



# Perpetual Evolution

**The development of Europe's Trading, Clearing and Settlement Landscape**





# INTRODUCTION

Europe's financial industry has been in a state of almost perpetual evolution during the past five years. Across the entire trading lifecycle, regulatory and cost pressures are causing seismic shifts in the industry - new players are entering the market, traditional approaches to business are being cast aside and a wealth of opportunities are opening up for those organisations that can react with agility and speed to tap the potential.



**Satvinder Singh**  
Direct Custody and Clearing Business  
Head, Global Transaction Services  
EMEA, Citi

The past year has been one of great turmoil for the financial industry; the sub-prime mortgage crisis, the credit crunch and global economic downturn have rocked the financial world. At the same time, the industry has been wrestling with issues whose origin is much further back than the past 12 months; as far back in fact as 1992 when the European Union was formed and the forces of European financial market integration were set in motion.

To understand what is happening today, and what may happen tomorrow, Citi Global Transaction Services has sought the views of a wide range of our clients to produce this whitepaper that provides a unique, collaborative perspective from representatives of market infrastructures, trading firms and Citi's executives on the changes Europe has seen and is likely to see in the trading, clearing and settlement environment.

The report studies three distinct periods:

- 2005-2008, when the foundation for change was built in Europe with the introduction of the Markets in Financial Instruments Directive, the Clearing and Settlement Code of Conduct and the publication of the Giovannini Reports;
- 2009-2010, which covers the current debates over the impact of MiFID and the financial crisis on business models; and
- 2011 and Beyond, which frames the likely outcomes of initiatives including CCP interoperability and Target2-Securities.

To help its clients navigate the changes taking place in Europe, Citi is focussed on providing strategic sessions and discussions through its Securities Leadership Forums. At these events, clients can gain an insight into the implications of the various initiatives under way in Europe and how Citi can help. As our clients develop their European strategies and reassess their business models, Citi can draw on its extensive experience and knowledge in countries across Europe and the world to consult with our clients on the way forward.

Citi also understands the importance of regular dialogue with regulators and our representatives participate in a number of working groups and steering

committees in addition to meeting with regulators to discuss the issues that are of most concern to our clients.

At the product level, Citi has taken the lead in developing open architecture, which delivers flexibility and agility to our clients and standardised global platforms on which they can build their business. As this report shows, Citi has identified new opportunities as Europe changes, and we are very keen to work with clients and increase our relevance in this segment.

This publication along with the Securities Leadership Forum and the conversations we have with clients will provide the framework for how we will add value to the debate over how the European trading, clearing and settlement landscape will evolve.

I would like to thank those who participated in this project for their input and the thought they have given to what are very weighty matters. They are not alone in tackling the issues European financial market integration has raised - many of you reading this report will be dealing with the same issues and seeking the same answers.

I welcome comments on this report and on your experiences in the European trading, clearing and settlement landscape.



# CONTENTS

## SECTION 1 – The Foundation for Change in Europe, 2005-2008

---

Regulatory change as a catalyst for industry change.....	3
Infrastructure transformation.....	5
The effects of competition in trading.....	7
Changing business models.....	9
Case Study: A focus on the United Kingdom.....	12
Changing role of the agent bank.....	13

## SECTION 2 – The Current Debate, 2009-2010

---

Beyond regulatory change – private sector harmonisation efforts.....	17
Market response.....	20
Issues for market participants.....	21
How service providers are responding.....	25
Case Study: Citadel.....	28

## SECTION 3 – Where to From Here? 2011 and Beyond

---

The evolving European Landscape.....	31
Evolving business models.....	35
The role of custodians.....	37
Conclusion.....	39



# THE FOUNDATION FOR CHANGE IN EUROPE 2005-2008

When the Treaty on European Union (EU) was signed in the Dutch town of Maastricht in February 1992, it paved the way for more than a decade of fundamental change in Europe's financial markets. The Treaty created the European Union and led to the creation of the Euro. It provided the basis of the single market for financial services, outlined in the Financial Services Action Plan of 1999 - a set of measures intended by 2005 to fill gaps and remove the remaining barriers to a single market in financial services across the EU as a whole.

To integrate the financial services markets in Europe, barriers to cross-border trade and investment in wholesale markets had to be eliminated. A 'passporting' system, based on mutual recognition among Member States opened up the possibility for firms authorised to provide financial services in one jurisdiction to provide services in another without the need for further authorisation in those jurisdictions.

But with 27 Member States, the EU is a diverse region and integration has proved to be a significant task. A raft

of directives, legislation and initiatives all aimed at creating the conditions for a single financial market have been introduced in the past five years. The Markets in Financial Instruments Directive (MiFID), the Giovannini Group and the Code of Conduct on clearing and settlement have set in motion changes to infrastructures and business models in the trading, clearing and settlement environment of Europe.

# Regulatory change as a catalyst for industry change

---

“MiFID, the Giovannini Report and the Code of Conduct all have the common objective to implement a single market as part of the Financial Services Action Plan. But when you have 27 Member States, such a goal will take a long time to achieve – the bottom line is that there is still much to be done.”

**Diana Chan**, Chief Executive Officer, EuroCCP

## **The Markets in Financial Instruments Directive (MiFID)**

Introduced on 1 November 2007, MiFID aimed to increase competition and consumer protection in investment services across the EU. It replaced the previous Investment Services Directive, introducing a concept of ‘maximum harmonisation’, which placed more emphasis on home state supervision. The principles of the financial services passport were retained and concentration rules, which enabled Member States to require investment firms to route client orders through their regulated domestic markets, were discouraged. This opened up the trading environment to competition, which fundamentally transformed the nature of trading in Europe during this period.

MiFID also introduced the concept of best execution, requiring investment firms to obtain the best possible result in the execution of an order for a client. This covers execution

price, cost, speed, and likelihood of execution and of settlement.

## **The Code of Conduct on Clearing and Settlement**

The European Commission’s Code of Conduct on Clearing and Settlement was designed to improve transparency and increase competition in the post-trade sector. Trade and post-trade infrastructures signed the Code, which covers equities, on 7 November 2006. The Code was designed to pre-empt a Clearing and Settlement Directive.

The measures detailed in the Code address three main issues:

- Transparency of prices and services;
- Access and interoperability; and
- Unbundling of services and accounting separation.

Among the Code’s aims is to establish standard unilateral access between organisations and interoperability, “to enhance the ability of

organisations to interconnect and ultimately increase freedom of choice for market participants”.

Progress on the Code has not been as dramatic as that for MiFID – interoperability remains a problem (as will be discussed later) but some progress has been made on transparency.

## **The Giovannini Group**

Founded in 1996, the Giovannini Group is a group of financial market experts, under the chairmanship of Alberto Giovannini, Chief Executive Officer of Unifortune Asset Management, which advises the European Commission on financial market issues. It focuses on identifying inefficiencies in EU financial markets and proposing practical solutions to improve market integration.

The Group has produced two reports on cross-border clearing and settlement in the European Union, identifying barriers to efficiency and suggesting these be tackled via a

set of technical standards, market conventions, rules, regulations and laws that are consistent with a barrier-free environment for the provision of post-trading services. Responsibility for particular barriers was allocated to private or public sector organisations.

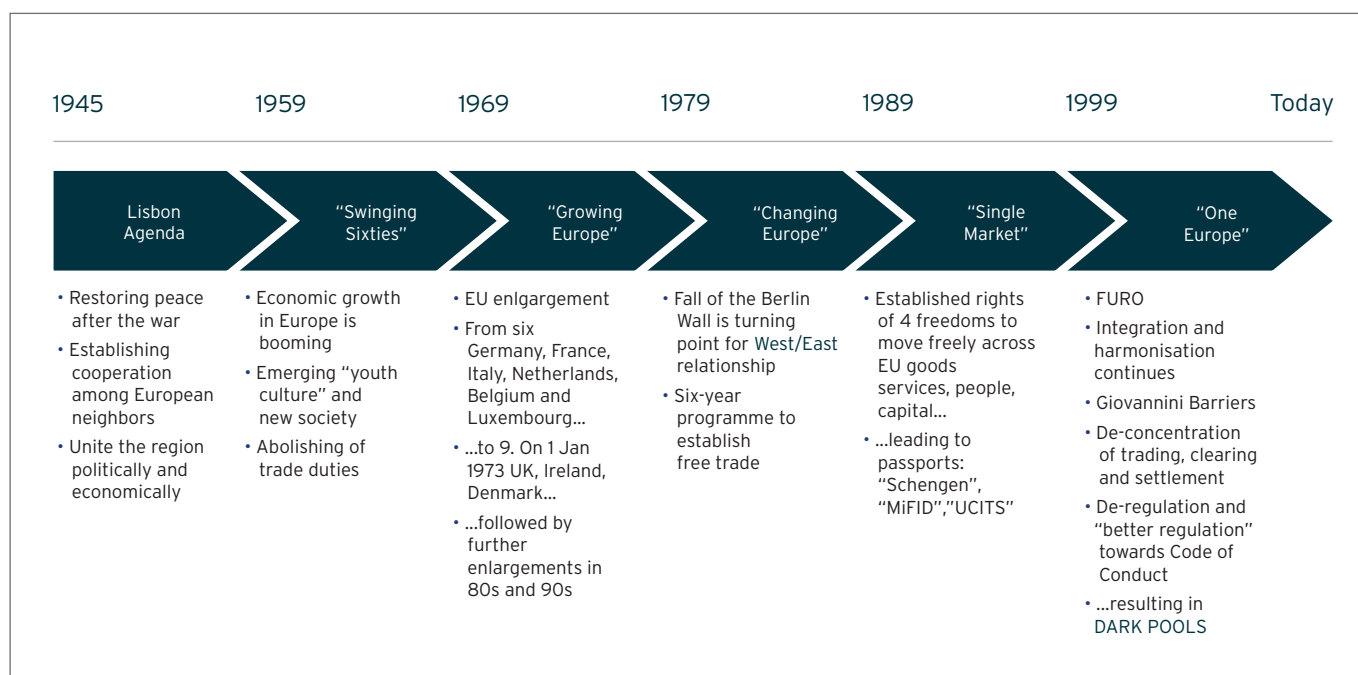
Of the above three initiatives, the market changes brought about by MiFID have been the most visible, opening up competition at the trading layer, which has resulted in lower trading fees as competitive forces in the shape of Multilateral Trading Facilities (MTFs) and Systematic

Internalisers flooded into the market. By 2008 there were four new MTFs in the UK market - Chi-X, Turquoise, Nasdaq OMX Europe and BATS Europe. Many more firms became Systematic Internalisers - executing orders from their clients against their own books or against orders from other clients.

On clearing and settlement, less progress was made. Interoperability between CCPs had not progressed very far by 2008 - only SIX x-clear had established interoperability with LCH.Clearnet for the London Stock Exchange and for SWX Europe (formerly

Tradepoint). In settlement, work was done on the Giovannini barriers, with SWIFT and the Securities Market Practice Group defining a standardised industry protocol for communication. This protocol was published by SWIFT on 3 April 2006 with a recommendation for mandatory implementation by all cross-border clearing and settlement players in the EU - institutions and market infrastructures - by the deadline of March 2011.

**Diagram 1**  
From Lisbon to Dark Pools



# Infrastructure transformation

---

“In Europe during this period there was one exchange per country. These incumbents were mutually owned and had the mentality of monopolies.”

**Charlotte Crosswell, President, Nasdaq OMX Europe**

## **The trading layer**

Among Europe's incumbent exchanges, responses to the EU integration initiatives were based on mergers or acquisitions in order to gain the scale and reach necessary to operate in an integrated market. In May 2006 NYSE Group, owner of the New York Stock Exchange, announced a €8 billion cash<sup>1</sup> and shares offer for Euronext, a pan-European stock exchange formed in September 2000 by the merger of the Amsterdam, Brussels and Paris stock exchanges. The result of the merger, NYSE Euronext, brought together six cash equities exchanges in five countries and six derivatives exchanges. Its markets provide for trading of cash equities, bonds, options, futures, equities and investment funds and there are also special trading segments for Warrants and Certificates and for a large and growing range of ETFs and ETNs.

Meanwhile, the London Stock Exchange was fighting off takeover bids from around Europe and beyond, beginning in December 2005 with a £1.6 billion<sup>2</sup>

approach by Macquarie Bank. The US exchange Nasdaq was next to make a bid, valuing the exchange at £2.4 billion.<sup>3</sup> After revising its offer several times, Nasdaq's bid collapsed in August 2007. In June of that year the LSE announced the acquisition of Milan's Borsa Italiana for €1.5 billion.<sup>4</sup>

In May 2007, Nasdaq agreed to buy OMX, which operated seven Nordic and Baltic stock exchanges, forming Nasdaq OMX Group. The combined group operates across six continents and has more than 3800 listed companies. In buying OMX, Nasdaq gained access to OMX's technology that covered trading, post-trade and information services.

The most obvious impact of MiFID has been the introduction of competition in trading. With the European trading space freed up, MTFs entered into the market with a lower cost offering that caught out incumbent exchanges.

Chi-X, the first of the new MTFs to make its debut in March 2007 (before MiFID came into effect) reported steady and accelerating

growth from day one. In August 2007, Chi-X made 310,460 trades for a total turnover of €4,779,307,831.<sup>5</sup> By the third quarter of 2008, the MTF recorded 26,343,244 trades – up 109% on the previous quarter for a total turnover of €246,269,871,971. By this time Chi-X was also reporting its market share – achieving 22.36% of the FTSE 100 index and 15.44% of the German DAX 30.<sup>6</sup> major market players not only placed liquidity on Chi-X, they were also taking it.

Turquoise, operated by a consortium of nine banks – BNP Paribas, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, Merrill Lynch, Morgan Stanley, Société Générale and UBS – went live in September 2008. Turquoise provides electronic execution services to buyers and sellers of pan-European equities across 15 markets. It has a unique trading model, integrating a dark pool and visible order book, taking advantage of crossing opportunities between the two.

Nasdaq OMX Europe also launched in September 2008, just six months after its parent group announced its intention to launch a MTF. Trading began in 25 FTSE 100 stocks, followed by a staggered roll-out of around 600 European securities.

BATS Europe went live on 31 October 2008, initially offering trading in ten securities, later rolling out securities listed on the London Stock Exchange,

NYSE Euronext and Xetra. In the US, BATS Exchange began trading in January 2006 and by November that year recorded more than 113 million shares traded, a 5.45% share of Nasdaq volume.<sup>7</sup>

"I believe the MTF revolution would have happened whether or not MiFID had come. The Directive made it easier to launch MTFs because it smoothed out the differences between countries and eliminated obstacles that had existed to pan-European platforms. But there were already commercial opportunities and significant motivations for starting MTFs in Europe."

**Eli Lederman**

Chief Executive Officer, Turquoise

"Prior to this period there was one exchange per country. These incumbents were mutually owned and had the mentality of monopolies. The MTFs threw that all into the air, operating faster and at lower cost. They were only running the trading side of the business, which you can do with a very small amount of staff – we have less than 25 people. "

**Charlotte Crosswell**

President, Nasdaq OMX Europe

"We could see friction points in the European landscape – incumbent exchanges were pseudo monopolies with high trading fees and had not upgraded technology. In the US, we started when many of the major ECNs were being acquired by the exchanges. Two of the things we felt should be done during that period were to introduce aggressive pricing and set a high bar for technology and related platform efficiency."

**Ken Conklin**

SVP and Global Head of Business Development and Marketing, BATS Europe

"MiFID sent out a very clear message, EU-wide, about the ability to transact anywhere. The original Investment Services Directive enabled national governments and regulators to enforce concentration rules, but MiFID omitted the conditions in which concentration could exist. "

**John Lowrey**

Chief Executive Officer, Chi-X Global

# The effects of competition in trading

MTFs have contributed dramatically to the structural changes seen in the European financial markets - they have driven down costs of trading substantially and forced the major exchanges to review their pricing policies.

During 2008 prices fell at a number of European exchanges, while NYSE Euronext and Deutsche Börse announced plans for MTF type trading platforms of their own. The LSE announced price cuts on 1 August,<sup>8</sup> which it said would create the lowest net fee and largest credit of any venue in Europe for clients that achieve upper bands for both liquidity provision and liquidity taking. (See UK case study on page 12) Later that month, Deutsche Börse announced it would cut fees for algorithmic traders under the ATP on Xetra, in which computers evaluate trading signals and place orders independently in the

system. Under the model the exchange removed the minimum fee of €0.60<sup>9</sup> for executed orders. It was replaced by an arrangement whereby transaction fees for all orders was based on the value of the executed order. Further, Deutsche Börse increased discount levels from seven to eight and rates per discount level increased from 7 to 7.5%.<sup>9</sup> As a result, the maximum discount rate on Xetra transaction fees increased from 49 to 60%.<sup>9</sup>

## The clearing and settlement layer

The major debate at the clearing and settlement level in Europe, before MiFID, was about horizontal versus vertical models. Under a horizontal model trading activity is separated from that of clearing and settlement, while under a vertical model, trading, clearing and settlement are integrated into one company, usually an exchange.

The debate was sparked in 2002 when Deutsche Börse acquired Cedel International, and with it, 50% of the shares in Clearstream International, the ICSD (Deutsche Börse owned the remaining 50%).

Critics claimed vertical integration would not lead to a harmonised, integrated European market and would also result in opaque markets with higher costs, where the cost of clearing and settlement would be cross-subsidised.

Euroclear, a Brussels-based ICSD was a champion of the horizontal model. Beginning in 2001, it became highly acquisitive and over the next seven years brought the UK and Ireland, Dutch, Belgian, French, Swedish and Finnish CSDs under its umbrella.

However, the new MTFs opted for new CCPs, confirming that the competition unleashed by MiFID was not restricted to the trading space.

“Clearstream’s merger with Deutsche Börse was a response to the integration agenda we expected in Europe over the coming decade, which proved to be the case. We saw the introduction of the Euro as an opportunity to start breaking down the national barriers in Europe.”

**Mark Gem, Head of Business Management and Member of the Board of Clearstream Banking Luxembourg**

Turquoise opted for EuroCCP, a subsidiary of the Depository Trust & Clearing Corporation. EuroCCP provides all clearing, settlement and risk management services to Turquoise. Citi's Global Transaction Services business serves as EuroCCP's settlement agent. This partnership recognised Citi's extensive pan-European securities network and its strong links with the European central securities depositories.

The other pan-European CCP entrant to the market at this time was European Multilateral Clearing Facility (EMCF). EMCF was originally a subsidiary of Fortis but passed into Dutch Government control as part of a rescue package of the bank in October 2008. In that month Nasdaq OMX Group acquired a 22% stake in EMCF. EMCF provides CCP services for BATS Europe, Chi-X Europe and Nasdaq OMX Europe. It also signed a Memorandum of Understanding in October 2008 to develop a CCP for the Nordic markets.

### **Competition in clearing and settlement**

As in trading, competition in the clearing environment led to reduced costs during this period. A best practice example was set in November 2008 when Eurex Clearing AG, an indirect subsidiary of Deutsche Börse AG through its Eurex joint venture, added two service offerings for clearing Xetra transactions, a basic net service and an extended net service. New prices applied along with the differentiated service offering, which led to a maximum fee reduction of up to 40%,<sup>10</sup> depending on the service selected. LCH.Clearnet began implementing fee reductions in 2007, which amounted to 75% over that year.

"Clearstream's merger with Deutsche Börse was a response to the integration agenda we expected in Europe over the coming decade, which proved to be the case. We saw the introduction of the Euro as an opportunity to start breaking down the national barriers in Europe."

#### **Mark Gem**

Head of Business Management and Member of the Board of Clearstream Banking Luxembourg

"For us, the combination of EuroCCP and Citi played an important part in our ability to get to the market in such an aggressive time frame. The fact we had Citi as a settlement agent meant that EuroCCP could deal with many CSDs and get to the market quickly."

#### **Eli Lederman**

Chief Executive Officer, Turquoise

"Trading, clearing and settlement are at different levels of maturity in Europe. While fees have fallen dramatically in trading since the entrance of the MTFs, we haven't seen the same declines in clearing and settlement. The results of the Code of Conduct are mixed - there have been good results on price transparency and unbundling but interoperability remains a big question. I think there has been a lot of good progress made in eliminating the barriers identified in the Giovannini Report, but eliminating differences between markets in Europe will take a long time."

#### **Paul Bodart**

EVP and EMEA Chief Operating Officer, BNY Mellon Asset Servicing

# Changing business models

While changes at the infrastructure level were taking place, the business models of market participants were also undergoing significant change during this period. It started when firms began to split equities and fixed income trading, moving eventually to trading by industry specialisation. This so-called 'Martini Trading' enabled traders to trade any time and anywhere in their industry specialisation.

The passporting provisions of the Financial Services Action Plan helped to drive the Martini Trading trend.

Investment firms realised they didn't need local brokers in each market or relationships with them.

The Martini Trading trend was first addressed by the MTFs, which made blue chip stocks available on a pan-European basis. But the MTFs also brought with them a very different operating environment for broker-dealers, institutional investors and fund managers. Many MTFs and CCPs were launching during this period with different ambitions and different end users. Firms had to decide which

operating model would be most efficient, but at so early a stage in this trading revolution, decisions were difficult to make.

There was initial scepticism on the part of some firms that the MTFs would succeed - was Turquoise just an attempt to force the LSE to reduce its trading costs? It was difficult to believe at the start of the MTF revolution that such small start-up companies could seriously compete with the established exchanges in each market. Understanding the exact nature of the

Diagram 2  
Europe's Trading Landscape, September 2009





“MiFID created a framework for competition to flourish. We have seen new trading venues that have attracted new entrants in the clearing space. I think there has been less change in the settlement space, although some of the new clearing venues have brought with them settlement solutions. I think interoperability between CCPs is driven more by commercial reasons than by the Code of Conduct.”

**Alberto Pravettoni**  
Managing Director,  
Commercial Services, LCH.Clearnet

“I think the incumbent exchanges did not believe the alternative trading venues would capture the levels of market share we are seeing. They responded weakly to MiFID – some 20 months after its introduction, they are finally bringing down transaction fees. It could be argued they have done everything but bring prices down – why didn’t they bring down prices immediately, which is something that happens in most competitive markets.”

**John Lowrey**  
Chief Executive Officer,  
Chi-X Global

“Everyone in the trading chain was under pressure to bring down costs. The average transaction price has been declining by 8% per year since 1998. When costs are going down so much how do you reduce them further? Automation is the key, but to do that efficiently there needs to be more harmonisation. The other means to reduce cost is to reduce the number of systems to be used. T2S and Euroclear Single Platform are good examples of this approach.”

**Paul Bodart**  
EVP and EMEA Chief Operating  
Officer, BNY Mellon Asset Servicing

---

“As an incumbent clearing house, we had to recognise that the new entrants wanted to capture volume from us. We see interoperability as a way to validate our value proposition and are very keen to implement agreements.”

**Alberto Pravettoni, Managing Director, Commercial Services, LCH.Clearnet**

new execution venues took European institutions some time. Investment firms wanted to be sure that if they placed a trade on a new MTF that it would look and feel the same - when they realised it did, and was executed at substantially lower cost - they were pleasantly surprised.

Firms had to adjust their post-trade models to access multi-market trading platforms and CCPs. As the trading and clearing layers became more complex, the possibility of whether all of the players would be permanent fixtures in the market arose - would MTFs and CCPs consolidate; which venues should a firm back were questions being asked. Broker-dealers had to decide whether to commit funds to build connectivity to the multiple venues or outsource connectivity to a third party.

A significant driver for investment firms during this period was cost - the market had experienced a bull run from 2005 until the second half of 2008 - volumes were soaring and

firms were expanding globally. As volumes rose, so too did costs.

During this period of great upheaval, service providers such as custodians were being asked by their clients to shield them from the changes in the market. Technologies such as direct market access and smart order routing were driving volumes and with them, costs. Service providers were required to support peaks in volumes and to address fails in the market.

## Case Study

# A focus on the United Kingdom

---

As Europe's largest financial market, the UK was perhaps more profoundly affected by integration than other European markets. But in the early days of MiFID, the LSE and LCH.Clearnet were accused of dragging their heels in response, particularly over fees.

The initial mood among UK market participants was that the market was efficient and there was little need to change. However during this period, when investment firms were looking to implement Martini Trading models, it was realised that markets could no longer be looked at in isolation - no market was big enough to stand on its own.

Moves were made to equip the UK infrastructure providers for a more integrated environment and to meet the increasingly sophisticated demands of their clients. In June 2007, the LSE launched TradElect, a new electronic trading system designed to deliver significant increases in both speed of trading and system capacity to meet the demands of high-frequency algorithmic traders who were seeking pools of liquidity globally. David Lester, the Exchange's Chief Information Officer at the time said: "TradElect reflects the Exchange's strategic decision to replace its technology rather than take tactical steps to adapt the existing, outdated technology that, most other market centres are using."

As mentioned earlier, the LSE reviewed pricing several times during 2008. It said its new pricing structure was designed to<sup>8</sup>:

- Accelerate the structural shift in trading by unlocking the considerable potential for further growth from statistical arbitrage and algorithmic trading, the major driver of change in market micro-structure;
- Reward liquidity providers for competing more aggressively to offer tighter spreads and greater depth of liquidity;
- Encourage new growth that will produce a change in market efficiency by reducing the overall cost of trading markedly;
- Attract new members and market users to facilitate new order flow and trading strategies; and
- Ensure predictability of trading costs in order to maximise the efficiency and velocity of automated trading strategies.

It has to be remembered that during this time the LSE was fighting off unwelcome takeover advances. It finally acquired

Borsa Italiana, saying the acquisition would lead to cost savings of £40 million per year by 2011, the bulk of which would be through provision of TradElect to Borsa Italiana's cash equities market, consolidating overlapping operations and reducing combined corporate expenses. Cost savings comprised an equal split of IT and non-IT related items. As Europe's biggest market it was not surprising that the new MTFs targetted the UK. Their entrance to the UK market drove down costs and improved execution. The LSE came under increased pressure to match the cost and execution capabilities of the MTFs.

In clearing, the UK was one of the first European markets to allow for competition, with the LSE enabling SIX x-clear to compete with LCH.Clearnet. In May 2006, LSE agreed terms with SIX x-clear under which customers would be able to choose whether to clear through either SIX x-clear or LCH.Clearnet.

The new competition made LCH.Clearnet look at its value proposition. The clearing house has taken steps to develop services that would be attractive to MTFs. LCH.Clearnet reviewed its tariffs and its capabilities to clear all types of instruments; for example, they have started clearing only the international order book for the LSE.

The UK market can look awkward when compared with other European markets because of the way netting arrangements have been set up - Euroclear UK, rather than LCH.Clearnet, undertakes settlement netting, which is very different from other European markets. By comparison it appears that the UK is expensive. One disadvantage of this arrangement is that firms cannot cross-net and are left with several net settlements per ISIN every day. Some of the market specificities in the UK such as this, and its very different fiscal regime (such as charging stamp duty), have left investment firms with the view that the UK is not realising fully the benefits of MiFID or of the Code of Conduct.

# Changing role of the agent bank

While market participants adjusted their post-trade models to access multi-market trading platforms and CCPs, Citi worked with clients to address this with a multi-market, multi-platform, third-party solution, offering a single point of access to all MTFs and clearing houses.

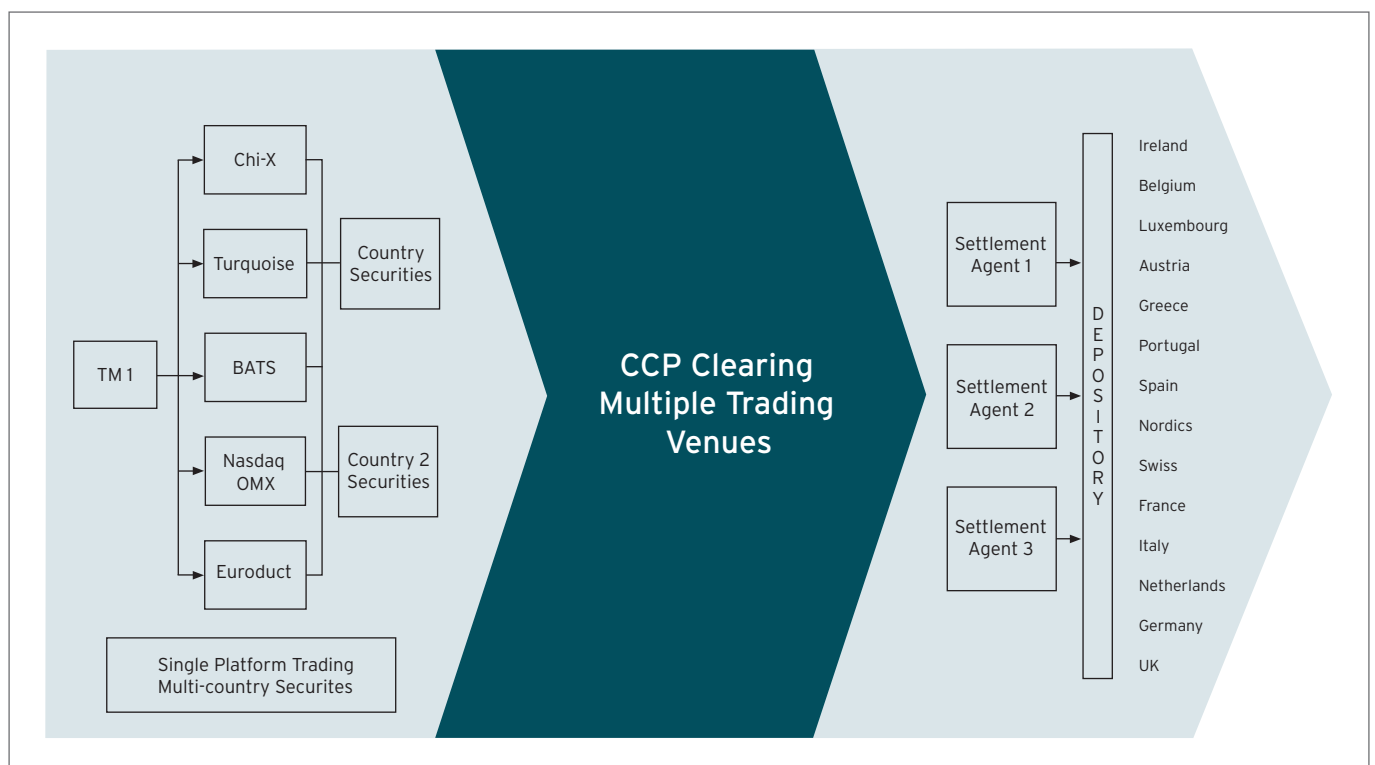
When a client puts an order on to an execution venue and a better price or more depth exists elsewhere, Citi is able to manage the execution for the

MTF and bring it back to the underlying client. Citi then manages the fragmented order back into one single net settlement, vastly reducing post-trade costs while fulfilling the best execution obligations of investment firms.

In clearing and settlement, MiFID has opened up opportunities and challenges for firms. Citi's role is to provide access to clearing and settlement easily and efficiently, at lower cost. Historically, Europe's

exchanges and CCPs supported individual domestic markets and General Clearing Member (GCM) services were provided by the trading member's settlement bank in the local market. The advent of MTFs and CCPs covering multiple markets presented trading members with three different options: appoint multiple clearers along market lines; appoint a standalone General Clearing Member (GCM) that is not necessarily in the settlement chain; or self-clear.

**Diagram 3**  
Shielding Trading Members from the Post-Trade Spaghetti



---

“Perhaps the most important impact of the new MTFs coming into the market has been a more abstract achievement - the realisation that things can change and get better. MTFs have shown we can move beyond the protection of market infrastructures that are anachronistic and inefficient.”

**Eli Lederman, Chief Executive Officer, Turquoise**

Appointing multiple clearers creates additional cost and complexity and firms that go down this route are unable to take advantage from the consolidation of margin that comes from a single CCP. Citi developed GCM-only services that enable trading members to retain their existing settlement bank arrangements and at the same time benefit from having a single GCM for that CCP.

Other advantages of the GCM-only model include: a single contractual arrangement; a consistent data feed with clearing data; consolidation of margin at the CCP, rather than individual country level; retention of existing clearing arrangements should an MTF expand into a new market. Moreover, if a CCP adds further MTFs Citi can shield the trading member from the development requirements of that CCP.

Citi was a pioneer of the GCM-only service, offering it alongside CSD

membership and Direct Clearing and Custody as a fully rounded settlement agent package for trading members during what proved to be a time of great upheaval in Europe's financial markets.

### **Conclusion**

Integration of Europe's financial markets is no easy task and it did not end with the introduction of MiFID, the Code of Conduct and the Giovannini Reports. Rather, these initiatives signalled the beginning of a process that has taken many in the market by surprise. A host of new entrants in the trading and clearing space have entered the market; sceptics believed MTFs would have a battle to take market share away from incumbent exchanges, but they have. The last word on this period should perhaps go to one of the new MTFs that caused such innovation:



# THE CURRENT DEBATE

## 2009-2010

None of the regulatory changes that took place during 2005-2008, nor the financial industry's response to those changes, envisaged the turbulence that ensued as a result of the collapse of the sub-prime mortgage market in the US. From September 2007 until September 2008, the crisis in the US sub-prime mortgage market had turned into a global financial storm - the collapse in the US property market hit banks' balance sheets and fostered panic among the public around the world. This panic found its way into the stock markets, with almost \$5 trillion disappearing from the value of public companies in the first three weeks of 2008. A raft of financial institutions had to be bailed out by governments - Northern Rock, WestLB, Freddie Mac and Fannie Mae, to name just a few.

Then on 15 September Lehman Brothers filed for bankruptcy protection and another wave of government interventions or takeovers ensued - AIG, Wachovia, Fortis and Dexia among the victims of the credit crunch.

From the confidence inherent in a steady bull market that had persisted for a decade, the financial industry had to cope with a dramatic and sudden downturn. Cost was no longer the main focus for financial institutions - risk, and specifically counterparty risk, became a key issue. Many firms took months to unwind positions and determine their exact exposure to Lehman Brothers. Investment firms pulled out of complex instruments and emerging markets, making a 'flight to quality' and a return to basics. They sought consistent, risk-adjusted returns and capital protection. Many banks that had also been on an expansion drive headed back to home markets, stung by the sudden turnaround in fortunes.

Uncertainty reigned in the last few months of 2008 and first quarter of 2009 - investment banks held back on their plans to connect to multiple trading venues as volumes fell at the exchanges and MTFs.

Despite the uncertainty, the global payment and securities settlement systems performed normally without market disruption. The infrastructures that had been built in the past decade continued to work under pressure. In particular, those markets with CCPs worked well. In the US, the DTCC successfully closed out more than \$500 billion in market participants' exposure from the Lehman Brothers bankruptcy. The liquidation of Lehman Brothers was complex, involved multiple asset classes, and required a methodical approach to mitigate potential losses from outstanding trading obligations. The ability to manage risk and see exposure from a central vantage point was instrumental in helping it to ensure that market risk and systemic risk were avoided.

# Beyond regulatory change – private sector harmonisation efforts

“T2S is a radical solution, but the fact that it was required should have been obvious to the market. T2S recognised that the payment system is integral to the harmonisation and integration of a central bank money settlement system within Europe.”

**Mark Gem, Head of Business Management and Member of the Board of Clearstream Banking Luxembourg**

While the credit crunch may have slowed progress on some points, the response to the regulatory initiatives of the mid-2000s was already under way when Lehman Brothers collapsed. For many, Europe's push for integration opened up new opportunities for expansion from national markets across borders. Private and public sector initiatives were developed concurrently, as private sector organisations sought to take advantage of the liberalisation of Europe's financial markets and the post-trade arena.

## **Euroclear**

The most high profile advocate of European integration in the settlement space has been Euroclear. The ICSD's acquisition spree cited in Section 1 formed the basis of its response to the European integration moves. Along with the acquisitions, Euroclear embarked on a programme of platform consolidation and market practice harmonisation, advocating that integration is not possible without also harmonising market practice.

Euroclear now provides ICSD and CSD services for the UK, Ireland, the Netherlands, France, Belgium, Sweden and Finland. Its aim is to bring all of these markets together on to its Single Platform, which will deliver a domestic settlement market for Europe.

The Single Platform programme is multi-year involving a number of interim stages. These stages included the Single Settlement Engine (SSE), which was launched in 2006. The SSE consolidated the group's CSD and ICSD core settlement applications for central bank money in the national CSDs of the Euroclear group and commercial bank money in Euroclear Bank. The SSE was the foundation for further systems consolidation via Euroclear Settlement of Euronext-zone Securities (ESES) and the Single Platform. Launched in January 2009, ESES provides the CSDs in the Euronext market zone - Belgium, France and the Netherlands - with an integrated settlement solution and harmonised custody service for stock exchange and over-the-counter activities. The full

rollout of the Single Platform will be completed by the end of 2011.

## **Target2-Securities**

In July 2006, the European Central Bank (ECB) announced that it was “evaluating opportunities for a new centralised settlement of securities transactions against central bank money”. The service, called Target2-Securities (T2S) would provide a single platform for settling both cash and securities transactions in Euro. Settling national and cross-border securities transactions in central bank money more efficiently would help with the integration of European money and capital markets, the ECB said. Unlike Euroclear's business model, T2S separates settlement from asset servicing functions, which would remain in the remit of national CSDs.

T2S is based on Target2, a real-time gross settlement system for the Euro that in 2008 processed an average daily volume of 369,966 transactions, representing an average daily value of €2,667 billion<sup>12</sup>. The platform

will service Europe's CSDs and will be developed and operated by four national central banks - Deutsche Bundesbank, Banco de Espana, Banque de France and Banca d'Italia. T2S will deliver increased competition and price transparency, according to the ECB, which will drive down costs.

The ECB's move was prompted in part by frustration regarding the progress of settlement integration. Many years after the introduction of the Euro, Europe still lacks an efficient, integrated securities infrastructure that would support the operation of a single financial market. The initial scepticism that met the ECB's announcement, where industry participants voiced fears that it would duplicate efforts without delivering harmonisation, has given way to acceptance as central banks have endorsed T2S. Although T2S is not scheduled for launch until 2013, the CSDs and their users are mulling over the changes the initiative could bring.

On 16 July 2009, a Memorandum of Understanding on T2S was signed between the Eurosystem and European CSDs. At the official signing ceremony in Frankfurt, Jean-Claude Trichet, President of the European Central Bank, said: "Like an airport servicing various airlines, T2S will provide a basic public infrastructure that can be leveraged by CSDs to offer, for example, a mix of value-added products and services to their customers. By

creating a single pool of securities that is accessible from any CSD regardless of its location, it will naturally lead to more competition in the settlement industry, more transparent and efficient pricing, and create new opportunities for cross-border trading venues. On top of this - and this has moved more to the forefront in recent months - through its reduced liquidity needs and its operational robustness, T2S will also contribute to the stability of the financial system. Overall, this dynamic process is likely to create substantial gains for the European financial industry."

### Link Up Markets

Clearstream backed off from acquisitions and CSD consolidation, citing the lack of standardisation of interfaces between the CSDs and payment systems in different European countries. There was no standard way of settling domestic trades against the Euro payments systems, says Clearstream, meaning settlement in central bank money was not necessarily compatible between markets. Clearstream regarded this as an impediment to harmonisation efforts across markets. This impediment was addressed by T2S and Clearstream's response was Link Up Markets, a joint venture of nine CSDs - Clearstream Banking Frankfurt (Germany), Cyprus Stock Exchange (Cyprus), Hellenic Exchanges (Greece), Iberclear (Spain), Oesterreichische Kontrollbank (Austria), SIX SIS (Switzerland), VP Securities

(Denmark), VPS (Norway) and Strate (South Africa) who recently joined as the first non-European CSD. Its key objective is to improve efficiency and reduce costs of post-trade processing of cross-border securities transactions by streamlining interoperability on the CSD layer.

Launched on 30 March 2009, Link Up Markets is establishing a common infrastructure allowing for easy implementation of links between CSD markets and introducing efficient cross-border processing capabilities. Link Up Markets says its solution enables CSD customers to "significantly reduce the cost gap between settling and safekeeping domestic and foreign securities". It claims its members represent 50 per cent of European securities transactions.

The initiative is being introduced in three phases - the first involved the connection of the CSDs of Clearstream Banking, Oesterreichische Kontrollbank, SIX SIS and VP Securities. In the second phase (completed on 29 June 2009), the CSDs of Hellenic Exchanges and Iberclear connected to the initiative. The final phase will see the connection of Cyprus Stock Exchange and VPS.

The members of Link Up Markets believe it will help them to compete in a commoditised settlement environment by delivering cross-border interoperability and enabling members to co-operate on the development of value-added services.

### Market Share, Europe, as at 29 July 2009

	By volume	By notional value
1. LSE Group	49.99%	22.61%
2. Chi-X	12.55%	12.95%
3. Euronext	10.45%	20.13%
4. Bolsa Madrid	6.69%	9.34%
5. Deutsche Börse	4.66%	13.95%
6. Nasdaq OMX	4.55%	5.61%
7. Turquoise	4.01%	4.58%
8. BATS	2.97%	2.98%
9. Oslo Börse	1.94%	1.22%
10. SIX Swiss Exchange	1.62%	6.01%
11. Nasdaq OMX MTF	0.54%	0.63%

Source: [https://www.batstrading.co.uk/market\\_data/market\\_share/index/2009-07-29/](https://www.batstrading.co.uk/market_data/market_share/index/2009-07-29/)

### Stock exchanges

The emergence of MTFs and the pan-European CCPs to serve them has continued to dominate the trading and clearing scene in Europe during 2009. According to for 29 July 2009, the LSE Group's share of market volume in Europe was 49.99% followed by Chi-X at 12.55%.

Just 20 months after the introduction of MiFID, four MTFs had found their way into the top 11 European trading venues. The pan-European nature of the MTF offering struck a chord with investment firms and exchanges have been playing catch-up.

In April 2009, Deutsche Börse unveiled plans to launch a pan-European trading platform, Xetra International Market, which will offer European blue chip trading with settlement in participants' domestic markets. The aim of the

service is to enable trading participants in 19 European countries to place their trading orders for European blue chips in the Xetra International Market. In launching the service, which will become available in the fourth quarter of 2009, Deutsche Börse is targeting algorithmic trading firms in the cash and derivatives markets. Transactions executed on Xetra International Market will be cleared via the Eurex Clearing CCP. Clearstream will provide the interface between Eurex Clearing and the domestic markets, enabling it to use the latter's settlement liquidity and existing processes. Additional markets following Belgium, Finland, France, Italy, the Netherlands and Spain are to be gradually connected via Clearstream.

The price cuts made by incumbent exchanges in response to the new MTFs

have continued. In July, the London Stock Exchange announced a new order book pricing structure to be introduced in September, following a tariff restructure introduced nine months previously. The new price list will:

Balance charges applicable to each side of a transaction;

- Substantially lower the threshold for volume discounts;
- Increase the number of firms benefiting from incentives;
- Reduce the minimum charge per execution; and
- Introduce new incentives for trading in small cap securities.

All types of traders will be charged less the more they trade, thus favouring traders willing to post liquidity on to the exchange. The minimum charge applicable to trades will fall from 25p per trade to 10p.

Xavier Rolet, Chief Executive of London Stock Exchange Group, said the move was to meet the needs of customers and offer incentives from which a broader range of firms can benefit.<sup>13</sup> LSE expects the new tariff to drive growth in trading, stating that if the tariff had applied to the trading activity between January and March 2009, an additional £3 million in aggregate trading fee benefits would have accrued to member firms. The LSE also announced staff cuts of 10 per cent as it sought to reduce costs in the face of competition from MTFs.

## Market response

The fragmentation of trading venues that resulted from MiFID has led to a rapid change in trading patterns. Smart order routing (SOR) technology enabled trading firms to seek out the best price on multiple execution venues. High frequency, algorithmic trading, where trades are automatically executed based on algorithms that decide the timing, price or quantity of the order, have become a key focus of many of the large bulge bracket investment banks as well as smaller, niche firms. Trading firms began to execute trades in multiple tranches, rather than as single executions, in order to manage market impact and risk. These firms have become key influencers in the way the market is developing in Europe because they are such large drivers of volume.

There has also been a significant move towards systematic internalisation, with the major trading firms breaking trades up and executing them against their own books. Today, retail ticket sizes are often larger than those of institutional investors because they don't go through the same price discovery.

Pan-European trading has been made much more straightforward. Europe is now a single, open market at the trading level - it is no longer a number of countries with very distinct exchanges and processes all along the value chain. The integration initiatives have created a framework that allowed

platforms to enter the market with horizontal, regional offerings rather than local ones.

However, a bifurcation is occurring across trading firms. The top-tier, mainly London-based investment banks have embraced the changes on the trading level, signing up to MTFs and taking stakes in them. They are placing liquidity on to the new trading venues and also investing in developing systematic internalising capabilities. They are building declared or informal dark pools, either to share with other trading firms or as proprietary venues for their own purposes.

At tiers two and three, firms are struggling with cost and the know-how to connect to multiple venues. There is much less activity at this level. This opens up the possibility of a source of new business for the traditional bulge bracket and algo trading firms. These firms have invested heavily in connecting to multiple trading venues and have sufficient liquidity inhouse and order routing technology to find best execution. By acting as concentrators or aggregators, the algo trading firms can aggregate the flows from tiers two and three, providing them with access to the liquidity on multiple venues.

“There are three main concerns for market participants – cost, risk and fragmentation – and these are all linked. Fragmentation results in higher costs and further risk. Due to increased competition there is likely to be consolidation, which would be a positive outcome for the market.”

**Liz Wilcockson**  
Co-Global Head of Market  
Infrastructure, Goldman Sachs

# Issues for market participants

## Risk

Following the collapse of Lehman Brothers, risk became a key issue for all market participants. The events of mid-September 2008 challenged financial institutions' preconceived ideas of how to view risk. Until that time, few bankers would have thought a systemically important and highly rated financial institution such as Lehman Brothers would have failed, let alone fail as quickly as it did.

Financial institutions have taken a 'back to basics' approach to market, counterparty, credit and operational risk, reassessing core assumptions that have been made in the past. For example, market risk would be judged using statistical models of volatility and in certain markets these models would show that a 3 standard deviation event would happen once every 2000 years. But bond markets have not been around for 2000 years - financial institutions have been challenged about how they view market risk and how it works. They realise that the core tools they have been using have fundamentally changed.

The risk of a counterparty failing must also be reconsidered. In the immediate aftermath of the Lehman collapse, governments intervened to help sustain their domestic financial markets. This intervention has been very helpful and will provide a solid platform from which financial institutions can rebuild processes

around risk models. Financial institutions are re-examining their attitudes towards counterparty and credit risk, trying to gain an understanding of how they will cope in such dramatic market change in the future.

Another risk that had previously been overlooked is settlement risk. This has gained in importance and is particularly pertinent for agent banks that provide cash management and securities services to clients. Such services require significant intraday credit lines, which expose the agent banks to settlement risk. Agent banks pay out early and expect to be paid back during the settlement day. However, that process was squeezed in the weeks after the Lehman Brothers collapse, with lenders waiting longer and longer to pay back. Gaining liquidity in the settlement process became very difficult for certain financial institutions.

These difficulties highlighted a weakness with the continuous linked settlement (CLS) system, the FX settlement system operated by CLS Bank International. The system operated effectively during the Lehman Brothers collapse, but banks providing third party services - where settlement risk is consolidated - experienced problems. Third party customers are institutions that participate in FX, typically banks, non-bank financial institutions and multi-national corporations. As FX has achieved the status of an asset class in its own right

in recent years, the number of third parties has grown significantly, and much of this growth has come from the investment management industry.

During the week of 15 September, banks offering third party services realised how much settlement risk they were accepting. As a result, there has been a dramatic change in the terms of the third party services they are prepared to offer and to whom. There also has been increased scrutiny from market participants on how CLS supports the FX market and whether there is a better way to support settlement risk mitigation.

The provision of intraday liquidity in the settlement process will be a key issue for the financial markets. In the securities markets the delivery versus payment system (where title to an asset and payment are exchanged simultaneously) will need some attention. DVP is done on a daylight credit line and the settlement agent will have a lien over the asset coming back. However, the situation is not consistent across markets. In some, the lien enables a custodian, in a default situation, to immediately sell the asset. In other markets, they can hold and wait for someone to pay before they realise the security. But in volatile markets, unless they can sell very quickly, they will lose out.

One of the most striking characteristics of the fallout from the Lehman Brothers collapse was how efficiently

“Trading has become very cheap but there’s still an elephant in the room – the cost of clearing and settlement remains very high. If CCPs interoperate that will bring more competition into the clearing space and thus lower costs. Nasdaq OMX took a stake in EMCF with a view to influencing a reduction in costs. We are very keen to get clearing and settlement costs down – without that we won’t see an increase in trading activity.”

**Charlotte Crosswell, President, Nasdaq OMX Europe**

markets with central counterparties (CCPs) behaved. During the post-Lehman collapse markets with CCPs operated effectively and the destinations that had CCPs retained high volumes, while less sophisticated markets experienced a fall because of concerns about settlement risk. Given the success of CCPs they are likely to proliferate worldwide and become more important as mitigators of risk. Post-Lehmans there has been a desire on the part of industry and regulators for exchanges to have relationships with CCPs. Everyone agrees CCPs

are good and new entrants into the MTF space have set up CCPs as they have launched. The establishment of CCPs is not restricted to the MTFs – in the Nordic markets, which previously have not had a CCP model, one is being set up at the request of market participants who found the absence of a CCP during the collapse of Lehman Brothers to be a major problem.

#### **Fragmentation**

A decade ago, most market participants believed consolidation, in the form of one CCP and settlement

venue for Europe would be the most efficient model for the industry. However, the industry has moved away from this thinking and the current attitude is that a handful of strong, well-governed venues will provide the benefits of competition without the drawbacks of fragmentation.

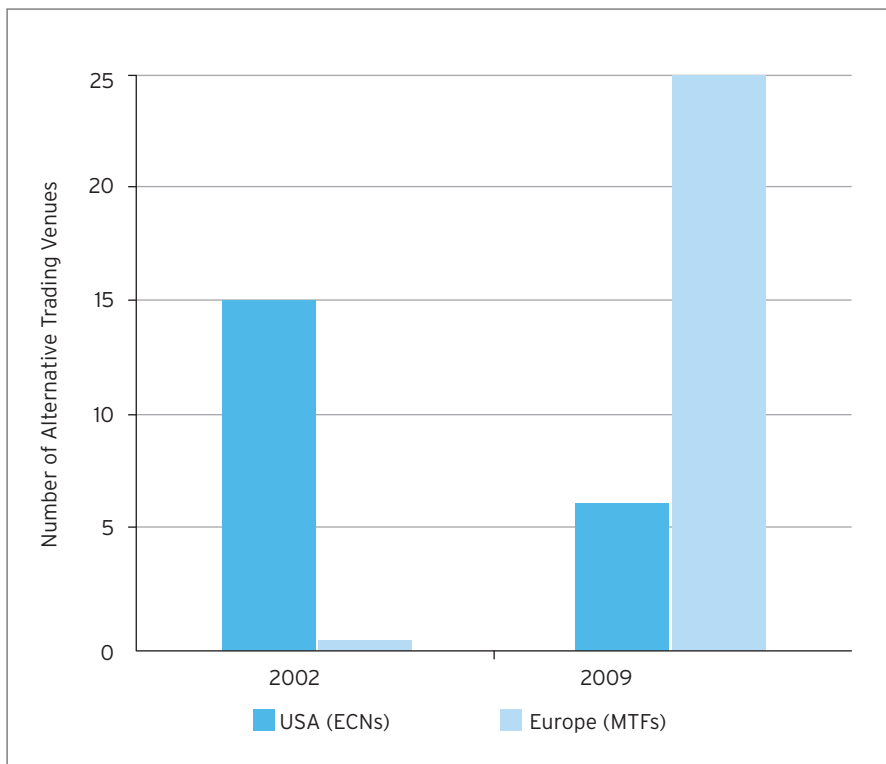
For some, fragmentation is regarded as a ‘necessary evil’ to attain competition. The US market experienced a similar fragmentation to that now occurring in Europe when the Securities and Exchange Commission authorised automated trading in the late 1990s and electronic communications networks (ECNs) proliferated. Since that time ECNs have folded or been acquired by stock exchanges.

The introduction of competition in the trading layer by MiFID had a knock-on effect at the post-trade level where CCPs have proliferated. In order to make execution as effective as possible, the MTFs appointed CCPs, including the new, pan-European players. Combined with existing clearing houses this has led to fragmentation at the clearing level.

One of the aims of the Code of Conduct is to formalise a process in which CCPs can work together on the same execution venue, thus overcoming some of the drawbacks of fragmentation at the clearing level. But the interoperability requirement of the Code took some time to take off and has not yet been fully realised. Among the interoperability



Diagram 4  
Comparison of Alternative Trading Venues



agreements in place are: SIX x-clear, LCH.Clearnet and EMCF for BATS Europe; EuroCCP, EMCF and SIX x-clear for Nasdaq OMX; EuroCCP, LCH.Clearnet and SIX x-clear for Turquoise; and EMCF, LCH.Clearnet and SIX x-clear for Chi-X.

Industry participants accept that there should be greater harmonisation at the trading, clearing and settlement level and progress has been made on this.

**Costs**

While execution and clearing fees have fallen dramatically, the cost to market participants of connecting to multiple venues has increased costs in the back office.

Cost control, however, has been a focus for trading firms as they dealt with significant volume increases during the bull markets. At the same time, cost pressures - all along the



“One reason for the wave of consolidation that occurred in the US was that the incumbent exchanges acquired ECNs in order to compete on a technology level. Can European exchanges get up to speed and maintain rapid innovation like the MTFs? Or will they look to acquire some?”

**Ken Conklin**

SVP and Global Head of Business Development and Marketing, BATS Europe

“While the headline numbers for execution and clearing are going down, we are seeing increased complexity, which leads to higher back office costs. Technical, operational, head count and margin costs are all up as a result of the complexity, which also contributes to inefficiency.”

**Liz Wilcockson**

Co-Global Head of Market Infrastructure, Goldman Sachs

value chain - have intensified. Each participant in the trading, clearing and settlement space has been under pressure from clients to bring costs down. As a result, margins for the execution and clearing businesses have fallen steeply as functions become more commoditised.

Firms focused on re-engineering back offices to deliver a reduced cost base while also expanding capacity. Some trading firms chose to offshore back office functions to less costly locations, building industrial strength processing operations to cope with the increase in volumes. Others chose to outsource the ‘vanilla trading’ elements to a third party, enabling processes to be centralised.

The financial crisis has affected back office budgets - the focus is very much on cost and risk mitigation. Budgets have been slashed and staff

headcount reduced. Cost pressures have led to some more innovative solutions for efficiency. Broker-dealers have become more attuned to the idea of business process outsourcing (BPO), selecting distinct functions within their middle and back offices that are not competitive to outsource to a third party.

## How service providers are responding

"It is gratifying in some ways that there has been a return to the basics."

**Andrew Osborne**  
Senior Vice President,  
Northern Trust

The emerging trends in the securities landscape will have long-term consequences for different market members. To remain competitive, infrastructure providers, broker-dealers and buy-side firms must meet the requirements of the changing regulatory environment and adapt as traditional market roles and business models change.

One of the consequences of the trading fragmentation is the rise of high-frequency electronic brokers, which use sophisticated algorithms to look for arbitrage opportunities resulting from price differentials between the different market venues. These high-velocity algo traders had traditionally relied on prime brokers for servicing and support, but are increasingly turning to custodians. The collapse of Lehman Brothers highlighted the issue of counterparty risk and the asset security that custodians can offer and the broad market presence and investment in transaction processing of large banks have proved attractive to algo traders.

During this period of great upheaval, service providers such as custodians are being asked by their clients to shield them from the changes in the market. In this increasingly complex environment some market participants, perhaps banks dealing with retail flows or smaller broker-dealers, will opt to focus on their client-facing activities, and ask a transaction expert like Citi to provide

them with a full raft of execution-to-custody services.

There also has been a trend towards unbundling of services across the securities value chain, as organisations - MTFs, exchanges, broker-dealers, banks or the buy-side - look to secure the capabilities they need to quickly access their target markets, while shielding themselves from the rapid changes occurring in the execution, clearing and settlement spaces.

The repercussions of the financial crisis are still being felt and no market participant has the time, or the resources, to fund hobbies. There is a reluctance to invest in any initiative that is not deemed to be likely to succeed - this is the reason T2S is now receiving so much attention as its backing by central banks confirmed that it will go ahead. Service providers are dealing with clients that are much more particular about what they will sponsor and what they want.

Citi is connected to almost all the major exchanges, MTFs, CCPs and broker-dealers, providing access to all the liquidity pools available with the depth and breadth of its product offering and market leading geographic presence in 57 markets. Its broker-dealer clients want to access more markets and push through more volumes. But they are doing this in an environment where operational risk is a major concern - many have retrenched in their back



“As global custodians, we never lost sight that our primary obligation to clients is the safety and soundness of assets. In some ways, that core element of what global custodians do became a little lost as investors moved out into alternative instruments. From mid-September 2008 everyone came back down to earth with a bang. Suddenly, the only question clients asked was how safe are our assets? Some clients are looking for much more detailed explanations of how subcustodians are managed, how market infrastructures support clearing and settlement et cetera. It is gratifying in some ways that there has been a return to the basics. We are back to the days when people need to understand risk and that has to be a good thing for everyone”

**Andrew Osbourne**  
Northern Trust,  
Senior Vice President

---

offices and are under pressure. They want to move from fixed to variable costs, giving up more of their back office functions to Citi. Many of the services Citi now offers to these clients are very bespoke, centred on middle and back office functions.

To address the unbundling trend, Citi has brought together its Global Markets and Global Transaction Services expertise to create an integrated pre- and post-trade platform for the entire value chain. The bank has also opened up its architecture to provide services as components, so clients can pick and choose what they want. Clients are leveraging Citi's general clearing member-only (GCM) services to secure a single point of access to Europe's clearing houses.

Market infrastructures have been looking to diversify and gain pan-European capabilities. Citi's involvement with EuroCCP, cited in Section 1, is an example of this. The bank has also worked with LCH.Clearnet and CC&G to help them move from a domestic model into a pan-European one. Clearstream has used agent banks to reach a high standard of settlement and custody interoperability in European domestic markets. By using the local resources of agent banks where appropriate, Clearstream has overcome some of the barriers to integration that still exist in Europe.

Market participants take for granted that an agent bank will know how to settle trades and service assets. The added value is in being the 'eyes and ears' for clients in local markets as well as across Europe as a whole. This involves sitting on working groups and committees involved in European integration, providing input and expressing the views of its clients.

## Case Study

# Citadel

---

In July 2009, Citadel Securities invested in Equiduct, an electronic trading platform operated by Börse Berlin AG. Citadel Securities is a part of the Citadel group of companies. Citadel is a leading global financial institution with a diverse business that is based in Chicago. The Citadel Securities platform includes investment banking, multi-asset class market making, order execution services, and Omnium, a hedge fund administration business.

The agreement between Citadel Securities and Börse Berlin will provide funding to help establish Equiduct as one of Europe's leading execution venues. Citadel Securities expects to partner with other leading market participants and order flow providers to further enhance Equiduct's product offerings.

Affiliates of Citadel have made other strategic investments in emerging trading platforms. Citadel believes that Equiduct has built an innovative market model to address MiFID compliant best execution and to offer a fast and cost-effective all in one solution for trading equities in a fragmented European market. Equiduct provides two execution facilities, a hybrid book and PartnerEx. The hybrid book is an electronic order book that includes market maker quotes for each available instrument. PartnerEx is a unique trading model that allows order flow providers to execute at a consolidated best price or better if price improvement occurs.

"The PartnerEx best-execution model with potential price improvement is beneficial for all participants," says Matteo Cassina, President, Citadel Execution Services Europe. "Through Equiduct, Citadel Securities and other market makers will provide execution services to a wide range of retail brokers and other order flow providers making Equiduct a destination of choice for the European brokerage community."

Mr. Cassina notes that the environment today is far more complex than it was before the introduction of MiFID. "Competition is based on response times, which are now in the milliseconds. If a new MTF comes on to the market that is very fast, the interaction between different venues changes." This has resulted in a generational shift. "In the short term, we had to make a significant investment to connect to new MTF and CCP venues faster than others. This shift has allowed us to create new opportunities for our clients," said Mr. Cassina.

While the overall cost of trading has gone up as a result of the need to pay multiple fees for trading and clearing, as opposed to having orders executed and cleared in one place, Mr. Cassina says in the long term new innovation will bring more efficient markets. "This will probably take another five years to achieve," said Mr. Cassina. "But it is very important to focus on improving the efficiency of markets in Europe."

One area that must be improved is settlement. Says Mr. Cassina: "Trading costs are reasonably low, but the cost of settling trades and the high fail rates and inefficiencies that still exist are huge. We have seen some progress in clearing but only limited changes in settlement thus far."

Mr. Cassina believes it is highly unlikely that Europe will move to a single financial market, but he does feel that technology will bring together the trading, clearing and settlement elements. "If you have the right technology, you can reach all of the liquidity - it won't matter where it is. I think the European model will evolve as the U.S. one has - with multiple execution venues feeding into one CCP and CSD."



# WHERE TO FROM HERE? 2011 AND BEYOND

During the past decade, Europe's trading, clearing and settlement environment has been opened up to the forces of competition. An environment characterised by monopolistic infrastructures and high costs, has been transformed - incumbent infrastructures have been forced to revise their fees, trading firms have pursued new business models and service providers have, in turn, had to adjust their business models.

MiFID has led to a proliferation of trading venues and central counterparties; the Code of Conduct has kicked-off interoperability and unbundling at the clearing level; and the Giovannini Reports have set in train a series of public and private sector initiatives to deliver an integrated settlement environment for the Euro.

The financial crisis, while having a profound affect on financial institutions, has not put a stop to integration efforts; indeed, some would argue European integration, which is designed in part to lower costs, is now more important than ever.

In the coming years many of the questions raised during this period of transformation will be addressed. How much fragmentation will continue at the trading and clearing levels? What impact will T2S have on agent banks and custodians? Who will be the winners and the losers in an integrated European landscape? Will a Clearing and Settlement Directive be necessary? What strategic options are industry participants exploring?

## The evolving European landscape

“There are hundreds of MTFs and dark pools in Europe and this is clearly too many. We will see consolidation as happened in the US, where some MTFs will be acquired. However, there will continue to be niche MTFs and dark pools.”

**Paul Bodart**, EVP and EMEA Chief Operating Officer, BNY Mellon Asset Servicing

### The execution level

Along with the proliferation of MTFs, MiFID has also encouraged growth of ‘dark pools’ of liquidity. A dark pool is a trading facility where orders are not publicly displayed. As of June 2009, there were nine dark pools operated by regulated markets and MTFs in Europe, according to the Committee of European Securities Regulators (in its June 2009 report, *Impact of MiFID in equity secondary markets functioning*).

Among the dark pools are Euro Millennium (Nyfix), Instinet Blockmatch, Liquidnet Europe, Plus Markets, ITG Posit Now and Smartpool.

CESR says it is unclear how the market will develop with respect to dark pools and declares it “a space whose development regulators may wish to monitor to better understand the impact dark pools may have on the market”. Dark order types such as stop orders and iceberg orders had been offered by European markets prior to MiFID, it points out.

Dark pools are attractive to traders who wish to minimise the market impact of executing large orders by not revealing themselves to the open market. Critics of dark pools, such as Jean-René Giraud of the EDHEC Risk and Management Research Centre, said in his June 2009 report, *MiFID: One Year On*, that the formation of dark pools of liquidity may not contribute to the price-discovery mechanism and will ultimately fail to benefit the investor community. He said the continuing absence of a global tape and the impossibility of defining a best market offer-bid to assess the quality of the executions rendered any analysis of the benefits of those dark pools nearly impossible.

With liquidity spread across traditional exchanges, MTFs and dark pools, questions have been raised about whether there will be an eventual consolidation of venues – can the market sustain so many venues?

But the ebb and flow of new venues has some way to go – in June 2009, London

Stock Exchange gained approval from the Financial Services Authority for Baikal, its pan-European MTF dark pool and liquidity aggregation service. A smart order routing service was launched first in order to help users overcome fragmentation by providing a single entry point and clearing arrangement for 17 European equity trading venues in 14 countries. Turquoise has also launched a liquidity aggregation service that offers centralised, anonymous access to European trading firms and clearing and settlement through EuroCCP.

## Clearing

CCPs are very much flavour of the month, attracting attention at the highest echelons of government and regulatory bodies. In the US, Europe and Japan, for example, CCPs are being developed for the OTC derivatives market. In Europe, CCP clearing for credit default swaps (CDS) was introduced on 31 July 2009, with ICE Clear Europe, Eurex Clearing, LCH.Clearnet offering central clearing for CDS instruments. The European Commission, which worked with the financial industry to ensure that CDS were subject to central clearing, is working to encourage other OTC derivatives markets to also adopt CCPs.

The clamour for greater interoperability between CCPs is likely to continue. In June 2009, EuroCCP called for a single, standard convention on interoperability that all CCPs would sign, to ensure to accelerate the seamless connectivity

of CCPs across Europe in a safe way. The Convention, designed as a framework agreement, would require CCPs to agree on risk management arrangements that are transparent to market users, platforms and regulators.

EuroCCP said although progress had been made on interoperability, there was insufficient transparency in how new risks caused by interoperability were managed. At present, interoperability arrangements are made through bilateral contracts - if six CCPs were to interoperate, 15 different contracts would be required. A convention that incorporates common standards around key elements of risk management, change management, and dispute resolution, would simplify and expedite interoperability, according to EuroCCP. Market disruptions could be more difficult to manage and affect the safety of the market if multiple bilateral agreements among CCPs mandate different ways to manage problems and impose different obligations on the interoperating CCPs, says Euro CCP.

When CCPs interoperate with each other it is very important for their users to understand the risk exposure. Each CCP will have different risk management standards, such as collateral required and different types of members. Without greater transparency around interoperability, CCP users will be unable to make

“Regulators want more transactions cleared through CCPs but there are no minimum risk standards. It may give a false sense of security for market participants to assume that all CCPs are equally safe. What if the CCP is not robust? CCPs are entrusted to manage risk for the market; so how can systemic risk be contained as more CCPs interoperate?”

**Diana Chan**

Chief Executive Officer, EuroCCP

“Interoperability is not easy to achieve and you have to find a solution that ensures there is no risk of contagion between the different CCPs. I think a convention on interoperability will take too long to establish. LCH.Clearnet is finalising interoperability agreements with several other CCPs in Europe. In order to deliver interoperability it is more practical to do bilateral arrangements than to try to get everyone to agree on something.”

**Alberto Pravettoni**

Managing Director, Commercial Services, LCH.Clearnet

“Interoperability will give market participants more choice to which CCP they prefer and competition will help to reduce costs, which are still high for clearing. Within a short amount of time, participants should be able to switch to different CCPs intraday.”

**Ken Conklin**

SVP and Global Head of Business Development and Marketing, BATS Europe

“Chi-X has built a credible market share and will look to maintain that and grow. We will also evaluate other products, which we see as the right area for growth, along with geographic expansion - it's no secret we are looking at Asia.”

**John Lowrey**

Chief Executive Officer, Chi-X Global



“Interoperability is not easy to achieve and you have to find a solution that ensures there is no risk of contagion between the different CCPs.”

**Alberto Pravettoni**, Managing Director, Commercial Services, LCH.Clearnet

comprehensive risk assessments and understand their exposures vis a vis their own clients. Ultimately, it is the CCP user that is held financially responsible if a participant within a CCP fails.

Some observers argue the lack of progress on interoperability has been due to commercial reasons. CCPs have invested significant time and money into building their businesses and will not give that up easily. If they have to compete with each other for market share it will mean possibly lower fees and hence margins - an unattractive proposition in the current economic

climate. This raises a fear that some CCPs, in order to compete, may lower their risk standards, for example the framework for posting margin and default management. EuroCCP argues that a convention will ensure that risks are shared even-handedly and transparently between interoperating CCPs, rather than offloaded by one CCP on to another. The survival of CCPs will not be solely about the fees they charge users - risk models will play an important part, as will technology and automation.

Europe is frequently compared unfavourably with the US when it comes

to clearing and settlement, particularly with regard to costs. The US model, based on a single CSD, the Depository Trust and Clearing Corporation (DTCC), delivers much lower clearing and settlement fees. Around five main clearing houses are competing for business in Europe, leading to speculation that the market will consolidate, with perhaps only two or three surviving into the future. However, if interoperability proves to be a success, it could be possible that Europe will have multiple CCPs but market participants will need to connect to only one in order to gain access to the others.

## Settlement

The European Central Bank's Target2-Securities (T2S) system is likely to have a significant impact on settlement in Europe when it is introduced in 2013. Securities settlement in Euros will be conducted within T2S and competition will be very open. Already, ICSDs, CSDs and agent banks are formulating strategies for this environment. The ICSDs and CSDs are beginning to realise the potential impact of T2S - once settlement is outsourced to T2S what will they do? They can go up the value chain and provide asset servicing, but that is not easy to achieve. At the same time, T2S will force margin compression, particularly among the smaller CSDs.

Euroclear has revised its roll-out plan for the final stage of its Single Platform development in response to T2S. A more modular approach, it says, will allow Euroclear to largely deliver the harmonised functionalities of the Single Platform while providing an open and flexible solution to operate alongside, and interact with, other settlement systems in Europe, such as T2S. The revised roll-out plan also addresses the need for improved liquidity and asset optimisation services in the market.

Focus has shifted on to value-added services that complement Euroclear's core settlement activity which will remain on its legacy platforms and will also be available on T2S.

"The competitive landscape is shifting. As certain players leave the market, others will get an opportunity to enter. Multi-market agent banks and large CSDs will begin to resemble each other more closely. It will be an interesting scenario - ICSDs and agent banks are users, suppliers and competitors with each other at the same time. I think we all see opportunities in the new T2S environment."

**Mark Gem, Head of Business Management and Member of the Board of Clearstream Banking Luxembourg**

There are a number of possible outcomes in the T2S environment: further consolidation in the CSD space as smaller players struggle to survive; increased competition for agent banks as larger CSDs and ICSDs move into the asset servicing space; and a change in business models for agent banks as some clients move to self-clearing and self-settlement. The interplay between CSDs and agent banks will evolve in the T2S environment.

## Evolving business models

---

"Within four years we will see a new clearing and settlement system in place, but at the moment there is nothing to hang our hat on in terms of costs, risks and technology demands."

**Andrew Osborne**, Senior Vice President, Northern Trust

The overwhelming theme in Europe's financial markets is one of change - at the trading, clearing and settlement levels the moves towards integration are forcing market participants to reassess their business models - and they are not just doing this once, but several times as new players and platforms enter the market.

Technology is enabling sell-side institutions to develop innovative solutions to tap into the fragmented pools of liquidity across Europe. Algorithmic trading models, high-frequency and program traders are accessing new MTFs and dark pools in the pursuit of cheaper, faster and low market impact trading. These firms need a combination of connectivity to the different venues and high speed smart order routing capabilities to identify liquidity and price improvement opportunities in the various pools. They need providers who can execute on all major execution venues and who can clear and settle across all markets and CCPs.

The best execution requirements of MiFID cover not only price but also overall costs of trading, speed and likelihood of execution and settlement. Trading firms are moving towards an understanding of how much it actually costs to do business, including the post-trade element, where most of the costs of trading reside. There is a realisation that finding the best price is pointless if the benefits are given away through high post-trade costs. Competition in clearing has highlighted how costly it has been under previous monopolistic clearing regimes.

With the introduction of T2S self-clearing and self-settlement will become more widespread as firms opt to connect directly to the T2S platform. Despite the integration and consolidation that has already occurred in Europe, investment firms still use a large number of third-party providers to access execution, clearing and trading venues across Europe. Connecting directly into T2S, and thus accessing the

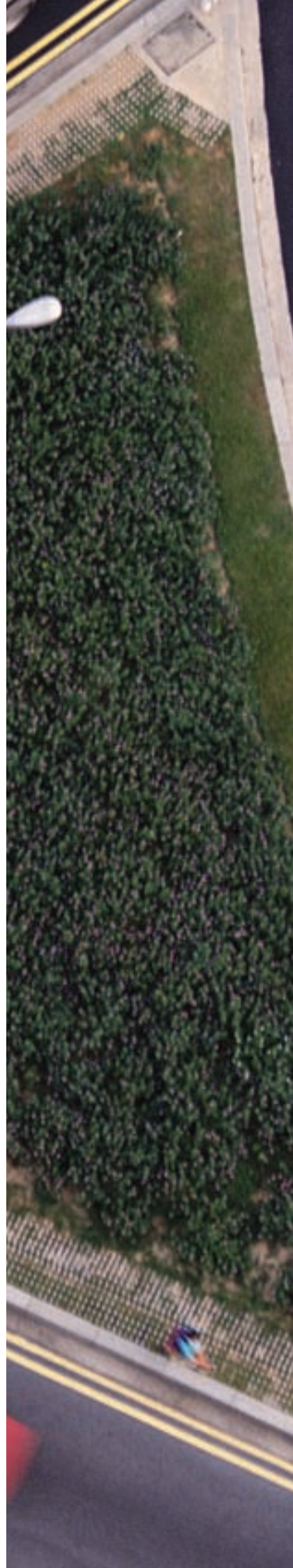
participating CSDs through a single pipe, will reduce post-trade costs further.

While connecting directly to T2S may make sense for large trading firms, such players will still require arrangements with the local CSD. It is unclear therefore how much self-settlement will reduce complexity and deliver the 'one stop shop' many trading firms want.

Since the credit crunch, broker-dealers and investment banks have shied away from smaller, less credit-worthy providers. As already mentioned, sell-side institutions are demanding much more information about the robustness of global custodians' agent bank networks. This and the impact of T2S make it likely that single market custody players will find it difficult to operate profitably, and their numbers are declining.

In a commoditised settlement world, the smaller players in the CSD world will have to redefine their strategies in order to appeal to niches of their local markets, for example, providing local market asset managers with highly efficient access to

the European settlement infrastructure, rather than trying to win cross-border customers. And moving up the value chain for the larger ICSDs and CSDs will not be easy - custodians like Citi have established a significant footprint across Europe and have local presence in a large number of countries. This will be very difficult for the depositories to match. Consolidation in the settlement space is unavoidable, but very few commentators believe Europe will settle on one CSD because the benefits of competition (lower prices, greater innovation) would outweigh the benefits of consolidation (greater efficiency).



# The role of custodians

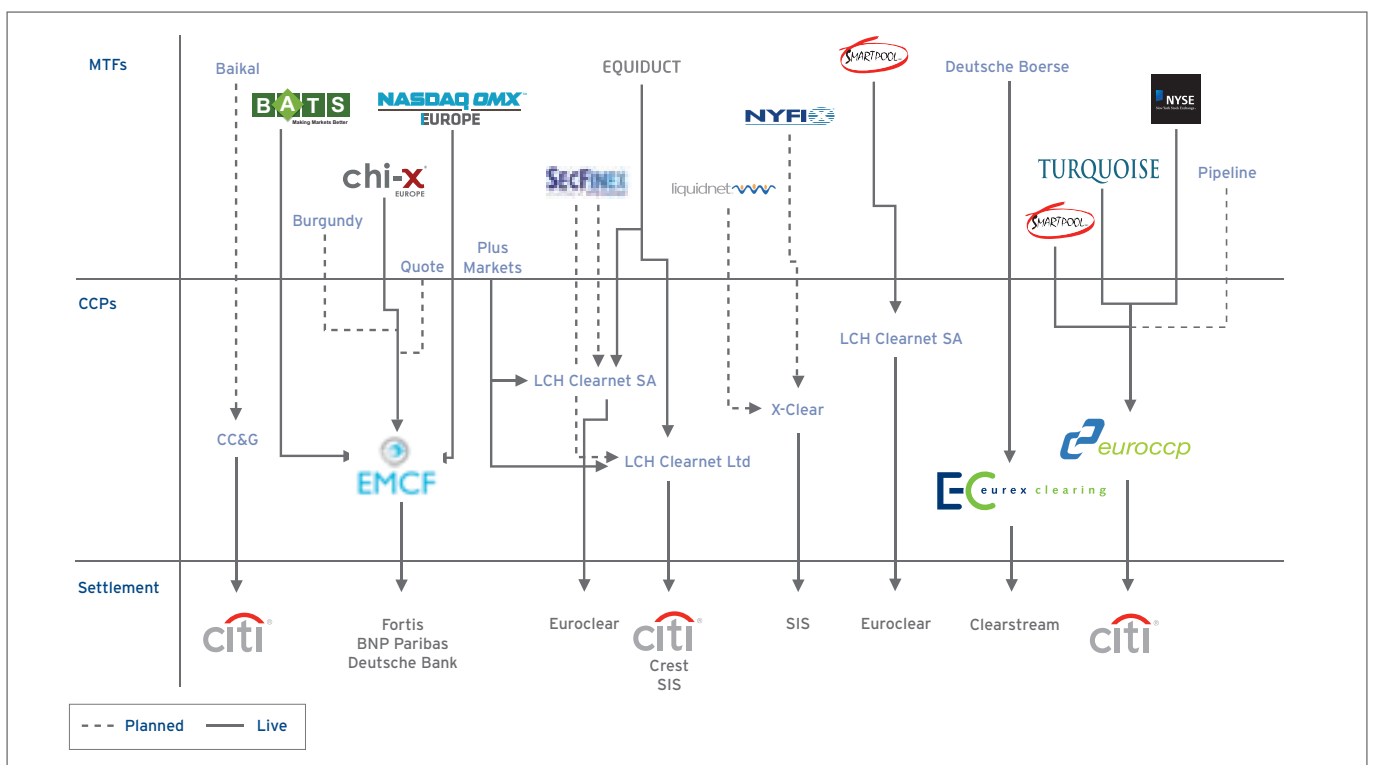
Global custodians and agent banks have not escaped the need to adapt business models in the changing European environment. Competition will come from the ICSDs and CSDs as T2S commoditises settlement. Opinion is divided as to how much of a threat the CSDs will be - asset services such as proxy voting, tax reclaims and corporate actions processing are very specialised, complex and risky, requiring significant investment in technology to support

the functionality required and robust balance sheets.

What will the custodians' role be if more players move to self-clearing and self-settlement? It is not only the large sell-side firms that are considering such a move, but also global custodians that use a network of agent banks throughout Europe as sub-custodians. Although T2S is still some way off, most custodians are reviewing their options

for T2S and considering whether to continue with current arrangements, connect to T2S directly or use sub-custodians for specific services, thus adopting a hybrid model where certain elements are outsourced and other, more straightforward elements are processed inhouse. The answer is unlikely to be uniform across Europe. There will be opportunities for custodians to move further up the value chain, but it will require a change in thinking about

Diagram 5  
European Landscape, September 2009, More to Come



Note: Diagram subject to change due to introduction of interoperability.

what constitutes post-trade services. For Citi, post-trade encompasses everything after a notice of execution has been sent. This will take custodians further into the middle office and a host of functions, including confirmations, allocations, transaction reporting and record keeping. Partnering with clients to improve efficiencies in the middle office will be an important differentiator for custodians.

In order to remain competitive, custodians will need to give their clients much more choice when it comes to their post-trade options. Citi's GCM only services, for example, acknowledges the trend of firms splitting clearing from settlement. Custodians are finding that packaged, prescriptive services are no longer appropriate. They should be prepared to develop more bespoke solutions to fit clients' particular post-trade needs. Custodians that can be ready for all eventualities, depending on what their customers choose, will be well placed to succeed in what is a rapidly evolving environment.

An important role for custodians going forward, which is often overlooked, is the role they can play in designing and shaping the policies that governments and regulators adopt. Engaging at both a European and national level, providing expertise in local markets and interpreting developments in one jurisdiction and its impact on others can be a key differentiator for custodians.

Going forward, the role custodians play in providing liquidity into Europe's clearing and settlement system and ensuring that it is used as efficiently as possible will become more important. With T2S, market participants will still have to gain access to intraday finance, currency and asset services. Custodians with large balance sheet capabilities will feel they have an advantage over CSDs when it comes to these services.

In a consolidating environment the buying criteria of custodians will change. Those sub-custodians that provide the thought leadership, that can articulate to clients what the changes mean and truly understand their clients and how to tailor products and solutions to help them cope with change, will succeed. Market participants will have to make some very informed decisions over the next few years to make sure they are in a position to respond to these changes.

"In our view, any activity that reduces the cost and risk of the infrastructure and maintains or increases efficiency is a good thing. It would be very difficult to argue against T2S, which will kick-start the process of settlement integration in Europe. Realistically, in asset servicing, settlement is not the high-value area of risk. This resides in managing the collection of client entitlements, most notably corporate actions. An error in corporate actions can be extremely costly for parties in the servicing chain. One of the areas we are focused on, and Citi is doing a very good job in conveying to us its plans, is the gaps that will be left in the T2S environment and the opportunities that will reside there."

**Andrew Osborne**

Senior Vice President, Northern Trust

"ICSDs are global and Clearstream has global expansion goals. We see Asia as a core market. We believe we are offering services that will enable the Asia market to exploit the ICSD model in local securities markets, just as Europe has been able to. But the region will have to go through the same processes as Europe has, without the same political imperative. Some of the strategies that have been developed in Europe can be applied to add real value in Asia, even without that political imperative."

**Mark Gem**

Head of Business Development and Member of the Board of Clearstream Banking Luxembourg

"Within four years we will have a new clearing and settlement system in place, but at the moment there is nothing to hang our hat on in terms of cost, risk and technology demands. This presents global custodians with an interesting challenge as to how we can position ourselves for 2013 while the technical details of T2S remain somewhat opaque. It is possible that it won't be implemented as a 'big bang', but may instead be taken up gradually."

**Andrew Osborne**

Senior Vice President, Northern Trust

# CONCLUSION



**Tom Isaac**  
Global Head of Financial Institutions,  
Client and Sales Management for  
Intermediaries, Citi

With so much change taking place in Europe, it is important to have an open mind. Traditional definitions of custody, infrastructure, client and competitor are being blurred. The forces of European integration will create some exotic solutions. CCPs will interoperate; execution venues will proliferate and consolidate.

Alongside the drive to integrate Europe's financial markets, there is a drive to create greater efficiencies and reduce costs throughout the securities lifecycle. The Lisbon Agenda, to make the European Union "the most dynamic and competitive knowledge-based economy in the world" requires a healthy financial services environment, one that encourages investors to trade in Europe's markets. Integration, efficiency and lower costs will help with this.

A Clearing and Settlement Directive has been the stick wielded by the European Commission as it tries to encourage Europe's private sector to meet the efforts being made by the public sector in integrating financial services. The Code of Conduct was designed to pre-empt a Directive and to date it has succeeded. However, with a new EC leadership and commissioners due to take up their posts, the possibility of a Directive may resurface if these new commissioners deem not enough progress has been made. Europe's financial market participants cannot afford to slacken in their integration efforts.

Europe is the world's training ground for clearing and settlement – a centre of excellence as the private and public sector work together to improve efficiency. Many of the developments that are taking place can be translated to other regions such as Asia Pacific. Competition is coming to these regions as trading venues, clearing houses and depositories expand their horizons globally. Financial institutions in Asia Pacific will need to embrace change in order to survive.

The credit crunch, regulation and technology are the three major forces converging on the securities industry landscape. The competitive landscape for exchanges is changing; there is a drive to create greater efficiencies and reduce costs across the securities lifecycle; and harmonisation and fragmentation are occurring simultaneously. This environment will present market participants with multiple challenges over the next five years – those that survive will be the ones that can adapt and respond to the changes taking place.

---

# FOOTNOTES

- 1 *NYSE Group, Inc. Proposes Historic Business Combination With Euronext N.V.*, 22 May 2006
- 2 *London Stock Exchange Statement: Rejection of unsolicited offer from Macquarie Consortium*, 15 December 2005
- 3 *London Stock Exchange Statement: Re: Approach*, 10 March 2006
- 4 *Borsa Italiana and London Stock Exchange Statement: Borsa Italiana and London Stock Exchange Group to Merge*, 23 June 2007
- 5 *Chi-X Trading Statistics August 2007*, 12 September 2007
- 6 *Chi-X Europe Trading Statistics, Q3 2008*, 6 October 2008
- 7 *BATS ECN Hits 100M-Share Mark, 5.45% Of Nasdaq Volume*, 2 November 2006
- 8 *London Stock Exchange Statement: New Equity Price List to Incentivise Liquidity Provision and Stimulate Further Growth*, 1 August 2008
- 9 *Deutsche Börse Statement: Deutsche Börse Introduces New Pricing and Discount Model for Algorithmic Trading*, 26 August 2008
- 10 *Eurex Clearing statement: Eurex Clearing to Expand Service Offering in Cash Market*, 26 August 2008
- 11 *LCH.Clearnet Statement: LCH.Clearnet SA Reduces Cash Equity Clearing Fees by a Further 25%*, 20 December 2007
- 12 *European Central Bank, Target Annual Report 2008*, April 2009
- 13 *London Stock Exchange Statement: London Stock Exchange Introduces New Order Book Pricing*, 1 July 2009





**Global Transaction Services**  
**[www.transactionsservices.citi.com](http://www.transactionsservices.citi.com)**

© 2009 Citibank, N.A. All rights reserved. CITI and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates, used and registered throughout the world. The information contained in these pages is not intended as legal or tax advice and we advise our readers to contact their own advisers. Not all products and services are available in all geographic areas. Any unauthorised use, duplication or disclosure is prohibited by law and may result in prosecution. Citibank, N.A. is incorporated with limited liability under the National Bank Act of the U.S.A. and has its head office at 399 Park Avenue, New York, NY 10043, U.S.A. Citibank, N.A. London branch is registered in the UK at Citigroup Centre, Canada Square, Canary Wharf, London E14 5LB, under No. BRO01018, and is authorised and regulated by the Financial Services Authority. VAT No. GB 429 6256 29. Ultimately owned by Citi Inc., New York, U.S.A.

GRA20296 09/09

