields Buckhaus Deringer, “also requires a firm to establish and implement an order execution policy to enable the best possible result for client orders. The policy must include information on different execution venues and the factors affecting the firm's choice of venue.”

General consensus among market analysts is that MiFID represents a very important landmark for the global financial services industry. Possibly erring on the side of hyperbole, Celent, for example, has described MiFID as “the most far reaching reform of any major financial market ever undertaken.” In an assessment entitled 'Capturing Value from MiFID,' meanwhile, KPMG and the Economist Intelligence Unit (EIU) advise that “of all the changes brought about by FSAP [Financial Services Action Plan] directives, it is arguably MiFID that will have the greatest impact.”

In spite of these assessments, it seems that the European financial services industry is woefully under-prepared for the arrival of MiFID. As the KPMG/EIU report comments, “worryingly, only 29% of respondents said that they have assigned a project manager to oversee their organizations' implementation of MiFID. Naturally, this raises concerns about the readiness of firms to implement MiFID. Of even greater importance is the number of organizations which have not yet put MiFID firmly on the Board agenda. Thirty-five percent saw senior management lack of awareness as one of the biggest threats to their business being ready for MiFID.”

A more recent survey, published in March 2007 by the business software company, Handysoft, found that almost one-third of UK-based financial institutions are not expected to

meet the compliance deadline at the start of November. EU-wide, that share rises to almost two-thirds. The same survey discovered that almost half of UK firms have no dedicated MiFID compliance officer overseeing the transition to the new regime.

Anecdotally at least, this apparent level of under-preparation appears to extend to banks active in the foreign exchange market. When *Euromoney* contacted a handful of leading London-based European banks, in April, requesting interviews with FX chiefs about their preparation for MiFID, the response (if any) was generally that they would be unable to comment “at this stage”.

The messages that have been transmitted to banks in Europe regarding MiFID and its implications may not have always been entirely clear. “Regulators have a tough challenge,” was one of the conclusions reached by KPMG and the EIU in its survey. “The survey suggests that the regulators have had difficulty communicating effectively with their constituencies on MiFID,” the report comments. “Part of the problem is that the regulators face several specific challenges in writing national rules or guidelines; completing their own internal MiFID projects; coping with the uncertainties and deferrals; and the overload caused by other major pieces of legislation. Whatever the reasons, these difficulties may have contributed to low awareness of the strategic and risk management implications of MiFID among senior management in the survey. A proactive stance by regulators in the coming months will be vital.”

The good news is that MiFID has considerably less impact on the FX markets than it does on the equities market (which has been the main focus of MiFID) and the fixed income space. Indeed, in the early commentaries about MiFID it was unclear whether FX markets would even be subject to the directive’s requirements at all. Today, it is clear that the basic products trading in the FX market – spot, forwards, NDFs and vanilla options – are generally exempt from MiFID. However, there are circumstances where any FX product will fall under MiFID, therefore no bank active in the FX market can afford to overlook the implications of its introduction in November.

The UK’s regulatory authorities appear to have been ahead of most other regulators in formulating and communicating a MiFID policy. “There is still a lot of uncertainty about how MiFID is going to be implemented,” says David Clark, chairman of the Wholesale Market Brokers Association (WMBA) and honorary president of the ACI (the Financial Markets Association). “But I think it is quite a compliment to the Bank of England, the FSA and the Treasury that right from the word go they worked to ensure that the professionals’ basic spot and forward markets would effectively not fall within the scope of MiFID.”

That, says Clark, is the easy part – or the good news – as far as the FX market and MiFID is concerned. Far more awkward, he says, is the thorny issue of the provision of so-called ancillary services, where an FX product is explicitly attached to an underlying investment product. “A classic example would be if you had a Japanese institutional investor such as an insurance company buying a basket of European government bonds, and you sold that investor a yen-euro option in order to hedge out the currency risk associated with the trade,” Clark explains. “The option would then be an ancillary service, and what has not yet become clear is whether or not dealers owe best execution on an ancillary service. At the moment it looks as though they will.”



*David Clark,
WMBA*

However, it should be noted that there are common examples where trades are not explicitly linked and therefore fall outside of the scope of MiFID. An example of this is where an asset manager buys a foreign equity or bond and then funds the trade using an FX spot or forward transaction. The FX in this case is not considered an ancillary service and therefore is exempt from MiFID requirements as long as the asset manager has been classified by his provider as an eligible counterparty. Today most asset managers are committed to best execution and have the tools in place to ensure they are doing their best for investors; even if the FX falls outside of the scope of MiFID.

In most instances, says Clark, complying with MiFID requires counterparties to demonstrate best execution on transactions within the scope of MiFID. In the earlier example with a liquid currency cross such as euro-yen, this will not pose too much of a headache for banks, which could provide a simple breakdown and recording of the component transaction costs. Much less straightforward, says Clark, would be proving best execution on a transaction involving an illiquid emerging-market currency. “Imagine if you were selling, say, a Philippine peso bond which you wanted to overlay with an OTC Philippine peso derivative,” he says. “Trying to demonstrate and record best execution in that instance would be very difficult indeed.”

That view appears to be supported by the Freshfields briefing, which advises that “away from the equity markets, where data are widely available, firms are likely to find it more difficult and time consuming to obtain the information needed to determine a best

execution policy for fixed income and OTC derivative markets where it will be less easy to identify execution venues, there are fewer benchmarks and there is less transparency more generally.”

What’s an eligible counterparty?

There are other complications for the FX industry arising from MiFID. One of these revolves around the fundamental definition of an ‘eligible counterparty’. In the FX market, says Clark, it has generally been assumed that participants in the FX space are regarded as eligible counterparts rather than the retail clients to whom best execution is owed under the terms of MiFID. Some have argued that since eligible counterparts are receivers of investment services, they should be subject to MiFID provisions on all transactions. Clark believes, however, that in the quote-driven interbank FX market the most sensible approach would be to regard market participants as professional counterparts which should not be governed by MiFID rules. The rules are clearly designed to protect less-sophisticated and more vulnerable buyers of financial services. This is because in a market based on a quote-driven system, market participants quote two-way prices without having any firm indication of whether or not their customer intends to deal (either as a buyer or a seller) – suggesting that the provision of prices in a quote-driven system with professional counterparties represent, by definition, best execution.

That argument is one that appears to have been supported by Hector Sants, managing director of the Wholesale Markets Division of the UK’s FSA. Speaking at the MiFID Trade Tech Conference in November 2006, Sants said that “we have taken the view that it does not make sense to require a dealing firm to deliver best execution on a quote-driven transaction if the customer is relying on its own due diligence in deciding to buy or sell a financial product. On the other hand, if a customer, such as a portfolio manager, indicates it wants best execution and the dealing firm is willing to provide it, MiFID’s best execution requirements will apply. In short, dealing firms are not required to provide best execution but they may elect to do so either generally or when a customer requests it.”

“We said this approach will be possible in both retail and dealer markets on the basis that the customer decides for itself where, and with whom, it wants to deal – resulting from its own selection of available products and prices,” Sants added. “In such cases, the dealing firm responding to the customer’s acceptance of the quote is not ‘executing orders’ as such. In sum, we have come to the conclusion that MiFID does not require firms operating in quote-driven markets to provide best execution. However, firms can agree to provide best execution on quote-driven transactions if they wish to do so. Firms that provide quotes to customers without providing best execution must make their customers fully aware of this and any related consequences.”

That interpretation, Sants acknowledged, is not one that is free of controversy. Although sell-side firms are, unsurprisingly, quite happy to accept this approach as one that preserves current OTC market practices, some sections of the buy-side community might be less comfortable with it. “More specifically,” says Sants, “the buy side is worried that this analysis will allow sell-side firms to treat them as ‘non-clients’ and as a result, they will not benefit from certain client-facing protections in MiFID, including conflicts of interest and client money protections.” Some believe, however, that these concerns are more likely to be harboured by participants in the bond and OTC derivatives market, rather than by players in the FX interbank market.

A final complication for the FX market linked to MiFID, says Clark, arises from its relationship with Pillar II of the Basel II Accord, which relates to the governance and supervision of financial institutions. “Although it is not explicit,” says Clark, “there is an implicit understanding that financial institutions will be expected to demonstrate to their supervisors how they are handling all the various risk issues that might arise as from Pillar II of Basel II, including non-compliance with MiFID. I think that is an issue, but one that may have been overlooked.”

On the face of it, with MiFID coming into effect at the start of November, firms that have been slow to implement a clear MiFID policy are running out of time quickly. “People in the London market are concerned that MiFID is not going to be implemented across Europe at the same time, which will lead to questions about there being a level playing field after 1 November,” says Clark. He believes, however, that the FSA will be alive to that risk and respond by adopting a light-touch approach to enforcement of MiFID standards in the period immediately after the start of November.

Others agree. At Celent in Paris, Pierron says that he expects equity markets to be used as a sort of testing ground for MiFID in the early stages of its implementation. “I think banks will assess how their customers respond to how MiFID works in terms of best execution in the equity markets and then they will start to apply it to other asset classes such as bonds and FX,” says Pierron.

There is, however, a much more fundamental reason for banks to look carefully at the broader ramifications of MiFID. Axel Pierron says that many of the banks he is talking to are recognizing that the application of some of the principles enshrined in MiFID (most notably those on best execution) may be a competitive advantage. “Even some of the Swiss banks, which would not be directly impacted by MiFID, are realizing that MiFID’s best execution guidelines may become a standard for the market that their customers demand,” says Pierron. “In other words, they are recognizing that this is not necessarily

about regulation; it's about quality of service. I'm not surprised that banks aren't talking publicly about their FX strategies in light of MiFID, but that does not necessarily mean they are overlooking MiFID. Although it may not be at the top of their agenda from a compliance perspective, that doesn't mean they are not looking at its impact on their operational activities in areas like prime brokerage."

Electronic trading and best practice: who, what, when, where and how?

How can electronic trading platforms help to support the principle of best execution? Clearly, by definition, much of a trading platform's *raison d'être* is based on the promotion of transparency and on the maximization of the information available on every trade, which in turn is an important part of the concept of best practices. Controlling operational risk, says FXall's 2004 White Paper on Best Practices, "means knowing exactly the who, what, when, where and how details regarding any individual transaction."

One way in which that transparency is enhanced in the FX market is through visible benchmark fixings – independently published, fully auditable FX rates designed to provide an accurate and consensus-driven reflection of the market at a given time. With benchmark fixings from entities such as the Bank of England published on a regular and transparent basis, they allow market participants such as institutional investors and corporate treasurers to demonstrate that they have achieved the most competitive rate possible at the time of execution.

In February 2007, FXall announced the addition of benchmark fixings to its advanced portfolio trading tool, QuickOMS, allowing clients to submit orders for execution at any one of a range of industry-standard fixing services from Citi, HSBC and RBS, each of which have made their full benchmark fixing services available through FXall. Commenting on the initiative at the time, a number of FX heads emphasized the key role that benchmark fixings are now playing as a component of best execution for their clients. "We recognize there is a growing demand for this type of service," commented Alan Clarke, global head of e-FX at HSBC. "With independence of the pricing crucial to our clients, the data published in the HSBCfix is provided by WM/Reuters. This gives us and our clients a well established and respected independent source of foreign exchange rates, used widely by the fund management industry for portfolio valuations and performance measurement."

The transparency embedded in the benchmark fixing was also emphasized by Martin Spurr, head of integrated treasury solutions at RBS. "We understand the importance of transparent FX trading to every client sector and have been staggered by the rate of uptake of benchmark trading by our clients," he said. "We see that this growth will continue, particularly as regulatory pressures such as MiFID are set only to increase."

Non-deliverable forwards (NDFs): FX or investment product?

Amid the speculation over the impact that MiFID will have on the FX market, some of the liveliest (and often most confused) debate has focused on how non-deliverable forwards (NDFs) will be categorized under MiFID.

NDFs are an example of an innovative product that was developed in response to fast-growing investor demand for an asset class that was hampered by regulatory restrictions. The asset class in question was emerging market currencies in general, with particular focus on Asian currencies. According to the most recent triennial survey on FX market turnover published in 2004 by the Bank for International Settlements (BIS), between 2001 and 2004, trading volumes in the Chinese renminbi exploded by 530%. Among other Asian currencies, turnover rose by 283% in the Indonesian rupiah, by 129% in the New Taiwanese dollar and by 117% in the Korean won. Since the publication of those figures, trading in Asian currencies has continued to expand at a breathtaking speed; elsewhere in the emerging market universe, meanwhile, volumes have also been rising in regions such as Latin America, Eastern Europe and Africa.

In many emerging markets, however, the regulatory dampener for investors in the currency markets was traditionally the fact that overseas entities have been restricted from trading in the onshore forward market by exchange controls or Central Bank regulations. The response has been the development of the market for NDFs, which are technically contracts for difference (CFDs).

NDFs, which are traded over the counter (OTC), function like forward contracts for non-convertible currencies, allowing traders to hedge exposure to markets in which they are unable to trade directly in the underlying physical currency. Rather than delivering in the underlying pair of currencies, the contract is settled by making a net payment in a convertible currency, proportional to the difference between the agreed forward exchange rate and the subsequently realized spot fixing. This fixing is a standard market rate set on the fixing date, which in the case of most currencies is two days before the forward value date. The basis of the fixing varies from currency to currency, but can be either an official exchange rate set by the country's Central Bank or other authority, or an average of interbank prices displayed on Reuters at a specified time. "NDFs...are distinct from deliverable forwards in that [they] trade outside the direct jurisdiction of the authorities of the corresponding currencies and

their pricing need not be constrained by domestic interest rates,” explains a report on Asian NDFs published by the BIS.

Growth in the NDF market has exploded in recent years, with Asian currencies continuing to account for the lion’s share of activity. In the Korean won market, for example, of total daily trading volumes of around \$8 billion, it is estimated that as much as \$3.5 billion is now accounted for by the NDF market, compared with a little more than \$1 billion three years ago – suggesting an annual growth rate of around 20%.

Much of the rise in volumes in the NDF market in recent years has been driven by investors rather than end-users of the underlying currencies. According to a report published in May 2005 by the Federal Reserve Bank of New York, as much as 60% to 80% of NDF trading volume is now generated by so-called speculative activity, much of which is driven by the international hedge fund community. Increasingly, however, corporate treasurers have become comfortable with using the NDF market as a means of hedging their emerging market exposure.

Potential for electronic trading

The bulk of NDF trading is settled in dollars, although it is also possible to trade NDF currencies against other convertible currencies such as euros, sterling and yen. Unlike the spot market, where a growing share has been accounted for by online trading, no more than a tiny proportion of NDFs are traded electronically. In part this is because modest volumes have militated against large-scale investment in automation, and in part because it is a by-product of the complexity of the instrument, which would be more challenging to trade online than the more commoditized plain vanilla FX market.

Much of the necessary infrastructure for the electronic trading of NDFs is already in place, however. Many banks already have electronic NDF pricing capabilities, and in recent months several banks and online trading platforms have introduced support for NDF trading and confirmations. FXall, for its part, has been at the forefront of this process by supporting execution and trade processing for NDFs, from agreeing the NDF fixing date through to confirmation. Liquidity providers, meanwhile, can price the trades using either their rate engines or FXall’s manual pricing tool, Treasury Center.

Online trading may claim a larger share of the NDF market following a series of recent initiatives aimed at standardizing documentation and market practices in the sector. Those initiatives were spearheaded in the late 1990s by the Trade Association for Emerging Markets (the EMTA, which was formerly the LDC Debt Traders Association)

non-deliverable forwards (NDFs)

alongside the International Swaps and Derivatives Association (ISDA) and the Foreign Exchange Committee (FXC). The process of standardization began soon after the Asian currency crisis, with the 1998 FX and Currency Options Definitions including an annex outlining a basic definitional architecture for NDFs.

The most recent landmark in the evolution of standardization in the NDF market, however, came in December 2006 with the introduction by the FXC and the Bank of England's Foreign Exchange Standing Committee (FX JSC) of a master confirmation agreement for NDF transactions.

While the advent of this standardization has been one very positive recent development for the NDF market, another – market participants hope – has been the general agreement that appears to be taking shape dictating that for the purposes of MiFID, NDFs are to be regarded as an FX rather than as an investment product. The fact that legal advisers have counselled that NDFs ought not to be classified as investment products is important, given that it means that market participants will not need to prove best execution on these instruments. To have been forced to do so would have been a potential minefield given the relative illiquidity of some of the currencies underlying the NDF market.

the rise and rise of algorithmic trading and its implications for best practice implementation

Algorithm, n: 1. A logical arithmetical or computational procedure that if correctly applied ensures the solution of a problem.

Algorithmic trading or ‘autodealing’ has become an increasingly popular and well understood trading mechanism across a broad range of asset classes and financial instruments in recent years. According to the Foreign Exchange Committee (FXC), “autodealing refers to algorithmic trading models that employ electronic price feeds to generate dealable prices and transact based on dealable prices. Autodealing has come about as the result of a variety of developments in the foreign exchange market place and has itself further transformed the functioning of the...market.”

It is in the equity markets that the increase in algorithmic-based trading strategies has been most striking in recent years. The Deutsche Börse, for instance, has estimated that some 40% of equity turnover in Germany is accounted for by algorithmic traders, while on Nasdaq in the US over half of trading is now algorithmic-driven. In the UK, meanwhile, the London Stock Exchange (LSE) is developing a new system that will reduce the time between deal requests and execution from 30 to two milliseconds, which is expected to lead to an increase in algorithmic-driven trading.

Many see algorithmic trading as increasing in importance in the FX market. There are some reports that up to 30% of volume trading over ECNs is algorithmic activity. As of the end of 2006, algorithmic traders accounted for about 20% of total volumes traded on FXall, and that share is expected to increase in 2007 following the roll-out of new systems such as Accelor.

Algorithmic strategies

In its report on the development of algorithmic trading or autodealing, the FXC lists a variety of new types of automated trading activity that have become increasingly popular among professional market participants in recent years. Heading the list is computerized proprietary mathematical models that trade for profit by reacting to patterns in FX market prices or in FX relative to other asset classes. Others include:

- models that identify arbitrage between available prices on an individual platform or between platforms

- automated risk-management models that cover risk positions assumed from customers
- risk-taking models that respond quickly to events that can be monitored electronically (such as data releases) and execute orders across multiple systems
- price aggregation on trading platforms where a single commingled price is posted at any time

The consequences of the algorithmic revolution have been profound, according to the FXC. One is that algorithmic trading has accelerated processes across the entire market. “When new information is introduced to the market, the market reacts more quickly than was possible before the advent of autodealing,” the FXC comments. “Autodealing market participants are interconnected via systems with minimal human intervention. This connectivity can bring temporary challenges to manual dealers trying to access liquidity in competition with computer programs, particularly in the moments following the release of new information.” Additionally, says the FXC report, “prices are quoted and cancelled far more frequently in the automated environment than they were in the previous environment that permitted only manual dealing.” In terms of market efficiency, meanwhile, “increased price transparency and secondary market access to additional pools of automated liquidity have reduced bid-offer spreads.” While margins may have declined, this has been offset by an increase in volume which has been helped by the rise in the volume of algorithmic trading.

But the arrival and apparently inexorable expansion of algorithmic trading also poses a number of questions and challenges for the FX world. It has increased concerns over the dangers of latency (see pages 22–23), while as the FXC notes, “some market participants have expressed concerns about autodealing stratagems that appear designed to artificially influence prices. Such schemes may raise reputational issues for the market and for those who provide access to the market.”

Given the growing complexity and efficiency of the trading models that are becoming increasingly influential in the FX world, how can market participants ensure that their risk management and technology systems are adequately equipped to compete in the age of the algorithm? And from the perspective of best practice, how can algorithmic traders make certain that they have access to the best liquidity that will allow them to maximize the number of trading strategies they are able to implement in a timely, cost-effective and efficient manner? At a broad market level, the FXC advises that in light of the changes brought about by algorithmic trading, “market participants should review their policies and procedures to ensure that they address the risks arising in the current market environment.”

The dangers of latency

Latency is – or should be – a strong candidate as public enemy number one for algorithmic traders in the FX market. In simplified terms, latency is a measure of delay, and refers to the time it takes to complete any given transaction in the FX space. More specifically, latency describes the time that passes between a price quotation being made and a transaction being confirmed.

“Latency can occur within a bank’s infrastructure, at a broker or ECN, within the network used to access the client, or within the client’s infrastructure,” warns the FXC’s analysis of the impact of algorithmic trading on the FX market. “Latency may vary depending on the channel through which the bank accesses the client. Banks must be able to measure and monitor the relative latencies in their provision of pricing to clients across various channels and have adequate systems in place to manage their risks.”

Latency can be a consequence of a wide range of technological shortcomings. Inadequate network performance, for example, can lead to communication latency, or the time needed to effect a communication between two network nodes. Inadequate server processing power, meanwhile, can lead to so-called application latency, or a delay arising because the reply requires a large amount of processing before it can be sent – analogous to the congestion caused by a rush-hour on everyday traffic in a busy city. A third shortcoming, inadequate computer processing power, can prompt

Key considerations for algorithmic traders

- **Speed of execution**

One prerequisite is to ensure that trading platforms are up to speed in a number of ways – literally. That calls for a thorough understanding of the technical architecture of the platform, and for an understanding of the absolute speed at which it functions and of the efficiency and location of its servers. As the FXC report notes, algorithmic trading has “heightened the sensitivity of market participants to the performance of their technologies and the capacity of their infrastructures.”

Pivotal to algorithmic trading is the speed with which programs are automated to execute trading strategies. In a simple example, a hedge fund’s trading system is programmed to monitor a particular currency pair. If the price hits a predetermined threshold, even for the

memory latency, or the time needed to write or access data in memory within a computer program in order, for example, to run a credit check on a client.

Addressing the hazards of latency and accommodating the increasingly exacting demands of algorithmic traders and other players in the FX market underpinned the development of Accelor, FXall's next-generation FX ECN for all professional market participants. Accelor sets a new standard in FX trading, combining anonymous ECN functionality with advanced technical architecture and comprehensive market data to meet the needs of the most demanding professional FX traders. More specifically, Accelor supports a variety of trading styles and execution types. Its high speed matching engine has been designed to minimize latency, with orders acknowledged within 3 milliseconds and filled within 20. Orders are processed according to transparent business rules, ensuring equal access for all market participants. This is backed up by the most comprehensive market data available – including full depth of book rather than just top of the book, completed trade information and historical data – enabling users to make more informed trading decisions.

Hamish McLoughlin, global head of FX at Rabobank, spoke for a number of market participants at the launch of the new ECN, saying that “Accelor addresses a real demand in the market for an ECN that delivers extremely low latency combined with deep liquidity and comprehensive market data.”

tinest fraction of a second, a program will automatically kick in to execute a buy or a sell order, with the trading engine transmitting trade messages (generally using the FIX protocol) to one or more automated trading platforms to fill the trade requirement. That trade can then be repeated in the same or the opposite direction. This is why time in the algorithmic trader's world is measured not in seconds but in milliseconds (one millisecond is one thousandth of a second).

- **Platform rules**

A second important consideration for traders competing in the algorithmic age is to understand the rules associated with the platforms on which they trade, which can be loosely sub-divided into two types. The first of these are the publicly disclosed rules



*Neil Penney,
FXall*

or protocols which can and do vary from platform to platform, meaning that it is important for market participants to study the small print before trading. An example of these would be the rules that apply in the event of a dispute, and the procedure that is observed to settle a disagreement. These rules will seldom generate difficulties for market participants as long as they are fully disclosed to all users of the platform on a transparent basis.

Far more troublesome for traders on FX platforms are rules that are not so transparent and can favour some market participants over others – for example, the prioritization of orders. Another would be the mark-ups that are applied to prices quoted by some liquidity providers but not by others. And a third would be instances in

which certain counterparties are blocked from trading from one another – without either party necessarily having been informed. Clearly, if an algorithmic trading program (or indeed any other trading program) is going to be prevented from participating as a result of any of these rules, it is essential that rather than being hidden, all these rules are clearly identified.

Neill Penney, global head of Product Strategy at FXall in London, says that the dangers associated with these hidden rules should not be underestimated. “Active trading in FX has expanded very rapidly in recent years,” he says. “If you think about where we’ve come from, back in 2000 and 2001 the market worked in terms of buy side and sell side. This is the starting point from which ECNs for the buy side evolved and in some ECNs today there are still some instances of this old world.”

It was that recognition, says Penney, that has led FXall to promote the transparency of its rule-book. “When we talked to market participants about setting up our new platform they

emphasized that we should start afresh, and design a platform which offers a totally level playing field for all participants.”

- **Type of liquidity**

A third key priority for market participants evaluating trading platforms is to understand the nature of the liquidity attracted by those programs. Liquidity is always an essential component for the implementation of algorithmic trading strategies, but the structure of that liquidity can also be of paramount importance. For example, if liquidity is chiefly generated by opportunistic trading strategies, it is vulnerable to extreme volatility and can dry up very rapidly in response to external events. If, conversely, a system owes its volume principally to diverse or so-called natural interest liquidity arising, say, from real money interests from regional banks or asset managers, that liquidity is likely to be deeper, more stable and more reliable.

- **Market data**

For algorithmic traders, it almost goes without saying that another essential requirement is a comprehensive flow of market data. That does not just mean being provided with standard top-of-the-book information. It means being given access to the entire book in real time. “As in other asset classes, market data in FX trading is becoming as important as trading itself. Therefore its quality, speed of delivery and how often it updates are essential” says David Woolcock, senior director at FXall.

As a consequence, it is imperative that this information is provided in a complete format and updated whenever there is a change in market conditions in real time – not in accordance with a predetermined schedule, whereby data is updated, say, every 500 milliseconds.



*David
Woolcock,
FXall*

FXall – a one-stop solution

a one-stop solution for best practice across your FX operations

FXall provides institutional clients across the foreign exchange markets with the tools they need to achieve best practice. Our services encompass the full deal lifecycle, from ensuring best execution to streamlining settlements and confirmations. The table below illustrates how FXall can help you achieve best practice across your foreign exchange operations.

Best practice requirement	FXall solution
Trading	
Ability to source the best available price is a key factor in achieving best execution.	FXall delivers deep liquidity from more than 60 market sources, making it easy to access a competitive price regardless of trade size or market conditions.
Internal netting of trade requirements can help firms save money and avoid paying the bid/offer spread.	QuickOMS, FXall's advanced portfolio trading tool, can be adapted to create tailor-made internal dealing solutions that match the workflow requirements of any customer – for example, an equity dealer entering an order with an internal FX trading desk, or a regional treasury requesting a price from head office.
Post-trade	
Timely, automated confirmations speed up trade processing and reduce operational risk.	Settlement Center, FXall's post-trade processing platform, automates the exchange of confirmation messages between counterparties, reducing processing times and operational risk.

Best practice requirement	FXall solution
<p>Timely settlement instructions, ideally using an embedded SSI database, facilitate prompt settlement and enhance STP.</p>	<p>Settlement Center includes a comprehensive and accurate SSI database. The appropriate instructions from the database are automatically attached to each outgoing payment message.</p>
<p>Timely exchange of prime brokerage messages via electronic links makes the give-up process faster and more efficient.</p>	<p>Settlement Center's prime brokerage package leverages FXall's network of more than 60 banks and prime brokers to automate give-up messages on all FX transactions.</p>
<p>Real-time STP between the client's in-house system and trading platform enables trade details to be uploaded and downloaded automatically, reducing risk, eliminating manual re-keying and boosting efficiency.</p>	<p>QuickConnect, FXall's STP solution, automates workflow between FXall and in-house systems, including seamless upload and download of trade details. FXall can integrate to any treasury or portfolio management system, whether proprietary or third-party.</p>
<p>Settlement via CLS – settlement via CLS can make a valuable contribution to risk management.</p>	<p>Through Settlement Center, FXall enables you to send automated real-time notifications to your CLS settlement members and participants.</p>
Trade auditing and analysis	
<p>Full electronic trade audit trails make it easier to track best execution.</p>	<p>FXall generates complete electronic audit trails for every trade, facilitating compliance with regulations such as Sarbanes Oxley, MiFID etc, and making it easier to prove best execution.</p>

FXall – a one-stop solution

Best practice requirement

Comprehensive post-trade analysis is an essential part of tracking execution quality and documenting best execution for clients.

FXall solution

Market Insight, FXall's research and market data portal, includes comprehensive reporting functionality to prove best execution. Customers can benchmark the price achieved against other rates available in the market for their trade size at the time the deal was executed, or track counterparty performance over time to monitor which providers are delivering best execution.

Internal controls

Separation of duties – companies are increasingly tightening internal controls by implementing maker-checker rules, so that the person who builds the trade requires another to approve and/or execute it.

FXall offers full support for role-based permissioning at every stage of the trade lifecycle. QuickOMS enables users to achieve the most stringent levels of internal control by splitting the trading function into three separate roles – order builder, order approver, and order executor. We also use unique user IDs to enforce segregation of duties between front and back office. Each ID may be enabled only for FXall Trading or Settlement Center, so one person cannot perform both functions.

Control testing – Current legislation including Sarbanes Oxley, MiFID etc, means that market participants now need to document and test controls regularly.

As well as documenting our internal controls, we also make it easier for you to document yours. FXall transforms a series of manual steps into a single, seamless process, making it easier to test and monitor key control points.

Choosing a vendor with an SAS-70 report gives you confidence that you are in safe hands and helps with more favourable treatment from auditors. The SEC has stated that a SAS-70 report is an acceptable method of documenting your external controls – so you don't need to undertake a separate audit of the provider organization.

FXall has received an American Institute of Certified Public Accountant's SAS-70 report, an in-depth audit of our controls. We are also regulated by the FSA.

FXall – a trusted partner

Industry bodies like the FXC and Bank of England's Joint Standing Committee make it clear that electronic trading and post-trade tools are key to achieving best practice. Therefore, selecting the right trading platform is essential. At FXall, we are committed to maintaining the highest standards of best practice, combined with the deep liquidity and comprehensive service our customers have come to expect.

What makes a trusted trading platform?	FXall delivers
Consistently deep liquidity and competitive pricing – according to Greenwich, tight prices are the number one reason clients choose or stay with a trading platform.	Deep liquidity from more than 60 market sources ensures consistently competitive pricing.
Speed of quoting – identified by Greenwich as the second most important criterion.	Fast pricing and sub-second transaction times through high-speed API and FIX connections.
Straight-through processing – the third most important factor, according to Greenwich Associates.	Seamless integration between your systems and FXall, and between FXall Trading and Settlement Center, delivers straight-through processing for the entire transaction lifecycle.
Comprehensive service – it is important to select a platform that meets all your trading, workflow and post-trade requirements.	The most extensive range of trading, workflow and post-trade tools, meeting the requirements of asset managers, banks, broker-dealers, corporations, hedge funds and CTAs.
Control and compliance features – look for a platform that makes it easier for you to achieve best practice.	An unparalleled range of tools to help clients enhance internal controls, including support for maker-checker rules.
Rigorous internal controls – ideally verified by an independent auditor.	The highest standards of internal control – FXall is regulated by the FSA and has received an SAS-70 report which provides a rigorous independent assessment of our controls.
Robust business continuity plan – Greenwich Associates has found clients look for stable technology and disaster recovery planning when choosing a platform.	Duplicate data centers in secure locations can be managed remotely to ensure continuity of business in all situations.

Barclays Capital

Barclays Capital provides FX execution and risk management services for the clients of the Barclays Group around the globe. Our principal product components are spot, forwards (out to two years), vanilla and exotic options. Our execution capacity is enhanced by the delivery of an award-winning e-commerce platform, BARX.

We service our clients through the London, New York, and Tokyo time-zone hubs, with regional sales teams located in Paris, Frankfurt, Dubai, and Singapore.

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For 30 years the independent ECR analysts and economists have focused on mid term interest rates and currency developments in the G-10 economies, providing a clear insight into how the global economies and markets interrelate and affect each other. More than 3,500 professionals of reputable companies and financial institutions throughout the world read the ECR reports and appreciate the unbiased and thought-provoking comments.

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Eurobase Banking Solutions provides world class e-trading software to financial institutions. The Siena e-Trading Solution delivers a market leading, near zero latency, browser-based e-trading execution platform. Siena also provides an out-of-the-box connectivity application to give banks access to multiple ECNs, including FXall. With Siena e-Trading Solutions you will deliver the right price, at the right time. Every time.

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At Société Générale Corporate & Investment Banking, success is achieved by offering our clients a recognized pricer, tailor-made solutions, excellent service and highly competitive market prices. Our strong performance using the most advanced technology has made us one of the fastest and reliable players in e-trading.

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FXall is a leading online FX trading platform, which offers trading, order management, post-trade and reporting services to their clients; corporations, asset managers, hedge funds, banks and broker-dealers for FX and money markets. It is integrated to more than 60 leading FX banks, delivering deep liquidity for FX spot, swaps, forwards and NDFs in more than 300 currency pairs.

In February 2007 FXall launched Accelor, the next-generation foreign exchange ECN for FX professional traders.

FXall has won many major industry awards including 'Number 1 Multibank Portal' in the Euromoney 2007 FX Poll.

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