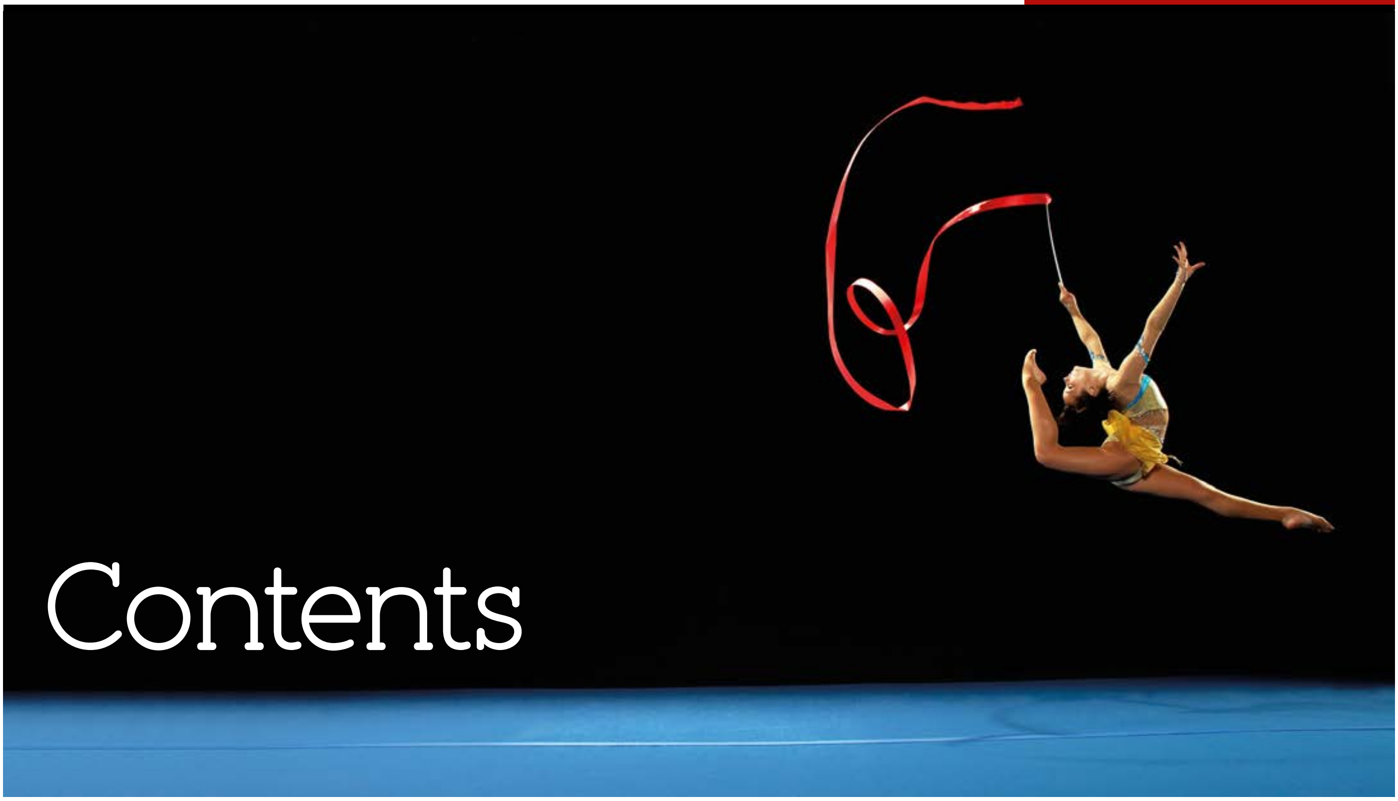
FIA EUROPE

Derivatives Clearing 2015

Triple whammy



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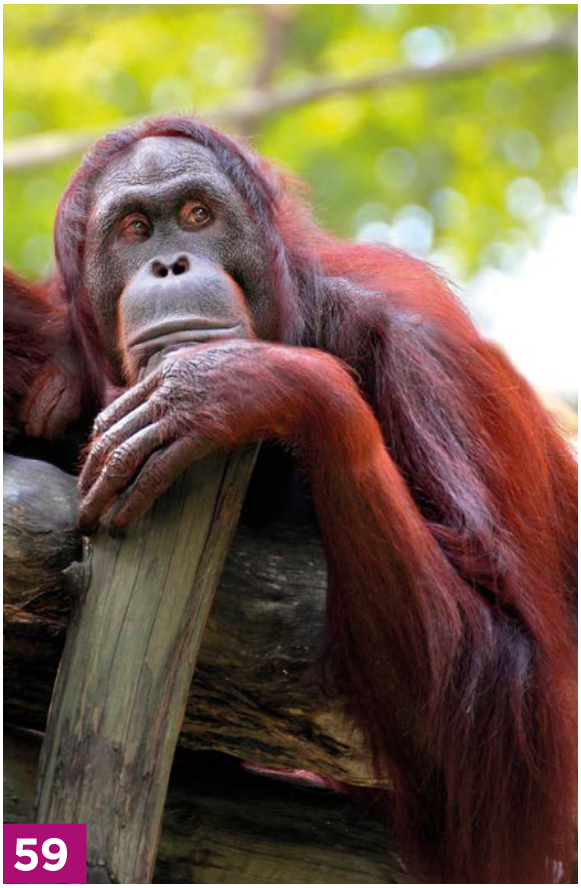
MIFID II



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FIA EUROPE

FIA, FIA Europe and FIA Asia are planning to merge in the first quarter of 2016.

Since June 2013, the three associations have been working closely together under an affiliated global structure, FIA Global, which enabled the independent organisations and their boards to better co-ordinate policies and priorities. Having seen the benefits of this affiliation in a number of areas, including collaboration on advocacy, industry issues, global standards, member communications and events, the boards of the three associations have approved a plan to legally combine into a single organisation, known simply as FIA.

The boards of FIA, FIA Europe and FIA Asia consider that such a merger will provide the industry with a robust, powerful and effective global association to promote the interests of members. The new organisation will retain a strong regional focus while offering the industry the strength and operational efficiencies that come from having a single, unified global organisation.

The new organisation will be governed by a global board that is supported by regional advisory boards in each of the Americas, Europe and Asia. The global board will be vested with all rights and authorities for supervising the organisation, including overseeing overall policy strategy and development, membership, dues, staffing/personnel and organisational budgets. The global board will oversee the development and co-ordination of the organisation's policies with significant input from the regional advisory boards. Both the board and the regional advisory boards will comprise business leaders representing a cross-section of the organisation's membership.

The most important benefit is that policy and advocacy for the futures, options, commodities and cleared swaps markets will be co-ordinated on a global level, so that our industry speaks with one voice across the Americas, Europe and Asia. The regional advisory boards and staff will continue to discuss and address regional issues. They will also continue to develop and maintain relationships with government officials and industry professionals at the regional level. In addition, we will be able to:

- Leverage the combined associations' resources and assets to create more powerful membership benefits and services for members in all three regions.
- Explore synergies by expanding successful product offerings in one region to all regions such as FIA Volume and FIA Europe's Documentation Library.
- Align global brand, messaging and reach of the association with the evolving global industry.
- Prioritise resources where they are most needed and achieve efficiencies by pooling assets and expertise worldwide.
- Provide a stronger voice and platform to engage with policymakers worldwide.

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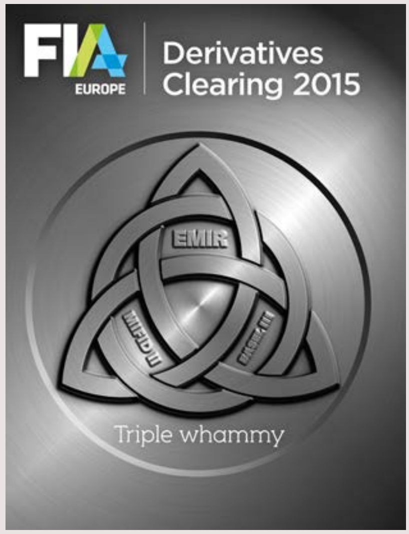

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A time for contemplation

By **Simon Puleston Jones**, chief executive officer, FIA Europe

As alluded to on the cover of this publication, the laws created as a result of the financial crisis form an interdependent and interconnected patchwork of national and regional regulation, for financial markets that are doggedly global.

We are now entering a period of contemplation by legislators, regulators and industry alike.

In its call for evidence in September, the European Commission asked: "What are the benefits, unintended effects, inconsistencies and incoherent areas of the financial legislation adopted in response to the financial crisis?" This call for evidence came hot on the heels of the European Commission's European Market Infrastructure Regulation (EMIR) Review and will be followed in due course by consultations from other bodies that will consider, in particular, the impact of prudential regulation on the success and viability of markets regulation.

Finding a balance

Everything coming out of Brussels is now looked at through the prism of "will this piece of legislation deliver jobs and growth?" The European Commission seeks to be clear with the industry that addressing financial stability concerns and developing markets regulation are key planks to promote jobs and growth, not to undermine it. They propose to tweak recent regulation, rather than tear it up and start afresh.

A tricky balance is sought. On the one hand, we need to ensure that we have well-capitalised banks, market infrastructure providers, commodity trading firms, energy companies and market makers. On the other hand, such capital requirements must not be so punitive as to push firms into closing key business lines or relocating their businesses to foreign shores that fall outside of European jurisdiction.

It is increasingly evident that the balance has currently tipped too far in favour of prudential rules. Insufficient capacity has been left to grow European markets and thereby create new jobs.

We need to pull back a little on the regulatory capital throttle – just enough to promote more growth. If we do not, we risk prolonged stagnation. If, in pulling back, it transpires that the hoped-for growth fails to materialise and the risks to financial stability become too great, then we can push forward the throttle once more to an appropriate level.

As acknowledged by the Commodity Futures Trading Commission chairman Timothy Massad and others, the leverage ratio needs to be amended to recognise the exposure-reducing effect of segregated margin, in order to ensure that there is sufficient balance sheet capacity to provide access to clearing under EMIR and Dodd-Frank; to support post-default portability of client positions; and to mitigate the risk of excessive concentration of clearing through too small a number of clearing brokers.

Commodity trading firms and energy companies represent a challenge too: on the one hand, there is a good argument for them to be subject to MiFID II, to level the playing field with the investment banks with whom they are competing when engaged in speculative trading. On the other hand, the outcome of any imposition of regulatory capital requirements on those firms under CRD IV may be inconsistent with the European Commission's jobs and growth agenda.

Crtitical interplay

The interplay between prudential and markets legislation is critical. A better-scoped and calibrated set of European regulatory capital rules therefore lies at the heart of delivering jobs and growth in Europe.

Furthermore, while it may not prove politically possible to agree minimum harmonisation requirements for insolvency laws across the EU, legislators also need to consider how to mitigate the challenges to which conflicting insolvency and property laws give rise.

The recommendation of the European Securities and Markets Authority to consult on changes to the indirect clearing regulatory technical standards under EMIR and the Markets in Financial Instruments Regulation is a welcome development in this regard.

> **Europe must rise to the challenge of establishing harmonious regulation that ensures financial stability while also promoting growth**

What does the future hold?

Central counterparty recovery and resolution regulations are just over the horizon.

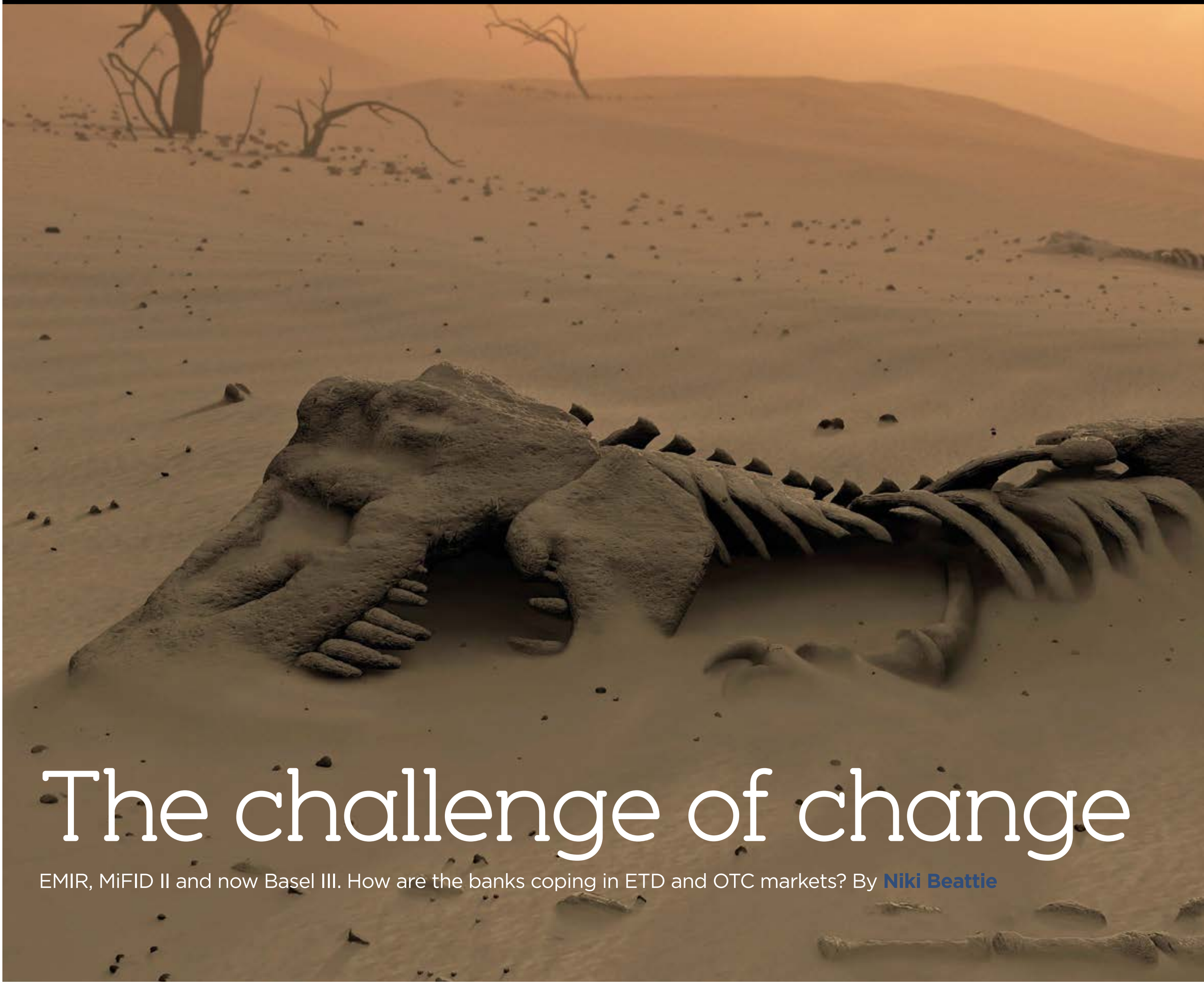
Blockchain technology is receiving much attention: a significant stumbling block is one of its key attractions – it does not respect any geographic or jurisdictional boundaries. This makes blockchain technology potentially challenging to regulate.

High-level recommendations for investment firms' and market infrastructures' cybersecurity are inevitable. Further expansion of the regulatory regimes relating to conduct and senior management responsibility can also be foreseen.

In conclusion, Europe must rise to the challenge of establishing harmonious regulation that ensures financial stability while also promoting growth.

Disenchanted, nimble firms are increasingly looking to the Far East as a potential new home, in protest at the currently proposed suite of European derivatives law reform. A rise in US interest rates will also make America more attractive.

It is critical that we keep European business in Europe. ■



The challenge of change

EMIR, MiFID II and now Basel III. How are the banks coping in ETD and OTC markets? By **Niki Beattie**

Markets are in continuous evolution. Regulation is only part of the many catalysts for change but it is usually transformational. It can come in the form of measured step changes such as the many EU directives that were spawned by the original European Financial Services Action Plan or a slew of rushed responses such as those that followed the default of Lehman Brothers in 2008. Either way, market participants must constantly adjust their business models or be left behind as new models emerge.

After the financial crisis, regulators, justifiably, are seeking to better understand the firms they regulate while satisfying national governments and the public that something similar could not happen again. In response to increased focus on capital and risk, banks are having to rationalise their business offerings. This is also coupled with the desire to return capital to shareholders. A de-risking of the balance sheet, for example via central clearing or increased collateral, has become a necessity.

The G20 Summit in Pittsburgh of 2009 set in train a number of processes to reduce risk and create transparency in the over-the-counter (OTC) markets. Banks are now having to digest these processes, which were designed to push more business onto recognised markets, increase centralised clearing and capture data within new trade repositories. After a period of extensive consultation, banks are now entrenched in the phased implementation of these regulatory policy responses. The current swathe of regulations and legislation has resulted in a vast amount of implementing measures, which can be considered in two broad dimensions. Firstly the regulators' desire to simplify, or better understand, the balance sheets of financial institutions. And secondly the regulatory desire to de-risk or create adequate provision for risk.

These reforms, which set out a clear desire for more central clearing of OTC derivatives, also mandate that the central clearing of trades should be, in margin terms, more favourable than bilateral exposures (see the Bank for International Settlements and International Organization of Securities Commissions document,

Also in this section:

'Margin requirements for non-centrally cleared derivatives'). As ever, complying with these changes manifests itself as a cost to the business, be it an operational cost and/or a capital charge. This is now the main focus of the banks.

With the implementation of the Markets in Financial Instruments Directive (MiFID) the markets saw the emergence of the multilateral trading facilities (MTFs) and more competition to the domestic bias of national exchanges. Interestingly, the new breed of MTFs did not compete in the price discovery process for the illiquid names of the national market. What had happened was that in the old domestic exchange model there had been a cross subsidy of the trading in illiquid names with the trading of blue chips. The MTFs, with their substantially cheaper pricing, simply did not cater to illiquid names given the notional income that could be received from trading in these names.

Holistic approach

Just as MiFID enabled a light to be shone on the pricing of equity execution, that focus on cost, wherever it resides in the transaction value chain, will only continue. The current suite of regulatory initiatives will simply require firms to examine costs across different segments of their business processes.

Banks are particularly challenged with the complexity of dealing with the current waves of change presented by each regulatory initiative, in all the various jurisdictions where they operate. But these changes cannot be addressed in isolation. Banks have been forced to adopt a more holistic approach in their understanding of their business to implement more cost-effective solutions to address the operational changes required to comply with new regulatory policy. Not easy when some aspects of regulation are still in consultation. Still, what we can be certain of is that the regulatory net will continue to stretch.

How can firms adjust to these demands? Banks and financial institutions are all grappling with how to optimise their balance sheets and capital allocation. The common theme is a pincer movement of growing the balance sheet while at the same time de-risking it. Banks are most likely to be looking at regulatory changes through three different lenses: product, business and client. Looking through each of these tells its own story.

At a product level, there is the challenge of reviewing product characteristics. For example, how many asset classes can be held under the one umbrella with uniform or commoditised processes, eg, equities, derivatives, swaps, foreign exchange? Then the focus is where to execute and report transactions accompanied by the relevant operational and capital charges. Given the capital intensity of each product, what is the optimal collateral management solution?

At a business level, there is a comprehensive review of each business line and the demands it imposes on the organisation. Should particular business lines be exited, or is it a matter of just simplifying existing processes by removing certain aspects of a current business offering? These changes can include redefining, and hence repricing, existing services or merging and consolidating business lines such as bringing together all 'cleared' business, both exchange-traded derivatives and OTC, under the one business line. How firms optimise the collateral they receive will be one aspect of the matrix, while thinking about client and product.

Key accounts, as ever, will be retained on the basis of their profitability and yield. However, these metrics will be more robustly tested on a multi-asset, multi-jurisdiction basis. Certainly a key account will continue to be reviewed on a relationship basis, but there will be a greater focus on the profitability and/or cost of the services provided.

This will extend to co-operation on the allocation and utilisation of capital. All firms pride and distinguish themselves today on the basis of their cost controls. These will continue to be tested as the transition from consultation to implementation of new clearing and capital requirements continues. The

> As innovation is stifled in one dimension, for the purposes of balance sheet simplification, invention will blossom elsewhere as firms reposition themselves

challenge will be for businesses to redefine what is acceptable under their specific model in a product and regional matrix.

Finally, all this needs to be overlaid at a client level. Which clients do firms want to focus on? No firm wants to lose a relationship with a key account but it does raise the question of where do you draw the line in terms of revenue diversification versus client profitability and the client service offering. Inevitably, a simplification of the balance sheet will result in a rationalisation of the customer base and those customers that don't make the cut in one bank may produce viable business for a different bank.

Ultimately, the question is: what does it mean for the end-investor and the financial institutions that service them? On a product level, bespoke services, for non-key accounts, will be compromised. The pressure that these 'twist and wrinkle' procedures add to the business model through their complexity and balance sheet requirements will preclude them from the service offering. Conversely, in the quest to preserve key accounts, the development and commoditisation of bespoke services may be tailored to cater for this customer segment.

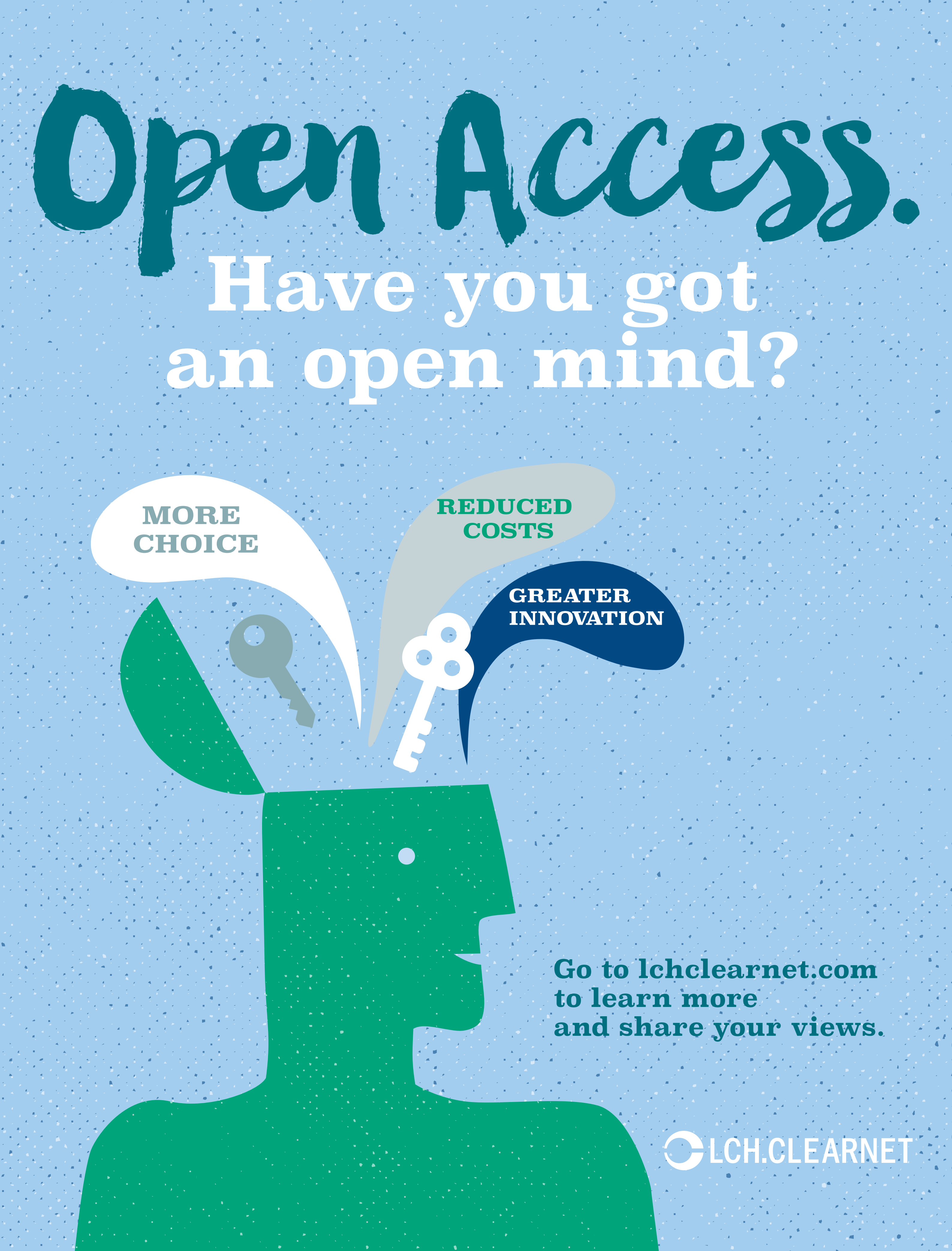
Customers will have to adapt to a change in nuance from their service provider and they will also have more data to analyse about the markets they deal in. Services will be reviewed in conjunction with pricing. It could be that some fragmentation will result.

Some firms, based on size, will find that to meet the new parameters that are set at a business level they will need to review either their service offering (in the case of a broker) or their service provider (in the case of a user). It could be that for bespoke services they will use a different provider compared to the 'vanilla' or less-capital-intensive services.

Adapt and evolve

Finally it will be the client who determines where a product might be cleared. Banks will have to manage increasingly complex relationships across clients and clearing houses. Certainly, there will be continual change. Businesses will adapt and customers will evolve with the changing business models. As banks optimise their models, they will identify new niches. Just as innovation is stifled in one dimension, for the purposes of balance sheet simplification, invention will blossom elsewhere as some firms reposition themselves to cater to bespoke services that clients will always require.

Semper eadem, semper antics. Ever the same, and always forwards. ■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Re-imagining brokerage

Pressures on brokerage businesses have been all too apparent since 2009 and they face yet more regulation. But there are silver linings in these clouds. By **Nicolas Breteau**

Following the 2008 financial crisis, the 2009 G20 summit in Pittsburgh addressed over-the-counter (OTC) market risk by determining that all standardised OTC derivative contracts should only be traded on exchanges or electronic trading platforms and that they must be cleared by central counterparties (CCPs). Thus was born Dodd-Frank and the European Market Infrastructure Regulation (EMIR), which together introduced a complete re-engineering of the derivatives industry. There have been many casualties as a result, both banks and brokers, but is the story entirely bleak?

The idea of pushing more market participants towards exchange-traded products and practices should theoretically be music to the ears of a declining clearing industry that had been dealing since 2009 with rising costs, lower margins and falling volumes. Some new players even entered the clearing space, attracted by the potential of non-trading-generated revenues. Others entered to protect their established OTC execution franchise. Unfortunately, what happened next was not what most of them had anticipated.

Regulatory demands that standardised OTC transactions must be centrally cleared severely disrupted the CCP clearing model, which ironically had proved its resilience for decades, including through the Lehman collapse. It all accelerated after the MF Global (2011) and Peregrine (2012) defaults.

Those two events triggered a strong reaction from regulators, some of whom had been caught asleep at the wheel. For understandable motives they created an avalanche of post-crisis regulations that contributed to eroding profit margins and put many firms out of business. None of the regulators wanted to appear soft and after decades of relatively laissez-faire oversight, they scrutinised every part of the execution and clearing operational chain.

Key among the regulations affecting the futures commission merchants (FCMs) were the Basel III rules, gradually implemented to rectify the perceived shortcomings in capital adequacy. Those rules sought to address presumed weaknesses in the market by increasing bank capitalisation, reducing liquidity risk and constraining leverage.

While the full implementation of the Basel III regulations is not due until 2018, banks are already under pressure to conform to the new standards. They now report new ratios to regulators, and their investors have been keen to understand how the adoption of the Basel measures will impact their profitability.

The clearing divisions of banks, quite naturally, reassessed their business in light of these new capital measures. They took swift action because as their capital buffers increased in a flat-to-declining revenue environment their return on capital fell. They focused on bolstering capital, cutting costs

and reducing lower-yielding risk-weighted assets.

In this rationalisation process banks made strategic adjustments to their portfolio of businesses activity and several divested capital-consuming activities such as prime brokerage, commodity financing and clearing more generally.

> **While the full implementation of the Basel III regulations is not due until 2018, banks are already under pressure to conform to the new standards**

Regulators genuinely believed that their rule making, in particular Dodd-Frank and EMIR, would increase competition and facilitate the arrival of new entrants in execution and clearing. But in practice it accelerated the reduction in the number of FCMs. On the OTC side, the expected transition towards a clearing regime did not benefit FCMs handling swap trades and several new entrants exited the space, sometimes after investing heavily to build their back-office capabilities.

Decrease in revenue

Last but not least, non-bank brokers suffered from a tangible decrease of their traditional revenues from banks and many, not having scale, were unable to cope. Several disappeared and others are supposedly for sale today, contributing further to the consolidation of the brokerage industry. But worse is to come.

The leverage ratio, due in 2018, appears as the ultimate nail in the coffin. It does not necessarily reflect properly the treatment of client margin by FCMs and penalises those who are collecting the largest deposits from clients to cover their exposure. Exchange and CCP leaders have quite rightly alerted the regulators. Left unchanged, the leverage ratio will drive more banks out of the clearing business.

The impacts to the real economy would be significantly negative as it might concentrate central clearing responsibilities in the hands of possibly less than five clearing members, hence limiting hedging opportunities for end-users and creating a higher systemic risk.

In addition, the breadth and complexity of the Markets in Financial Instruments Directive (MiFID) II creates some new dimensions in comparison with previous regulations. The extension of the scope of the transaction reporting and transparency regimes, and the additional data requirements that arise, will considerably increase the complexity of reporting for a number of organisations. The creation, collection and management of data and the systems architecture required to address MiFID II implementation will challenge many firms.

Adding to this complexity, regulatory changes to force OTC transactions to migrate onto new platforms favoured the launch of numerous swap execution facilities and organised trading facilities. They offer more choices for clients but fragment liquidity and increase complexity for the FCMs who are facing the difficult choice of which to connect to without knowing which will survive.

Moreover, a European Securities and Markets Authority paper refers to linking pre- and post-trade risk systems to achieve a real-time credit view of your counterparty risk for specific clients. This will continue to push the need for more costly investments in technology for brokers.

This level of complexity will continue to push an unprecedented transformation of the industry. Clearing used to be about processing more volumes at marginal cost. It is now the art of managing scarce resources (liquidity and balance sheet) while running with the lowest cost base possible.

Clearing banks are taking action because in the current environment their return on equity of their clearing division appears to be below the long-term cost of capital (widely considered to be 10–12 per cent). Over the medium term, clearers will need to find ways to meet acceptable return-on-equity targets, or potentially risk alienating their investor base.

Not solely compliance

As a direct consequence, the work to implement MiFID II is not solely a compliance issue. Many players are making it a business change initiative that will give them the opportunity to save or at least minimise costs structurally. Instead of just making each piece of their business compliant they are looking at their organisation, product delivery and governance and are taking major steps to profoundly change their infrastructure and how they work with clients.

Technology is at the forefront of this. Outsourcing post-trade cleared derivatives processing is now a reality. As the service is highly commoditised and provides little differentiated value to each firm, many of them see this as a source for substantial savings.

SunGard's outsourced service for handling post-trade functions in the listed derivatives and swaps market might sound like a credible solution. Barclays is the first customer and other FCMs are said to be following its lead.

Other technology providers might come into this space and several clearers might decide to contribute to a post-trade utility if they could put aside their differences.

> **Clearing used to be about processing more volumes at marginal cost. It is now the art of managing scarce resources while running with the lowest cost base**

In a similar move, several banks are teaming up with technology provider SmartStream to create a new company 'SPReD' (Securities Product Reference Data) that will pull together clean streams of reference data primarily on listed derivatives and equities.

Blockchain potential

Thinking further forward, several clearing banks are looking at the potential usage of the blockchain and distributed ledger systems in their model. Initially considered for international payments, this technology could be extended to the settlement of financial instruments. Proponents say that collateral could be moved around the system faster, to meet regulatory requirements, and that a ledger updated in minutes could save millions in collateral and settlement costs, including banks' expensive back-office systems.

Clearers are also revisiting their approach to clients. Regulatory reforms are pushing banks towards more traditional activities. More liquidity has to be available to comply with stress tests. As a result, banks in the future need greater cross-selling and operational intimacy with their clients to retain sufficient liquidity for the stress test.

Banks have to have activities that are complementary to the traditional clearing service. For example, collateral management services, which once sat within niche or targeted product lines, are now at the heart of the modern FCM business model that brings agency execution, clearing and collateral management together into one service.

Clearing is also increasingly being seen as a finite resource offered mainly to select clients that are valuable to the brokers, who are now looking at the total value of the client business holistically. They define the value of the client portfolio from their own perspective: different assets may vary in their value to different clearers because certain clearers may be better positioned to internalise certain asset types, for example.

Although tougher market conditions and an unstoppable wave of regulation have caused several FCMs to leave the business, a renewed focus on profitability will leave survivors in a good position. The clearing industry is beginning to see the positive results from restructuring and innovation and looks well positioned to benefit from a market upturn.

Pricing will pick up in the end. Regulation has forced banks to pull back in derivatives and left a few very large providers supporting an entire market, which could mean less customer choice and higher fees.

And other revenues may emerge. Some large brokers are projecting their business into the digital age. Gigantic volumes of transactions in various asset classes, combined with increased automation in their processing, provide access to comprehensive, timely and accurate client and market data that some are already looking for ways to monetise. ■

The industrialisation of collateral

DTCC-Euroclear GlobalCollateral Ltd's chief commercial officer Ted Leveroni discusses a new report that reveals a need for a collateral management utility

Q: Aite Group's report "Derivatives Collateral Management: Entering the Industrial Age" – commissioned by GlobalCollateral – surveyed buy- and sell-side firms on their readiness for regulatory reform in collateral management. What did they find?

The report confirmed that across the sell-side, firms are well aware of the impending collateral squeeze and are bringing the front office and collateral management functions closer together. They are anticipating changes ahead, and are approaching them as an industry.

Readiness on the buy–side, however, varies. Some asset managers are well on their way to centralising their collateral management operations, having automated manual functions, while some firms have yet to start.

This is not as alarming as it sounds as they have a range of support services available. Software vendors and solution providers have been focused on regulatory change and are well-placed to help late adopters get started. Pragmatically, buy-side firms can take a phased approach starting with mandatory clearing next year, and compliance with initial margin requirements in the following years. They should be able to meet these deadlines, assuming they can automate the processes that enable them to become compliant.

Q. What benefit will the industrialisation of collateral management bring?

Firms can industrialise – centralise or outsource – parts of the collateral processing chain that are not competitive differentiators. By working together to create standards and facilitate straight-through-processing from centralised facilities, the industry will achieve better risk management and operational and cost efficiency.

Q. What is the future of utilities and industrialised functions in collateral management?

In recent years, providers have been working to manage the industrialisation of activities held within individual institutions, including eligibility rules, haircuts, collateral calls and risk management. What hasn't yet been addressed, however, is the interplay between firms. This is why Euroclear and the Depository Trust & Clearing Corporation (DTCC) have partnered to create the DTCC-Euroclear GlobalCollateral Ltd joint venture to offer an open platform that supports the seamless mobility and settlement of collateral.

Q. How does use of a utility help firms improve efficiency of collateral mobility?

Collateral is currently moved on a point-to-point basis. A dealer or a buy-side institution with 100 different custodians and 100 clients will have to connect to each with their own formats and data. As collateral movements increase, this approach will no longer be fit for purpose. A centralised utility for connectivity and data storage, instead of everyone individually storing information, makes sense. This is also critical when changes occur. If firms leverage a central location to store collateral SSIs for example, they can update the data once, ensuring accuracy and reducing fails.

Q. What is the next area of collateral management that should be addressed?

It is undoubtedly collateral fails. Very often, collateral managers don't realise that their collateral has failed, although settlements staff do!

The primary reason we manage collateral is to protect ourselves from counterparty default. The only time we are protected is when we receive the collateral we are supposed to. All of the great processes upstream do not matter if the collateral fails.

Setting standards and creating automation in collateral management, especially around data management and communication, offers greater transparency and allows us to identify if anything is at risk of failing. We can then focus our operational efforts on managing the problem, thus reducing the risk of fails.

Download "Derivatives Collateral Management: Entering the Industrial Age" at www.globalcollateral.net

DTCC euroclear | GlobalCollateral

CCPs feel the stress

CCP structures and capitalisation are under scrutiny as their role in OTC clearing develops. But how do we stress test these non-uniform organisations? By **Richard Heckinger**

Intense focus on central counterparties (CCPs) derives mainly from the G20 requirement for the clearing of over-the-counter (OTC) derivatives that are sufficiently standard to justify and benefit from the use of a CCP to reduce financial market risk.

Some of the benefits of central clearing are subject to debate, however. Key benefits are presumed to be: increased transparency, netting/compression offsets, more standardised credit assumptions and continuous risk management with guarantee of performance. But these come with costs in terms of use of collateral, capital and reduced hedging efficiency.

Regardless, OTC clearing is now mandatory in the US and several other countries, and will soon be mandatory in the EU. Meanwhile, the clearing of exchange-traded derivatives has been a fundamental fixture of those markets for over 100 years, with generally good risk management results.

More specific focus on CCPs arises from the Principles for Financial Market Infrastructures (PFMIs) that cover their organisation, governance and other functional aspects, as well as other market infrastructures.

The PFMIs are general in their wording to account for a range of CCP structures. But CCPs are not all identical. Some CCPs are utility-style, as unitary facilities open to all clearing members that qualify. Others are part of vertical organisations that might include exchanges and other related functions (eg, data vending or systems development). Some are owned by their users, and some are stock held or owned by industry consortia. The governance, usage and incentives can vary considerably depending on the mix of these factors.

Change in focus

As CCPs clear more OTC contracts, the focus is increasingly on how good (or bad) might they be as counterparties. Will concentrating risk positions into a CCP reduce systemic risk or create potential points of failure that are too big and complex to allow to fail in a crisis? Defining what a crisis might look like and how one might play out has been of particular interest and debate among market users, clearing members, CCPs and regulators.

Most agree that, day-to-day, a CCP with a matched book is, by definition, balanced and that variations are a zero sum. It is when a CCP has to take over a failed clearing member's positions and allocate losses that the CCP default management process cuts in. Here, the focus turns to every aspect of a CCP's risk management framework, starting with the membership requirements and including margin policies, collateral policies, the size and composition of default or guarantee funds, the CCP's own capital and the CCP's powers to assess clearing members.

Each of the risk management principles of a CCP continues to be the subject of further detailed focus and stress testing. For example, to what extent, if any, are margin policies used as competitive differentiators between CCPs? What is the credit quality of collateral that might be accepted by a CCP? Probably more importantly, how liquid will that collateral be in a crisis when it might be necessary to factor it or conduct a fire sale of such collateral? How big is the supply of desirable collateral versus how much might be needed?

And then there is the default waterfall: in what order and proportions will the CCP apply financial resources and, importantly, whose resources will it draw on in the event of a default of one or more clearing members? Of particular focus has been the question of CCP capital, especially how much is sufficient, how much is necessary and how will it be used in a member default?

For ongoing operations CCPs generally do not need much working capital, and they have incentives to keep their fees low in order to attract business and compete with other CCPs, but high enough to generate a profit if it is a stock-held company. Utility-style CCPs traditionally rebated excess fees collected from clearing members, but in recent years more retention has been seen as a way to raise a CCP's capital.

Beyond working capital, the question is how much capital will the CCP devote to the risk waterfall, known as its 'skin in the game'? Some say it should be substantial while others argue it should be sufficient to create an incentive for CCP management to act responsibly at all times. Another issue is the source of the CCP's capital. If it is raised from the issuance of equity then shareholders will expect a rate of return commensurate with their perception of risk. If the capital is raised by issuing debt then the CCP must earn enough to cover the interest costs and, possibly, a sinking fund. If retained earnings (or operating surplus) are the source then it will be end-users or clearing members paying it in.

Furthermore, should the CCP's own capital be commensurate with the size of the guarantee fund, which itself is usually sized according to the margins held, or by some other metric? In addition, where should the CCP's skin in the game be positioned in the waterfall?

As to the stress tests themselves the question arises whether they can or should be standardised, and to what extent the scope and results should be disclosed to all, not just to the regulators. The CCPs, generally, say: "We follow the PFMIs, but as to the details, leave it to us to know our correlations, portfolio diversification/concentration effects and collateral liquidity, etc."

Path to recovery

While the market users typically want more disclosure, there is much room for convergence (or, perhaps, divergence) on the idea that one size of stress tests does or does not fit all CCPs. This stems from the structure of CCP default funds versus the products covered, what offsets are assumed across products, the look-back period and scenarios used to define stress situations.

There is even concern that, based on their knowledge of CCP stress standards, some market users might structure their portfolios according to the most protection accorded by the stress standard. Meanwhile, the Committee on Payments and Market Infrastructures and the International Organization of Securities Commissions have announced a review of stress testing of CCPs with surveys and interviews in progress.

Key to proceeding with a recovery is establishing the extent of the financial damage and rebalancing the CCP's overall book

Ultimately, the path through this dense thicket of discussion leads to the possibility of recovery or resolution of a CCP that has run out of financial resources but still bears financial obligations to its remaining clearing members. Recovery of a failed CCP implies that a plan can be worked out, if not already agreed to beforehand, as to how the interests of all parties will be represented in recovery. Key to proceeding with a recovery is establishing the extent of the financial damage and rebalancing the CCP's overall book.

Resolution, meanwhile, indicates that recovery has not worked or is not possible given the resources. Resolution, ie, the intervention of official authorities, might result in rehabilitation of the CCP, perhaps as a 'good CCP and bad CCP' construct, similar to bank resolutions.

The avoidance of using public money for a bailout of a failed CCP is a universal tenet of public policy at present, and the focus on CCP risk management, stress testing and governance is done with the objective of avoiding a bailout. Most discussion on the idea of a bailout is focused on lending to a CCP against its collateral, assuming any is left, with the requirement that such a loan be repaid.

Even so, regardless of the semantics, the question still lurks as to whether CCPs are too big to fail and whether a failed CCP would be able to get emergency liquidity, as opposed to collateral, from, say, a central bank, treasury or finance ministry? Alternatively, or perhaps in combination with official sources, would emergency liquidity be available from commercial sources, such as hedge funds, that would likely demand some high yield for a loan or considerable equity in the successor CCP?

Some CCPs, but not all, have bank charters and access to central bank lending either routinely or in a crisis, generally understood to be a liquidity crisis. Other CCPs do not categorically have access to a lender of last resort thus avoiding the creation of moral hazard situations whereby a CPP, or its clearing members, might take on more risk with the expectation that they can rely on rescue by that lender.

In recent decades, the limits of restraint by central banks with respect to emergency lending to a CCP have not been tested. But if CCPs are indeed too big to fail then at least one highly respected commentator, Sir Paul Tucker, formerly deputy governor of the Bank of England, has presented the idea that CCPs become nationalised institutions.

CCPs have come far from the days when they were black art mysteries, but may not yet have fully arrived as a natural part of OTC derivatives risk management. Many, if not most, of the issues described above have not reached a point of conclusive agreement as to what the 'right' solution should be.

Dealers, clearing members and end-users want more quantitative answers about their potential risks of using a CCP while the CCPs themselves feel the need to preserve flexibility in their emergency powers. Regulators hesitate to be too proscriptive so as to avoid moral hazard and accusations that they are attempting to run the markets directly, or stifle competition and innovation. Like it or not, it appears that cleared OTC is here to stay and CCPs will be the focus of close attention for some time to come. ■

Key changes in clearing

New regulations are increasing compliance costs, causing value shifts between participants and changing risk patterns. Mitigating these won't be easy. By **Daniela Peterhoff**

A torrent of regulations is generating rapid change across the derivatives clearing landscape. It will continue to do so over the next few years, affecting both exchange-traded derivatives (ETD) and traditional over-the-counter (OTC) markets.

The European Market Infrastructure Regulation (EMIR) primarily focuses on ensuring that the risks involved in OTC derivatives are managed effectively. Specifically, EMIR requires all standardised OTC derivative contracts to be cleared via central counterparties (CCPs), formulates common rules for those CCPs and regulates trade reporting. From the perspective of CCPs, EMIR on the one hand heightens the demand for central clearing services, but on the other imposes additional operational and risk management requirements that are likely to lead to higher costs.

It also results in the adaptation of OTC derivatives operations and processes by intermediaries, such as the introduction of client clearing services, and end-clients. Due to the obligation to report all derivative transactions to a trade repository, EMIR will necessitate additional investment in reporting and record-keeping infrastructure. Moreover, adjustments to margin rules, default fund contributions and additional capital requirements exert a financial impact on clearing members and CCPs.

The Markets in Financial Instruments Directive (MiFID) II/ Markets in Financial Instruments Regulation (MiFIR) leads to growing competition, provides for open access between CCPs, and is likely to result in lower direct costs for participants, price unbundling and a further compression of clearing margins in the medium term. It therefore threatens the traditional 'vertical' exchange-traded silo model. To satisfy client demand and maximise

benefits, banks and clearing brokers that benefit from this development through improved economic conditions will need to connect to a broader range of CCPs than previously. Heightened transparency requirements for less liquid OTC derivatives through the systematic internaliser regime could alter trading preferences, thus pushing even more volume towards cleared products.

Basel III aims to improve the financial robustness of banks through enhanced capital requirements, decreasing leverage and increasing liquidity. It includes an update of the risk-weighted assets framework, setting increased risk-based minimum capital requirements.

The introduction of the leverage ratio caps bank leverages and reinforces risk-based requirements, and the liquidity coverage ratio promotes short-term (one-month) resilience of liquidity profiles. Finally, the launch of the net stable funding ratio promotes funding resilience over a longer time frame. All three measures force banks to optimise their derivatives-clearing and collateral-management activities with regard to financial resources.

Implications for banks and clearing brokers

Overall, these regulations are creating increased compliance and transaction costs for banks, clearing brokers and CCPs, plus the need to optimise operating models and processes. Banks need to manage the trade-off between ETD and OTC derivatives, while factoring in the 'futurisation' of contracts. They also need to rebalance their portfolios in terms of instrument types, currencies and geographic focus.

Clearing brokers are under pressure to streamline their network management, operations, collateral and risk processes, and need to work hard to ensure alignment across all parts of the organisation. The precise impact depends on the current portfolio of the bank and the existing set-up of the clearing broker. There are also direct and indirect effects on the buy-side, calling into question current access models and opening up the space for direct participation models.

The main derivatives-clearing regulations have evolved substantially over recent years. This creates opportunities but also requires the industry to adapt. Under the initial draft, centrally cleared OTC trades were significantly more cost-efficient than bilateral OTC trades. To give an example, central clearing can mitigate some of the resulting pressures on the capital side.

However, this in turn generates additional demands for collateral (particularly high-quality liquid assets) due to the net stable funding ratio and liquidity coverage ratios. Banks will need to focus their scope of activity on addressing these requirements.

The regulatory aim of shifting OTC contracts on to CCPs is already well underway, with strong volume growth in the largest OTC CCPs reported over the last few years. However, margin compression, product and instrument substitution and initial signs of futurisation are taking place at the same time.

While it is difficult to predict exact levels, there is a strong likelihood that the effects will still be seen primarily on interest-rate derivatives, parts of which are already cleared via a CCP, and then on credit default swaps.

With different CCPs achieving critical mass, we are seeing a trend towards regional fragmentation, with associated disparities in rules and varying phase-in dates and exemptions. Such a development makes it difficult for banks to manage legal entity structures, booking models and risk allocation.

This is particularly true for Europe. While regulators have tried to tackle risk deficiencies

> **The industry and regulators need to ensure that they retain the risk management standards that were initially envisaged… all key stakeholders need to be proactive in preventing a race to the bottom**

in the system, the outcome has been inconsistencies and an overburdening of the European capital markets industry, with implications for competitiveness.

How can these implications be mitigated?

Looking ahead, banks need to continue managing a number of factors, such as:

- netting: seeking to optimise capital and funding requirements for cleared trades through cross-product netting and margining;
- collateral: reducing funding requirements through the use of a broad collateral set, collateral re-use and access to central bank accounts;
- capital: managing CCP connectivity in a way that minimises overall capital contribution, such as through the use of CCPs with integrated cross-product risk management structures, as well as segregation capabilities;
- fees: banks will not base the selection of their preferred CCPs primarily on fees, given the greater importance of sound risk practices – however, there may be short-term benefits of using CCPs with initial fee waivers and lower collateral charges.

While there was significant scope for the optimisation of exposures through the use of CCPs in the initial drafts of the regulations, this is not so evident in the emerging final version.

Banks and clearing brokers need to adapt operations, collateral and capital management to be able to remain in the business. In the medium term, we may see a contraction of volumes or a consolidation of exposures for a limited number of CCPs.

Collateral management, particularly the expansion of eligible collateral sets, convergence of standards and the enhancement of existing tools such as collateral transformation, also forms part of the solution. Currently, cash and other similarly efficient types of collateral are becoming more important as CCPs converge their collateral eligibility requirements.

CCP credibility

Despite increasing pressures, the industry and regulators need to ensure that they retain the risk management standards that were initially envisaged. Interpretation of the regulations and the exact design of the waterfall ultimately shape the robustness and the credibility of a CCP. All key stakeholders need to be proactive in preventing a race to the bottom.

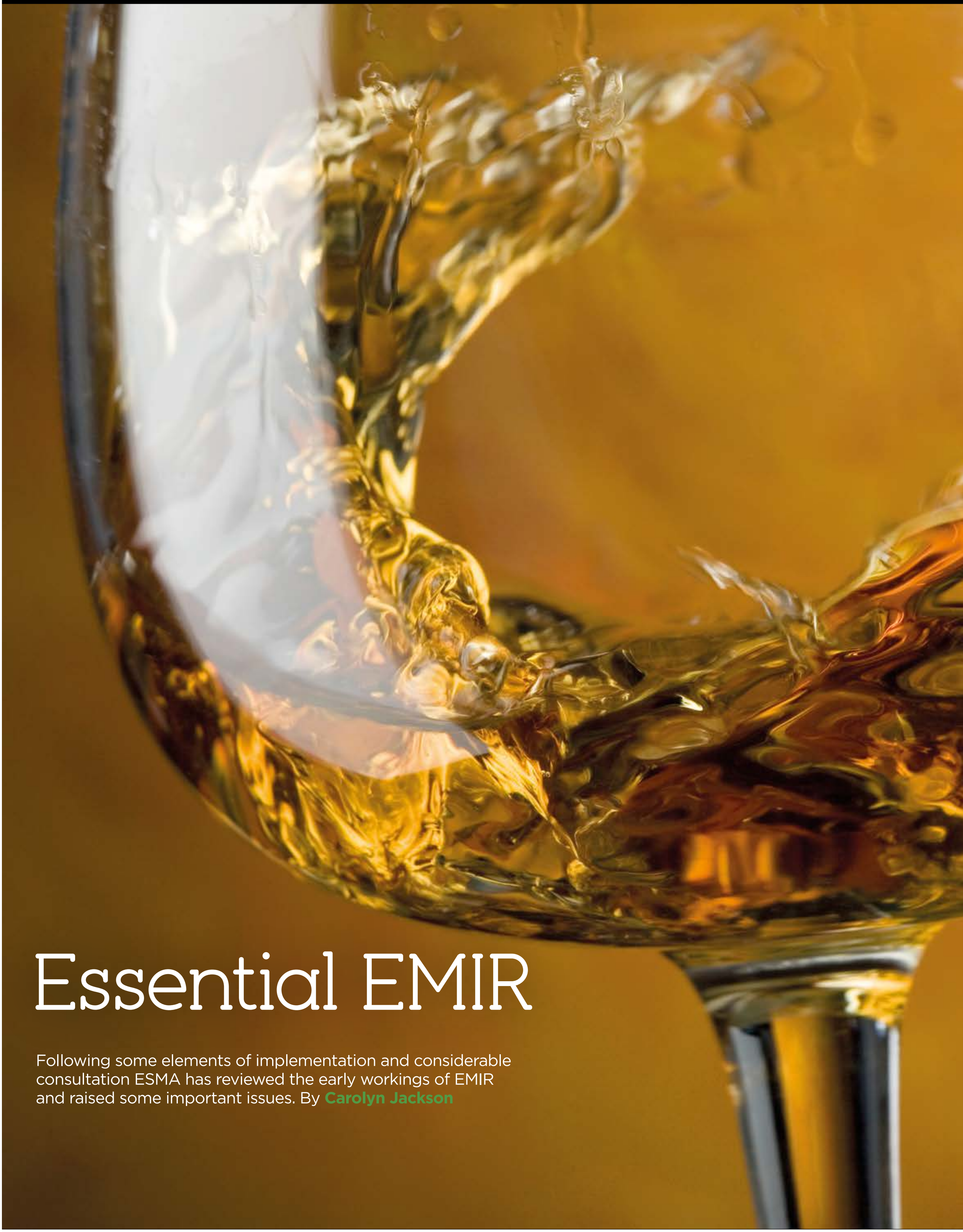
This not only applies to competing, systemically relevant CCPs with substantial derivatives exposure. It also relates to the next layer of CCPs that have just obtained EMIR approval. The appetite and aptitude of banks to stay in the business are dependent on a sound and stable market infrastructure.

Accordingly, a number of CCPs are currently reviewing their risk governance and stress testing frameworks. They are trying to ensure that heightened standards can be achieved, at least in terms of compliance with new regulations, while also drawing upon best practices from the banking world.

A best practice recovery plan for market infrastructure providers is similar in structure to the frequently discussed recovery plans of global, systemically important financial institutions, although the contents will need to be tailored to the risk profiles of the specific infrastructure.

Six core elements that should be included in a market infrastructure provider's plan are:

1. Critical services: identification of the services whose failure would have a significant negative impact on third parties and jeopardise financial stability.
2. Stress scenarios: identification of the idiosyncratic and systemic stress scenarios that would prevent the infrastructure company from providing critical services.
3. Triggers: definition of the qualitative and quantitative measures and thresholds that trigger recovery when breached. Outline of the escalation process once thresholds are breached, and description of the governance structure for ongoing plan maintenance.
4. Recovery tools: identification of appropriate recovery tools, differentiated by scenario type. Articulation of necessary steps and time needed to implement them.
5. Addressing structural weaknesses: tools to tackle underlying causes of stress, and strategic analysis identifying structural weaknesses and determining the value and marketability of businesses for disposal.
6. Market infrastructure links: identification of financial exposures between infrastructure providers so that relevant aspects of recovery plans can be co-ordinated. ■



Essential EMIR

Following some elements of implementation and considerable consultation ESMA has reviewed the early workings of EMIR and raised some important issues. By **Carolyn Jackson**

Also in this section:

The European Market Infrastructure Regulation (EMIR) entered into force on 16 August 2012. Subsequently the European Commission (EC), in consultation with the relevant sectorial authorities, was required to submit a general report on certain operative aspects of EMIR to the European Parliament and European Commission, together with any recommended changes, by 17 August 2015.

To aid such a review, the European Securities and Markets Authority (ESMA) published four reports on 13 August 2015, which included various recommendations on amending EMIR both at the Level 1 and Level 2 provisions. This article discusses the findings and proposals made by ESMA in the reports as well as additional issues arising from EMIR's implementation.

NFCs' use of OTC derivatives

The first report reviews the use of over-the-counter (OTC) derivatives by non-financial counterparties (NFCs). In particular, the report is concerned with the systemic importance of OTC derivatives entered into by NFCs.

Although ESMA concluded that overall NFCs' use of OTC derivatives when compared to financial counterparties (FCs) had little systemic relevance, they issued a concern that in some instances an NFC's use could rise to a level to be considered to be systemic when disaggregated by asset class.

In particular, ESMA noted that commodity firms were the largest users of OTC derivatives, but most did not rise to the level of being an NFC+, and therefore are not subject to mandatory clearing, heightened risk management and increased reporting obligations of EMIR. To include these potentially systemic end-users, the report recommends eliminating the hedging exemption for the determination of the EMIR clearing threshold altogether and perhaps increasing the thresholds – although ESMA did not specify these.

Additionally, the report discusses ESMA's concern over "quasi-financial institutions", ie, those entities that are generally considered to be financial entities but do not fall within the EMIR FC definition, such as certain fund vehicles not managed by an authorised alternative fund manager. ESMA recommends analysing whether treating these institutions as NFCs is appropriate and in line with the original objective of EMIR.

What is interesting about Report 1 is that it is clear that many counterparties, even now, do not know if they are appropriately categorised as an FC, NFC+ or NFC-, which is the fundamental starting point for assessing EMIR obligations.

> **Many counterparties, even now, do not know if they are appropriately categorised as an FC, NFC+ or NFC-**

In addition, a large number of counterparties classified their OTC activity as either 100 per cent hedging or non-hedging.

This suggests that such counterparties have not developed the systems to be able to determine on a case-by-case basis whether each OTC derivatives transaction entered into is a hedge or non-hedge as required under ESMA guidance.

It is unlikely, however, that such counterparties will ever be able to develop such systems, as the ESMA guidance ignores how most end-users have certain trading limits to allow for delaying a hedge, taking minimal outright market risk, etc.

A more appropriate measure would be to reverse-engineer the gross notional open positions from looking at a counterparty's delta across the various maturities of OTC derivatives in the portfolio.

Margining and procyclicality

The regulator's second report provides an assessment on the efficiency of margining requirements on limiting procyclicality. ESMA noted that while all authorised central counterparties (CCPs) have implemented appropriate measures to mitigate the procyclical effects of margining requirements as required under EMIR, they recommended amending Level 1 text to include additional intervention capacity.

In addition, ESMA recommends amending the existing regulatory technical standards (RTS) requirements to include a provision for CCPs to define one or more procyclicality metrics, which must be tested regularly as part of the CCP's sensitivity analysis programme.

Segregation and portability

In the third report, ESMA provides a summary of the EMIR segregation and portability requirements set out in Article 39 of EMIR and how EU CCPs have complied with the obligations. ESMA notes that the take-up for individual segregated accounts (ISAs) has been minimal partly because no mandatory clearing obligation is currently in effect and concerns about the cost of implementation and day-to-day management.

ESMA states that there seems to be lack of clarity among clients as to the difference in customer protection afforded by an ISA vs an omnibus segregated account (OSA).

The report also notes the potential conflict of law that arises for a clearing member of an EU CCP that is also a US futures commission merchant (FCM).

ESMA has been trying to address this issue in its Q&A, as well as the complications that arise for indirect clearing.

The report acknowledges that while EMIR identifies the principles and rationale for client protection and the related segregation and portability obligations, it lacks the granular detail to achieve the objectives of its drafters, which could be achieved by the introduction of amended RTS.

The report also notes that ESMA will monitor whether different types of account structures such as the ISA are adopted, to ensure that such accounts are offered and are not subject to undue constraints.

ESMA and the EMIR review

The fourth report provides ESMA's views on several areas that should be considered in the context of the EMIR review by the EC. These areas focus primarily on the EMIR clearing and reporting obligations.

Scope: ESMA notes that there is a discrepancy across the Member States as to whether or not municipalities and regional governments are in scope for purposes of EMIR and recommends the EC specifically address their status as part of the EMIR review.

Clearing obligation procedure: ESMA concludes that the clearing obligation procedure should be reviewed to provide greater flexibility as it currently makes the process too dependent on the first CCP to be authorised. It also introduces rigidity due to the requirement that ESMA publishes draft RTS to the EC six months after receiving notification from an national competent authority that it has authorised a CCP to clear a class of OTC derivatives. Additionally, ESMA recommends a review of the bottom-up approach to more effectively take into account the precise group of OTC derivatives to be cleared by CCPs. Interestingly, ESMA also notes that clearing mandates should be co-ordinated whenever possible across global regulators to facilitate international convergence.

The lack of a mechanism to temporarily suspend the clearing obligation if required is regarded by ESMA as the most problematic issue of the EMIR Level 1 text. ESMA argues that the process involved in making an amendment to an RTS would not be timely enough in suspending clearing in the event of a default by the CCP or one or more clearing members.

ESMA maintains that upon such a default, a counterparty could be forced out of the market because they could no longer clear their trades through their existing CCP and/or clearing member. Notably, ESMA mentions that the no-action letter process of the Commodity Futures Trading Commission provides an effective tool to permit immediate decisions on regulatory requirements.

Removal of frontloading: Perhaps the most welcome recommendation to the OTC derivatives market is ESMA's recommendation that frontloading – ie the clearing of certain OTC derivatives transactions before the date from which the clearing obligation takes effect – be reviewed by the EC to determine whether the requirement should be kept at all.

ESMA cites pricing as a primary concern as the frontloaded OTC derivatives transactions would have been priced and entered into not taking into account any clearing costs. In forward clearing trades, pricing would need to consider the initial bilateral period of the transaction as well as possible future clearing obligation. Additionally, ESMA pointed to the challenges frontloading would present for less sophisticated counterparties against their share of systemic risk attributed to their trading activity.

Trade reporting: ESMA's recommendation that the obligation to report exchange-traded derivatives (ETDs) under EMIR should possibly be reviewed should be well received by OTC derivatives market participants. ESMA's view is that ETD reporting on a trade-by-trade basis imposes significant cost and data storage burdens, especially due to the large number of ETD positions that are opened and closed intraday.

> **ESMA states it is generally supportive of dual-side reporting as mandated under EMIR, as opposed to the one-sided reporting mandated under Dodd-Frank**

ESMA states it is generally supportive of dual-side reporting as mandated under EMIR, as opposed to the one-sided reporting mandated under Dodd-Frank, as ESMA believes dual-side reporting ensures better data quality. However, ESMA recommends that EMIR be amended such that when an FC or CCP enters into an OTC derivative with an NFC below the applicable thresholds, the FC or CCP will be responsible for reporting on behalf of both counterparties.

Third-country CCP recognition: Perhaps one of the most controversial aspects of EMIR has been the recognition process for third-country CCPs that would like to offer their services in the EU. This first requires that ESMA determines whether the regulatory system in the CCP's home jurisdiction is equivalent to the EU regulatory system.

Of note is the current failure by the EC to grant an equivalency determination for the US due to the EU requirement to post margin on a two-day net basis compared to the US rules that require one-day margining on a gross basis. Although the EC has deemed Australia, Singapore, Hong Kong and Japan as equivalent, ESMA notes that the equivalence decision process is taking much more time than expected and imposing significant costs.

ESMA recommends that the CCP recognition process be amended to consider whether it should continue to rely on third-country rules and supervisory arrangements, identify the circumstance under which ESMA may determine not to recognise a third-country CCP and to impose fees on third-country CCPs to cover ESMA's cost.

Although not addressed in the ESMA reports, a similar issue under equivalence arises due to the EC's failure yet to publish a list of exchanges deemed to be equivalent to those in the EU, which has meant that any ETD traded on a non-EU exchange falls within the definition of an OTC derivative under EMIR.

The failure to provide such a list has required many commodity, energy and trading firms active in the ETD market to have to classify themselves as NFC+s in the interim, even though once the list has been published by the EC, they would fall well below the EMIR clearing thresholds for OTC derivatives and in fact be NFC-s.

The failure to publish this list has imposed excessive costs and unnecessary burdens on such firms as they have built the infrastructure to comply with the increased risk mitigation and reporting obligations for NFC+s.

Trade repository (TR) issues: One controversial recommendation is ESMA's proposal that it be given greater enforcement authority over TRs. In particular, ESMA is requesting the power to impose a temporary prohibition on the acceptance of new reporting counterparties or the extension of the services that the TR offers and the power to require the removal of a natural person from the governing bodies of a TR.

ESMA is also proposing increasing the level of fines that can be imposed on TRs and extending the time to consider a registration application to become an authorised TR. What would have been interesting to learn from ESMA is whether it felt that sufficient data was being reported and how it is currently using that data to risk-monitor OTC markets.

It will be interesting to see the EC's public response to the reports, which is expected to be available in Q4 2015. It is unlikely, however, that any changes to EMIR will be made before 2016 as any changes to the legislation itself would need to be agreed to by the EC, the European Council and the European Parliament. Stay tuned. ■

Security and the CCP

Before mandatory OTC clearing is introduced, the nature of CCP collateral and the size of CCPs' balance sheets will come under close scrutiny. By **Charles Gubert**

Mandatory clearing of over-the-counter (OTC) derivatives through central counterparties (CCPs) asks new questions on whether these hugely systemically important market infrastructures have adequate safeguards and procedures in place to guard against either their own failure or the default of a major clearing member. Commercial and regulatory factors are altering the risk profiles of CCPs.

CCPs are now organised as revenue generators and, as such, commercial factors will play a significant role in what they choose to clear and the terms and conditions they impose on clearing members. CCPs will clear predominantly vanilla OTC contracts and oblige clearing members to post initial margin generally in the form of high-grade government bonds or cash and variation margin – usually cash collateral – to mitigate the risk against intraday volatility. Bespoke or esoteric OTC contracts will continue to be transacted bilaterally, albeit subject to increased margining obligations.

There are concerns that some CCPs might begin clearing slightly riskier OTC contracts, although regulators, particularly at the European Commission (EC), have warned CCPs that such a strategy would not be looked upon kindly. CCPs have taken note. "Risk management at CCPs is taken very seriously and CCPs should think very carefully about clearing OTC contracts that are non-linear," says Philip Simons, head of OTC derivatives clearing at Eurex. "In addition, any changes we make to the products that we clear must be approved by our risk committee, which includes our members and their clients."

Perhaps the bigger risk is if CCPs start accepting lower-grade collateral as initial or variation margin. This could occur in the event of there being a collateral shortfall or squeeze.

A paper published by the Depository Trust & Clearing Corporation in conjunction with the London School of Economics in 2014 warned firms could struggle to find eligible collateral, although said a full-blown shortfall was unlikely. However, a drying up of liquidity as assets are conserved in a crisis is a known phenomenon already. In fast-moving derivatives markets where intraday margin calls may be required, asset flight is a risk.

Adjusting for risk

Consequently, there are fears some CCPs could enact a 'race to the bottom' on margining. Again, regulators are unlikely to welcome this practice, but some industry experts say easing collateral requirements is possible providing CCPs adjust for the additional risk.

"I do not object to CCPs accepting a more diverse range of collateral providing they take account of the risks of that collateral and impose the right haircuts," says Samuel Ely, founding partner at consultancy Gamma Derivatives Solutions. "Furthermore, it is crucial any collateral posted is not correlated to positions at the CCP. For example, it would not be acceptable to post

Ford bonds against a position in General Motors."

Nonetheless, the onus is ultimately on the end-users of CCPs to ensure they manage their collateral efficiently and implement systems and processes to ensure the posting of high-grade collateral in a timely fashion.

While accepting high-grade corporate bonds could alleviate some of these challenges, they are not without risks. For example, corporate bonds in now defunct organisations such as Enron or Lehman Brothers were all given high ratings by major ratings agencies, yet turned out to be extremely volatile and eventually worthless. As such, CCPs will probably elect to only accept high-grade government bonds or cash as collateral.

Level playing field

Regulatory pressures are also causing concern at CCPs. The Markets in Financial Instruments Directive II, as part of regulators' efforts to create a level playing field for clearing in the EU, requires CCPs and exchanges to open up to other CCPs and benchmark providers if the latter meet minimum risk standards and provided their inclusion does not pose a systemic risk or result in liquidity fragmentation.

A number of CCPs have expressed reservations. "I am not convinced that open access is a positive development from a CCP perspective," notes Simons. "Ring-fencing CCPs from each other reduces the risk of contagion should another CCP enter into a default or major credit event. By boosting the interconnectedness at CCPs through open access, the risk of contagion increases in the event of a CCP failure. If open access is permitted, it could sow enormous confusion around margin calls and lead to cyclical margin call activity between CCPs in volatile market conditions," he adds.

Others point out that concerns over the potential risks of open access need to be put into perspective. "While there are a number of issues around open access," says Ely, "I suspect that in the event of a CCP failure, the markets more broadly would be in a serious state of collapse."

These issues do, however, raise questions about how CCPs are safeguarding against such risks. European Market Infrastructure Regulation forces CCPs to hold 25 per cent of their total minimum capital ahead of non-defaulting clearing members in their default waterfall. There are also minimum capital requirements defined by the European Securities and Markets Authority against a range of quantified operational, credit and business risks. But the absolute minimum for CCPs operating in the EU is €7.5 million, to ensure they can wind down in a stressful credit event.

A number of buy-side firms and clearing members have urged European regulators to oblige CCPs to hold more 'skin in the game'. However, holding more capital could lead to unintended consequences at CCPs, despite the good intentions. "Twenty five per cent is a large amount of capital, and I cannot think of any other industry or firm that is required to put so much capital at risk," says Simons.

"Two issues arise because of this. The first is that CCPs become far too conservative and risk averse. The second risk is that clearing members start pushing higher-risk OTC transactions into clearing as it is the CCP's capital which is at risk before their own and so it is less likely that their capital will be at risk. It is critical to get the correct balance in regards to risk mitigation practices between a CCP and its members."

Perhaps the best safeguard is ensuring CCPs have a diverse client base – something that can help shield these market infrastructures against shocks or 'black swan' events.

"Having a diversified client base is crucial to the continual functioning of a CCP in adverse market circumstances," Simons adds. "One of the biggest dangers at CCPs is concentration risk. If a CCP is only clearing on behalf of five systemically important clearing members, and one of those clearing members defaults, it could pose substantial problems.

"The CCP would have to distribute that clearing member's client positions across its four other solvent clearing members, and this might not be seamless, and it will certainly be a costly proposition. That is a risky situation for a CCP to be in. However, if a CCP has 100 clearing members, the pain of one member's default will be more evenly distributed and it will be easier to absorb losses." ■

> **Perhaps the best safeguard is ensuring CCPs have a diverse client base – something that can help shield these market infrastructures against shocks**

Is diversification the answer to systemic risk?

By Fredrik Ekström, president, Nasdaq Clearing

The clearing mandate has prompted an important debate about the systemic risk associated with CCPs. With the European Commission due to release technical standards soon, recovery and resolution is high on the agenda.

Part of the debate is each CCP's ability to absorb losses as well as the importance of tools such as segregated collateral. When it comes to recovery mechanisms, greater collaboration between CCPs will be crucial going forward.

However, if the industry is to get to the heart of the issue, it needs to also address market structure. With new regulations and higher costs, firms are understandably searching for greater efficiencies. One way to achieve this is to maximise the netting and pooling of collateral at the CCP-level, across a broad portfolio of trades.

To get the full cost advantage of this approach would mean pushing volumes towards just one clearing house. The problem is that if the industry encourages the aggregation of trades in this way, it magnifies systemic risk enormously. When there is so much reliance on one or two CCPs and something goes wrong, there is no recovery plan able to solve the problem.

Perhaps the most valuable yet often overlooked risk mitigation technique will be diversification of exposure – and that means encouraging the spread of volumes across a broad palette of CCPs.

Cost is still a big concern so it will be important to find the right balance. Having multiple CCPs offering competitive clearing services in fungible OTC instruments has to be the preferred route. Firms can then achieve a balance between capital efficiencies, which is crucial, and a more robust and sustainable clearing infrastructure.

R&R will be no picnic

If one or more CCPs were to fail, how the global financial system will handle their recovery and resolution will be crucial. By **Charles Gubert**

Ask most market participants about the implications of a central counterparty (CCP) default or failure and you might expect words like 'Armageddon', 'chaos', 'catastrophe', 'doomsday' and 'panic' to feature in their answer.

Legislation including the European Market Infrastructure Regulation (EMIR) and Dodd-Frank in the US has not eliminated the risks posed by over-the-counter (OTC) derivatives but merely transferred and concentrated it into a handful of CCPs. As such, CCPs should not be viewed as risk eliminators but rather risk mitigators.

While CCPs are resilient to stresses in the market, they are not immune. The biggest risks facing CCPs ultimately come from their clients – for example, if a major clearing member were to enter into a credit event. The failure of a large clearing member could have a contagion effect, particularly as it is likely to be utilising different CCPs across a number of jurisdictions, some of which may be subject to different levels of regulatory oversight.

As Peter Norman's book on the topic, *The Risk Controllers: Centralised Counterparty Clearing in Globalised Financial Markets*, illustrates, clearing members have previously brought down CCPs. Norman cites the Caisse de Liquidation des Affaires en Marchandises (CLAM), a Paris-based CCP that collapsed in 1974 following an inability by traders to meet their required margin calls.

The Kuala Lumpur Commodity Clearing House in Malaysia succumbed to a similar fate following defaults by six brokers transacting in palm oil contracts on the Kuala Lumpur Stock Exchange. The Hong Kong Futures Exchange had to be bailed out by the government during the 1987 global stock market crash.

As such, CCPs have, can and will fail under certain circumstances. Given the higher volumes of OTC derivatives passing through these entities today, the systemic risk posed by CCPs is far higher, a point made by Tim Reucroft, head of research at Thomas Murray IDS.

However, CCPs never tire of highlighting that LCH.Clearnet wound down the Lehman Brothers default in 2008 using up one third of its initial margin contributions in what regulators cite as testament to the resilience of CCPs.

"A major risk to CCPs would be if clearing members committed fraud and deliberately broke the rules," says Philip Simons, head of OTC clearing at Eurex. "Some institutions have failed not because of bad segregation models but because they deliberately broke the rules." The collapse of Peregrine Financial certainly springs to mind.

Other factors that could precipitate a CCP failure would be if the CCP started to make concessions on the quality of the collateral it accepts for initial and variation margin without making the prerequisite haircuts. Regulators have made it very clear they will not tolerate a race to the bottom on margin.

Preventing the collapse of a CCP is at the forefront of regulators' agendas. As such, there are a number of protections in place to prevent CCPs from failing. A CCP will usually have five lines of defence in its risk waterfall to mitigate the consequences of a clearing member failure:

- initial margin;
- variation margin;
- defaulting members' default fund contributions;
- CCP contributing capital (EMIR requires CCPs to set aside 25 per cent); and
- non-defaulting fund contributions.

Once these layers have been exhausted, central banks will likely be forced to act as lenders of last resort.

Some market participants question the robustness of risk waterfalls. A 2014 paper published by J.P. Morgan recommended CCPs increase the amount of balance sheet capital they allocate to their guarantee funds. It also advised CCPs and their clients to allocate more capital into a re-capitalisation fund, a pool of capital that could be accessed once all of the CCP's capital had been exhausted. The paper also recommended the introduction of stress tests, a staple requirement of any bank that is deemed to be too big to fail. But how do you design systemic stress tests for non-uniform organisations such as today's CCPs?

CCPs routinely point out that they already undergo rigorous stress testing. CME Group, for example, says its stress testing is thorough and takes a number of factors into account, including the 2008 financial crisis, the failure of Long-Term Capital Management (a highly leveraged hedge fund that required a bank-backed bail-out at the turn of the millennium) and the 1987 stock market crash.

> **Clearing members must be cognisant of the different CCP account structures available to them**

"In terms of stress testing, there needs to be more standardisation, certainly in terms of minimum standards," argues Simons. "There needs to be a measure that can be used to compare the risk that CCPs are taking. But CCPs also need to have a certain amount of flexibility. It should all be comprehensive to the same degree, but we want flexibility in choice of tools, as well as other things. Any other industry – be it airlines or pharmaceuticals – will have minimum industry-wide standards and CCPs need something similar," he says.

Having standardised procedures and additional total loss-absorbing capacity would also enable CCPs to continue operating in distressed markets, and mitigate the risk of requiring government-infused capital in the event of a failure. Nonetheless, regulators including the Bank of England have implied strongly they would provide liquidity to a CCP that was in trouble. However, the Bank says this would not be unconditional and that additional liquidity would be contingent on the CCP's ability to remain solvent.

Irrespective, clearing members must be cognisant of the different CCP account structures available to them, and how they would fare in a crisis situation. At present, EU CCPs offer two types of account structure – the omnibus client segregation account (OSA) and the individually segregated account (ISA). An OSA structure allows for client collateral and positions to be co-mingled but permits margin netting, thereby making it less costly for end-users. However, because assets are co-mingled, porting collateral from an OSA is more challenging.

ISAs allow for the segregation of client positions and collateral, although this does not permit margin-netting, meaning these formats are more expensive. The benefit of ISAs is that collateral held in segregated accounts can be more easily ported in the event of a clearing member running into difficulty. "Omnibus accounts mutualise the risk between clients of the clearing member," Simons explains. "If a client and clearing member suffer a simultaneous credit event, other clients will feel the pain, which could then be further mutualised across other clearing members."

While discussions around dealing with the aftermath of a CCP failure are welcome, some believe the regulators are focusing their efforts too much on reactive policies. "Regulators need to be looking at preventative measures to stop CCPs getting into difficulty," says Samuel Ely, founding partner at Gamma Derivatives Solutions. "A CCP failure would be disastrous and regulators have to ensure it does not occur." ■

Bring on the harmony

Dodd-Frank and EMIR were presumed to evolve along parallel lines but in practice substantial divergences emerged that are only now being fully addressed. By **Vanya Dragomanovich**

Two years into the debate between US and European regulators over the different requirements for CCP clearing in the two jurisdictions, there appears to be light at the end of the regulatory tunnel. Although the European Securities and Markets Authority (ESMA) and the Commodity Futures Trading Commission (CFTC) have moved broadly in the same direction by tightening regulation to reduce market risk, the regulatory middle ground that would allow banks and fund managers in Europe and the US to clear trades in the both regions remains elusive.

The unresolved differences have been keeping tensions high on both sides of the Atlantic. CME Group chairman Terry Duffy earlier argued in front of the US House of Representatives agriculture committee for the CFTC to be more forceful in re-balancing the variations which he said favoured European users of US CCPs over US users of European CCPs.

More recently, International Swaps and Derivatives Association (ISDA) chairman Erik Litvack was reported as saying that a failure by European Union and US regulators to iron out differences in their derivatives rules would prompt "catastrophic" attempts by market users to pull out from American clearing houses.

After lengthy discussions the two regulators have managed to narrow down the difference in their respective requirements to two broad but connected issues – margin requirements and liquidation periods that CCPs need to apply to client accounts.

ESMA launched a market consultation at the end of August 2015 (to which FIA Global, ISDA and the Investment Association responded) proposing a version of

European regulatory requirements that is a step closer to those in the US. If it receives the go-ahead from the industry it will bridge this last major hurdle to equivalence in CCP requirements between the two jurisdictions. Several smaller issues such as different reporting requirements and the status of affiliates also need to be resolved, but those are unlikely to hold back the recognition of an equivalence status between jurisdictions.

To allow time for the last of the differences to be ironed out, ESMA has pushed back the deadline for the implementation of the latest version of the Capital Requirements Directive (CRD IV) until the end of 2015.

The US regime for CCPs foresees a minimum liquidation period of a defaulting client's position of one day for exchange-traded derivatives, whereas in the EU under the European Market Infrastructure Regulation (EMIR) there is currently a minimum requirement of two days. Tied to this is the margining process. US CCPs take each customer's gross position and identify the margin requirement for each customer and each trade. With gross margining, clearing members may post more client margin with a clearing house than they hold themselves.

In Europe, however, traders can choose to have their positions consolidated with one or more other traders, and for the margin to then be calculated on a net basis across all of the positions. This makes for a much smaller position and, subsequently, a much lower margin. Although such consolidation is allowed in Europe, it is not yet a particularly popular option with over-the-counter (OTC) swap traders, although it is common for exchange-traded products.

ESMA's preliminary comparison has shown that the margins held at the CCP for a one-day liquidation period are typically higher than margin requirements calculated according to the net margining method in combination with a two-day liquidation.

To bridge the gap, ESMA's consultation asks market participants to consider allowing CCPs to use a one-day liquidation period on the proviso that the clients are all margining on a gross basis.

"If the answer to this question gathered from the industry responses is that it may be appropriate in certain cases, this would provide the sort of backing that ESMA would need to modify EMIR to allow for one-day liquidations," said Philip Whitehurst, head of capital, collateral and liquidity for SwapClear, part of LCH.Clearnet.

"We think that customers benefit from choice between gross and net but it would be bad to end up with a situation where the US allowed one-day gross margining and customers were able to take advantage of that while EU CCPs had to continue with the requirements for a two-day liquidation period."

A broader response from several trade bodies was articulated by

> **Although equivalence of the clearing regulation is currently front and centre of the regulatory debate, the process will not stop here... new issues are likely to emerge from the related regulation due to come into effect**

FIA Global with the comment that regulators should ensure clearing houses implement margining frameworks "based on appropriate risk criteria rather than prescribing specific standards for each element of their methodologies".

While supporting efforts to establish global standards for CCPs, FIA Global also called for regulators to "not strictly distinguish between OTC and exchange-traded products" for client margin purposes, again indicating that risk profile should be the main driver of margining.

Position reporting

A further difference between the US and EU regulation is the way positions are reported. US regulation allows banks and brokerages to delegate their reporting and have one-sided reporting in which only one party in the trade need report the trade on behalf of both parties.

In Europe the parties in the trade cannot delegate reporting and both have to report their position.

Another difference is the fact that unlike the US, Europe doesn't recognise affiliate positions and treats affiliates as clients of banks. In the US the affiliates must clear via their affiliated member's house account. This distinguishes the affiliate's positions from any of the customer's positions the member is carrying.

In Europe there is no definition of an affiliate and therefore CCPs rely on the only definitions that do exist, which classify affiliates as clients and result in their being cleared through customers' client accounts.

Although equivalence of the clearing regulation is currently front and centre of the regulatory debate, the process will not stop here. Once the major differences between the US and EU are resolved new issues are likely to emerge from the related regulation due to come into effect on later dates.

The bigger world

The EU has already accepted Hong Kong, Japan, Singapore and Australia as jurisdictions with equivalently robust regulatory regimes and allows European banks and traders to clear trades in those regions with the local CCPs. By September it had authorised ten CCPs from the four countries to offer services to EU clients.

ESMA has also looked at Canada and Switzerland but postponed any decisions as the countries are still in the process of defining their clearing regulation. The Canadian Securities Administrators proposed mandatory CCP clearing of certain standardised OTC derivatives in February 2015 and at the time of writing had not reached a final decision on new rules.

The Swiss parliament passed the Financial Market Infrastructure Act, its own version of EMIR, in June 2015 and once the local regulator has completed a public consultation the final dates for implementation will be set.

Meanwhile the majority of the key global exchanges and clearing houses have applied to ESMA to be recognised as equivalent CCPs, including Argentina Clearing S.A., Brazil's Bovespa, Bursa Malaysia Derivatives Clearing, Canadian Derivatives Clearing, Dubai Commodities Clearing, Indian Clearing, Johannesburg Stock Exchange Clear, Korea Exchange House, New Zealand Clearing and Depository, Switzerland's SIX, Taiwan Futures Exchange and the Tel-Aviv Stock Exchange Clearing House.

Glaringly lacking from that list are any Chinese exchanges. China has a fairly young derivatives market but one growing at a rapid pace and playing an increasingly important role for European and US banks. For certain commodities that are popular with Chinese investors, such as metals, the volumes of trade have risen so sharply in the last few years that they now exceed those in Europe and the US combined.

Expansion of financial services is one of the key items in China's current Five-Year Plan and it has already progressed to open market-based pricing in commodities. A massive stride was achieved with the introduction of the Shanghai-Hong Kong Stock Connect in 2014 – the ability to trade Shanghai stocks via Hong Kong exchanges and vice versa – and a further liberalisation of the derivatives market is due to follow in the near future.

The volatility which began in Chinese markets in the summer of 2015 very quickly infected many established western markets. Such is the importance of this country its future on the global financial stage is now assured. Some form of regulatory co-operation with European and US markets is bound to follow – the only question is in what form and when. ■

Brokers face stark choices

Evolve or struggle to exist – these have been the two options facing Europe's clearing brokers since the financial crisis. By **Jon Watkins**

New regulations have changed the way the derivatives market operates and have subsequently forced wholesale changes across the market. For intermediaries, the regulatory pressure has come on two fronts. Firstly, the banking regulations affecting their own business models, and, secondly, changes to the trading of over-the-counter (OTC) derivatives are altering the way their clients operate.

This has forced clearing brokers in Europe and futures commission merchants (FCMs) in the US to completely re-evaluate their business models. For a start, the notion of OTC clearing is as new to many clearing brokers as it is the rest of the market, so from the outset their clearing operations had to undergo substantial change.

Meeting this challenge has come at too high a cost for a large number of brokers, with the number of registered FCMs in the US dropping from 154 in December 2007 to 74 in December 2014, according to TABB Group. Three big bank names in the market – RBS, BNY Mellon and Nomura – also decided to withdraw completely from offering client-clearing services in Europe, while several other large banks are being very selective about their clients in this space.

Ultimately the regulatory changes made the client-clearing business unprofitable for some firms, and while many maintain their execution broker services, clearing became too expensive to offer in the short term. Those remaining in the market had to make changes to their business model to justify maintaining their clearing operations.

"Firms currently find it difficult to make clearing a profitable activity and we have seen some of the smaller clearing brokers pulling away," says

> Those remaining in the market had to make changes to their business model to justify maintaining clearing operations

Hannah Meakin, partner at Norton Rose Fulbright.

Basel III's contentious leverage ratio reduces available balance sheet commitments for client business, making it hard for firms to take on too much risk from clients. Despite many industry voices calling for the rule not to include certain exposures of banks to cleared derivatives, banks operating as clearing middlemen are now carefully weighing up each of their clients' risk profiles.

Banks have therefore been looking for ways to focus on the profitability of this activity. They have cut existing client lists, reduced credit lines and imposed limits on the transactions their clients can make. This has all been a result of the more stringent focus on the balance sheets of banks, forcing them to make decisions they would not have made pre-2008.

"It is also reasonable to assume that clearing brokers may need to start prioritising their client base in order to ensure that they can get their most important clients onboarded in time for the clearing and margining obligations," Meakin adds.

EMIR changes

The European Market Infrastructure Regulation (EMIR) introduced three main post-trade reforms: the central clearing of OTC derivatives, increased margin requirements on cleared and non-cleared derivatives and trade reporting. Consequently many firms are offering clearing alongside these other services, all of which remain difficult for buy-side firms in particular to manage in-house.

"No longer can you look at these post-trade services as individual products that don't interact with the other parts of the post-trade environment," says Eugene Stanfield, head of derivatives execution and clearing services at Commerzbank. "That is why you are seeing these types of business units combined under one umbrella. What clients are looking for is a unified service. There can be a multitude of individual streams within that service, but ultimately they get a consistency of service and personnel."

Stanfield says that while much of the focus on the market's effects on intermediaries is negatively focused on scaling back and pulling out, the regulation has also provided opportunities to new entrants.

"Everybody is talking about firms leaving but if you actually look around you can see clearing brokers entering into the market for providing derivatives-clearing services, and the catalyst for that has absolutely been EMIR and the provision of an OTC clearing service," he adds. "Those opportunities have not come about as a direct response to increased revenue projections or increased revenue stream but as a complementary service to support clients from an overall client-servicing experience."

Along with changing the way they offer these services, brokers are also revisiting their fees. Due to the leverage ratio, many have upped their fees as well as the products they offer for that price. This has also caused tension as the buy-side – also stung by higher regulatory costs – is looking to save money through its service providers.

Steve Woodyatt, CEO of ObjectTrading, believes that while fees have remained relatively stable in recent years, the services the buy-side receives from the clearing brokers have diminished. "Fees are not going down or up much, but value is being removed from the packages so people are getting less for their money," he says. "Suddenly some of these sell-side firms don't offer market data in the package, for example."

When it comes to collateral management, the sell-side is still trying to come up with a blueprint for an efficient and mobilised

Consolidation of FCMs

FCMs registered with the Commodity Futures Trading Commission in the US

	10 years ago	5 years ago	1 year ago	July 2015
No of FCMs	182	126	83	73
Customer seg funds (total)	$84bn	$136.5bn	$148bn	$153bn
Top 10 FCMs customer seg funds	$55bn (66%)	$110bn (80%)	$102bn (69%)	$112bn (73%)
Customer seg funds for OTC cleared			£37.5bn	$50bn
Top 10 FCMs OTC customer seg funds			$35.7bn (95%) 21 firms clear swaps	$47.5bn (95%) 21 firms clear swaps

Source: CFTC, www.cftc.gov/MarketReports FinancialDataforFCMs/index.htm

collateral world, while clients have even more questions about the entire process.

Collateral and margin requirements have skyrocketed under the new regulatory landscape and many questions remain around the sourcing and mobilising of collateral.

Behind the curve

Clearing brokers have begun offering collateral management services to their buy-side clients, some of whom are in desperate need of getting arrangements in place as regulatory mandates come into force. For some, it is a case of searching for collateral efficiencies through their intermediaries, whereas others are just looking to move away from simple spreadsheets.

"The market is very underdeveloped in this stage, not just from solution providers but from the end client as well," adds Stanfield. "They are still in the majority of using cash as their collateral management tool. We see clients who have never really performed proper collateral management processes within their bank, they may not have a management system and may have been operating off just a spreadsheet.

"Certainly we see areas where our clients have been a bit behind the curve. They are certainly looking to organisations such as us to address some of those challenges."

While the leverage ratio rules are tough on banks, they may not be set in stone just yet. One industry expert explained that capital rules could end up changing in a couple of years, so for those looking to exit the client-clearing business it may be worth "hanging in there".

"For people who are panicking and getting out now", they added, "and closing down client relationships, that may be the wrong thing to do because there seems to be a lot of support amongst some regulators to get these capital rules changed." ■

OTC clearing: new challenges in a new capital regime

By Nicholas Gionfriddo, director, Americas head of OTC clearing sales, Societe Generale

The advent of new capital requirements for banks and financial institutions globally has been a defining feature of the regulatory environment following the economic crisis. The Basel Committee on Banking Supervision (BCBS) in particular has presented a variety of new hurdles for investment banks to clear via their latest implementation of Basel rules and requirements.

The Basel III disclosure period is now well underway – banks are publically reporting metrics like tier 1 capital and risk-weighted assets and are gaining an in-depth understanding of the scorecard by which their fiscal health will be measured. Institutions are expected to meet strict minimum requirements related to leverage and liquidity ratios based on their geographical location and overall presence in the global financial system.

These new demands are not just keeping boards and compliance teams awake at night. The knock-on effects are being keenly felt through each business line, as each segment is under pressure to optimise its balance sheet. The over-the-counter (OTC) derivatives business is at the forefront of this challenge. Clearing requirements introduced through Dodd-Frank in 2012 have made the OTC business highly capital intensive. Cleared OTC products now carry clearinghouse minimum margin requirements and the cash collateral customers post to cover counts against the bank's balance sheet. Additionally the large notional size of swaps has a direct impact on exposure and asset calculations. All of the above put prime brokerage businesses under unprecedented pressure to more efficiently manage capital in order to minimise impact to their firms' Basel metrics.

Service providers have responded to this challenge in different ways. When mandatory clearing was first introduced under Dodd-Frank, many futures commission merchants (FCMs) attempted to capture market share by employing a loss leader approach and offering low prices to customers. Due to the evolution of regulatory capital constraints, these firms now face balance sheet efficiency issues as their leverage exposures grew out of control. Some are now in the process of re-pricing customers and have stopped taking on new business while others have exited the market completely, thus no longer offer buy-side OTC clearing services.

Societe Generale avoided the early stage pricing miscues and continues to partner with OTC clearing clients across all three asset classes: interest rate swaps (IRS), credit default swaps (CDS) and non-deliverable FX forwards (NDFs).

While we face the same regulatory capital challenges as the rest of the market, Societe Generale works closely and transparently with clients to find a capital efficient solution that works for both sides. We're fully committed to the OTC clearing business, evident by our continued investment in our platform. For instance, we recently became the first dealer and FCM to facilitate on-SEF NDF trading and clearing via the SwapEx SEF and LCH clearing house. So while others are retrenching and exiting, Societe Generale continues to deliver innovative and value added solutions to our clients.

The interplay between Basel and clearing services is complex and on-going; while things continue to unfold it's possible we'll experience additional technical shifts which alter market impact. For example, efforts to remove initial margin from counting against balance sheet for FCMs that guarantee clearinghouse performance continue to move forward. Unfortunately the overall effect of such a change will likely be limited due to the low number of FCMs that provide such a guarantee. However, what's likely to have a more significant impact is the Basel rules going into place next year requiring margin for uncleared transactions. This may shift more volume into clearing, including non-mandated products like NDFs, which will increase pressure on FCMs as their balance sheet utilisation will continue to expand.

In summary, as capital demands become more intense and balance sheet more restrictive, market participants will have to find a way to cope beyond either dramatically increasing prices or simply exiting the market. A smaller group of players is likely not a better outcome; especially in an environment where risk mitigation is paramount and the ability to diversify OTC exposure across several providers is the cornerstone of central clearing. And while it's obvious the market requires more functionality like coupon blending and buy-side multilateral compression in order to offset Basel threshold impact, the availability of additional solutions is still unknown. What is clear is that both the buy- and sell-side have a tricky terrain to navigate as regulatory capital rules continue to be rolled out over the next several years and partnering together is the best approach to help reach a favourable outcome for all.

New tools for OTC

Trading of OTC derivatives on electronic trading platforms has not yet proved to be the game-changer some expected. By **Chris Hall**

If US regulators wanted to unleash a new era of innovation and dynamism through their implementation of the G20-mandated trading obligation for hitherto over-the-counter (OTC) derivatives, they may be feeling disappointed. But if, as seems more likely, they were simply hoping to migrate derivatives trading from voice-broked to electronic platforms with as little fuss as possible, they might be sitting rather more comfortably.

The requirement to trade derivatives on formalised trading venues is the third leg of a package of broad measures (the others being central clearing and reporting) designed to reduce systemic risk. As such, a key priority for regulators has been to shift as many classes of derivative onto trading platforms as possible, thereby increasing transparency and automation. On this count, the US has done well.

The approach of the US Commodity Futures Trading Commission (CFTC) to migrating derivatives classes onto swap execution facilities (SEFs) is informed by the regulator's statutory powers and processes, as well as the text of the Dodd-Frank Act. There is no current parallel in Europe, which is awaiting the introduction of SEF-like mechanisms in 2017. Although SEFs went live in October 2013, the CFTC only mandated specific derivatives classes for SEF trading from January 2014 by acceding to 'made available to trade' requests by platform operators.

Volumes grew steadily, as certain no-action relief letters, which granted temporary exemptions, expired. In 2015, overall SEF volumes have settled down to fairly consistent levels, accounting for around 60 per cent of the trading in interest rate swaps versus non-SEF-executed trades, compared with roughly 90 per cent of credit default swaps.

"With the introduction of trading on SEFs, the initial fear was that volumes would fall off a cliff," says Chris Barnes, SVP Europe at Clarus Financial Technology. "Now, market participants are generally finding that there is enough liquidity to get their trades done. US dollar interest rate swaps trading has largely switched over to SEFs, for example, with forwards remaining the largest off-exchange category."

According to the FIA's SEF Tracker, trading in interest rate instruments averaged $340.71 billion per day in July 2015, up 11 per cent from a year

ago, while trading in credit swaps averaged $22.85 billion per day in July, down 7 per cent annually.

But while activity on dealer-to-dealer SEFs has remained fairly constant for the last 12 months, dealer-to-client (D2C) platforms have seen volumes increase sharply. As noted by the FIA SEF Tracker, trading on D2C SEFs Bloomberg and Tradeweb was "dramatically higher" in June than in previous months. These two aside, inter-dealer brokers have held sway: the top five SEFs took 75 per cent of the interest rate swaps market in July.

"Virtually all the growth in SEF trading volumes this year can be attributed to end-users connecting to D2C platforms, as various no-action exemptions expire," says Barnes. "This suggests that all-to-all may become the trading platform model of choice in the US, but the dominant trading protocol remains request for quote (RFQ)."

The CFTC allows SEFs to permit execution by RFQ and by central limit order book (CLOB). However, hopes of US derivatives trading moving to liquid, anonymous, exchange-like models such as those used in trading equities and futures have been dashed. "Banks can provide liquidity onto CLOBs as soon as they see demand," says Michael O'Brien, director of global trading at Eaton Vance, "but buy-side appetite has been constrained by factors including concerns over post-trade name give-up on several SEFs, complications around average pricing, and a greater level of comfort with RFQ, despite the fact they use CLOBs to trade other assets every day."

As inertia reigns, derivatives trade execution has only advanced from ringing round brokers to effecting an RFQ by electronic means, thereby achieving some undeniable workflow efficiencies, but hardly prompting a great leap forward to a truly all-to-all market in which the buy-side contributes more proactively to liquidity. "If there's a lesson European regulators can take from the US experience, it might be that you have to create a level playing field if you want new trading protocols to thrive alongside existing ones," says O'Brien.

European prospects

There are so many decisions to be taken before the derivatives trading obligation comes into force in Europe in January 2017 that it is hard to forecast either process or outcome. Under the Markets in Financial Instruments Directive (MiFID) II, sufficiently liquid standardised derivatives must be traded on regulated markets, multilateral trading facilities (MTFs) or organised trading facilities (OTFs), a new venue created to accommodate existing non-electronic practices. Derivatives classes will be selected for trading based on liquidity and venue availability, but this assessment process is complicated by a lack of progress on the clearing obligation.

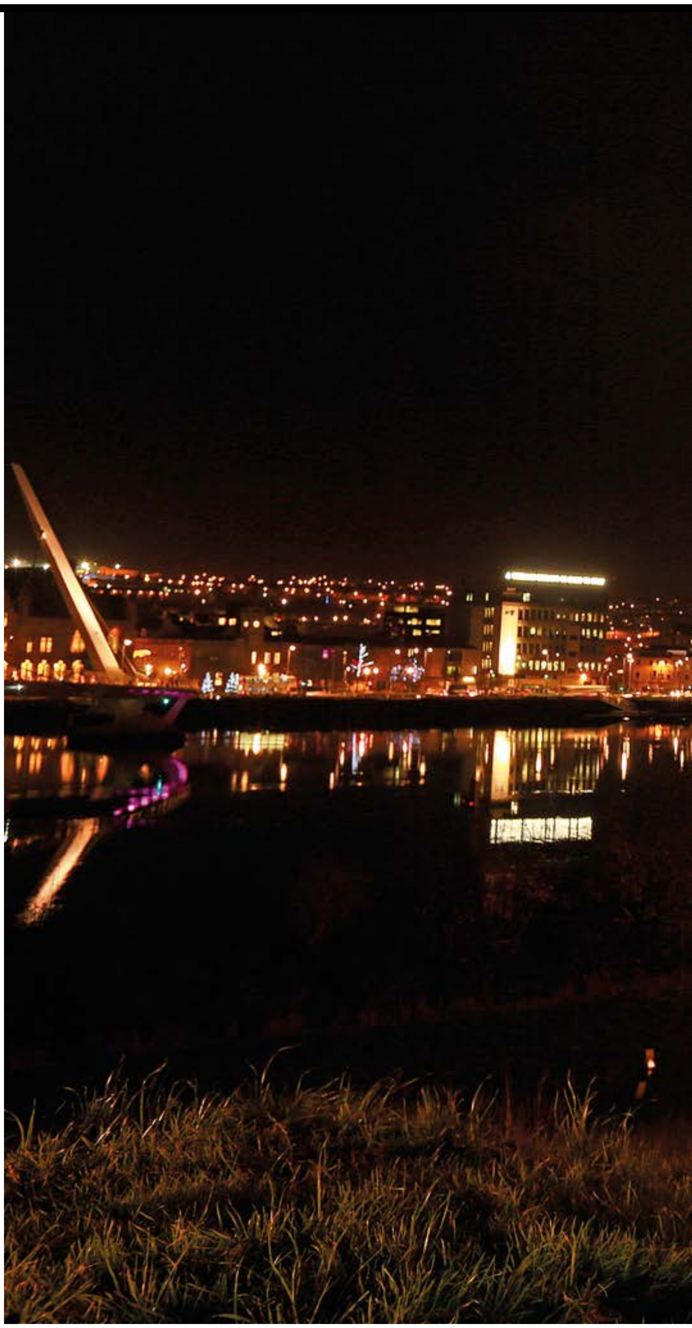
"At present, there is a lack of certainty on which markets will migrate to OTFs and which will use the existing MTFs," explains Ben Potts, head of European affairs at ICAP. "Overall, it appears electronic markets will trade on MTFs and voice markets on OTFs, but it's unclear how hybrid markets that use both protocols will evolve under MiFID II. There is a stronger element of discretion on how trading is conducted on OTFs, which would lead one to assume that hybrid markets would go in this direction. But it's not entirely clear whether MTFs could incorporate voice trading, within limited levels of discretion."

Europe is likely to follow the US in opting for RFQ for venue-based trading of derivatives, according to Simon Maisey, managing director, finance and business development at Tradeweb. But existing electronic RFQ models may need to be tweaked. "MiFID II's pre-trade transparency rules could act as a disincentive to quoting via RFQ, so we proposed use of a collection window enabling the client to see the quotes for a period prior to wider dissemination. This has been incorporated into the European Securities and Markets Authority's recently published regulatory technical standards," he explains.

What Europe and the US do share is a tendency toward extraterritoriality. Based on recent history, discussions over a framework for substituted compliance may soon become a priority. "Without agreement on areas where the trading obligation rules conflict, there will be a big impact on how the market functions," says Maisey.

"Fragmentation into regional liquidity pools in the same product would be very bad for market efficiency and for investors and issuers." ■

A new model for post-trade tech



The traditional model of client-installed technology platforms is struggling to support firms facing rolling regulatory change and limited budgets. By **Dan Barnes**

Both buy- and sell-side firms have to make sure they have the operational and technological capacity to comply, by April 2016, with European Market Infrastructure Regulation (EMIR)-mandated clearing of interest rate swaps. But is the technology in place?

In a July 2015 report by analyst house Aite, some 68 per cent of respondents identified 'impact of increased regulation' as their top business challenge. Among dealers, the capacity to provide clearing and other post-trade services is under serious pressure.

Many firms that had been seeking to enter the business – the Bank of New York (BNY) Mellon, Nomura, State Street and RBS among them – have found the outlay too much to support as the returns have failed to roll in, and have pulled out over the last two years.

Other firms with more established businesses have looked for innovative ways to cope. Barclays announced in March 2015 that it would outsource its technology and operations to services provider SunGard, which had launched a new industry utility for post-trade futures and cleared over-the-counter (OTC) derivatives operations. This agreement pinpoints the source of much pain for the banks in the derivatives space: costs are rising and revenues uncertain.

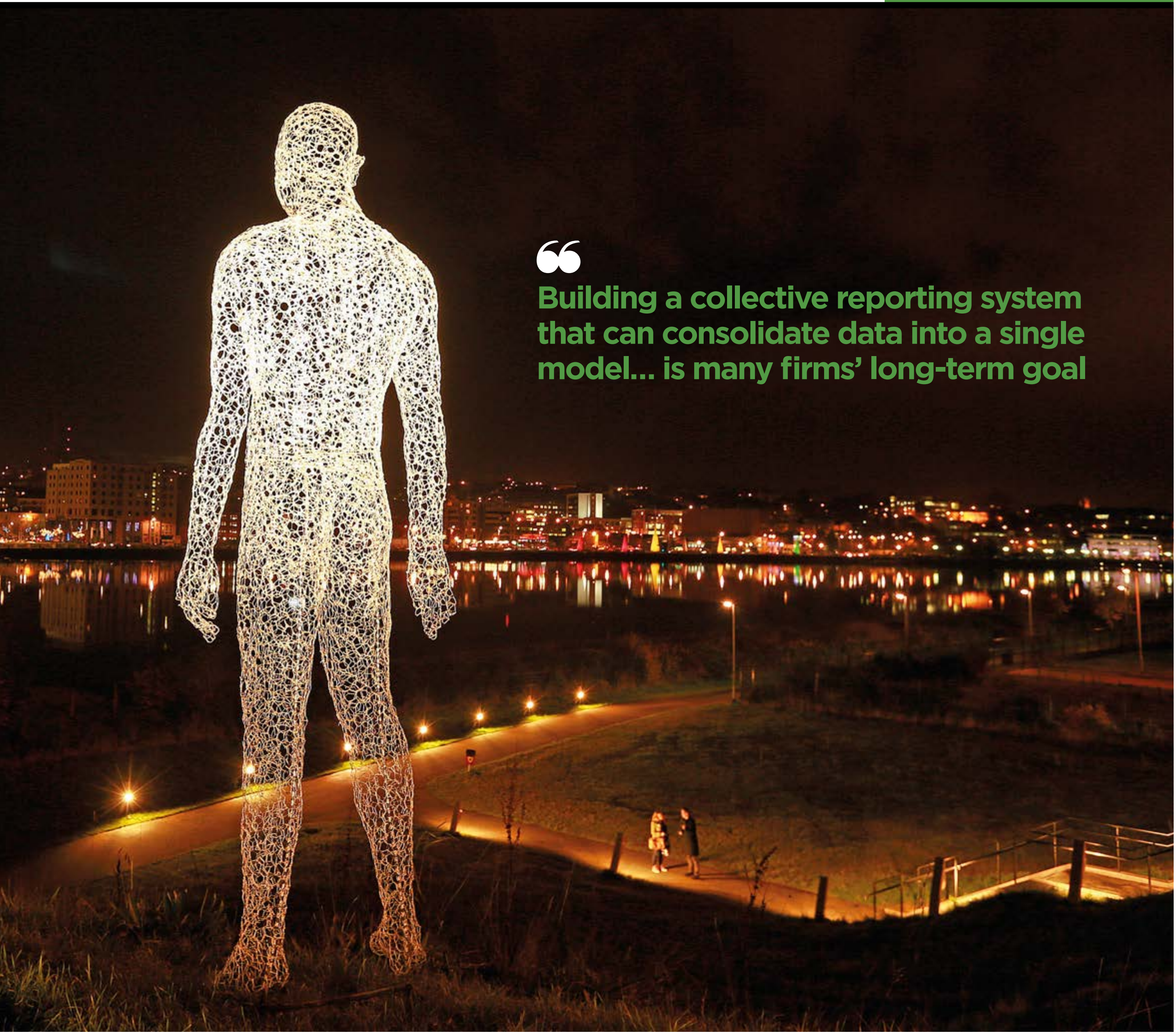
"For existing regional brokers considering expansion of their services into new regions and markets, the utility can help reduce the fixed cost and effort of expanding their operations and technology to support this new business and deliver faster time to market," says John Avery, head of managed services at SunGard.

Buy-side firms have reported that their appetite for technology is somewhat different. Aite found 55 per cent of respondents to its study thought the retirement of older technology was 'somewhat' or 'not at all' important. Just 35 per cent thought it 'very important'.

However, that may represent the service model that the buy-side has traditionally used for technology rather than being a proxy for change. Asset managers have routinely relied on the sell-side and other third parties for operations that they have seen as non-competitive.

Under the new derivatives clearing frameworks established by Dodd-Frank and EMIR, that model is further supported. Tasks such as transaction reporting can be delegated to the firm's dealer, while collateral management outsourcing is being offered by several custodians and investment banks. This allows large players to make a technology investment that can be used to the mutual advantage of buy- and sell-side players while minimising disruption to their own technology stacks.

"Collateral management started as a product for the sell-side," says Jeannine Lehman, head of global collateral services for Europe, the Middle East and Africa at BNY Mellon. "But at the moment most of our conversations are with buy-side clients because of EMIR and other



> **Building a collective reporting system that can consolidate data into a single model... is many firms' long-term goal**

regulation or because they want an alternative to managing collateral in-house."

Fitting in

Despite the advantages outsourcing offers, there are areas where in-house technology still has strong appeal. Consultancy and services firm Sapient Global Markets found that 72 per cent of capital market firms have been developing in-house transaction reporting systems for their derivatives business.

Cian O'Braonain, director of regulatory reporting practice at Sapient, says that the incremental need for platforms to deliver on certain tasks challenges the third-party provider model.

"A lot of product vendors are only used to working at a certain pace. They only build things when they absolutely have to and if it wasn't ready you just held back launching until it was ready," he says. "Dodd-Frank made getting solutions ready an imperative, or if not you had an uncomfortable chat with the regulator."

In-house IT teams may have the flexibility to build quick fixes that can later be brought together into a longer-term strategic solution but vendors cannot sell systems on that basis. In addition, reporting is necessary for so many regulations that building a collective reporting system that can consolidate data from the transaction, risk and finance functions into a single model, thereby providing one source of information for all reports, is many firms' long-term goal. For a third party it is hard to establish the trust needed to support such a massive responsibility across a business globally and across assets, especially with OTC coming into the fold.

Brian Collings, CEO of post-trade processing platform Torstone Technology, notes that when firms look at outsourcing they often have concerns about the loss of control they feel from pushing out entire sections of their operations.

"We think the potential trend going forward is looking at sorting out the right technology platform that gives a client control but also allows them to partially outsource," he says.

"They have most derivatives clearing on a platform so they know where they are and they have a base to consolidate where they are from a regulatory point of view. But if collateral management is better run by a third party then getting that business to run your operations becomes a sensible policy."

Doing that requires the right technology set-up with the capacity to pipe one particular service to a specialist vendor, and a clear understanding of what does and does not need to remain in-house at a firm. Included in this understanding will be a commercial assessment of where the value is added.

Cutting through

Ted Leveroni, executive director of derivatives strategy and external relations at back-office technology provider Omgeo, says there has been a revisiting of what is a competitive differentiator in the back office compared with what is a 'need-to-have'.

"As firms look at the increase in clearing of derivatives and the direction the market is going in, they realise there is more in their back office that they need to have, which is not a competitive differentiator. That can lead to the adoption of standards and leveraging large players that have scale to provide those services for you at a cheaper cost and as more of a utility play."

The outsourcing model applied to technology providers or banking partners that have scale for particular processes, which are not considered competitive differentiators, starts to make sense. With a greater adoption of standards those firms that have critical mass can bring a community of customers in to play.

> **With a greater adoption of standards, firms with critical mass can bring a community of customers in to play**

Collings says: "We see it likely that outsourcers will become specialists. There will always be some who provide everything, but users will be able to select which they use for specific tasks based on quality or price, whether it is confirmations or collateral management, enabling users to mix and match outsourcers as they wish."

The value to the adopter is access to a proven platform rather than taking on a system that it has to make work, which in turn can significantly change their ability to thrive in a tough market.

"By using something that is already in play, a market participant realises a big reduction in risk," says O'Braonain. "There are some firms being turned off businesses because they cannot make any money. But if we can have a team of 100 developers working on a product because we are providing it on a one-to-many model, that can really affect their access to technology versus cost. ■

Also in this section:

MiFID II: knowing the unknown

How, where and by whom derivatives are traded will be transformed under MiFID II and MiFIR. By **Dan Barnes**

A swathe of new rules are impacting the trading of cash and derivatives instruments in Europe, changing how and where they are traded and how they are treated post-trade. Failure to understand the regulations will hit trading desks and, ultimately, investors hard.

"Will it cause mayhem? I don't think so. It will just cost you serious money," says Thijs Aaten, managing director for Treasury and Trading at APG Asset Management. "In a low-yield environment that is hard to justify."

On 29 September 2015, the European Securities and Markets Authority (ESMA) published the regulatory technical standards, which, subject to approval by the European Commission and ultimately, Parliament, will bring the provisions of MiFID II into effect on 3 January 2017. This revised directive will have a considerably expanded scope when compared with the 2007 original incarnation, covering over-the-counter (OTC) and exchange traded and cleared derivatives across a broad range of asset classes.

The first version was one leg of a strategy intended to harmonise European capital markets by creating a common rule set, but with the focus primarily on equities. Its notable points were: the removal of the concentration rule that had given some national exchanges monopolistic control over equity trading; introduction of best execution obligations (defined between broker and investor); and creating a framework for non-exchange venues for trading – multilateral trading facilities (MTFs) and systematic internalisers (SIs).

It was revolutionary and flawed. It allowed European equities to be traded on the new MTFs, creating price pressure on exchange fees. However, different European countries interpreted the directive differently. For example, post-trade rules in Spain still effectively prevented anyone trading Spanish equities except on the national exchange for years after 2007.

The tight definition of MTFs and SIs meant that brokers were able to expand their OTC equity crossing business into automated venues called broker crossing networks, which functioned like proprietary trading venues but were not subject to the same disclosure and market conduct rules as MTFs and SIs.

MiFID II is intended to close gaps in the rules and with its twin, the Markets in Financial Instruments Regulation (MiFIR), deliver a firmer line for countries to follow. Scheduled to be in effect for 3 January 2017, as MiFID and MiFIR draw closer they will sweep up derivatives market traders in their expanded remit.

"European Market Infrastructure Regulation [EMIR] around OTC derivatives clearing is being eclipsed now that MiFID II is on the agenda," says Jez Bezant, independent buy-side consultant and former head of derivatives for Aviva Investors. "It is all-encompassing and sweeps up many more firms. EMIR is almost old news now as people focus on MiFID II."

Impact on derivatives trading

However, the two are also interdependent. The 2009 G20 agreement to migrate OTC derivative trading onto electronic platforms where appropriate, and clear OTC transactions via central counterparties (CCPs), was transposed into a single law in the US, under the 2010 Dodd-Frank Act. However, Europe has effectively broken up the trade/post-trade aspects across MiFID and EMIR.

"People are aware of EMIR, but MiFID II is the second part of it," Aaten explains. "You need clearing to allow interest rate swaps to be traded on a platform. That will completely change how we are trading these instruments. In that sense the awareness of MiFID II and its trading and best execution obligations are very much underestimated."

For both buy- and sell-side firms the effect of the rules in the short term is to increase costs. The separation and delay of each part of legislation makes the pricing in of those costs challenging, as only some of the rules are known, before MiFID II is in effect.

Jacqueline Walsh, managing director at Derivati Consulting and former head of derivatives at F&C Asset Management, notes that "OTCs are starting to settle and firms can see what is impacting their pricing. However, I don't think any of the clearing brokers truly understand how much the rules are going to impact exchange-traded derivatives [ETDs]. Several clearers have said they need to completely rethink their ETD model."

Defining liquidity

MiFIR determines that derivatives contracts that are eligible to be cleared through a CCP and are liquid enough should be traded on a recognised venue. Consequently there can be instruments that are cleared but are not traded on a market. That obligation hinges upon defining what is sufficiently liquid. Typically this will include the number and size of trades across market conditions, and the number of counterparties in a market set against the number of products.

"MiFID II has generated a lot of debate on defining liquidity across different instruments and debate on extraterritoriality, which are key points of interest, " says Miles Courage, chief operating officer at JPS Alternatives, part of J.P.Morgan Asset Management.

The obligation to trade contracts on regulated markets, MTFs or the newly defined organised trading facilities (OTFs) is the point of interplay between MiFIR and EMIR. OTFs themselves have been broadly defined in the rules, to avoid the risk that certain activity could be defined as falling outside of the rules, as previously occurred with broker crossing networks. Consequently, OTFs capture multilateral trading not conducted on other venues and any market on which derivatives are traded is likely to fall into this category.

Under EMIR, the market participants subject to clearing rules can be financial – which the regulation defines under Article 2(8) – or non-financial firms that fit the profile for the clearing obligation – as defined under Article 10(1b) of EMIR. The MiFID II trading obligation will be imposed on non-financial businesses as well as capital market firms. Large firms in commodities such as oil and metals may be drawn into the net of financial markets regulation as a result, despite their protestations they pose no systemic financial market risk.

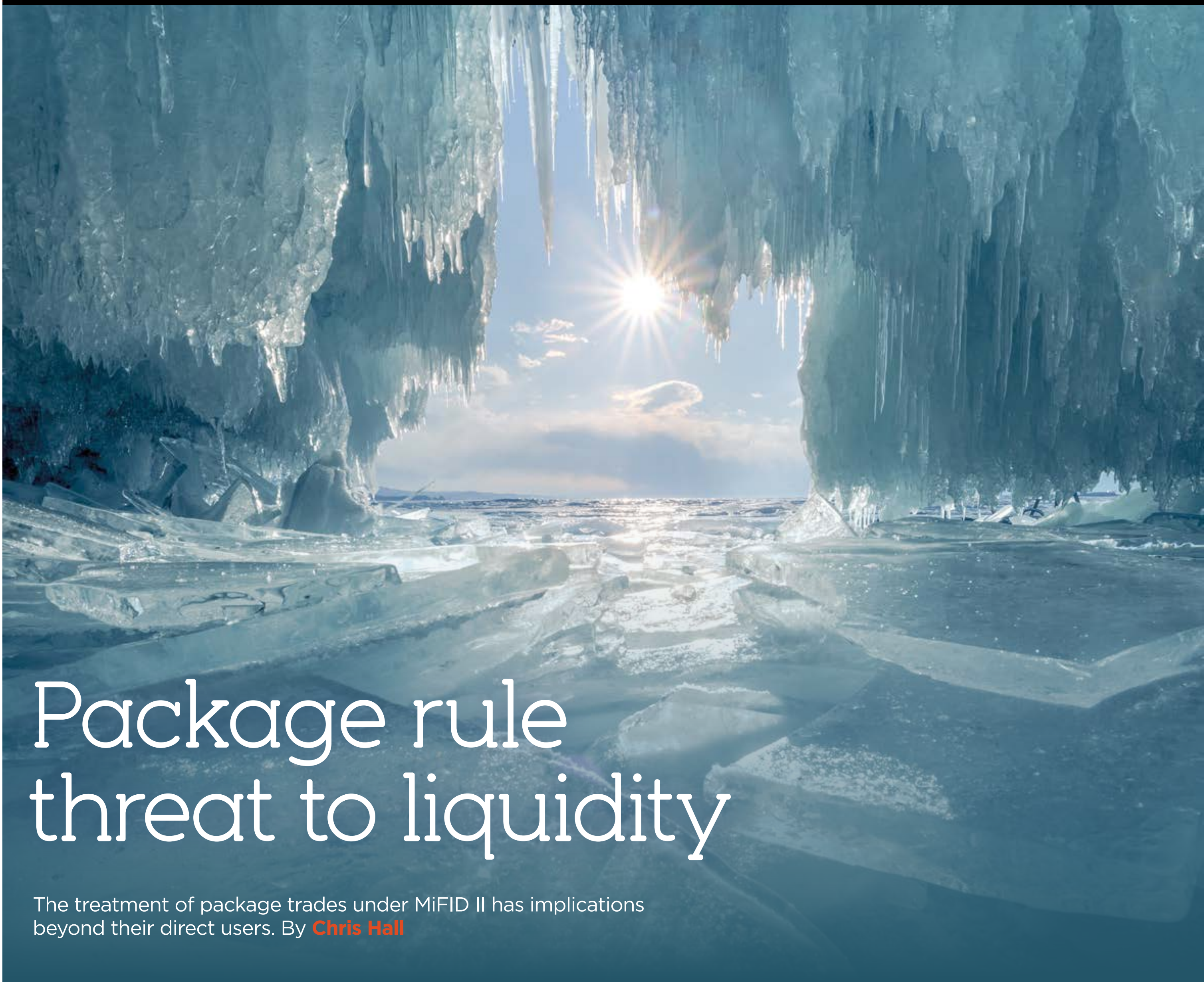
The European Federation of Energy Traders estimates that large energy firms caught in this unexpected net will need to find almost €7bn in additional capital to meet new capitalisation and margining rules.

How trading happens – as well as where – will be affected under the new rules. MiFID II employs a tougher best execution regime, now applied to many instruments both exchange-traded – such as futures – and OTC, such as swaps. The key change in the rules is in Article 21, which defines best execution and now demands investment firms take "all reasonable steps" to achieve the best possible result for their clients.

The reporting regime is expanded out to encompass a broader range of cash and derivative instruments, which will make trading a more complicated business to limit information leakage when trading large positions.

Collectively the new framework, interlacing with EMIR, is intended to enhance market orderliness, transparency and stability, a step up from the prevention of market abuse and monopolisation that was a guide for MiFID I.

Through all of this, the front office, operations teams, counterparties and end-users have to be kept aware and informed. Courage says: "Our first priority is to get the best outcomes for our end-investors and we regularly discuss regulatory change with them." ■



Package rule threat to liquidity

The treatment of package trades under MiFID II has implications beyond their direct users. By **Chris Hall**

The proposed extension of pre- and post-trade transparency rules from equities to almost all other financial instruments under the Markets in Financial Instruments Directive (MiFID) II/Markets in Financial Instruments Regulation (MiFIR) may have many unintended consequences. But few of the industry's responses to the new rules can have blindsided regulators quite as comprehensively as those relating to package trades.

Neither the Level 1 legislation nor the Level 2 rules, which the European Securities and Markets Authority (ESMA) has been empowered to develop under MiFID II/R, anticipated the need to apply MiFID II's well-intentioned principles to this element of the derivatives market. Indeed, such is the lack of consideration for package trades in MiFID II that it stretches the authority of ESMA to include specific rules in its regulatory technical standards.

Package trades are not an insignificant element of the derivatives market. Industry estimates suggest they make up to 70 per cent of derivatives trades executed by inter-dealer brokers. And a wider range of financial market participants currently construct package trades of varying degrees of complexity to achieve a desired outcome in a low-risk, low-cost fashion, compared with a series of separate transactions.

But MiFID II has not addressed whether package trades – either as single or multiple transactions – qualify for exemption from pre- and post-trade transparency rules. As with the original directive, MiFID II includes large in scale (LIS) waivers to protect large orders from adverse market impact, but also introduces size specific to instrument (SSTI) rules to lend additional levels of protection to liquidity providers that risk their own capital when trading in large size. But it is the Level 1 text that is silent on package trades.

The International Swaps and Derivatives Association (ISDA) has called for "specific treatment for package transactions" that gives them the same protection from transparency rules available to their component parts and allows them to continue to be executed as a single transaction. ISDA also insists that

MiFID II's Level 1 text empowers ESMA to define how to identify whether specific instruments or combinations should be considered liquid.

Problematic

Ben Potts, ICAP's head of European affairs, sees two core problems for users of package trades under MiFID II. On the one hand, inclusion of transaction legs conducted as part of a package trade in market data sources for underlying instruments (for example, swaps) would give a 'skewed' impression of the liquidity and pricing levels of such instruments traded on an outright, standalone basis.

On the other, if a package containing liquid and illiquid legs – such as a swap with a complex options collar – is considered liquid overall, then pricing for those illiquid elements may have to be disclosed on a pre-trade basis. This not only deprives illiquid transactions of MiFID's LIS and SSTI protections, but also feeds more potentially misleading data into the market.

"A ten-year swap in a particular currency might trade 100 times a month, but a package containing a two-year and a ten-year swap might trade just twice over the same period," Potts says. "Pushing information on those package trades into the market would have a negative impact on price formation and may also force users of package trades to seek potentially less suitable hedging alternatives to avoid adverse market impact. The outcome of that would be to reduce liquidity in the underlying instruments and to increase risk."

Package trades can be over-the-counter (OTC) or exchange-based, such as the exchange-for-physicals and exchange-for-swaps traded on Eurex. In such deals, a market participant sells a cash element, perhaps a government bond or a commodity on or outside a trading venue, and simultaneously purchases an appropriate amount of offsetting exchange-traded futures from a counterparty with the opposite interest. Because the derivative is related to this cash element, and hence is proportional in value to it, the two legs are contingent and their pricing is linked.

As a consequence, experts argue the on-exchange leg should not be transacted at the prevailing market price in the central order book and should be waived from the pre-trade transparency requirement.

"The challenge for ESMA has been to find a suitable home for the special treatment of package trades within the law as provided by the legislative process," says Vassiliki Veliou, senior vice president, market structure at Eurex. Veliou supports an extension of the existing illiquidity waiver in MiFIR Article 9(1)(c) to package trades, pointing out that ESMA itself proposed in its December 2014 consultation paper a possible broadening in its use (the waiver currently exempts instruments falling under the European Market Infrastructure Regulation clearing obligation but not MiFID's trading obligation).

> **"Estimates suggest package trades make up to 70 per cent of derivatives trades executed by inter-dealer brokers**

The new directive also introduces a definition of execution that is at odds with existing securities market law in a number of important jurisdictions both in and adjacent to Europe. It moots the extension of the reporting obligation to orders placed by investment firms as well as individual trades in specific financial instruments.

Alex McDonald, CEO of The Wholesale Market Brokers' Association, expects ESMA to create a pre-trade transparency calibration regime for package trades based on these transactions being defined as orders rather than financial instruments. Such orders will be labelled as liquid or otherwise, which will then determine whether some exemptions are available from pre- or post-trade transparency requirements.

"This causes difficulties in practice," McDonald explains, "because package trades are by definition made up of multiple transactions in different underlying instruments, some with individual ISINs [international securities identification numbers], some traded OTC or on multiple types of trading venue. This gives rise to a series of currently unanswered questions, including which requirements determine how these orders will be reported and their execution quality categorised. MiFID II is attempting to codify how trades are arranged, but it's often less clear what defines an order and at what point that set of interests are executed, or traded, into a single transaction."

Disincentive

If no new regime can be carved out of MiFID II by ESMA the concern remains that all elements of a package trade – liquid and illiquid – will fall under the pre-trade transparency rules individually. As such, trade bodies have called for package transactions containing large or illiquid components to be classified as illiquid, for both pre- and post-trade transparency purposes and ultimately for the application of the derivatives trading obligation.

"In the example of a package trade consisting of one price-forming and one non-price-forming transaction in two different instruments, both may have to be published under the planned rules as they currently stand," says Corinna Schempp, director of regulation at FIA Europe. "That could be a disincentive to many existing users." ■

Ramping up TR data

Trade reporting requirements under MiFID II will compound those already in place in EMIR. By **Cecília Bergamaschi**

After adapting to the changes proposed by the European Market Infrastructure Regulation (EMIR), the derivatives clearing industry has another major task looming with the Markets in Financial Instruments Directive (MiFID) II.

Specifically, the new regulation, which is scheduled to come into force on 3 January 2017, requires market participants to upgrade their trade reporting mechanisms, since existing data are not adequate for the new rules.

In order to improve market integrity, MiFID II transaction reporting will replace MiFID I's current independent national reporting regimes. Once MiFID II takes effect, investment firms and trading venues will have to deal with a much larger amount of data than originally required by MiFID I and EMIR. The number of fields to be completed in the reports will increase from 23 to over 64.

The changes in the data fields, along with the need to report a larger range of instruments, mean that MiFID II will impact far more players than those affected by MiFID I. For Ben Pott, head of European affairs at ICAP, the challenges on the reporting side are around the reportable fields. The biggest single challenge is for the submitter to fully populate transaction reports with all required data fields, as no previous reporting regime has required this level of detail to be captured, adds Steve French, head of regulation at Traiana: "In many situations, the details required to identify the client are only available in human resources systems, which have never been interfaced to before."

Firms will have to go through fields concerning the identity of the client using a legal entity identifier (LEI) together with additional data such as name, surname, date of birth and residence of the natural person. All of which, French points out, cannot be derived from the LEI alone. "In addition, MiFID II prescribes fields that identify the decision-maker for the transaction, the identification of the computer algorithm responsible for the investment decision and whether the seller to the transaction is short selling," he says.

Parts of a puzzle

MiFID II establishes that even derivatives traded in third countries outside the European Union where the underlying is traded on an EU venue will have to be reported. In these cases investment firms outside the European Economic Area will have their reports made by the European trading venues that completed the transaction.

Unlike EMIR, where a trade report needs to be sent to the trade repository, in MiFID II the information will have to be made publicly available in virtually real time after the trade is concluded. "APA [approved publication

arrangement] trade reporting is a much more cut-down, shorter version than what we've been seeing in EMIR's trade reporting, for example, because it only really covers price, volume, time of trade and the instrument," says Pott.

Nevertheless, MiFID II also requires more granular transaction reporting data. The data fields differ from those required by EMIR as the regulations have distinct purposes: while EMIR reporting focuses on systemic risk, MiFID II concentrates on market abuse and has monitoring purposes. "Effectively, they [MiFID II requirements] complement the EMIR set," Pott explains. "If you look at trade reporting under MiFID, transaction reporting under MiFID and then the EMIR reporting, they all really look at different parts of the puzzle."

With all the coming changes, investment firms will have to revisit their relationships with third parties that up until now have reported on their behalf. MiFID II rules state that reports can be submitted to each national competent authority by the investment firm itself, via an approved reporting mechanism, or by the trading venue where the transaction was completed.

> **Investment firms will have to revisit their relationships with third parties that up until now have reported on their behalf**

Although the new regulation will allow firms to outsource reporting to third parties, it will also require that they remain responsible for the timeliness, completeness and accuracy of such procedures, and while this is possible under "transmission of order" this is a massive job for firms to implement and may not in fact be possible for ETD given the large trade volumes involved.

According to French, the challenge to fully populate transaction reports is magnified when third parties are responsible for collating the additional fields. "There will be significant impact on existing reporting infrastructure and client capture regimes across the industry, which will likely result in costs having to be passed back to the outsourcing party by third parties that take on the challenge or a trend where third parties cannot themselves offer outsourced reporting," he says.

Despite the challenges, it is fair to say that derivatives exchange data tend to be more straightforward than in the equities market, for instance, with the absence of elements such as dark pools. With regards to trade reporting, it is an obligation for market participants, and not a requirement for central counterparty clearing houses.

In order to come up with solutions to accommodate the new data fields and other requirements under MiFID II, firms are having to create new systems or adapt their existing tools.

For Sam Tyfield, partner at Vedder Price, this is a "massive" infrastructure and protocol project. "MiFID II requires a lot of information at a level of granularity that has never been required before," he says.

"The industry is working really hard to ensure that whoever has those data is able to put them into the chain, and whoever needs them further in that chain receives them."

Investment firms and trading venues are finding support from trading associations and industry groups like standards body FIX Trading Community, which has recently created six subgroups to help the industry prepare for MiFID II.

Final approval due

According to market participants, details of MiFID II are yet to be fully clarified by the European Securities and Markets Authority (ESMA). This means that it is currently difficult for firms' software and infrastructure developers to code without the complete specifications, says Tyfield.

After the release of ESMA's draft regulatory technical standards, the final set of rules, which should be signed off by the European Commission and then approved by the European Parliament and the Council, is expected to be out some time next year.

Ben Pott believes that in six months' time the industry will be in a better position in terms of readiness for MiFID II. The change in regulation can be turned into opportunities, especially for first movers.

Tyfield sees advantage for those who manage to create solutions that are useful to market participants. However, to be able to offer such things, he says, it is important to fully understand the new rules. ■

Take it to the limit

How will the introduction of position limits affect European derivatives markets? By Robert Finney and Taïs Jost

"The EU is going into new, uncharted territory by implementing the most extensive position limits regime in the world."

So spoke Steven Maijoor, chair of the European Securities and Markets Authority (ESMA) in March 2015, updating the European Parliament Committee on Economic and Monetary Affairs on ESMA's work on implementing measures under the Markets in Financial Instruments Directive (MiFID) II.

Among the reforms enacted by MiFID II are the introduction, for the first time across the EU, of mandatory legal restrictions on the scale of commercial trading in commodity derivatives traded on an EU venue and "economically equivalent OTC [over-the-counter] contracts", complemented by daily position reporting and weekly publication of venues' aggregate positions.

Maijoor continued: "ESMA is mindful of the responsibility it has here to set a methodology which balances a unified approach with sufficient flexibility to avoid stifling markets, particularly illiquid ones, and new contracts."

By October 2015 market participants were debating whether that balance has been achieved. ESMA's final draft regulation on position limits sent to the European Commission for adoption contained rules that were stricter in many respects than anticipated and left numerous questions unanswered.

Position limits in MiFID II

The famous 2009 Pittsburgh G20 summit that agreed standards for OTC derivatives markets also highlighted commodity price volatility and concerns about concentrations on oil futures. Subsequently the International Organization of Securities Commissions (IOSCO) was tasked to make recommendations on the commodity derivatives regulation. IOSCO's Principles for the Regulation and Supervision of Commodity Derivatives Markets, endorsed at the 2011 G20 Cannes summit, call for market authorities to "have and use formal position management powers, including the power to set ex-ante position limits, particularly in the delivery month".

MiFID II expressly refers to those IOSCO Principles to justify introducing position limits and insists that a harmonised EU regime is needed. However, the IOSCO Principles never seemed to suggest a regime as extensive as the EU has now developed.

MiFID II establishes a framework for national competent authorities (NCAs) to set position limits for every commodity derivative traded on a MiFID II-regulated trading venue in its jurisdiction. ESMA proposes a baseline limit of 25 per cent of deliverable supply for spot months and of open interest for other months, but allowing NCAs to adjust this within a 5–35 per cent range for any commodity derivative, depending on a series of prescribed factors. Specific limits are prescribed for new or illiquid contracts and securitised commodity derivatives.

Each limit will apply at all times to the net position that a person holds (directly or through third parties) in the commodity derivative, the same derivative on another EU trading venue, and any "economically equivalent OTC contracts". ESMA defines the concepts of 'same' and 'economically equivalent' very narrowly – both require "identical contractual specifications, terms and conditions, excluding post-trade risk management" such as clearing. The scope for netting OTC contracts is therefore very limited, and one may not net against physical positions.

A parent company must aggregate its own net positions with the whole of the net position of each of its subsidiaries (even partly owned subsidiaries), but there is an exception for investment funds. Non-financial entities may exclude certain hedges for commercial activities. For this purpose, the EMIR hedging definition applies with minor modifications but is extended to cover derivatives traded on a regulated market. NCA approval is required for each hedging position. ESMA warns against reliance on the exemption without such approval: given that NCAs may take 21 days to rubber stamp the application, the exemption may be largely unusable in practice.

> **Position limits are coming in the EU whatever happens in the US. The political pressure and will is strong**

The position limits regime will apply to firms authorised under MiFID II and other regulated financial institutions but also to non-financial entities (including commodity firms exempt from MiFID II). Its scope also extends extraterritorially to non-EU persons holding positions on EU trading venues. However, non-EU non-financial entities seeking to use the hedge exemption face a significant hurdle: they will need to demonstrate their status, benchmarked against the financial institution categories defined in EU legislation, to each NCA to whom they apply for exemption.

Atlantic crossing?

In the US, Dodd-Frank expanded the authority of the Commodity Futures Trading Commission (CFTC) to establish position limits beyond futures and options contracts to include various categories of swaps traded on US venues or OTC. The CFTC exercised this authority by setting speculative position limits on exchange-traded futures and options and economically equivalent derivatives, referencing 28 agricultural, metal and energy commodities.

But just before they were due to become effective a US District Court vacated them following a legal challenge by trade associations. Similar rules were re-proposed in December 2013 and updated in September 2015 to modify the exemption from the aggregation requirements for owners of more than 50 per cent of another entity.

The US and EU regimes share many concepts, such as economically equivalent swaps/OTC contracts. In developing detailed rules, ESMA has considered, and in some cases adopted, the essence of the CTFC's approach – the 25 per cent baseline limit, for example. But in capturing potentially thousands of venue-traded contracts as against the CFTC proposal of 28, the EU regime is much more ambitious, and in many respects seems less flexible – as regards aggregation and hedging, for example, and the availability of other exemptions.

Pressure to finalise

Position limits are coming in the EU whatever happens in the US. The political pressure and will is strong and the process to finalise the framework is now well advanced. The market accepts that. Indeed, position limits are already becoming a reality: ICE Futures Europe (and constituent markets) have had limits for some time, France introduced limits for certain agricultural contracts from July 2015 and now the London Metal Exchange (LME), a stalwart supporter of position management as opposed to limits, is considering limits in relation to its new premium contracts.

Despite the momentum, however, given the link to the 'real economy' of trade and commerce, this is one area under MiFID II where European legislators may intervene to seek changes to ESMA's draft regulations.

Eventually we may see some moderation of the more extreme aspects of the regime. How quickly that happens depends on whether the prophets of doom, of EU markets losing liquidity and commodity finance drying up, are proved right. ■

CCPs split on open access

Open-access rules proposed under MiFID II are dividing opinion in the markets and sparking heated debate. By **Jon Watkins**

At the heart of the European Market Infrastructure Regulation (EMIR) is the reduction of systemic market risk. One of the central principles of the Markets in Financial Instruments Directive (MiFID), however, is to increase competition among financial institutions for the benefit of users.

In this context MiFID II is proposing mandatory 'non-discriminatory access' to central counterparties (CCPs) for clearing services regardless of which trading venue the contract was executed on. This rule is dividing the market, with the argument centring on whether this level of flexibility may actually increase cost and risk.

In one corner is a group of clearers including Intercontinental Exchange (ICE), Eurex, London Metal Exchange (LME) and Euronext, where their 'trade-and-clear-through-us' approach is under threat from the new rules, which decouple these services. In the opposing corner are London Stock Exchange/LCH, ICAP and Nasdaq, who are expecting to reap the benefits of participants having the freedom to select which CCP they clear through.

The regulators' position presents some ambivalence, however. The legislative provisions in the Markets in Financial Instruments Regulation (MiFIR) Articles 35 and 36 accept that forcing the interconnectedness of systemically important financial market infrastructures in derivatives could potentially pose threats to market integrity and stability, especially in distressed market conditions.

As a result, a taskforce comprising the Financial Stability Board, the Committee on Payments and Market Infrastructures, the International Organization of Securities Commissions and the Basel Committee on Banking Supervision is already reviewing the risks of interconnectedness of financial market infrastructures. MiFIR Level 1 addresses such risks and states that mandatory access may only be granted where it would not threaten the orderly functioning of markets, in particular due to liquidity fragmentation, and would not adversely affect systemic risk.

clearing already," says Martin Pluves, CEO of LCH.Clearnet. "The netting benefits of compression and portfolio margining all become unlocked when you break down the boundaries that exist in a traditional 'vertical' market. "There's a fear in the market of fragmentation that is completely unfounded because the clearing activity will naturally move to the place where collateral efficiency is gained.

"What we will see is efficiency-driven consolidation. Clearing volumes will move to their most efficient venue," Pluves adds.

> **While there are currently margin offset capabilities within CCPs, supporters of open access argue it could bring a whole new range of opportunities for end-users**

Ultimately there is no way of knowing exactly what the real effects will be until the regulations take effect. The move towards a market-wide open-access environment will require an overhaul in the margin and collateral side of the business, as positions are calculated against exposures at different CCPs.

For the buy-side, cost savings and margin efficiencies will top their wish list when it comes to the new CCP landscape. "Being able to choose your trading and clearing venue means clients are able to pool their margin, leading to greater collateral efficiencies and lower overall cost," says Ben Pott, head of European affairs at ICAP.

New opportunities

While there are currently margin offset capabilities within CCPs, supporters of open access argue it could bring a whole new range of opportunities to benefit end-users. And in the current regulatory climate, margin and collateral efficiencies are becoming increasingly important as costs rise across buy-side operations.

"What you really want is more choice because there may be a much more efficient place for you to clear that trade at another CCP, where perhaps you have other activity in

Commercial concerns

In an open letter to the European Securities and Markets Authority earlier in 2015 seven EU exchanges/CCPs including Eurex, LME Clear, ICE and Euronext voiced reservations. They argued that support for open access was driven by commercial concerns, which might "cloud the potential risks that the mandatory access requirements present to financial stability and to the protections afforded to end-users of derivatives exchanges."

Concern about the open-access concept also extends to its validity across different asset classes. While it may have seemed a reasonable tool for smoothing over-the-counter clearing, opponents argue that it is not a suitable mechanic for highly leveraged exchange-traded derivatives.

The regulatory technical standards (RTS) published in September do provide grounds for

Open access, open minds

By Martin Pluves
chief executive,
LCH.Clearnet Ltd

Open access is as much a mindset as a matter of regulatory policy. In our case, it's a belief that by clearing across a range of execution venues, we provide choice for members and stimulate healthy competition. We're not alone in this viewpoint. In a straw poll taken at FIA and FIA Europe's IDX 2015 conference, 90 per cent of attendees supported the principles of open access, while 80 per cent believed that it increases competition and spurs innovation.

While the open access debate is not over, LCH.Clearnet has been operating under a horizontal model for many years, and we firmly believe that this delivers lower costs and greater efficiency. As well as bringing economic benefits to customers, this approach encourages innovation and prevents concentration of risk in a "closed" vertical silo market infrastructure. In addition, it helps strengthen the ability of markets to withstand systemic shocks, as advocated by CPMI-IOSCO.

The financial stability arguments against open access simply do not stack up. Properly implemented, access provisions will stimulate choice in the execution and clearing of products. As markets seek the most efficient trading and clearing venues, pools of liquidity will naturally form wherever it makes most economic sense. We believe that any denial of access needs to be subject to objective assessment from the relevant competent authority rather than solely on the judgment of the venue. This will ensure access refusals are limited to cases where there is a genuine threat to market stability.

It's also important to debunk the myth that open access equates to interoperability. Interoperability means two or more interconnected clearing houses sharing a combined open interest pool. This enables market participants to reduce costs by netting and cross-margining trades taking place between members of the linked CCPs. Although interoperability introduces some complexity, it works especially well for more vanilla traded contracts, such as equities and repos. In the case of OTC and exchange-traded derivatives, we believe that interoperability should be permitted but not mandated as the only means for achieving open access.

Greater choice is coming to European markets, so let's all keep talking.

denying open access, which though it may be a default regulatory preference will have to pass some stiff tests. Eurex notes that in particular, the RTS provides for the consideration of system capacities, operational risks and complexities, incompatibility of systems and rules, economic viability and most importantly the legal risks before open access is possible.

What about interoperability?

If you think open access is a topic that sparks debate, try mentioning interoperability to Europe's CCPs. That longstanding concept predates open access and is another major point of contention.

Through interoperability, trading firms are able to select a CCP of their choice from a number of valid alternatives. However, to do this the CCPs would have had to enter into agreements with each other. This is meant to provide an extra layer of safety in the event of a CCP failure as having a choice of clearers would allow an alternative CCP to step in if a trading venue's incumbent CCP went bust.

Interoperability has existed for years in the equities market where there are four CCPs that interoperate with each other. Its inability to gain traction in derivatives clearing resulted partly from the different nature of collateral in derivatives versus equities and partly from the critical access to assets during a member default.

European countries have different bankruptcy codes, making it difficult to guarantee title to cross-border assets in a default. Nevertheless, interoperability is seen to promote competition and consumer choice, though not on quite the same scale as open access would.

"If Dodd-Frank taught us anything, it's that interoperability is more than just the notion of sharing information, it's also about caring how it is processed, monitored, consumed and reported," says Henri Pegeron, product manager for derivatives & compliance, Fidessa. "Open access will need to learn from the mistakes of the past to avoid making it prohibitive for CCPs and alpha-trade counterparties to share information."

Interoperability is a complicated and work-intensive process for monitoring risks, and has legal issues surrounding collateral. There are also concerns about the effect on the other CCPs in the agreement if one were to fail.

However, despite this centralisation of risk, the amount of systemic risk is supposed to be reduced overall. The Eurex view is that interoperability substantially complicates risk management for CCPs as it opens up the new dimension of intra-CCP risk management, which is especially pertinent for derivatives.

LCH takes a different position: "We compete in open-access clearing markets and we are also in the midst of a new era of interoperability across borders in both fixed-income repos and in equities," says Pluves. "Interoperability is hugely beneficial under specific market circumstances where you have a very highly standardised, multi-listed and multi-venue asset class. But it's not straightforward and it's not simple."

Regulators appear to be pushing ahead with open access, though in what format remains to be seen. The mandates could yet be years away, which means much debating remains to be done by opposing sides.

Pluves believes that it will be down to the buy-side and dealers putting pressure on the community: "The voice of the buy-side and dealer community needs to be strongest here, and anything that inhibits efficiency in the market needs to be looked at carefully." ■

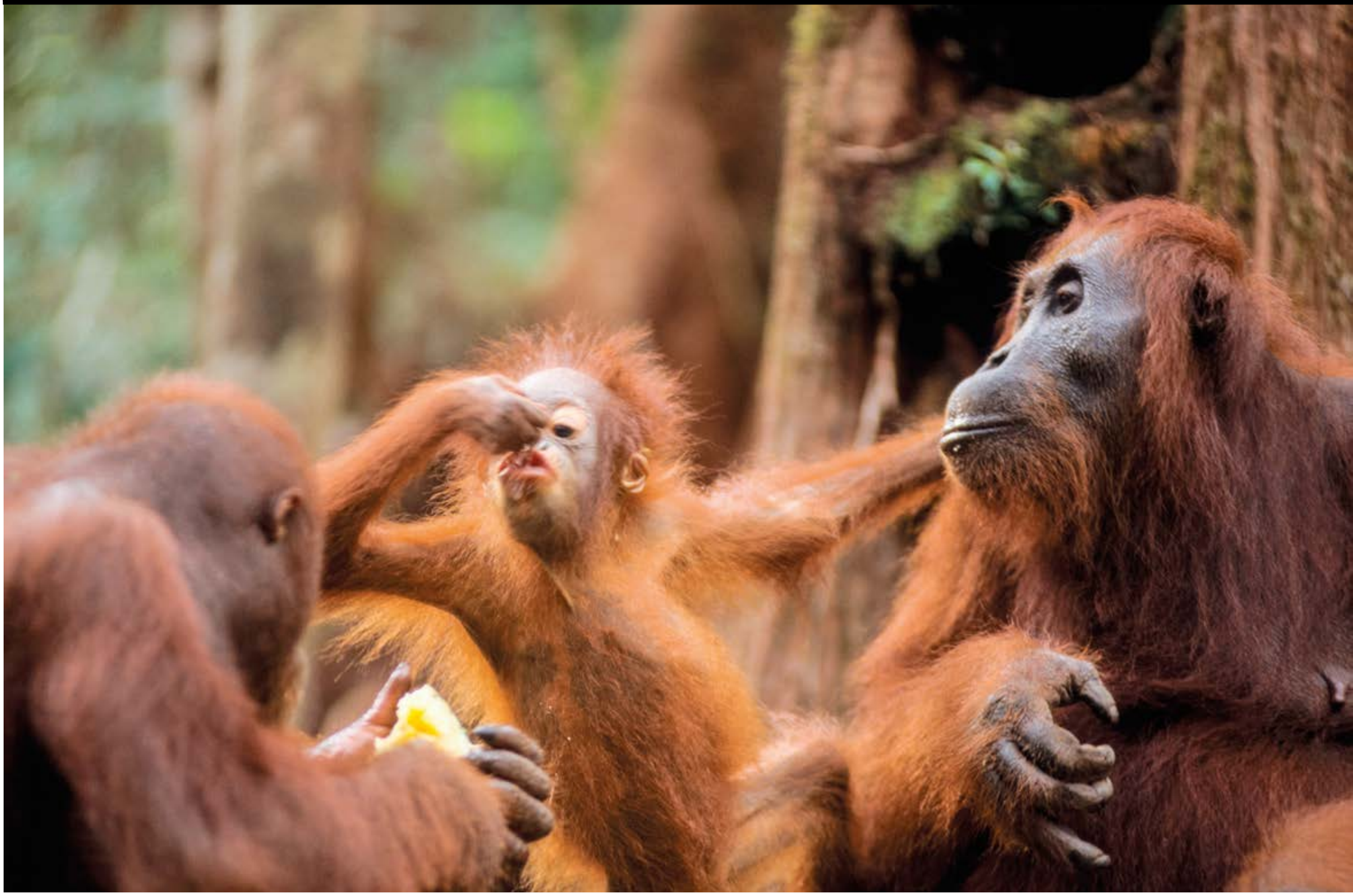
The good, the bad and the ugly

Basel III is primarily about core capital ratios and liquidity for banks, but there are some less-than-ideal consequences for derivatives. By **Varun Agarwal**

Introducing new rules for over-the-counter (OTC) derivative trading, clearing and margining under Basel III is a complex implementation process, a fact acknowledged even by the international regulators who formulated them. Following initial publication in September 2013 the final version was released in March 2015, after a delay in the timing to introduce margin requirements for non-centrally cleared derivatives.

The overall objectives of the capital and margin requirements for OTC derivatives are: to reduce systemic risk; promote central clearing (to further reduce systemic risk); establish and enforce collateral requirements; and create greater transparency of the OTC derivatives markets by providing trade-related information to all participants. Additionally, the ruling increases both the quality and amount of collateral consistent with the overall mandate of Basel III by requiring banks to hold higher quality and greater amounts of capital as measured by their capital ratios.

In theory, the benefits of this are a more accurate representation of the risks banks face, better risk management practices and stronger corporate strategies that enhance the long-term risk-adjusted profitability. Indirectly, it will also reinforce



the need for organisations to have an enterprise-level view of their collateral management strategy.

Still, the efficacy of the new rules will not be known until they are implemented fully. More importantly, they must also be adopted consistently across the globe to avoid financial arbitrage by operating in low-margin locations. In addition, the operational challenges of actually implementing the new margin regulations and capital rules seem daunting.

In a nutshell, the cost of doing business has increased with new regulations:

- the risk governance organisation will need greater scrutiny to ensure that the margin and capital requirements are calculated correctly;
- infrastructure/technology systems will need to be enhanced and upgraded;
- robust data management becomes even more important, especially the need to maintain data at higher levels of granularity, to meet more stringent data quality, data governance and internal control standards;
- there is greater need for proper documentation of the process adopted including retention of all data/information;
- organisational processes must also be continuously improved to help mitigate operational complexity;
- as with any other international regulation, the differences across jurisdictions impose additional challenges for global banks.

New CCPs?

Given the size of the OTC derivatives market it is not yet clear how many additional central counterparties (CCPs) should be created or whether existing CCPs will expand to clear these trades. Forming new clearing houses raises many questions. Will the new/enhanced CCPs be private, quasi-government or government-owned entities, given the largest CCPs today are for-profit entities with incentive to hold as little capital as possible? Also, since CCPs need to be highly robust institutions themselves (from a risk perspective), does this mean there will be need for redesigning their own risk management standards? And going forward will the CCPs specialise in certain markets such as interest rate, commodities, etc, or continue to clear a wide range of instruments as they do in exchange-traded derivatives?

While requiring standardised OTC derivatives to go through central clearing houses is supposedly a good idea, the real impact of this on the overall market system is unknown. In particular, how the clearing houses behave collectively, or singularly, in a severe financial crisis situation remains to be tested, as does whether the capital requirements mandated under Basel III for OTC derivative trading are adequate.

Separately, we have seen that the players in financial markets have changed over recent years. Previously, banks and large brokers dominated, but with the evolution of electronic and high-frequency trading the field has expanded beyond the traditional players. Basel III has not fully taken this fact into account, at least not directly, while formulating capital rules for this area.

Greatest impact

The greatest impact of Basel III will be on banks, in particular on their capital, liquidity and leverage ratios.

Capital: While both margins and capital are complementary risk-mitigating activities, capital penalises the surviving counterparty in a default while protecting the system. Margin penalises the defaulting counterparty while protecting the surviving counterparty (and eventually the system). Requiring margin will encourage the defaulting counterparty to carefully evaluate the risk–reward relationships of entering into a derivative contract.

Separately, since margins, unlike capital, can be changed more rapidly over time based on changing portfolio risk, they provide greater flexibility and protection against counterparty risk.

The regulatory reform initiative on margin requirements for non-centrally cleared derivatives adopted by G20 nations in 2009 consists of four elements as stated by the Bank for International Settlements:

- all standardised OTC derivatives should be traded on exchanges or electronic platforms, where appropriate;
- all standardised OTC derivatives should be cleared through CCPs;
- OTC derivatives contracts should be reported to trade repositories;
- non-centrally cleared derivatives contracts should be subject to higher capital requirements.

These rules mandating standardised contracts to be cleared through CCPs mean higher collateralisation requirements could create an incentive for market participants to move to non-standardised derivatives. However, cleverly, the regulators imposed higher capital requirements for non-standardised contracts thereby providing an incentive for the trading activity for OTC derivatives to go through CCPs. Separately, regulators also set higher capital requirements and higher minimum margins for uncleared transactions.

Liquidity: The potential impact of the margin ruling on liquidity would entail that counterparties will need to provide high-grade liquid collateral to meet the requirements. This regulation in turn will also have a direct influence on, and be influenced by, the new regulations such as the minimum Liquidity Coverage Ratio and Net Stable Funding Ratio for banks. This would clearly change the overall functioning of the liquidity market with heightened demand for high-quality collateral, resulting in the increased cost of acquiring the collateral.

> **“How clearing houses behave collectively, or singularly, in a severe financial crisis situation remains to be tested**

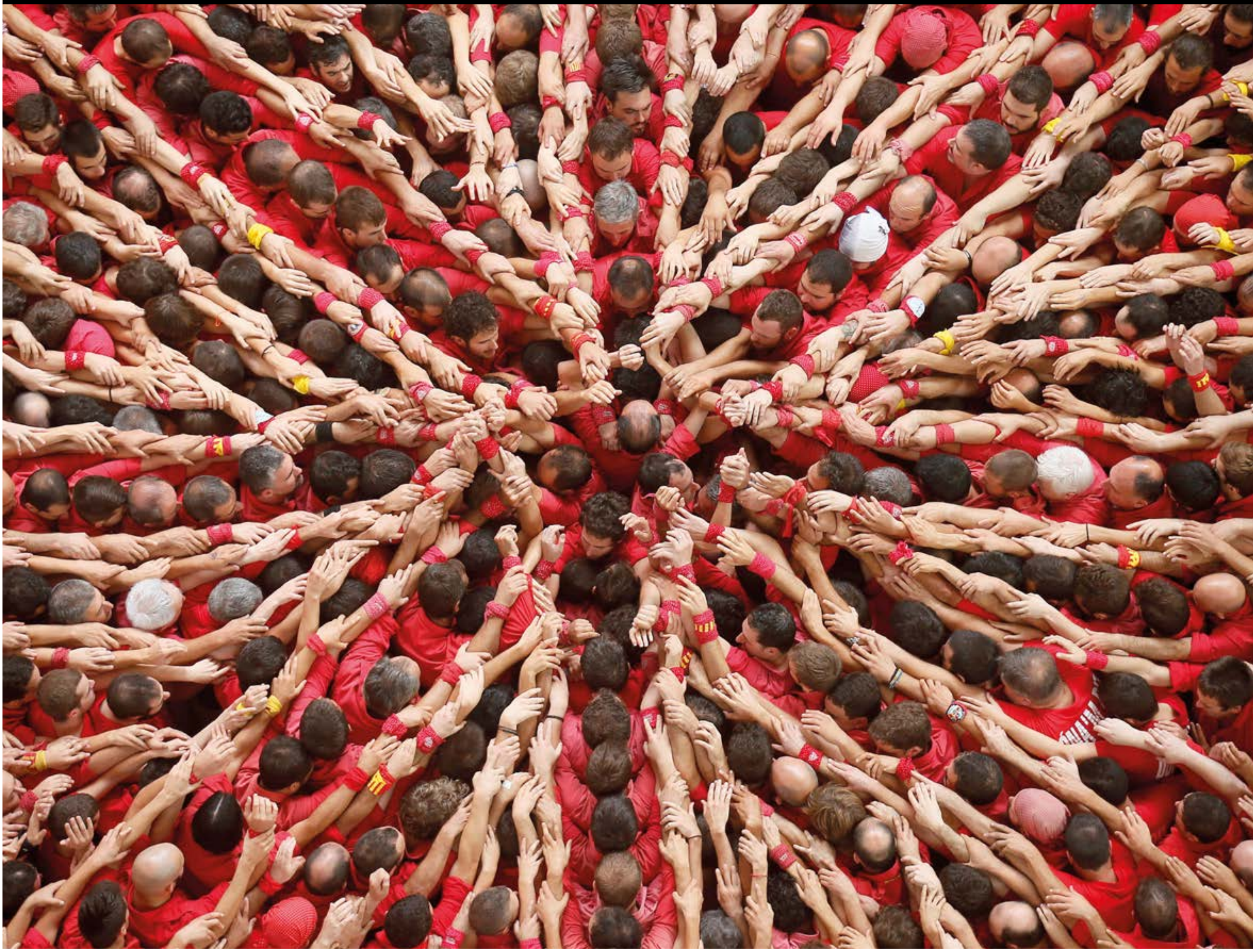
Leverage ratio: The leverage ratio is intended to improve the resilience of the banking system worldwide by limiting the amount of leverage that a banking organisation may incur. The ratio will penalise banks for taking on excessive debt by requiring them to hold extra capital. Broadly speaking, leverage ratio is the amount of capital the bank must hold in relation to its exposure. The exposure measure primarily consists of four main components: on-balance-sheet assets; derivative assets; securities and financing transaction exposures; and other off-balance-sheet exposures. Consequently, the higher the derivative exposure on the balance sheet, the lower the bank's leverage ratio. Any collateral that a bank holds on clients' behalf for clearing house margin requirements has to be included as part of the bank's exposure calculation. This will reduce the overall leverage ratio of the bank, providing the bank with a disincentive to clear trades through third-party clearing houses. Hence leverage ratio requirements run contrary to the regulators' other objective of encouraging banks to go through clearing houses to clear their OTC derivative trades.

Finally, credit valuation adjustment (CVA) is the fair value adjustment to reflect counterparty credit risk in the valuation of OTC derivative contracts. Under Basel II, banks were subject to a capital requirement to cover losses primarily arising from the default of an OTC derivative counterparty.

Under Basel III, the CVA capital requirement is introduced to cover losses arising from the fact that as a counterparty's financial position worsens the mark-to-market value of its derivative obligations declines. The CVA capital requirement under Basel III will increase the total capital requirement for financial institutions that engage in OTC derivative transactions. This CVA requirement in turn encourages hedging and the use of central clearing, both of which require less capital.

Implementation timeline

Given the operational and legal complexities of implementing the margin framework first released in September 2013, the revised March 2015 ruling has extended the timeline for posting initial margin and variation margin. The requirement to collect and post both types is extended by nine months each in addition to a six-month phase-in period for both. It begins for the largest firms on 1 September 2016 with a transition period of four years before all eligible firms are included. The scale of adjustment required need not be underestimated! ■



Blockchain challenge

CCPs have been a definitively central part of derivatives trading for over a century. But unless they adapt, a new settlement solution threatens their very existence. By **William Garner** and **Vincent Mercer**

There are various estimates on the cost to industry of clearing and settlement, some suggesting that there is upwards of $85 billion of cost tied up in maintaining and operating the existing global infrastructure. Whatever the true number, on any measure it involves a lot of people, systems and capital.

The concentration of clearing and settlement into the hands of a relatively small number of central counterparties (CCPs) acting as the interface between buyer and seller creates a single point of contact. This is inefficient and potentially creates bottlenecks in processing.

The vulnerability of the single points of failure in the existing clearing and settlement infrastructure represented by each CCP has been recognised by regulators and central bankers. As a result they are increasing the regulatory burden in an effort to make them more robust and their activities more transparent. This in turn is adding further cost and inefficiency to the current global infrastructure.

So on any view, clearing and settlement globally is big, expensive, inefficient, vulnerable and ripe for disruption.

Whatever your take on bitcoin and cryptocurrencies, they came along with a really exciting delivery mechanism – the blockchain – that is set to challenge all current thinking on clearing and settlement. The blockchain may well be the agent that brings about the disruption and reinvention of the global clearing and settlement infrastructure that the financial services industry is crying out for.

Unlike all existing CCPs, which operate a single consolidated ledger through which movements of cash and assets are transacted and recorded, blockchain operates a distributed ledger in which every participant or 'node' in the network maintains identical copies of the ledger. When a transaction takes place it is validated by the whole network as every node on the network knows which node has which assets.

Once this validation or 'proof of work' has taken place the distributed ledger is updated so that each node in the network holds an updated version of the ledger. This adds a 'block' of validated information to the chain of previous blocks of validated information – thus forming the 'blockchain'. Transactions can take place between any two nodes on the blockchain. Should any one of the participant nodes in the network be unable to validate a transaction, it will fail.

The beauty of blockchain technology is that it is eminently adaptable and can be used to transfer any asset – not just cryptocurrencies. The key features for the securities and derivatives industries are, first, the ability of each node to transact with every other node in the network and, second, that each node in the network recognises and records every transaction.

It is the power of modern computing that makes blockchain possible. The availability of faster processing allows transactions to be instantly validated and settled (T+0) well within the time that it now takes to get a confirmation. That power also facilitates the ability to hold and manage massive amounts of data, which makes the distributed ledger possible.

The great thing about the distributed ledger is that anyone can have a node, which affords reporting mechanisms and regulators full visibility of transactions passing across the network, allowing real-time reporting.

There is undoubtedly a lot of interest in developing blockchain technology. However, there are a number of intermediate development steps that will need to be taken before the blockchain can evolve from a simple, validated, delivery mechanism into a fully fledged settlement system.

While the settlement side is easy, it is more difficult to see how blockchain technology can be applied to clearing, which brings with it the essential requirements of a central ledger and fungibility. Some of the practical considerations that need to be overcome before the technology can be applied include developing a system of trust so that each node in the network can validate every other node (meaning nodes must speak the same computer language) as well as general acceptance by the industry and regulators.

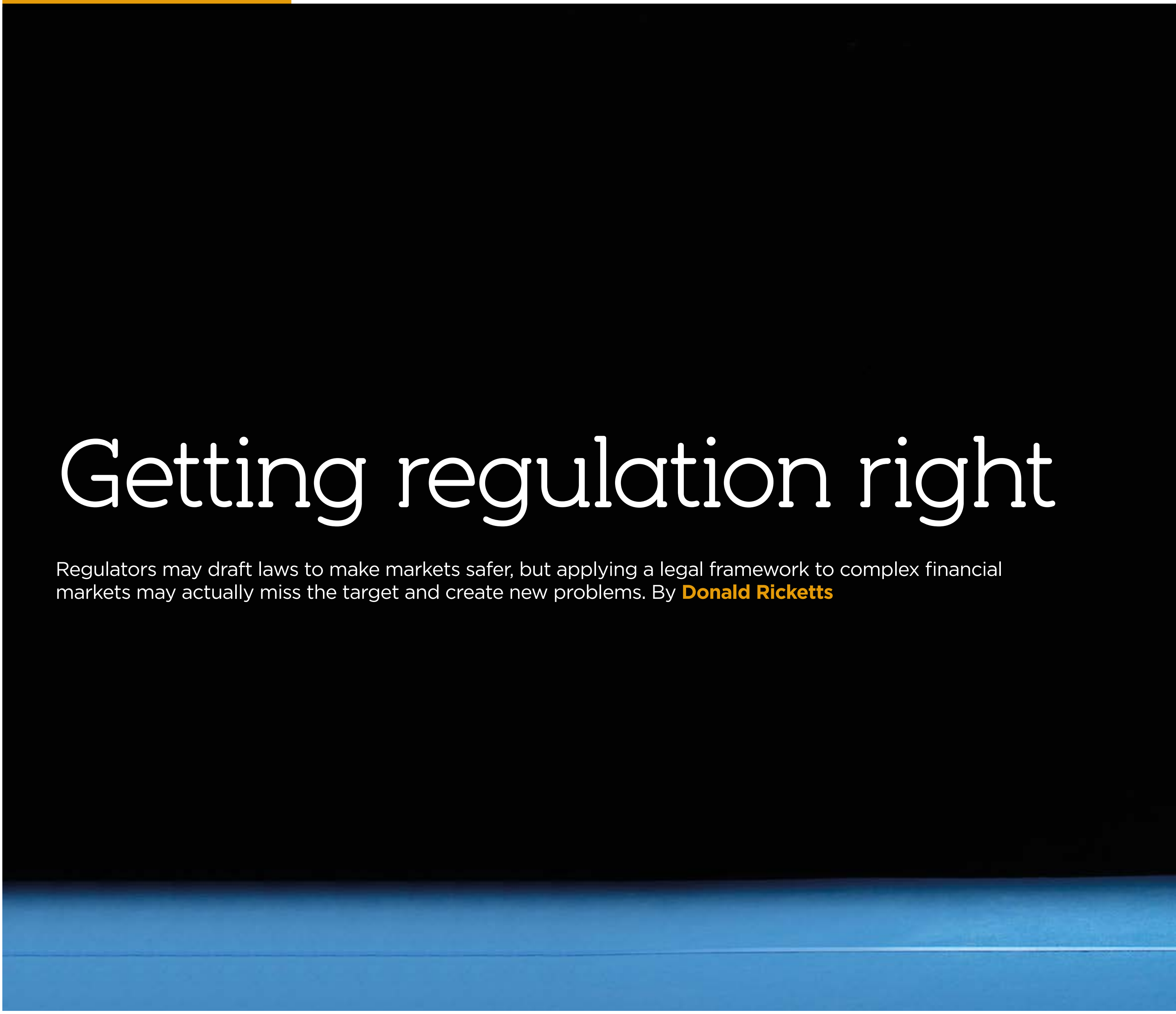
> **"The beauty of blockchain technology is that it is eminently adaptable and can be used to transfer any asset**

That said, the basic concepts of blockchain are all in the public domain and there is nothing to stop it being applied immediately to elements within the existing clearing and settlement infrastructure. One can easily envisage blockchain technology being used for single-sided transactions such as posting cash and collateral, which would massively improve the efficiency of maintaining margin and perhaps even open the door to the possibility of daily settlement down to client level. The application of blockchain technology to double-sided transactions is even more exciting. Those products that lack central settlement, such as foreign exchange, could be revolutionised overnight by blockchain technology allowing participants to instantly settle spot trades with each other.

There are some legal niceties to be resolved between the initiation and completion of a transaction but once delivery has been made it is a legal certainty. The requirement for regulatory approvals and oversight seems to turn on the underlying. Any system that transfers a fiat currency (legal tender issued by a central bank) typically requires central bank approval. In many jurisdictions, transfers of securities can only be made by systems subject to regulatory oversight. To complicate the picture regulators are now imposing a requirement for some products such as over-the-counter derivatives to be centrally cleared.

The big advances in blockchain technology will doubtless need to involve and get the sanction of regulators and governments. They would have to accept a situation in which they could see what is going on in a market but would no longer have the ability to control it by restricting or preventing settlement.

The blockchain has arrived and right now it looks as though it is here to stay. What effect it will have on traditional market infrastructures remains to be seen. ■



Getting regulation right

Regulators may draft laws to make markets safer, but applying a legal framework to complex financial markets may actually miss the target and create new problems. By **Donald Ricketts**

A global central counterparty (CCP) is in trouble. The rarely sighted 'end of the waterfall' approaches. Who is around the table to decide on recovery or resolution? The CCP's own supervisor and resolution authority? Yes, of course. What about the surviving clearing members' own supervisors, or overseers of the client users? Where do macro-prudential authorities and central banks fit into this cliff-edge moment for financial stability? And what if none of these authorities shares the same currency or language?

Interconnectedness and interdependencies have become commonplace in the post-crisis policy agenda. But it is becoming increasingly clear that a key challenge for our post-Pittsburgh age will be how we adapt our regulatory system to the cross-dependencies and overlaps that the supervisors themselves face in managing the system.

Determining college arrangements for CCP crisis management groups may feel harder than downsizing your wedding invitation list – but this is just one example of the highly interconnected and interdependent relationships straining the current institutional architecture.

Whether it is across geographies or sectors, prudential versus conduct, macro versus micro, the demands confronting supervisors and supervised alike are immense. And they are growing.

Recently, international regulators stated publicly that their assessment of market-based finance risk was likely to be better pursued if the emphasis shifted from institutions to activities. The toolkit and instincts developed in the high seas of banking were in need of adaptation to the open savannahs of markets.

The simple fact is our supervisory framework has not been organised to pursue the nature of risk in markets. Conduct regulators have the tools to uphold market integrity, but lack the data and tools to

> Conduct regulators have the tools to uphold market integrity, but lack the data and tools to manage system-wide risks

manage system-wide risks. That is largely because the prudential system of yesteryear remains organised around institutions. Institutions can be identified – they may operate across borders but at least they have a home. Activities have no fixed address.

Where data exists it is often siloed – and the market finds itself reporting intersecting datasets to financial regulators across price, integrity and position reporting requirements. In the case of commodity markets, physical market regulators add to the mix.

Embracing the new age

So we are in a world where risk is moving between deleveraged banking institutions and markets. Where the digital revolution promises transactions in an ever-more mobile, real-time and potentially viral environment (viral in a positive as well as a systemic sense).

The Financial Stability Board (FSB) work on shadow banking shows that supervisors are asking how we can gain comfort from the fact that we have not moved from a world of 'too-big-to-fail' institutions to 'too-big-to-fall' markets. How can we get our arms around the new age of digital innovation without throttling it?

Managing relationships

Interconnectedness is not new. The past years have simply reminded us that the same relationships that can create jobs and prosperity can also transmit instability, uncertainty and unemployment. The question is how we manage this rather than deny it. So it is time for honesty about the objectives our G20 politicians set our regulators and how the market overseers are provided with the tools and incentives that lead to coherent outcomes.

We cannot expect a regulator to consider the extraterritorial implications of their decisions, for example, if the mandates from their democratically elected masters focus on domestic bliss and tranquillity alone. The outcomes of quants crunching spreadsheets in Basel need to be better connected with desired system outcomes as a whole. Otherwise we end up with what we have experienced in the recent past.

We need look no further than policy proposals in the micro-universe of derivatives:

- leverage ratios that treat client-segregated margin as a levered asset on the balance sheet and crowd out client clearing services;
- capital calibrations that enforce higher capital charges for client-cleared trades compared to their

non-cleared alternatives; and
- hypothetical capital requirements for CCP default fund exposures that overstate exposures by ignoring the effect of CCP netting.

This is not to question the depth of skill and specialism required in quantitative analysis. It is just that, as with the brain surgeon's interventions, the smallest change can have the profoundest consequences.

We must ensure therefore that these consequences are aligned with the needs of the economic system as a whole. As some commentators have already pointed out, we may otherwise have achieved stronger institutions but ended up with a weaker system overall.

These challenges of co-ordinating and reconciling potentially conflicting demands do not just emerge across borders or between central banks and market overseers. They equally apply between the different levels of prudential regulation.

Macro-prudential regulation

The day may soon come when a macro-prudential authority will have to make the judgement to release a CCP's counter-cyclical margin buffer as markets tighten and the CCP's micro-prudential regulator pulls in the opposite direction to shore up the organisation's available resources. Who should decide the outcome?

The truth is we are only in the early phases of understanding macro-prudential regulation. As Andy Haldane of the Bank of England admitted: "The state of knowledge about macro-prudential regimes today is roughly where monetary policy was in the '40s – and if I am being charitable, that would be the 1940s rather than the 1840s."

Yet macro-prudential regulation is going to be key to ensuring our international regulatory surgeons are aligned with the health of the economic body as a whole. Ultimately how can we have a system that is micro-prudentially sound if macro-prudentially we have no growth?

So how do we reconcile these co-ordination challenges? Initially it will require an acceptance of interdependency between conduct and banking supervisors, cybersecurity specialists and regulators. Without this, the promise of innovations such as blockchain will not realise their revolutionary potential for value exchange or data. Worse still, they may even be perceived as a new system threat.

Co-operative arrangements between securities regulators, banking supervisors and central banks must become the norm. There is already encouraging evidence of progress here, with banking colleges and crisis management groups now in place.

The European Market Infrastructure Regulation has established college arrangements for CCPs. Some CCP authorities have extended these to a global level. And work on CCP crisis management groups is already underway at the FSB.

The joint leadership of the Committee on Payments and Market Infrastructures and International Organization of Securities Commissions (IOSCO) on financial market infrastructure standards has also delivered a model for this co-operation at the policy level.

Basel-IOSCO joint work on asset-backed security markets likewise promises the opportunity for new coherence between the hand of market regulation and its prudential counterpart. And the FSB has developed specific workstreams on interconnections between CCPs and their members.

So while the global financial crisis demonstrated the scale of the chasm separating national rulebooks from the reality of a cross-border global financial system, it also proved that solutions are collective.

However, old habits die hard. As memories fade, so can the impetus to co-operate and collaborate. Therefore, current FSB efforts to empower supervisors with the right data must be encouraged.

> "Co-operative arrangements between securities regulators, banking supervisors and central banks must become the norm

Horizontal consistency checks must be welcomed, to ensure alignment between aspirational G20 summit statements on growth and the actual economic effects of the new global rulebook. Trust must continue to be built between regulators to enable the suspension or alteration of rulebooks in the face of compelling new developments or unforeseen consequences in the original primary law.

Some way to go

We have travelled a long way up the mountain to create a more coherent and co-ordinated global financial architecture. Yet we remain some way off the summit. Building an institutional framework to match the realities of a global financial system will raise important questions around democratic legitimacy and accountability. However, continuing along the path of co-operation and collaboration is the only credible option to enabling our financial system to deliver on the promise of prosperity. ■

How to build a clearing house

Creating a brand new clearing house for the London Metal Exchange was a massive undertaking, but one that afforded the chance to create the best possible offering from the outset. By **Trevor Spanner**, CEO, LME Clear

On 22 September 2014, I stood on the trading floor of the London Metal Exchange to have my photo taken with 50 LME Clear staff, all grinning from ear to ear. When we published the photo, the caption said: "Here's the team that built a clearing house from scratch".

And we did. We built LME Clear – probably the largest market infrastructure project delivered in recent times. The project to design and deliver the clearing house for the London Metal Exchange (LME) took 33 months, and we came in on time and on budget. This involved transferring:

- 2.2 million positions
- 43 members
- 190 legal agreements
- 9 settlement banks
- 2 investment agents
- 15 investment counterparts.

Easy. So how did we do it?

We didn't just build a new clearing house – we revolutionised clearing

LME Clear has revolutionised the clearing process by introducing real-time clearing, which is a first for the industry and has been called a paradigm shift in risk management. Our new clearing system allows members to monitor their risk and collateral positions in real time from the moment they are submitted through an easy-to-use graphical user interface.

The technology we have built captures trades on a real-time basis, looks at how much collateral is in the books already, and based on that our risk managers call members for extra if there's not enough.

In the past, intra-day risk would be stored up for a call at 2pm. But now we can make margin calls intra-day to adjust the collateral we're taking in proportion to the member's risk profile. For some in the market that's driven a behavioural change –

learning to live in real time. But our members are fully on board, and they see that the system has really brought a new level of transparency, control and risk management to the LME market.

We chose the right technology provider

We needed a technology partner that was safe, reliable, flexible and collaborative – we found that in Swedish firm Cinnober.

Cinnober is based in Stockholm, but it also has a team in Umeå, which is just outside the Arctic Circle. This is where our two teams did a lot of work together. In winter, the days there are short – very short – but we enjoyed working there, probably because Cinnober is as passionate about tech as we are about clearing and it has some exciting ahead-of-the-game ideas.

We used Cinnober's whizzy tech on which to base our clearing platform, LMEmercury. We took an agile approach to development, which meant we refined the requirements as we went along with the developer. That gave us real momentum, and every month or so we got a new delivery that we could then show to the user community and the members.

All-in the build of LMEmercury took about 12 months.

We designed and built LME Clear in conjunction with our members

We involved our members in the creation of LME Clear right from the very beginning. When we asked them what changes they would like to see when moving to the new system, they gave us two types of answers. There was the 'what' – the functional things about the system. But there was also the 'how' – they wanted more in terms of customer service.

So we got ourselves a relationship management team, and they worked tirelessly with members throughout the programme: during the testing, onboarding, documentation and go-live phases. A transition of this magnitude, moving millions of positions from one clearing house to another, is not without its bumps in the road. But together with our members we have handled them better than could have been expected.

LME Clear is the first clearing house designed to meet the specific needs of the metals industry.

> **At the time we were designing LME Clear, EMIR was new and untested by the industry and regulators… with no legacy systems, we were able to tailor our clearing house to meet these new regulations**

Throughout the process of launching LME Clear, and since launch, we have maintained an open dialogue with members and listened to customers' feedback.

An example of this is the new service we are launching in November 2015 that will allow our members to post LME metals warrants as collateral. The metals industry has asked for warrants – documents of possession for metal in LME warehouses – to be accepted as collateral for many years, and we are the first clearing house to make this possible for them.

Our people are important

When we appointed the LME Clear board and our executive staff, I wanted people to see who we were hiring and know that the LME was serious about clearing. We've brought in some of the best, most experienced people in the industry: consummate professionals, entrepreneurial, collaborative and technically proficient for their roles.

I am not surprised or amazed at what this team has done. We have worked to build a culture where everyone had a feeling of shared ownership for the financial and reputational success of the business. No-one is bigger than the team. And when things have gone wrong, and believe it or not they have from time to time, we have just picked ourselves up and had another go.

The LME Board and the LME Clear Board together have overseen the implementation of the clearing house, and have been more than generous in their time, direction and sage advice along the way.

And we could not have wished for a better parent company than Hong Kong Exchanges and Clearing, which has invested around US$170 million in LME Clear in terms of capital, reserves and project costs.

Building from scratch meant we could be EMIR-compliant from launch

A clearing house the size and scale of LME Clear creates a considerable challenge in putting in place the necessary cash, Treasury and investment processes required as a business and also to comply with some very stringent regulatory requirements.

By mid-2013 we had started to talk seriously to the Bank of England about our authorisation process and by the end of the year had started to prepare the reams of paper for the European Market Infrastructure Regulation (EMIR) authorisation application. This involved:

- 20 sections
- 99 annexes
- 300 pages
- 500 questions from regulators
- 150 discussion calls
- 60 physical meetings
- 6 months from start to being deemed complete
- 5 months and 25 days from deemed complete to final authorisation.

It was pretty chunky stuff. We worked with the bank to demonstrate compliance with EMIR, describe what we do, how we do it, our governance – everything.

At the time we were designing LME Clear, EMIR was new and untested by the industry and regulators. But as a new entrant to the clearing space, with no legacy systems, we were able to tailor our clearing house to meet these new regulations.

And we continue to innovate

In our first year of operation, we have continued to push boundaries and deliver what the membership wants.

We're expanding our collateral pool. Not only did we recently receive Bank of England approval to accept LME metals warrants as collateral, but in July we launched our renminbi service, which allows market participants to post the Chinese currency against their risk positions.

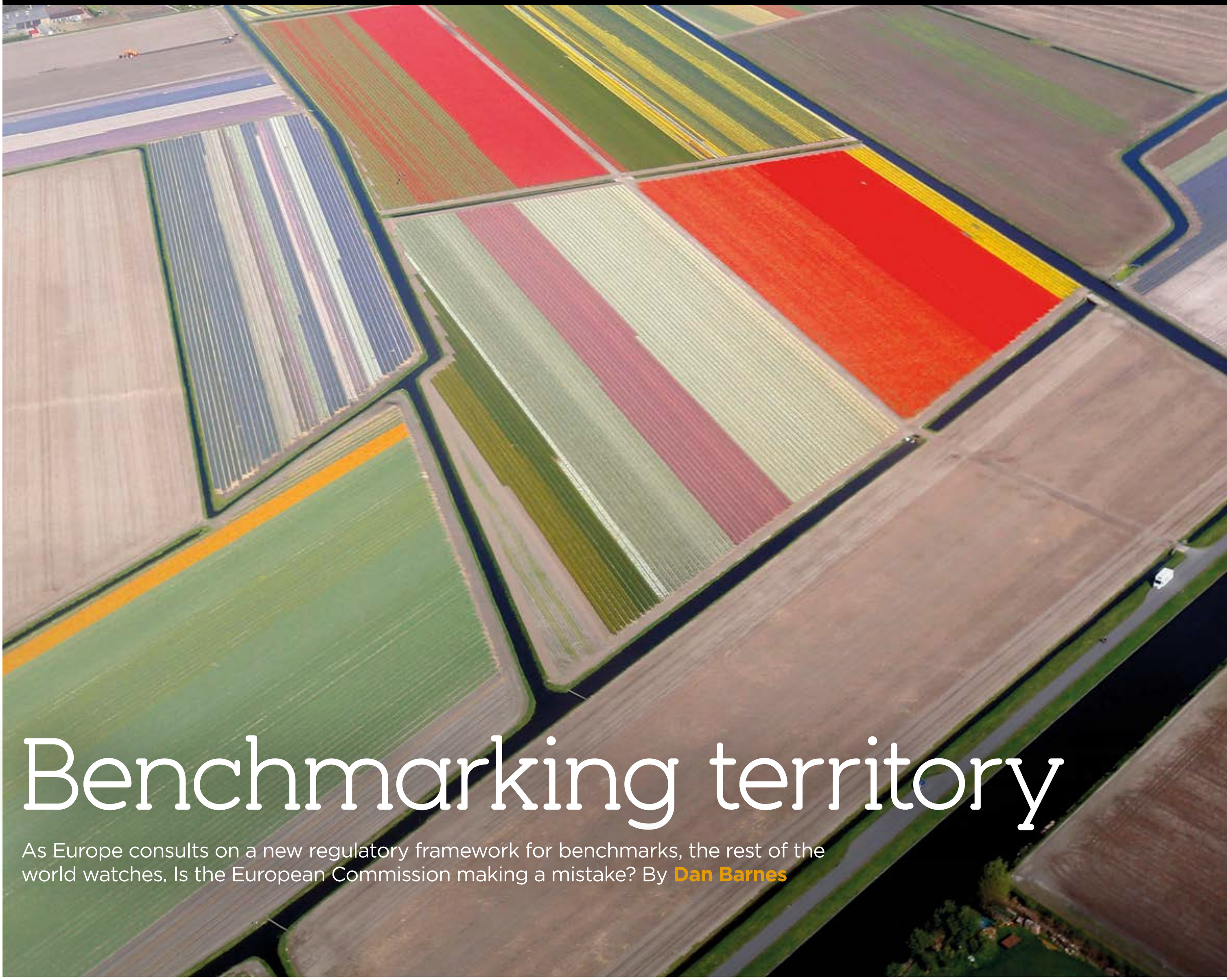
Chinese-owned BOCI Global Commodities was the first LME member to submit renminbi collateral, and we expect take-up of this service to grow as Asian participation on the LME increases.

We also plan to launch a trade-compression service before the end of 2015, which will give members the opportunity to reduce the notional value of their positions and so lower their capital requirements under new EU regulation.

Looking further ahead, we want to expand our franchise into the over-the-counter market. We're also looking to expand in Asia, hand-in-hand with the LME and HKEx.

There's a long list of things we can do, in conjunction with our members to take clearing to the next level. It's just a question of fitting it all in.

Not bad for a clearing house built from scratch! ■



Benchmarking territory

As Europe consults on a new regulatory framework for benchmarks, the rest of the world watches. Is the European Commission making a mistake? By **Dan Barnes**

In July 2015 the UK's Financial Conduct Authority (FCA) found significant failings in the way firms had reacted in response to the "concerns, problems and failings" raised by benchmark-rigging scandals. As an equivalent European set of rules is drawn up, concerns are mounting about compliance and its effect on firms that compete with rivals in unregulated jurisdictions.

"It is true that there are various jurisdictions thinking about benchmark regulation," says Hartmut Graf, CEO of STOXX, administrator of the STOXX benchmark indices. "However, to put that into the global context, certain large jurisdictions like the US don't want to impose new regulation. Going forward, we are likely to see an environment where different regimes exist in different parts of the world, which we view with some concern as it may lead to regulatory arbitrage."

Indices and benchmarks are crucial for establishing reference prices for products that are traded over-the-counter (OTC) or have multiple instruments as an underlying. Many funds allow investors to passively track the value of an index and these products have proven successful, making index ownership a great responsibility and potentially a very profitable business.

"Long term we will continue to see increased numbers of passive and more specialist funds, to support a 'core-and-satellite' approach to investing," explains Phil Dobbin, financial analyst at Jefferies. "I wouldn't want to be an index-hugging active general fund manager. I would want specialist active funds, while passive funds continue to grow."

Reproach and reform

In the late 2000s it became apparent that some traders had been fixing the level at which certain industry-recognised financial benchmarks were set, for their own profit. And in 2013 a major EU investigation was launched into the oil and product market, where literally hundreds of products from geographically diverse crude oil to downstream products such as ethanol are priced using physical market price data collation mechanics. Relatively few of these products are traded on exchange, although some may be exchange-listed but with no liquidity.

Tier-one banks have since paid billions of dollars in fines relating to the 'rigging' of interest rate, foreign exchange and precious metal benchmarks and several investigations into rigging of the Isdafix interest rate swap pricing benchmark are ongoing. Eleven individuals are awaiting prosecution in the UK by the Serious Fraud Office, with one defendant, Tom Hayes, already having been sentenced to 14 years on 3 August 2015 for his part in the London Interbank Offered Rate (LIBOR) fixing.

In addition to these punitive measures, regulatory bodies are seeking to establish frameworks that will prevent similar incidents happening again. In July 2013, global regulator body the International Organization of Securities Commissions (IOSCO) published a report 'Principles on Financial Benchmarks' based on a consultation conducted in April of that year. IOSCO established 19 principles that could be applied to different styles of benchmark, from submission-based to transaction-based, as appropriate.

"Not all benchmarks are created equal," says Chris Woods, head of governance, risk and compliance at global index provider FTSE Russell. "For example, it would be hard to manipulate the FTSE 100 index, and if it were manipulated the trading takes place on a regulated market so the activity would be seen." In contrast, submission-based reference prices are often collated from illiquid OTC or physical markets where accurate data corroboration can be challenging.

The IOSCO principles were endorsed by the Financial Stability Board (FSB) in its 2014 recommendations around interest rate and FX benchmark-setting. The FCA began to regulate LIBOR in 2013, and in April 2014 and 2015 took a total of eight benchmarks under its wing.

A spokesman for ICE Benchmark Administration (IBA) (part of Intercontinental Exchange), which administers three of the FCA-regulated benchmarks, says that it has put in place robust new surveillance and governance structures, alongside new technology-driven processes for benchmark inputs.

"Since IBA assumed responsibility for administering LIBOR 19 months ago, a great deal has changed and continues to change," he says. "With an emphasis on maintaining contractual continuity, we have been working closely for many months with users, submitters, regulators and central banks to establish the appropriate evolution of the benchmark.

"This has been a gradual process in line with recommendations of the FSB. The most recent market consultation opened in July focuses on the methodology and calculation of the rate. We expect to publish findings in Q4 and implement a new LIBOR methodology anchored in an expanded set of transaction data in early 2016."

The FCA has encouraged all of its regulated firms to use the IOSCO principles, asking that they publish reports called 'statements of compliance' each year. It was therefore unexpected for the regulator and for many market participants when, in summer of 2015, it became apparent that many firms were not supporting the FCA model more vigorously.

"We were surprised that not all benchmark providers leapt to produce a 2015 version of their report," says Woods.

"FTSE Russell and a couple of our peers published what the FCA describe as 'top-right quadrant' reports, and a third party provides independent assurance on its contents. We take regulation very seriously and we think clients appreciate that."

Europe acts

The European Commission (EC) is now moving forward with its own proposals for regulation. It had issued draft legislation on 18 September 2013 to "help restore confidence in the integrity of benchmarks". On 13 February 2015 this was backed by the Council of the European Union, representing the government ministers of European Countries. In May the EC announced that negotiation between the Council and the EC on the final text could begin in June.

"The European legislative process is in trialogue, and one of the complex issues it has to resolve is the third-country problem," says Woods.

"Originally they hoped that other regulators would take a similar approach, but they have not done so. So the idea that US index providers, for example, could be passported in to Europe shows no sign of happening. FTSE Russell has proposed that non-EU providers should have to publish an IOSCO statement attested to by an independent third party. The objection to that proposal is that it has no force."

Speaking to the European Parliament in November 2014, David Wright, secretary general of IOSCO, warned that the failure to establish equivalence in different jurisdictions would lead to a "conflict of law", an issue that has dogged the development of derivatives legislation. There is also the risk that the text itself could penalise index providers, says Graf.

"The IOSCO principles have to be based on proper proportionality," he warns. "However, there is still discussion about adequate wording of the upcoming European legislation. We are in favour of proportionality because that is the only way to deal with this diverse range of instruments.

"But it is likely after the trialogue that the text will be stronger than the IOSCO principles and that may have some adverse effect on some indices." ■

21st-century security

Cyber attacks on financial institutions are becoming more common, disruptive and sophisticated. But just as the threat landscape has evolved, so too have cyber defences. By **Graham Fletcher**

In less than a generation the world's financial markets have evolved from voice and paper-dominated entities to organisations that are now totally dependent on complex IT and the web. The enormous operational efficiencies derived from this transition are well known, but it has also made markets vulnerable to malicious attacks.

In the early days of the internet, cyber attacks came predominantly from individual hackers. Though they may have been highly skilled, they typically lacked the organisational abilities and malicious intent to pose serious threats. Their efforts, more often than not, were borne out of intellectual curiosity along with an ideology founded on freedom of information.

Fast-forward to the present day and the threat landscape has morphed into something altogether more sinister. Lone hackers still exist, but sit at the bottom of the maturity curve and pose much less of a concern than what are now known as advanced persistent threats (APTs). APTs can come from rogue states, organised criminal networks or dissident political organisations. Irrespective of their motivation, they are typically well funded, well organised and possess the time, money and skills to launch targeted and complex attacks on an organisation or entire industry, with financial services typically high on their list of targets.

Perhaps the easiest way to understand the threat posed by APTs is using the Cyber Kill Chain®

model developed by Lockheed Martin, which breaks out the APTs' methods and tactics into seven key steps. Understanding each stage in the process from the perspective of an attacker is crucial in helping firms develop their own tactical and strategic defences against those threats.

Attackers need to carry out all seven steps to achieve their desired goal, which means each step presents an opportunity to form a defensive perspective to stop the attack in its tracks.

> **Firms need to do all they can to keep details of their own security architecture under wraps, as well as information about their staff and partners**

Step 1: Reconnaissance

APTs by their very nature need to be well informed. That means attackers not only need to identify generic security vulnerabilities in commonly used technologies, but they also need detailed information about their target's specific environment.

The information gathered by APTs is no longer limited to the target firm's cyber defences and IT vulnerabilities. It can also span physical access policies (for offices and data centres), information about staff members (to guide custom phishing attacks) or even insights into partners and suppliers that could offer an easier way in.

Without detailed reconnaissance, APTs have very little chance of getting off the ground. That means firms need to do all they can to keep details of their own security architecture under wraps, as well as information about their staff and partners (although the latter may prove harder). Equally, firms need to carry out their own counter-surveillance to stay informed about evolving threats, either directly by patrolling the dark web, or by co-operating with security services and industry counterparts to share intelligence.

Step 2: Weaponisation

Finding the right mechanism to penetrate an organisation's cyber defences typically requires sophisticated engineering skills. Weaponisation describes the process whereby an attacker develops what would be described as a payload in military terms. As part of this process, attackers will devise strategies and develop tools specifically designed to exploit vulnerabilities identified through their reconnaissance.

Again, from a defensive point of view, having a good understanding of the latest malware and techniques adopted by attackers will help define defensive tactics. This kind of intelligence helps guide defensive capabilities both from a technical viewpoint, but also informing staff of potential dangers (eg, the latest phishing attacks that are doing the rounds, or the risks involved when misplacing one's pass or other security credentials).

Step 3: Delivery

Delivering a cyber payload is often as simple as sending an email containing an infected file. Even as companies have improved email screening and educated IT users on the risks of opening attachments or links contained in unsolicited emails, attackers have also evolved their tactics.

Phishing attacks have grown increasingly sophisticated and convincing, using information targeted at the specific individual to increase their likelihood of success. Furthermore, many recent security breaches have occurred as a result of attackers targeting firms that are partners or suppliers to their target. That could take the form of malware installing itself onto the laptop of your air conditioning repairman, or embedding itself into the local pizza delivery firm's PDF menu.

Firms will always need a combination of preventative and detective controls to stop as many threats as possible at the perimeter, but even so, expecting to stop every attack at this stage may be unrealistic given the range of potential delivery avenues available to attackers.

> "Cyber attacks have become more sophisticated, but so too are our defences. The back and forth between attacker and defender is simply evolving

Step 4: Exploitation

Once the payload has been delivered, exploitation describes the process whereby identified vulnerabilities are exploited. Perhaps the simplest way to guard against this process is to strive to make sure all software is patched and running on latest version releases. However, this is much easier said than done.

Most large organisations are burdened by technical debt. That means old systems that in many cases are no longer supported by the vendor that sold them, and can therefore no longer be patched. In those cases, it is best to assume end-of-life technology will be compromised and to cordon it off from the rest of one's IT estate – thus limiting your 'threat surface'.

This kind of architecture is useful even with freshly patched software, given that attackers are likely to pay significant bounties for 'zero-day exploits' – fresh vulnerabilities that have not yet been identified by their vendors. Finally, defining exactly which applications are permitted to run in each environment is crucial, as it is a lot harder to identify unauthorised code when you don't know what is authorised in the first place.

Step 5: Installation

Installation is the process whereby malware installs itself on the target's systems. For a sophisticated cyber attack, installation may occur over several instances. For example, malware may first be installed into systems operated by a partner firm, where it will lay largely dormant waiting for the right opportunity to infiltrate its end-target.

Guarding against installation is largely a technical challenge. It requires vigilant monitoring, which includes antivirus systems and end-point agents (installed on desktops, servers and mobile devices) to detect unusual activity or code. Maintaining tight controls over who can install software and carry out other tasks that require privileged access rights is also crucial, as intruders will typically need to elevate their privileges to do any real harm.

Step 6: Command and control

Sophisticated cyber attacks cannot be entirely autonomous. That means installed malware will need to find a way of establishing communication channels back to the attacker. Being able to detect, or ideally prevent, those communication lines is difficult, but technical solutions, known as intrusion detection or prevention systems (IDS/IPS), are available.

Making sure those systems are kept updated with the latest attack signatures – so they know tell-tale signs to look out for – is crucial. Even so, the fact that cyber attackers are always evolving new techniques means technical solutions are never bullet-proof. Complementing tools with the right security architecture, processes and skills means attackers should face as many roadblocks as possible before achieving their desired goals.

Step 7: Actions on objectives

Once an attacker has installed their malware and taken control of it, their next steps will depend on their motives. A criminal gang may be looking to slowly siphon off sensitive information while covering its tracks and remaining undetected. A dissident political organisation or rogue state may look to cause maximum disruption, leaking large blocks of information to the public or potentially destroying or altering records.

Either way, attacks more often than not involve the exfiltration or manipulation of sensitive data. Securing your most sensitive datasets is therefore crucial. That means using encryption at all times, maintaining tight controls over identity and access management and potentially breaking up key datasets to make valuable information harder to piece together.

Staying one step ahead

Ultimately, while it is true that cyber attacks have become more sophisticated, so too are our defences. The back and forth between attacker and defender is simply evolving, and to stay one step ahead knowledge is key. That means not only having an intimate grasp of one's own IT environment and where the vulnerabilities lie, but also amassing intelligence on potential threats.

After all, even though technology has evolved, the tactics of warfare have remained largely unchanged for centuries. As Sun Tzu said in *The Art of War* around 2,500 years ago: "If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle." ■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