Optimise time

SLT's experts assess the integration of collateral activities with front office trading, and debate whether optimisation is a blessing or a curse

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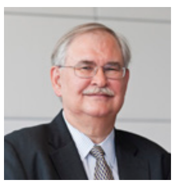

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How has the changing dynamic between the front and the back office shaped the future of any collateral dealings?

Olivier de Schaetzen: The asset types to be used as collateral to cover an exposure are becoming an integral part of trading/liquidity management decisions. In fact, this information now needs to be known before trading occurs, as it directly influences the economics of the trade. Having a complete understanding of what pools of collateral are available and how they can be mobilised requires strong cooperation across front and back offices. Moreover, the collateral manager is now directly connected to the front office and liquidity management teams. Market dynamics have repositioned the collateral manager at the crossroad of many critical activities for financial firms, ranging from securities financing, foreign exchange, derivatives and the core of the core—liquidity management.

Martin Seagroatt: In the past, collateral management was largely a middle- and back-office function. Now, there is greater integration of these activities with front office trading.

This is largely due to two factors:

- Traders are now more aware of risk, as well as the pricing of risk. The risk function is therefore becoming more closely integrated with front office trading decisions.
- Collateral funding costs are now a more important part of profit and loss (P&L) and traders need to factor this into trading decisions. For securities finance, this also includes the risk-weighted assets (RWA) and balance sheet usage of a trade and the cost of regulatory capital versus the P&L a trade generates.

As firms adapt to this new business model, a unified front-to-back office solution for collateral management that provides trading and inventory monitoring, collateral cost control, exposure management, central counterparty (CCP) margining and settlement offers real advantages. It makes it easier to communicate key information on risk exposures, collateral usage costs and liquidity management between traders, risk, operations and senior management.

Robert Almanas: Prior to the 2007-8 crisis, many institutions viewed collateral management as a back-office function. Changing attitudes to risk management combined with greater collateral demands in current and upcoming regulation have repositioned collateral management as a front office and even board-level concern at some institutions. The front office can no longer trade without a good understanding of collateral management practices.

James Hills: Collateral management was once a purely back-office function, an end of 'trade life cycle' process. Margin collateral provisions were rarely part of trading strategy and this blurred the lines of the true cost of trading.

The regulatory environment has also changed substantially since the financial crises, creating the emergence of mandated central clearing and more stringent collateral requirements both for cleared and un-cleared trades.

The requirement to use higher quality collateral is causing a squeeze on liquidity as a finite pool of higher grade collateral is sourced by market participants. Add to this collateral segregation and in some cases the inability to re-hypothecate, and it's clear to see the increasing costs in the collateral management process, creating pressure on firms to manage their asset inventories with far greater efficiency and control.

As a result, we are now seeing a much larger firm wide involvement in the collateral management process. In many institutions, the collateral management function has been moved to the front office, as trading desks try to control the increased cost of collateral and look to optimise their asset inventories.

Collateral provision is now being considered as part of trading strategy, a pre-trade activity and the costs are being attributed to the trades that cause the exposures, making the process far more transparent.

Ed Hellaby: In times of small margins, the cost of collateral has become an increasingly important component in the profitability of a trade. For example, Nomura recently published a paper explaining the collateral currency convexity problem and this affects trade valuations. In a move to mimimise collateral costs, front-office collateral traders and back-office collateral analysts are having to work closer together today than they have in the past and collateral selection has moved from a back-office process to a front-office asset allocation decision with a P&L impact. This can be seen in the rise in prominence of collateral trading desks that provide a vantage point across the firm's trading and inventory silos, allowing them to best calculate how collateral could be allocated to minimise cost to the firm.

Many are also taking this one step further by initiating a collateral optimisation program. By working with traders to codify rules around the selection of collateral that take into consideration attributes such as cost, eligibility, haircuts and limits, firms can leverage optimisation platforms to provide greater scale and savings.

Do you think there are dangers to collateral optimisation, and how can any fears be assuaged?

Almanas: Collateral optimisation can present fresh risks. Some institutions and CCPs believe that it is acceptable to repackage existing portfolios to create fresh collateral pools. It is this sort of behaviour that was responsible for the sub-prime mortgage crisis in the US in 2008. The industry must endeavour not to repeat the sins of the past.

At SIX Securities Services, we believe that collateral must adhere to four 'collateral values'. Collateral must be simple, high-quality, liquid and easy-to-value. Collateral that does not adhere to these values, or principles if you will, should not be acceptable to CCPs or any other financial institutions.

Hellaby: Collateral optimisation is one of the most talked about topics within the industry at present. In a recent collateral management survey undertaken by SunGard, optimisation was identified as of high to medium importance by more than 90 percent of respondents, yet more than 75 percent did not have a process embedded within their organisation.

> When a firm is under extreme liquidity stress and receiving calls for increased margin, a collateral management solution can help it to meet these margin calls with acceptable collateral quickly

One of the key dangers we see in the market is that the collateral optimisation space is completely new for many participants and not well understood. The skill sets and technologies that go into building a collateral optimisation solution are vastly different to a traditional collateral operations workflow tool. Given the results from an optimisation solution are only as good as the inputs, it's imperative an organisation has a clearly defined optimisation objective from the outset and implement to a solution that will grow in sophistication as the benefits of cost-based, numerical optimisation algortithms become more evident. We see more engagement with vendors in the optimisation space than ever before in the collateral world as firms look for help to guide them through the new landscape.

Seagroatt: Optimisation is just a more efficient way for firms to manage the supply and demand for collateral. It's hard to see any hidden dangers from it. You can only pledge out what your counterparty will accept as eligible collateral.

In fact, there is an argument that it could actually help with liquidity management and make firms safer. Take the recent default of MF Global. The report into the bankruptcy identified an inability to meet margin calls on its repo to maturity funding for its peripheral euro sovereign bond portfolio with appropriate collateral as a key factor in its collapse.

The report indicated that the lack of an automated collateral management solution meant that MF Global's operations staff were trying to manually allocate acceptable collateral at a time when the operations department was already under pressure and the firm's liquidity was strained.

I am not suggesting that better collateral management would have prevented MF Global from defaulting. It wasn't the sole factor in the firm's downfall. However, when a firm is under extreme liquidity stress and receiving calls for increased margin, a collateral management solution can help it to meet these margin calls with acceptable collateral quickly.

An optimisation solution can also help the distressed firm to pledge the 'cheapest to deliver' or more accurately, the 'hardest to deliver' assets its counterparties will accept as collateral. This means it allocates available assets across its range of counterparts in a more efficient way and this could help to free up valuable liquidity when it is needed most.

Optimisation may also have benefits to the financial system as a whole. It can allocate scarce collateral more efficiently and potentially help to reduce some of the systemic impact of collateral shortages.

However, the optimisation process is by its very nature imperfect. Do not listen to anyone who tells you they can perfectly optimise a collateral portfolio across all counterparties—this is not possible.

There are many factors involved in collateral optimisation. The process must consider many types of transaction costs, the practicalities of substitution/reallocation, complex counterparty eligibility criteria and haircuts across the portfolio, and constantly changing market dynamics. This makes it hard to gain a truly perfect allocation of assets in real time.

As with most activities, there is an 80/20 rule in play. The added effort required to achieve the hardest to obtain cost savings is often not worth the diminishing returns. Optimisation is very much based on the best practical allocation of collateral, rather than the best possible allocation. It is also very specific to each firm, its risk profile and business strategy. For this reason, 4sight typically builds new customised optimisation algorithms to meet the needs of each individual client.

One area where there are dangers is in collateral management itself. Collateral management is after all, a method of mitigating risk. Collateral management technology solutions can provide a very valuable tool to help manage counterparty credit risk. They can automate manual processes, provide clearer views of firm wide exposure, and help to manage liquidity and risk in a crisis.

However, they will always be a tool to support a common sense, human decision on counterparty risk management. Factors such as liquidity risk and wrong way risk in collateral acceptance will most likely always require careful thought. The technology is there to help collateral managers do their jobs, rather than doing it for them, although it does help to reduce some of the manual effort and operational headaches involved in the collateral management process such as substitutions.

de Schaetzen: There are benefits to gain from increasing collateral management appreciation and expertise at financial firms. Only those with such expertise will be able to fully exploit new business opportunities, as making securities work harder as collateral is becoming a primary business objective across the financial industry. In a world of low margins and strict capital requirement rules, astute collateral management expertise is a necessary factor to remain competitive.

Taking a smart approach to collateral optimisation is an obligation rather than a danger. Posting the right collateral at the right place at the right time, together with a continuous requisition of collateral allocations, are due to become the pillars of future collateral management requirements. We can see firms tracking changes in collateral eligibility rules in the future, where central counterparties begin to map their rules with available pools of collateral. To achieve collateral optimisation in this changing environment, firms will be looking for efficient and affordable outsourcing arrangements, such as triparty collateral management services, to gain the required expertise without having to make the required investment.

Hills: Collateral optimisation is a logical response for firms as regulatory pressures increase and collateral costs are managed more efficiently. Of course, the word optimisation is very subjective and what is optimal for one firm may be completely different to that of another. A further consideration is that firms will always attempt to deliver to each other collateral that is optimal from their point of view, which may eventually force a renegotiation of legacy legal documentation.

Collateral optimisation is also likely to increase operational costs. There is also a risk that optimisation could be taken too far in that there is a relationship between collateral optimisation and the intervals at which an optimisation process is performed. The optimal asset allocation will change throughout any given period or trading day and it will be important for firms to assess the trade-off between collateral optimisation and the operational cost of doing so.

A strong single platform technology solution with firm-wide inventory management and the capability to control costs will help address the optimal balance of collateral optimisation and operational costs whilst satisfying regulatory requirements.

How can firms have a clear integrated view of their collateral requirements and asset pools across their global enterprise?

de Schaetzen: For most firms, obtaining a holistic view of all their available collateral resources is a major challenge, both across business lines and geographically. Connecting pools of potential collateral remains a key challenge when they are fragmented, as is the case today. Improving the mobility of collateral across locations where cash trading occurs is an area where providers such as Euroclear can add value. Working with partners such as BNP Paribas, Citi and Standard Chartered, we provide securities inventory management services that source and mobilise collateral assets from wherever they are held and moved to wherever they need to be provided.

Bridging the gap between idle domestic market holdings and the need for collateral to access international financing is now enabling clients to make their collateral assets work harder. Having smart inventory management capabilities makes for dynamic collateral management opportunities across collateral pools in various holding locations. Our intent is to make this possible worldwide. Our recent announcement of a memorandum of understanding with DTCC in the US to provide a joint collateral service is a key part of this strategy.

Hills: Collateral management is becoming a firm-wide effort, involving front office, treasury, credit risk, oversight and regulatory control, and collateral management teams. All areas now have to accept some responsibility and accountability for the proper design, governance and execution of the collateral management programme. There needs to be greater technological integration across the collateral management process, as well as a more integrated approach to the current product silos that exist within institutions.

A changing culture from product silos to cross-product margining can be achieved with enhanced technology infrastructures and systems that can provide a holistic view of collateral management across multiple business lines via a single platform technology. A consolidated firm-wide inventory management detailing all firm assets will facilitate collateral optimisation to meet stringent regulatory requirements while minimising the increasing cost of collateral. Lombard Risk's single platform technology COLLINE delivers the capability to achieve these goals.

Seagroatt: Clients come to us asking for optimisation but in most cases, they don't yet have integrated view of inventory across assets and business lines so this is something we often help with. Gaining a clear view of exposures and available inventory across business lines is a key step in optimising collateral. It probably gives the most bang for its buck in terms of the time spent versus the return on investment that can be achieved.

A collateral management system that offers a consolidated view of inventory and exposures across securities lending, repo and derivatives trades is fundamental for optimisation to take place. It allows traders to see available collateral assets on a firm-wide basis and helps risk managers to view exposures at any level of the firm. It is possible to achieve many of the cost savings from collateral optimisation by making better use of internal inventory to meet margin calls. A clear picture of all available assets across the profit centre hierarchy is essential for this.

Hellaby: A raft of innovation in collateral management platforms over the past few years has allowed firms to collateralise requirements across business lines under one platform. The advantages of this are clear in providing consistency of operational control and a single customer view of exposures and collateral to allow centralised decision making and identification of optimisation strategies such as offsetting of swaps and futures exposures. In addition, forward looking vendors have placed centralised inventory management capabilities as the keystone of their solution offerings. This is a huge shift from where the market was three to five years ago, when institutions were frequently posting out cash collateral and operational collateral management tools became a commodity. With the change of focus under the new regulatory environment, collateral asset allocation and optimisation has become the driving force behind innovation and investment. Having an enterprise-wide view of inventory and requirements is also a pre-requisite for any institution wishing to undertake a collateral optimsation programme

Almanas: Put simply, firms must virtualise collateral pools. Rather than diluting what constitutes acceptable collateral, we must look to effectively mobilise what collateral exists. To achieve this, the whole chain has to work, allowing the creation of a virtual collateral pool across markets to eliminate the inefficiencies inherent in having to transfer securities across systems. It is therefore crucial that collateral can be valued across multiple time zones, systems, and currencies—a fundamental shift in the current collateral infrastructure.

How worried are you about the "global collateral shortfall"?

Hellaby: There is clearly a lot of uncertainty in the market around the level of impact of regulatory reform. On one hand, the recent annual report from the Financial Stability Oversight Council played down the impact, citing the fact that there has been an increase in sovereign debt issuance and broadening of collateral eligibility, taking the estimated amount of non-cash eligible collateral in the market to a figure in the region of $74 trillion. Given estimated collateral requirements of $3.5 trillion, this would lead to a collateral utilisation rate of less than 5 percent. However, this relies on the full $74 trillion of eligible collateral being mobilised in the market.

In addition the pro-cyclical nature of collateral means that in times of market stress collateral requirements will increase in conjunction with contraction in the amount of eligible collateral within the market. This uncertainty means firms cannot afford to ignore the potential challenges that lie ahead. Collateral management solution providers quickly identified the challenge their clients were facing and have moved quickly to introduce innovative solution offerings such as collateral optimisation and centralised, cross-asset collateral management platforms.

Hills: There is a risk we have exchanged counterparty risk for liquidity risk. The regulatory safeguards, including segregated accounts, initial margin and mandated collateral requirements implemented since the financial crisis may indeed have the unintended consequence of a collateral shortfall with increasing demand for high quality collateral, which will in turn increase costs and reduce market liquidity. This will increase the requirement for firms optimise their asset inventories, with strong process and technological infrastructures to support this. It is certainly something that is high on our clients' list of priorities. From a vendor point of view, it gives us the opportunity to develop market leading solutions in a single platform technology, providing the capability for firms meet and overcome these challenges and more effectively manage a potential global collateral shortfall.

Almanas: Upcoming regulation—in particular, the US Dodd-Frank Act, Basel III and the European Market Infrastructure Regulation (EMIR)—is forcing institutions to lock down much more collateral, probably to the tune of trillions of dollars. These demands are coming at a time when banks are cutting back on lending. The days of abundant collateral and liquidity that the financial markets have historically enjoyed may be coming to an end, so a global collateral shortfall is a very real possibility. In fact, in an upcoming collateral management study that we conducted, 53 percent of 60 financial institutions believe there will be a shortfall by 2015.

The trouble is that if there is to be a collateral shortfall, nobody has a clear understanding of how severe the shortfall might be. Estimates range from a few billion to several trillions of dollars. All financial institutions are having difficulty in responding against this backdrop of uncertainty.

While reduced liquidity caused by a collateral shortfall would prevent the smooth functioning of the markets, it is imperative that regulators do not dilute the definition of what constitutes acceptable collateral. The acceptance of low-quality collateral will only sow the seeds of the next crisis.

de Schaetzen: Pressure on finding eligible collateral will inevitably increase. While it is difficult to estimate the overall size of potential collateral requirements, any firm active in the capital markets is aware that they are likely to face collateral management challenges to ensure that all available resources are used efficiently in order to maximise business opportunities. New collateral requirements will also inevitably have an impact on many business models, which may lead some firms to re-evaluate some of their activities and potentially migrate some activities from one segment to another, for example, futures as an alternative to OTC derivatives.

Rather than anticipating collateral chaos, or a collateral shortfall or collateral cliff, I foresee the market adapting to the new regulatory and collateral realities. The only predictable outcome we can make is that the market will work differently and that firms that do not adapt to the new realities will struggle to survive. I am also optimistic that the new realities will create a more resilient market landscape.

Seagroatt: I'm more worried than I was, due to the effects of the proposed European Financial Transaction Tax (FTT) on securities lending and repo volumes. Hopefully, regulators will offer some sort of exemption, because as a high volume, low margin business, securities finance could really be hit hard. This would have the knock-on effect of reducing collateral velocity and killing market liquidity when it's most needed due to the added strain on collateral needs from CCP margining.

> The days of abundant collateral and liquidity that the financial markets have historically enjoyed may be coming to an end, so a global collateral shortfall is a very real possibility

On the other hand, it's looking likely that regulators are happy to allow CCPs to accept a broader range of collateral (corporate bonds, etc), as long as haircuts are set appropriately to account for the added liquidity risk of these assets. This could reduce some of impact on collateral needs.

Regardless of the severity of shortages, the cost of collateral will most likely increase over the next few years due to the changing supply/demand dynamics. We therefore expect that there will be significant demand for services such as collateral optimisation and collateral transformation/upgrade trades. The cost savings from optimisation will also increase over time as collateral becomes more expensive.

What has the impact of derivatives pricing been on collateral?

Hills: Differences in derivative pricing models have historically caused collateral margin disputes, however, initiatives within dispute management and portfolio reconciliation have gone some way to addressing these issues. There are also punitive actions for outstanding disputes such as the Basel III reform forcing banks to apply longer margining periods as a basis for determining regulatory capital, which should further encourage institutions to solve pricing differences more quickly.

> With firms likely to attribute collateral costs to trading strategies more in the future, collateral is likely to become a decision making factor in the pricing of derivative trades

The post-financial crises regulatory framework, with mandated initial margin requirements, is also likely to bring this subject into greater focus, but the problem could be exacerbated by the fact that a standardised methodology for calculating initial margin has yet to be defined.

With firms likely to attribute collateral costs to trading strategies more in the future, collateral is likely to become a decision making factor in the pricing of derivative trades, considering costs such as the venue at which trades are cleared and the type of collateral required.

de Schaetzen: Collateral resources, and especially those that are CCP-eligible, are due to rise in demand. Many studies have evaluated the impacts of recent regulatory changes, such as those linked to the clearing of OTC derivatives, and have reported some astronomical numbers on the need for CCP-eligible collateral. So far, demand does not appear to have had a significant impact on the availability and pricing of 'renting' CCP-eligible collateral assets. But it is still early days and work is still being done to unlock pools of CCP-eligible collateral in order to prevent collateral shortages.

Innovative solutions, such as Euroclear's recently launched GCAccess product that aims to increase CCP-eligible collateral liquidity, has been warmly welcomed by the market. The product provides general collateral on a non-cash collateral basis, enabling firms to upgrade their collateral to avoid CCP-eligibility barriers.

Seagroatt: Derivatives pricing is beginning to incorporate collateral funding costs through the lifecycle of the trade through calculations such as funding value adjustment (FVA).

There is also a growing consideration of credit value adjustment (CVA) charges on uncollateralised exposures and the inclusion of counterparty default risk in derivatives pricing due to Basel III. These calculations involve factors such as collateralisation, potential future exposure simulations and collateral netting. The terms of a collateral agreement such as thresholds and minimum transfer amounts can also have an effect on CVA/DVA and FVA so this is leading to a closer consideration of these aspects of the collateral management process.
All of this means that information flows on collateral requirements, usage costs and exposures are becoming more important for both risk analytics solutions, derivatives pricing tools and regulatory compliance.

From a securities lending and repo point of view, collateral also affects trade pricing and P&L more than in the past. This ranges from collateral funding costs, to factors such as Basel II/III RWA calculations and a trade's balance sheet consumption.

Lending/repo desks need to consider these factors to gain a true P&L figure, as they dictate the cost of capital for a trade. A good example of this is in collateral upgrade/transformation trades for CCP clearing.

A collateral upgrade offered by a clearing broker/FCM to clear a derivative trade with a CCP involves a repo trade to upgrade the collateral. This trade has an impact on balance sheet and consumes regulatory capital.

If the trader can see at the point of trade what the cost of this regulatory capital is, then it is possible to gain a clearer idea of how the firm should price the upgrade trade for the derivatives client, or whether it is even profitable to offer it in the first place. So we're moving to a world where firms need to think more about both collateral optimisation and capital optimisation when making trading decisions.

Hellaby: FVA, along with cost allocation, has become an integral part of new, more efficient margin calculations, whereby we are now seeing the cost of collateral being factored into deal pricing from the outset. We have seen from several industry papers how matching collateral terms to the trade economics can affect P&L and many firms are trying to improve their processes to accommodate these factors. Adoption of OIS discounting for collateral requirement calculations helps, but it also provides operational challenges for many and has increased the level of disputes. Identifying, pre-deal, the best counterparty or clearing venue to perform a trade is now a key part of the trading decision, and indeed choice of counterparty or location will affect the deal price.

In addition, with the increased capital charges and collateral requirements for bilateral trading, firms will need to consider the cost of funding capital and collateral that any new deal will attract.

What are the hurdles to making a collateral management system more efficient?

Hellaby: It is widely accepted within the industry that firms must look to centralise their collateral management processing across business silos in order to realise process efficiencies. However, for many there is not the risk appetite to rip out four or five legacy systems and replace them with one new cross platform solution, or indeed the organisation has not yet aligned its business units to make such a drastic shift. The answer lies with a modular-based collateral platform that will allow an organisation to initially replace one existing component, then over a period of time migrate existing business lines onto the platform.

Hills: An efficient collateral management system is a technically challenging undertaking with the raft of regulatory and market initiatives since the financial crises. A capable and efficient collateral management solution should now ideally be a single platform technology that supports multiple products on a firm wide/global basis with a centralised and consolidated operational workflow providing a holistic view of the collateral management process. It should be extremely configurable as the market trend moves from a silo-based collateral management approach to cross product margining.

The technology solution should support exception-based processing to manage the high volumes of margin calls in today's financial markets and provide seamless connectivity to internal and external technology platforms, enabling further exception based processes such as electronic messaging and automated reconciliation.

It should also be a modular solution that can support different business lines and fit into any technology infrastructure according to firm requirements. Furthermore, it be a scalable and sophisticated technology, with functional flexibility to accommodate future business, market and regulatory initiatives and requirements.

Seagroatt: The main hurdle is having a consolidated inventory view in real-time. The complexity of the optimisation process, the number of variables involved and the bespoke nature of optimisation can also complicate the process. As discussed above, this is always going to be imperfect and will involve diminishing returns from the investment in time and data processing involved. There is also a trade off between the complexity of optimisation calculations and the time taken to perform them, as traders typically need to make decisions quickly.

However, there are many ways that collateral management solutions are going to evolve in the coming years and at 4sight we are working on ways to improve the process. This includes:

- More STP and automation
- More analysis of the cheapest place to execute a trade—this can be very complex and based on factors such as initial margin requirements, collateral eligibility schedules and regulatory capital costs
- More sophisticated collateral portfolio substitution
- What if scenario analysis on collateral pools
- More efficient trade pricing and the impact of collateral on P&L, regulatory capital usage costs and balance sheet usage
- Greater integration with the risk function.

> Concepts such as ‘cheapest to fund’ are becoming more common in collateral management and awareness is increasing

Optimisation is very much in its infancy and will continue to evolve in response to market and regulatory change. Financial firms are under a lot of pressure to adapt to a very demanding operating environment. There is also heavy competition between technology vendors to enhance optimisation techniques and processes.

This will drive improvements for the foreseeable future and ensure that the collateral optimisation race continues at its current pace.

de Schaetzen: They are many opportunities to make collateral management more efficient. The main one is linked to unlocking siloed or fragmented collateral pools. Fragmentation covers a variety of dimensions, including geographic and business line fragmentation. Everyone can see the benefits of managing a single pool of assets to meet collateral needs across businesses and geographical locations, but this is a real challenge.

Concepts such as ‘cheapest to fund’ are becoming more common in collateral management and awareness is increasing within various business lines that collateral costs have a direct impact on the bottom line. Geographic fragmentation of collateral remains a reality for many reasons, including regulations that force entities operating in individual markets to hold enough resources to remain self-sufficient.

To improve the situation, infrastructure service providers are making significant investments to improve collateral mobility from where the collateral is held to where it is needed. Global collateral mobility management is not to be underestimated, as we believe it will become an integral and critical part of the collateral optimisation process. It will also require special skills to deal with increasingly complex issues, such as interoperability.

Almanas: In our experience, cost is seldom the biggest hurdle for an institution in making a collateral management system more efficient. Many firms see the benefits of adopting a triparty collateral management system as opposed to a bilateral one. Under a triparty system, a third-party collateral management provider administers exposures and collateralises them using assets of the same value.

This provides access to a central pool of collateral from market participants all over the world. Triparty systems reduce risk, are easy to use and can provide clear views of requirements and collateral pools provided that they are capable of responding to requests to segregate margin.

Nevertheless, bringing in a third-party collateral management provider is no easy task. Many institutions suffer from IT interfacing problems or find that the on-boarding process can take too long. However, those institutions that do invest time and money in upgrading their collateral management systems will soon reap the benefits. **SLT**