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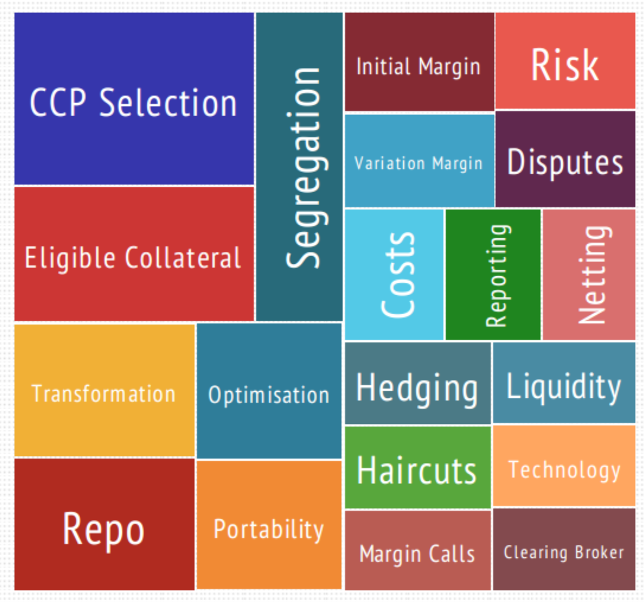
WHITEPAPER: BUYSIDE COLLATERAL MANAGEMENT- CHALLENGES AND OPPORTUNITIES

Introduction

The current pace of regulatory change can seem overwhelming to many buyside firms trading Derivatives.

The move to central clearing of some OTC products has raised a number of new challenges around the collateral management process that buyside firms must deal with.

This paper considers the impact of changing approaches to collateral usage, as firms must define their target operating models and leverage available technological benefits, most notably software as a service (SaaS).



Regardless of whether you see opportunities or challenges in this changing landscape, proactive collateral management and optimisation will be a competitive differentiator, a method of reducing costs and minimising performance drag.

Institutions that take an active approach and see collateral management as a core competency will outperform those taking a more passive stance.

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Challenges for Buyside Firms

Collateral challenges:

- Meeting new collateral demands
- Managing risk
- New collateral function & processes
- Clearing Broker/FCM and CCP selection
- Collateral segregation
- Transformation
- Optimisation

… within constraints:

- **Minimising headcount / fixed cost increase**
- **Acceptable operational risk**

The challenges listed above detail some of the emerging choices that buyside firms must make around collateral. The new environment will require significant changes to the collateral management operating model for the buyside.

The buyside must now look at ways to meet these challenges while keeping control of headcount, minimising fixed cost increases and reducing the impact on fund performance.

Finally, it is essential to manage the increased operational risk resulting from more complex margining processes in an acceptable way.

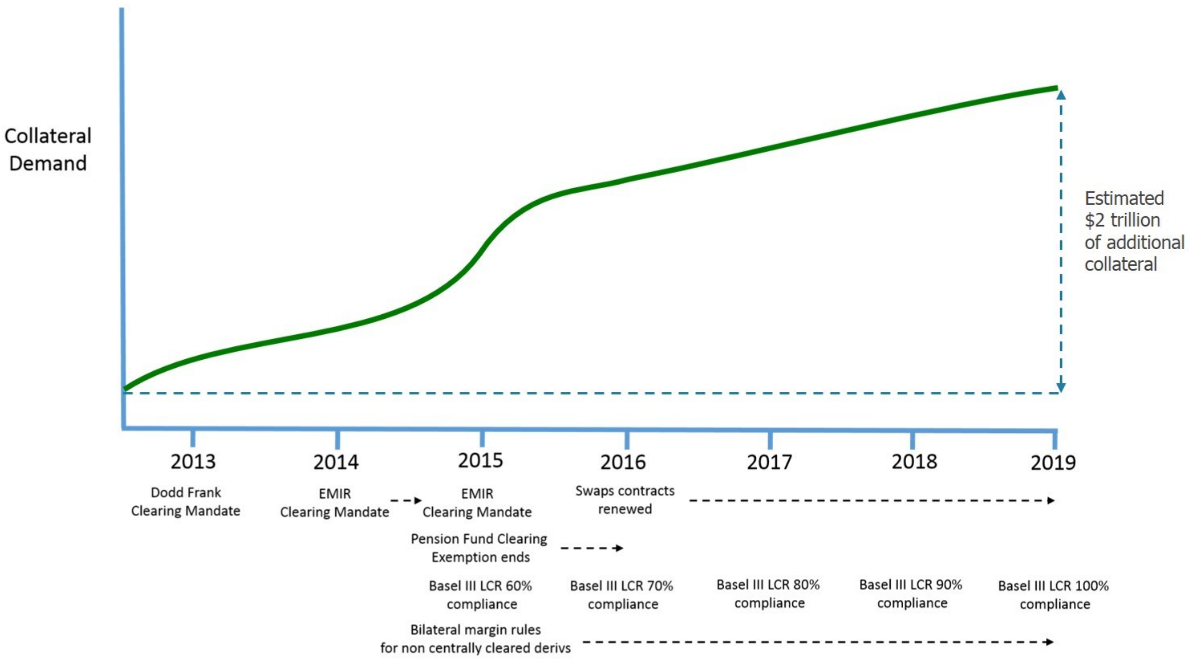
We will discuss each of these challenges in more detail before looking at the solutions.

Meeting New Collateral Demand

The possibility of a 'collateral crunch' in the coming years will depend largely on supply and demand. However, at this early stage the data suggests that there will be sufficient collateral in the market. The main challenge lies in creating a market infrastructure that gets the right collateral to the right place at the right time – a highly complex task.

The chart below shows the estimated increase in demand over the next 5 years. Please note that this chart is purely indicative, based on the impact of new rules such as Basel III, margin rules for non-cleared derivatives, and pension fund clearing exemptions coming to an end. The dates for compliance with these rules may also slip further into the future.

Indicative collateral demand over time



However, in less certain times, say during a major default, volatility could cause collateral demand to jump as high as $11 trillion.

Bilateral counterparties will require more initial margin as counterparty ratings drop and central counterparty (CCP) value at risk (VaR) models generate higher PFEs (potential future exposure). Variation margin (VM) requirements will also increase as a consequence of market volatility.

While a collateral crunch may not occur, a 'client onboarding crunch' for clearing services and collateral technology could result in real problems, particularly for the buyside as they rush to meet the requirements.

Managing Risk

The benefits of strong collateral management capabilities are numerous, but the adoption of new practices should be viewed primarily as an exercise in risk mitigation. In the situation of a counterparty default or market crisis, the collateral system must provide:

> It is important to think of collateral management as a tool for risk mitigation rather than an operational burden or a cost to optimise.

- A clear view of all margin calls and pledges to all CCPs and bilateral counterparties in one place
- Visibility of allocated and unencumbered collateral across all funds: own, outsourced & third party
- Dynamic management of margin calls, substitution and pledging
- Forward views of expected initial margin (IM) calls pre-trade and throughout lifetime
- The ability to meet sudden variation margin (VM) calls quickly with eligible collateral

Delivering all of this whilst minimising headcount costs, minimising performance drag by allocating cheapest to deliver (eligible) assets and using collateral transformation services efficiently, gives some idea of the challenges ahead.

In a crisis, a full service automated solution from one of the main technology vendors is essential. Should another Lehman occur or even worse, a CCP fails, then the cost of a leading edge collateral management system will be money well spent.

Verifying Margin and Forecasting Collateral Needs

Buyside firms may also want to verify CCP/Broker margin calls by replicating the CCP's initial margin calculations. This will help when forecasting collateral requirements on a forward-looking basis, thus creating the valuable time needed to source suitable collateral at a reasonable cost.

Stress testing the collateral portfolio can also be a valuable exercise, enabling risk managers to analyse the effect on collateral requirements and funding costs in scenarios such as a self-downgrade or major market movement.

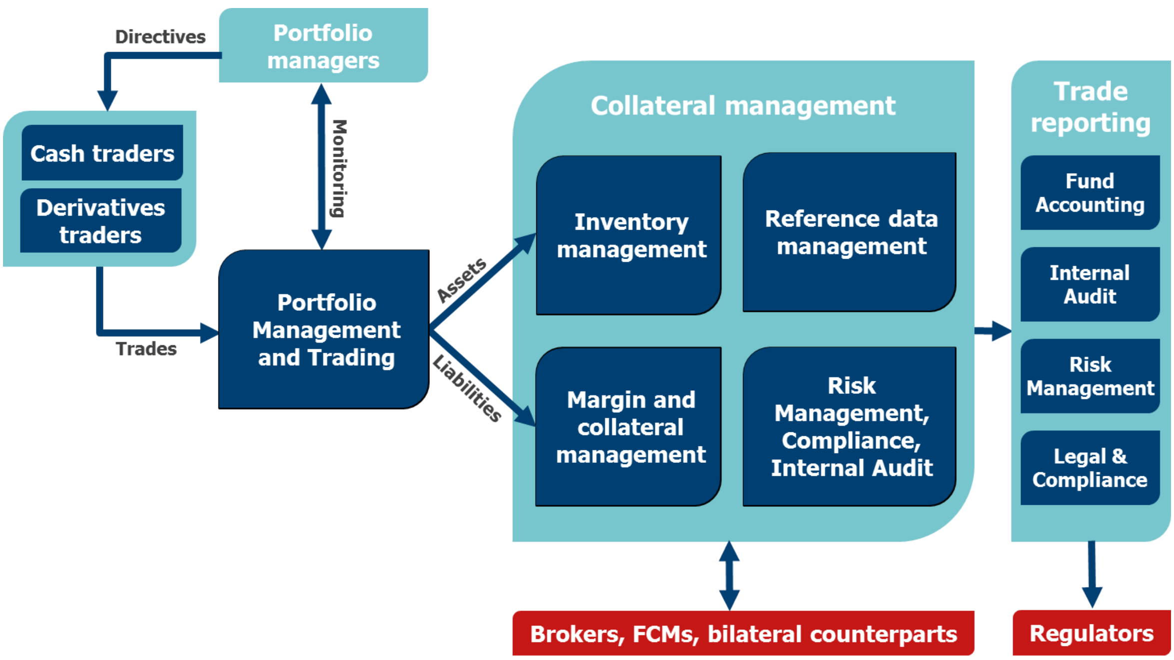
The New Collateral Function and Processes

Previously, margining was relatively simple, with portfolio managers seeking alpha through cash instruments and hedging with derivatives. Typically, firms would post collateral in cash and manage margin with spreadsheets.

The buyside for example, posted one-way independent amounts to counterparties that were marked-to-market on a relatively infrequent basis.

In the post-crisis landscape as collateral demands grow, funds may no longer hold enough cash to meet the increase in margin requirements. This will result in a drive towards non-cash collateral to reduce the impact on fund performance. Non-cash collateral requires more intensive processing, leading to a step change in complexity for the buyside.

The new collateral management function for buyside firms



The diagram above shows the new collateral management model for the buyside. Inventory management has now become a core function and firms will need a clear view of inventory by fund in order to source collateral for initial and variation margin efficiently.

Secondly, a margining engine is required for processing more frequent calls in an automated way with minimal strain on operations or headcount. A third key component is management of eligibility, concentration and haircut reference data schedules and ensuring that the firm remains compliant with its mandate and risk guidelines.

Finally, the use of margin messaging tools and reconciliation solutions can improve straight through processing and reduce operational risk.

More Intensive Margining

Until recently, many buyside firms in the derivatives markets faced no initial margin requests and variation margin calls on a weekly or even monthly basis. In the new environment, CCPs require daily and even intraday margining. CCPs also require clearing clients to meet variation margin cash calls to strict timescales.

Thresholds and minimum transfer amounts will also be lower. This will create a significant strain on operations and a recent DTCC paper estimated a 500% - 1000% increase in collateral movements.

This results in a need for real time technology systems with automation and workflow around:

- Inventory management
- Margin calls
- Collateral movements
- Confirmations
- Cash netting
- Accruals and interest payments
- Corporate actions
- Reference data: e.g. eligibility, concentration and haircut schedules
- Settlement messaging
- Dispute resolution
- Reconciliations
- Trade reporting

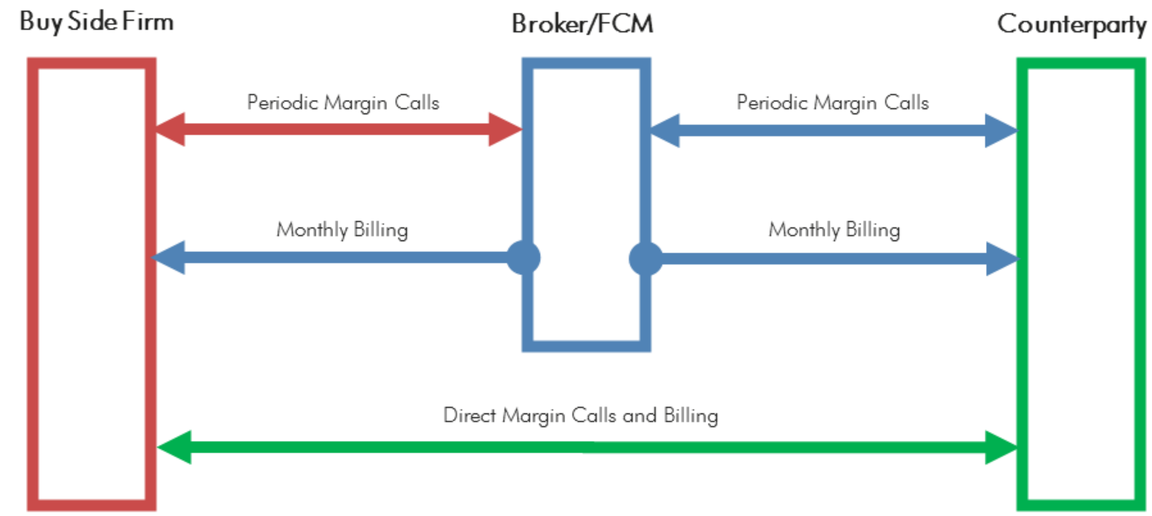
In this new cleared environment, using spreadsheets to support collateral operations is no longer a viable option for any firm collateralising more than a handful of agreements.

There are also more intensive calculations around interest on cash collateral pledged to CCPs.

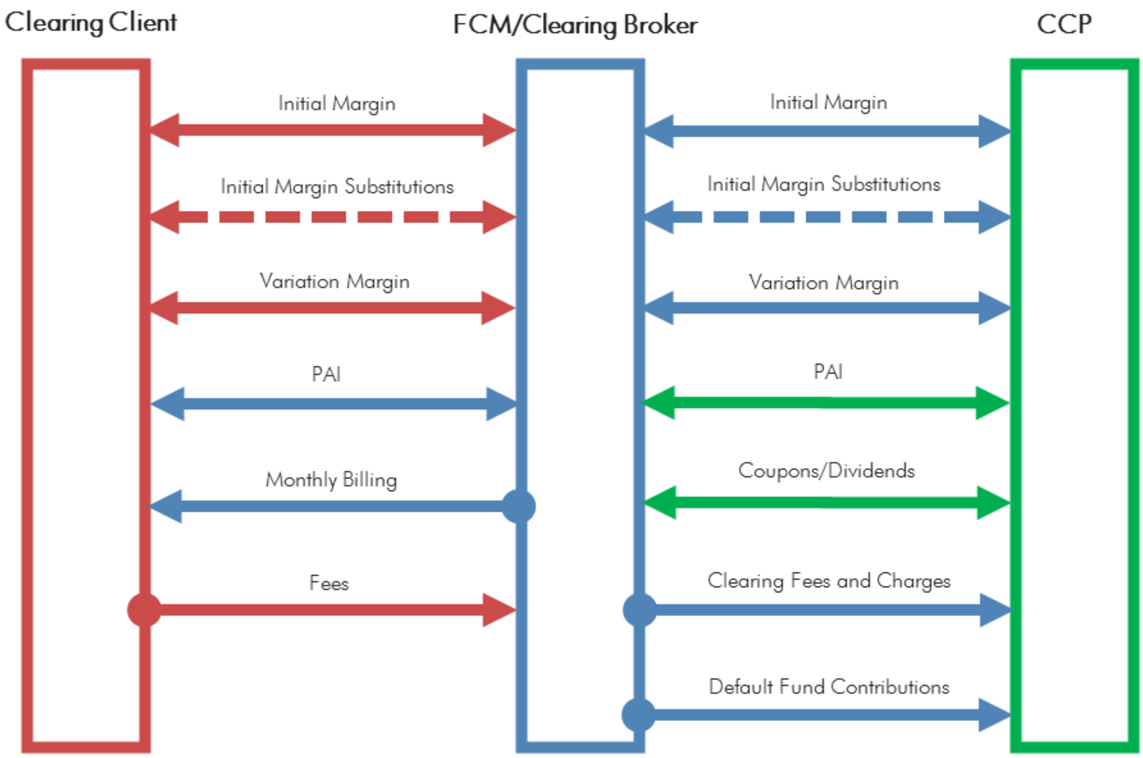
Operational Complexity in the New Margining Framework

The diagrams below show typical examples of the old collateral workflow and the new workflow for buyside firms trading via a Clearing Broker/FCM. They show the major increase in complexity in the collateral management process for the buyside, who now face trading via multiple FCMs/ Clearing Brokers and clearing trades through multiple CCPs.

Old Collateral Management Workflow: Trading with a Broker/FCM or Bilaterally with a Market Counterpart



New Collateral Management Workflow: Trading with a CCP via a FCM/Clearing Broker



Increased Due Diligence

The buyside will now receive reports from their Clearing Brokers/FCM's detailing the breakdown of their collateral management with CCPs on a daily basis (IM, VM, Interest on Margin (PAI), Coupons, Dividends, Fees etc.). There is currently no standardisation of these workflows, so this will differ from one Clearing Broker/FCM to another.

By its very nature, this is more complex than in the old pre-crisis model and requires greater due diligence on the part of the buyside to manage. Clearing Brokers/FCMs will offer services that simplify this and allow netting of collateral movements, fees and payments, but at a cost.

In addition to more complex trading workflow, there are a number of other issues that buyside firms must now think about.

Selecting Your CCPs and Clearing Brokers/FCMs

Settling on the most appropriate central counterparties (CCPs), clearing brokers and futures commission merchants (FCMs) can be one of the most time-consuming aspects of moving to a cleared environment. The majority of firms will connect to at least two clearing brokers and CCPs in order to diversify risk. However, this will result in a need for connectivity to many different venues, potentially fragmented order flow and reduced netting benefits.

This increased complexity results in more margin calls, more widely dispersed collateral (thus reducing concentration risk), but at the expense of increased operational risk.

Firms must consider portability agreements that allow them to port positions and collateral over to another broker / FCM in the event of a default.

Therefore, when assessing a CCP and performing due diligence, firms need to consider a wide range of both quantitative and qualitative factors including; margining methodologies, the credit quality of the CCP's clearing members, default and resolution procedures, and transparency of the CCP's risk management procedures.

The ability to route order flow to different CCPs will also lead to optimisation around which CCP to clear a given trade through.

It is also worth considering the likelihood of a central bank backstop, although as yet few central banks have explicitly agreed to backstop a CCP. This, and a lack of transparency around CCP risk management methodologies makes it hard to compare like-for-like when evaluating one CCP against another.

Optimising CCP Selection

The ability to route order flow to different CCPs will also lead to optimisation around which CCP to clear a given trade through.

What has helped is that technology providers are constantly innovating in the area of CCP optimisation; simplifying previously complex calculations that consider the CCP's initial margin methodology, collateral eligibility criteria and netting options.

For further details, please see 4sight's Future Trends in Optimisation whitepaper:

Download the Future Trends in Optimisation Whitepaper

Collateral Tracking and Segregated Accounts

The buyside now faces more choice around tracking pledged collateral, with Clearing Brokers that offer fully segregated accounts at the CCP.

This guarantees that the firm's assets are not liquidated in the event of the default of another clearing client and reduces the likelihood of mutualisation of risk with other clients or brokers/ FCMs. For many participants this makes a lot of sense; why would a risk-averse pension fund want to commingle its collateral with a highly leveraged hedge fund?

There are also Basel III capital savings from fully segregated, bankruptcy remote collateral. Likewise, new rules propose more transparency and greater control around rehypothecation of pledged assets. This offers new options for those buyside firms who would like to take a more conservative approach.

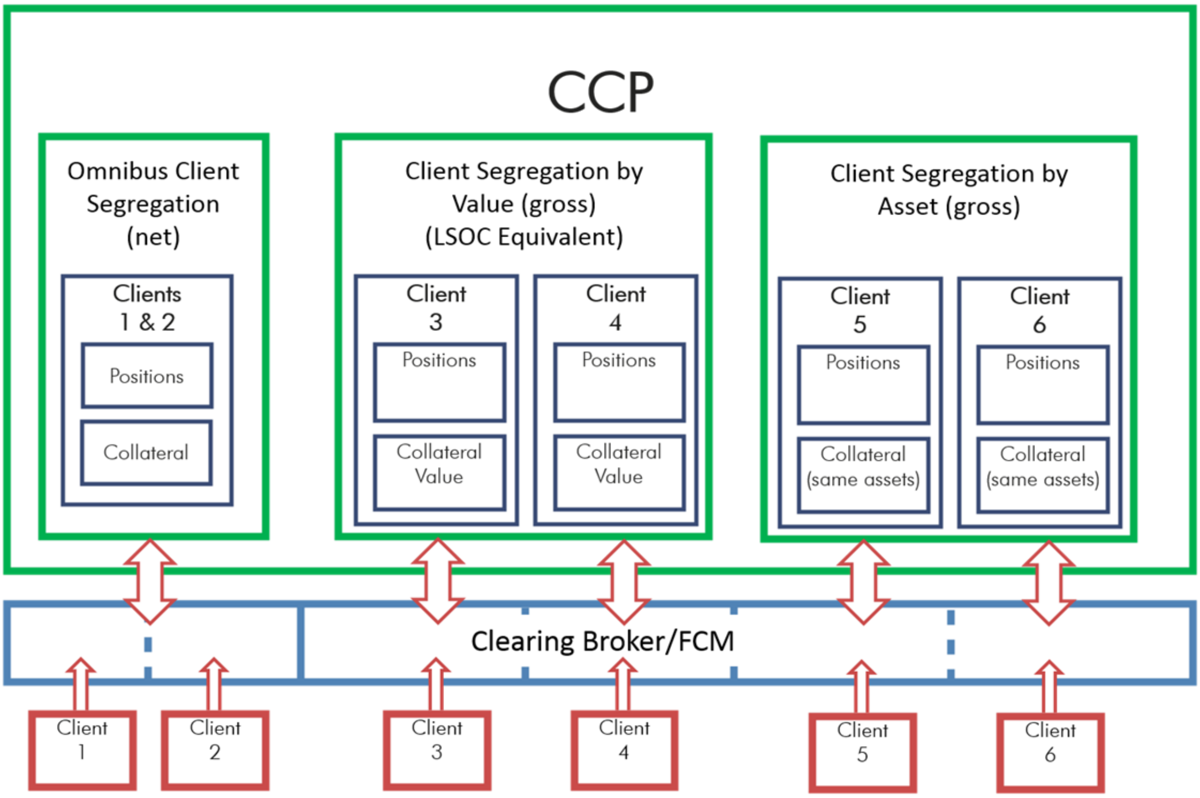
Account segregation will be one of the key ways that CCPs will seek to differentiate their offerings. However, fully segregated accounts and agreements with Clearing Brokers / FCMs for zero rehypothecation of collateral will come at a cost.

This may reach a prohibitively expensive level for buyside firms already facing up to increased costs from clearing. There are also differences in the segregation options offered under Dodd-Frank in the US and EMIR in Europe which may cause difficulties.

Dodd-Frank mandates that US CCPs offer a legally segregated but operationally commingled (LSOC) model for collateral segregation. Under EMIR, European CCPs offer a similar option but also offer a more segregated individual account structure.

This provides more safety but also added operational complexity. Furthermore, the differences in segregation models may cause confusion and operational problems for firms trading across jurisdictions.

CCP Account Segregation Models



Legally segregated but operationally commingled (LSOC)

- Less protection than fully segregated
- Omnibus segregation
- Cheapest but introduces more risk

Fully segregated collateral accounts at CCP

- Value segregation – receive same collateral value back in event of default
- Asset segregation – receive exact same collateral assets back
- More complex and expensive to administer.
- Proliferation of accounts
- More fragmentation of collateral, more messaging and operational processing

Source, Transform and Optimise Your Collateral

The extent of the growing demand for high quality assets remains uncertain. However, the effects of central clearing, two-way exchange of margin for bilateral trades and Basel III Liquidity Coverage Ratios will all add to it.

Movement of collateral around the financial system may also slow due to reduced rehypothecation and CCP account segregation.

However, new supply of high quality collateral assets coming back into the market through the winding down of quantitative easing in the UK and the tapering of the US Federal Reserve System support may balance this.

Holding cash for CCP margin calls is likely to be expensive, creating a drag on fund performance. There are indications that leading FCMs will soon be charging 50 bps for lodging cash collateral.

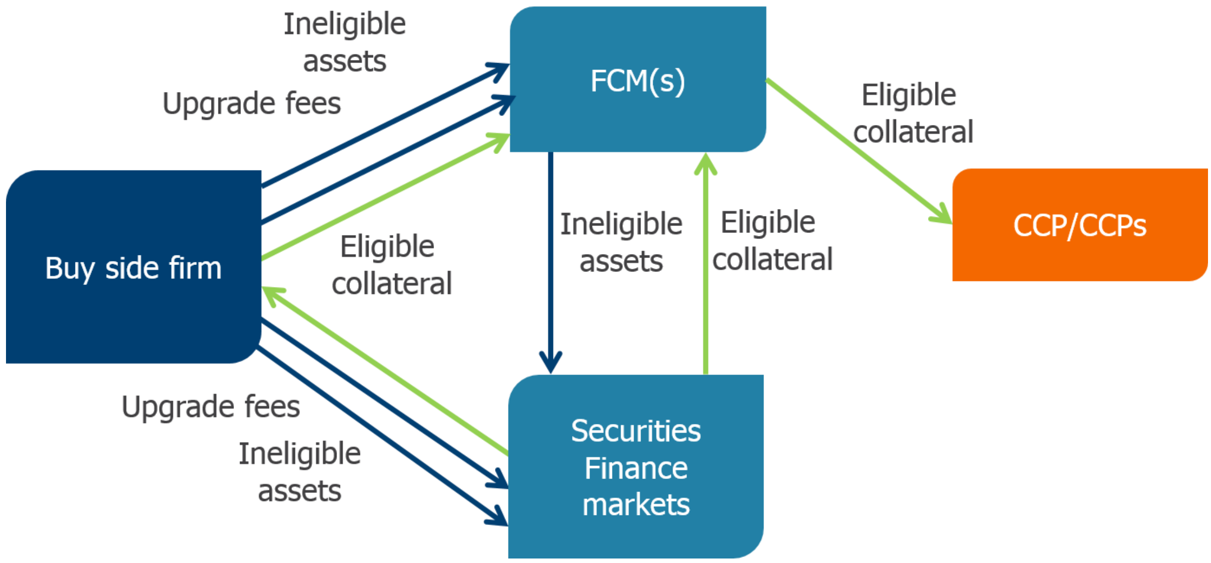
Where some lead, others will follow, especially as some markets move into negative interest rate territory. Conversely, many funds will not be holding enough high quality liquid assets to meet CCP margin calls.

The widely proposed solutions to this problem are Collateral Transformation and Collateral Optimisation.

Collateral Transformation

Collateral transformation trades are a way of upgrading lower quality assets into CCP eligible collateral via the securities lending and repo markets. The diagram below shows a typical transformation trade executed through the securities finance markets.

Collateral Transformation Example



In the example above, the clearing broker/FCM takes in non CCP eligible collateral assets from the buyside firm. It then upgrades them for CCP eligible securities in the securities finance markets and charges an upgrade fee back to the buyside client.

Alternatively, the buyside firm may trade directly with other counterparts/intermediaries in the securities finance markets. In some cases, the buyside are utilising existing or newly created internal securities lending or repo desks to bring in asset flow that will help to meet CCP margin calls.

However, matching the maturity of collateral with the derivative portfolio it is underpinning is a key consideration and there are potential maturity mismatches in collateral upgrades.

Short-term repo markets can of course provide a source of collateral when clearing a long dated swap at a CCP, but this can expose the derivatives end user to rollover risk. For many on the buyside, the use of a collateral transformation service may also be prohibitively expensive.

Collateral transformation may also be unavailable for many on the buyside. Sellside firms are facing balance sheet constraints in the new regulatory environment. As upgrade trades consume balance sheet, transformation services may only be offered to larger buyside clients.

Collateral Optimisation

Collateral optimisation on the other hand, is now an essential tool for making the best use of available assets. Optimising internal inventory will be far cheaper than paying for expensive collateral upgrade trades. Moreover, optimising may prevent firms giving out expensive collateral or liquidating assets to meet margin calls with suitable collateral.

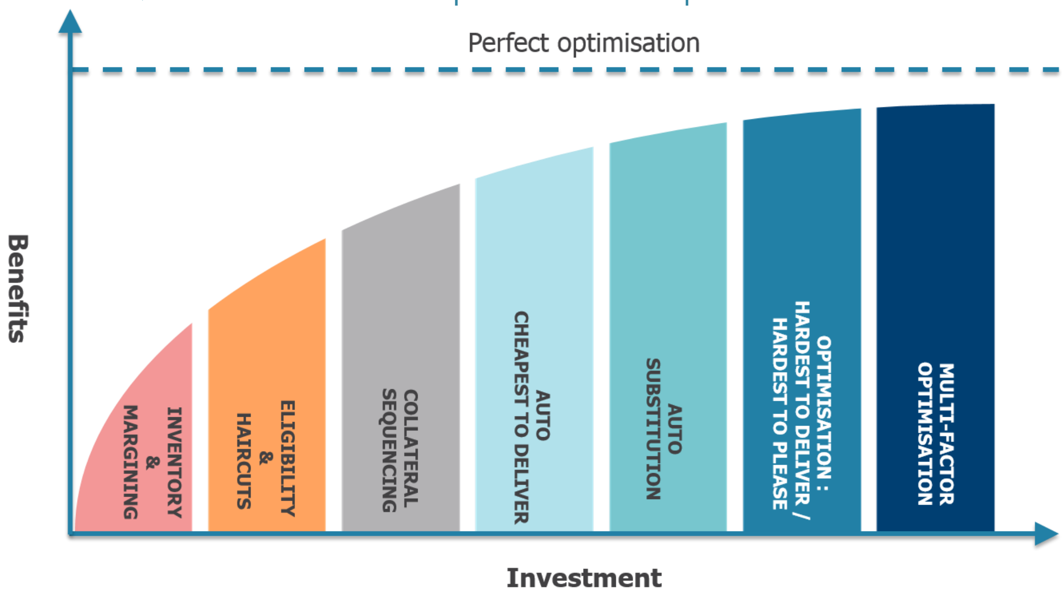
The basis point savings achieved from more efficient allocation of collateral can easily outweigh the investment in technology to enable this. The key, is to gain clear view of the firm's inventory, across different portfolios, geographical locations, and business lines; although even this may be a challenge for some firms.

Once this overall view is achieved, optimisation algorithms can then propose the cheapest to deliver collateral within each counterpart's eligibility guidelines, on a per counterparty basis. More advanced techniques can propose substitutions and optimise collateral on a multi-counterpart basis across the entire portfolio.

Optimisation also looks at the opportunity costs of using a collateral asset. For example, a security may be trading 'special' in the securities lending markets. In this case, it makes sense to lend it for a high fee, rather than pledging it out to collateralise a derivative.

The basis point savings achieved from more efficient collateral allocation can easily outweigh the investment in technology.

Return on Investment from Different Optimisation Techniques



The chart above illustrates how for many firms, early gains can be achieved by performing the basic optimisation tasks which can provide many key cost saving benefits. However, whilst further improvements can be made, there are diminishing returns from further investments in technology and resources. The degree of effort against return on investment should be carefully considered and is specific for each firm, depending on its size and the make-up of its collateral portfolio, and its IT footprint.

What are the Solutions for Buyside Firms?

Reduce Derivatives Trading or Move to the Futures Markets

There may come a time when the accumulated costs of trading derivatives will increase to a point that eliminates the economic benefits of hedging, particularly for smaller buyside firms.

This is evidently one of the major unintended consequences of the new rules and is no doubt undesirable for regulators. Increasingly bespoke and complex derivatives trades that cannot be cleared may prove very expensive. Dealers will incur high capital charges for illiquid bilateral trades, potentially outweighing the benefits of these hedging tools.

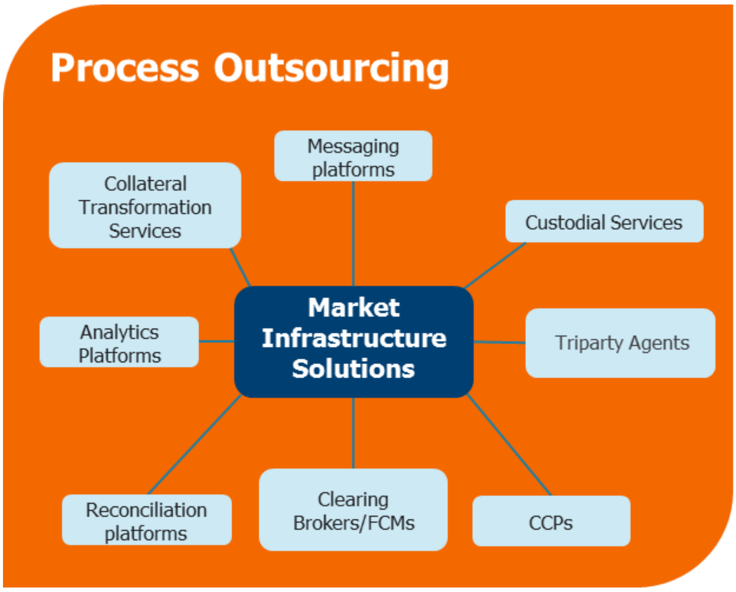
There may also be a move towards swap futures. While exchange traded futures offer a less refined hedging tool, they call for lower margins. Collateral funding costs for trading swap futures are therefore lower than in the OTC derivatives markets.

Outsource Collateral Management

A solution favoured by many faced with the collateral conundrum is outsourcing to collateral management service providers.

Such business process outsourcing allows the service provider to manage the operational processes involved in the collateral lifecycle.

Thanks to the newly developing market infrastructure, there is no shortage of providers looking to offer value added services such as collateral management and optimisation.



Manage Collateral In-House

Alternatively, managing collateral in-house means investing in the technology, staff and expertise to control the margining process. It allows full control over collateral usage and can utilise state-of -the-art technology systems that are customised to the firm's business model.

While successful collateral management is an operational hurdle, requiring investment in resources and technology, it is also becoming a core competency for buyside firms. It therefore make sense for many firms to manage this in-house to some degree.

What is the Best Option?

There is no single solution which prevails as the best approach to collateral management for all firms. For example, if you are long money, short resources, have simple schedules, and no desire to optimise, the best answer may be to outsource it.

Equally, some elements of collateral management may be easily maintained internally or externally (through a tri-party agent), such as repo operations related to the provision of cash or high quality assets.

However, certain aspects of the process will always need to be checked internally. The due diligence process of any outsourcing must be rigorous and detailed to ensure that the service provider manages the client's collateral in line with its risk guidelines and avoids any misunderstanding.

Managing Collateral In-House

As long as the appropriate infrastructure is in place within the firm, performing some components of collateral management in-house can offer significant cost savings and avoid dependency on expensive outsourced service providers.

As a firm grows and trading volumes increase, if collateral management has been outsourced then costs will continue to rise.

As in-house expertise is unlikely to have kept pace with industry developments, it becomes more and more difficult to move away from the external service provider.

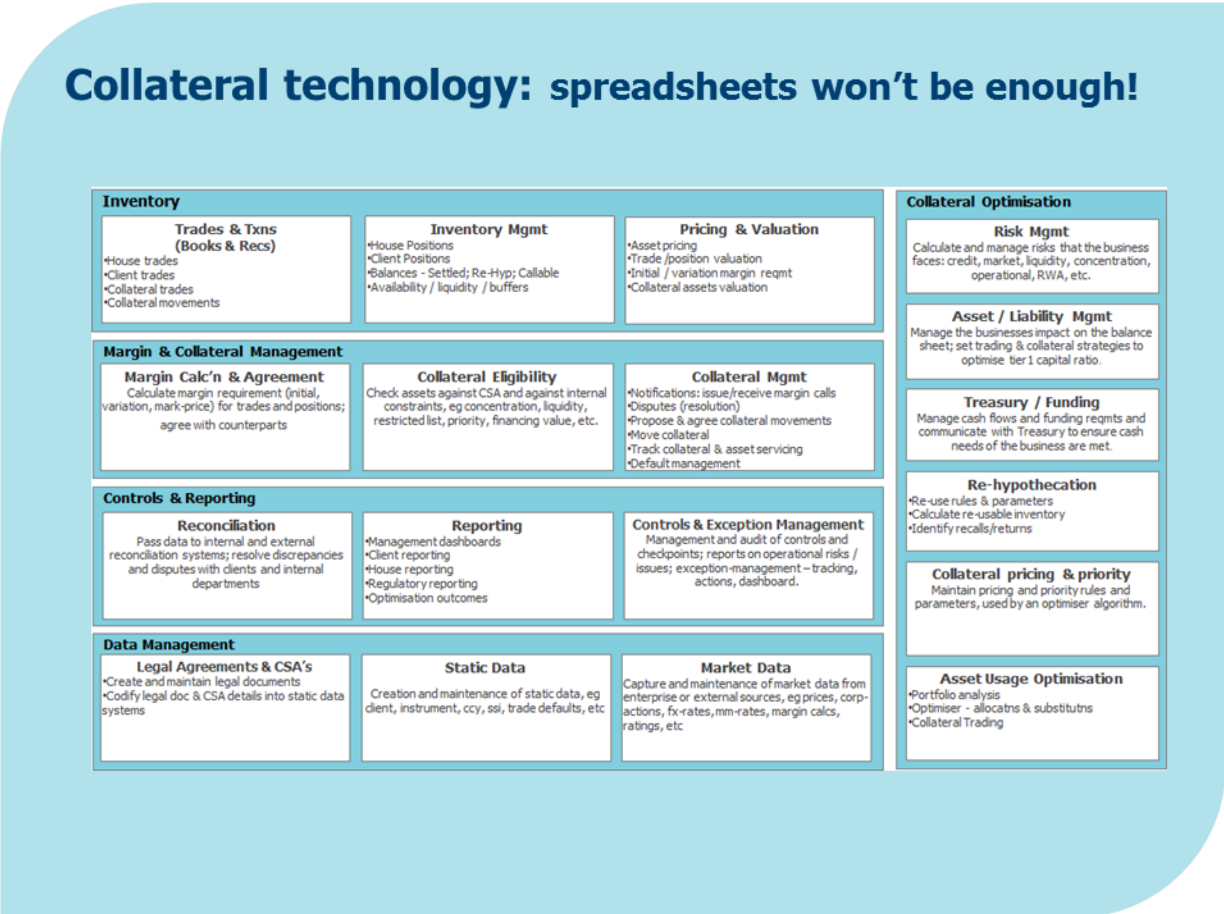
The optimum solution is almost always a combination of business process outsourcing and internal management, but the balance of the two varies from firm to firm.

> A combination of business process outsourcing and internal management of collateral is likely to be the optimum model.

Technology Solutions

For those processes not outsourced to third parties, there are various technology solutions available in the market covering the business functions of inventory, data management, controls and reporting, margin and collateral management.

The diagram below shows the business functions that systems need to support and a baseline functional model for a collateral management and optimisation technology solution.



Many of these activities require some form of internal control and the increase in margining complexity also makes automation around these processes essential. Manual processing inevitably leads to human error and operational risk. Automation, on the other hand, allows the collateral management team to cope with the increase in collateral movements.

It enables a clear view of where collateral assets are located, which are CCP eligible and unencumbered, and ensures the firm is complying with its fund mandates. Moreover, automation frees up time to focus on decision making around optimal collateral usage, and managing risk.

Software as a Service (SaaS) Solutions

Software as a Service (SaaS) solutions use a delivery model that hosts the software application and the associated data, typically in data centres located externally to the end user. Use of SaaS delivery models is increasing rapidly as these services become more mature and vendors successfully address concerns around security and availability.

Why use a SaaS for Collateral Management

For many buyside firms struggling with outdated spreadsheets or legacy solutions to manage increasingly complex collateral processes, a SaaS solution offers huge benefits for a low cost.

A hosted solution also allows the firm to focus on its core competency of investment management rather than IT, as well as avoiding a lengthy in-house implementation project.

In addition, a strong technology solution can avoid the need to increase headcount to manage collateral, since many time-consuming manual processes are automated.

A hosted solution allows the firm to focus on its core competency of Investment management rather than IT.

Key Benefits of SaaS Solutions

Key benefits of hosted software deployments include:

- Avoiding the hardware costs of using an installed solution
- The firm can maintain a small, light touch IT footprint
- Quick and easy deployment, with no lengthy implementation
- User licences are based on a monthly subscription fee, rather than an upfront cost and a perpetual licence
- Low total cost of ownership
- Richer functionality than spreadsheets and greater automation to cope with the new, more operationally intensive margining process
- Strong data security standards
- The vendor manages change and regularly adds new features – upgrades are simple to roll out compared with installed solutions
- Such systems have very low downtime and can automatically failover to backup servers in the event of problems
- Clear service level agreement standards and support

Conclusion

The deadlines for many of the new rules have been pushed back, allowing more time for compliance. However, it is vital that the buyside firms rapidly advance their preparations for the new environment.

Where you begin depends on your current level of sophistication, the likely impact of new regulations on your individual business model and what the key drivers are for managing collateral within your firm.

It is also important to consider where you sit on the curve of 'cost avoidance' versus 'risk reduction', since ultimately you need to be comfortable and confident operating in the new collateral landscape.

As ever, in solving the collateral conundrum, there is no substitute for mobilising as soon as possible. For those who have yet to decide on a comprehensive collateral management strategy the risks are becoming even greater for operating with a substandard, non-optimal system; incurring high costs associated with non-compliance and inefficient tactical solutions.

Effective collateral management represents a way to comply with new rules, reduce costs, and maintain returns for investors while managing risk in line with boardroom expectations.

By enacting change now, firms will still be able to avoid onboarding bottlenecks, hit compliance dates with minimal disruption to business and remain competitive in the new, more demanding operating environment.

References & Further Reading

Webinar on Demand: Buyside Collateral Management - Challenges and Opportunities:
http://www.4sight.com/products/4sight-collateral-management/collateral-optimization/register-for-the-buy-side-collateral-challenges-and-opportunities-webinar

Whitepaper: Collateral Optimisation in a Centrally Cleared World:
http://www.4sight.com/products/4sight-collateral-management/collateral-optimization/collateral-optimisation-whitepaper-download

Whitepaper: Collateral Optimisation: The Devil's in the Detail
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Whitepaper: Collateral Management - the Changing Times -Tackling the exchange trading, mandatory clearing and trade reporting challenges:
http://www.rulefinancial.com/opinions/points-of-view/the-changing-times.aspx

Case Studies: Enterprise Collateral Management and Optimisation Projects - Buy and Sellside:
http://www.4sight.com/resources/case-studies

Whitepaper: Future Trends in Optimisation: Collateral, Regulatory Capital and CCP Selection
http://www.4sight.com/products/4sight-collateral-management/collateral-optimization/future-trends-in-optimisation-whitepaper

DTCC Whitepaper: Trends, Risks and Opportunities in Collateral Management
http://www.dtcc.com/~/media/Files/Downloads/WhitePapers/CollateralMGMT_WhitePaper.ashx

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In his 9 years at 4sight, he has specialised in securities lending, repo and OTC/listed derivatives collateral management.

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About 4sight Financial Software

4sight Financial Software is an independent software solutions provider with eighteen years of experience and offices and clients worldwide. 4sight's customer base includes a full spectrum of buyside and sellside market participants, from smaller banks, asset managers, buy side firms and custodians through to global broker dealers.

Clients in sixteen countries on four continents use 4sight's software to meet their business needs and 4sight offers the reliability and experience of a company with a proven track-record.

The 4sight Xpose Collateral Management system provides an enterprise-wide, cross-product collateral management and optimization solution for securities lending, repo, OTC/exchange-traded derivatives and CCP collateral. 4sight's product range also includes solutions for settlement and market connectivity.

In addition to software development, 4sight provides project management, consultancy services and customer support through its global network of offices.

For further details, please visit: www.4sight.com

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Our specialists work alongside their counterparts at leading investment banks, central counterparties, exchanges, asset managers and other financial institutions, helping to lower costs, improve productivity and extract the maximum business value from IT investments.

Headquartered in London, we provide strategic consultancy from our offices located at the heart of the European and North American financial markets, and deliver technical design, implementation and support services from nearshore facilities in Poland, Spain and Costa Rica.

To read more about Rule Financial and our experience in collateral management, visit our website: http://www.rulefinancial.com/

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