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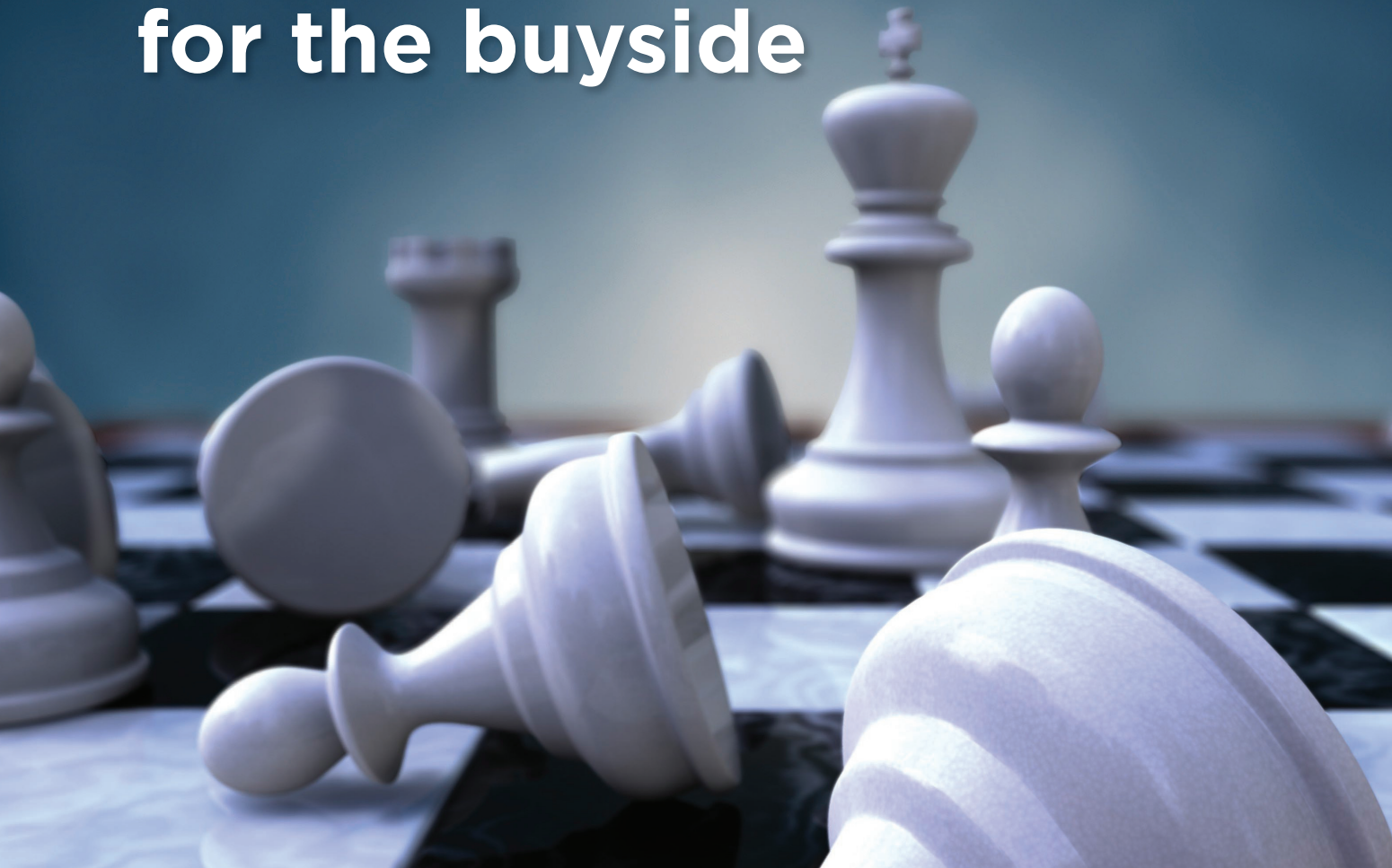
G R O U P

FWO



Collateral in 2017

Challenges and solutions for the buy-side



In association with



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Executive summary

The new paradigm

The driving forces behind the new collateral paradigm are well known in the industry but their impact is less well understood.

The confluence of post-crisis reforms to push more over-the-counter (OTC) contracts into central clearing, increase margin requirements on uncleared trades and shore-up the balance sheet of banks has significantly heightened requirements for collateral while restricting the ability of banks to intermediate in, and provide liquidity to, the market.

Since 2009, the industry has feared a “collateral squeeze” caused by a shortage of collateral to meet post crisis reforms of the financial system. These fears have been exacerbated by quantitative easing programmes by Central Banks, which have hoovered up high-quality liquid assets from the market over the past six years.

But what has emerged is less a shortage of collateral, more a clear need for better management of collateral. The view today is that there is enough collateral in the system but the optimisation, allocation and transmission of that collateral is lacking.

Inefficiencies in the system have been exposed by recent events, in particular in the repo market. As more firms and asset classes come into scope and are required to post margin at CCPs and against bilateral trades, these inefficiencies will be further exposed unless decisive actions are taken now by firms across the market.

Global Investor has conducted a detailed study of the asset management, pension fund and bank communities to understand how different firms across the market are being impacted by the new collateral paradigm and what solutions are available and being adopted to ease the pressures.

This study is based on a series of indepth interviews and an extensive survey of sellside and buy-side firms. The findings of the survey are interspersed throughout this paper, supported by commentary from experts in the market.


Part I explores the factors that have led to the current collateral environment and their impact on the buy-side. Particular focus is paid to how the overlap of multiple strands of reforms has increased the pressure on collateral and, in some instances, negated intended regulatory exemptions.

Part II examines indepth what best practice in collateral efficiency constitutes today and outlines the steps that firms can take to reduce the overall burden, before looking at some of the wider solutions that could result in a better functioning market. ■

Part 1: Here we stand: the drivers and impact of the current collateral paradigm

Introduction

The canary in the mine? Repo markets at the end of 2016



The dislocation of the repo market in Europe at year-end 2016 marked the culmination of months of rising concern about the availability of collateral in the wake of post-crisis regulatory reform and quantitative easing programmes by Central Banks.

In the final trading days of 2016, repo rates for high-quality liquid assets spiked downwards resulting in high quality European government bonds trading as low as -15% with tom-next GC trading as low as -9% on the final day of trading for 2016 settlement.

In its report into the repo market dislocation, the International Capital Market Association found as a root cause a disconnect between banks' ability to commit balance sheet to clients seeking access to the repo market and the unpredictable requirements of many buy-side firms as year-end approached.

It had long been known that Basel III-inspired requirements on banks to reduce trading activity and liquidity provision had dramatically reduced the amount of funding they could commit to providing liquidity.

But the gyrations in the repo market at year-end 2016 provided the most extreme and visible example of the impact of this lower liquidity. It indicated not necessarily a shortage of collateral but an inability to effectively transmit collateral and the potential for an evaporation of liquidity in a once deep market.

The experience of December 2016 is important because it was the first widespread signal of stress in the market for collateral resulting from the retraction of liquidity traditionally provided by banks. It serves as a warning of the troubles to come if the industry continues on the current path without investing more in the management of collateral. ■

WHEN REGULATIONS COLLIDE

Two key strands of post-crisis regulatory reform have increased collateral demand for the buy-side while reducing the ability of banks to intermediate and supply liquidity to the market.

On the demand side, the Clearing Obligation, rules designed to force certain OTC instruments into central clearing (see Box 1), and the Uncleared Margin Rules will ultimately raise collateral demand in Europe by hundreds of billions of Euros according to European Central Bank estimates.

On the supply side, measures put in place following the Basel III Accord, most notably the Liquidity Cover Ratio (LCR), the Net Stable Funding Ratio (NSFR) and the Leverage Ratio have increased the cost to banks servicing the market by placing restrictions on balance sheet usage predominantly through capital requirements (see box 2).

BOX 2: BANKS' REGULATORY BRAKES

The three major regulatory changes impacting banks' ability to provide liquidity and service to the market are the Liquidity Cover Ratio (LCR), the Net Stable Funding Ratio (NSFR) and the Leverage Ratio.

- The LCR requires banks to hold sufficient high-quality liquid assets (HQLA) to cover projected net cash outflows. It started being phased in at the start of 2015 and reaches full application by 2018. The LCR consequently makes short-term funding less attractive to banks and holding HQLA more attractive. The requirement to meet this ratio is likely to be a contributory factor in market volatility around reporting dates.
- The NSFR is designed to reduce bank reliance on short-term wholesale funding relative to more stable sources of funding. It penalises short-term funding, including repos of shorter maturity than one year, particularly those under six months. The NSFR also penalises matched book transactions, since the negative impact of the reverse repo leg more than offsets the positive impact of the repo leg. Overall, the impact from the NSFR on short-term repo is reckoned to be lower supply, reducing volumes and increasing the price.
- The leverage ratio is a deliberately simplified way to assess banks' riskiness. Traditional bank capital ratios are calculated as capital over risk-weighted assets. The leverage ratio is calculated approximately as capital over total assets, with no attempt to employ risk weights.

Source: ECB

BOX 1: THE CLEARING OBLIGATION

The European Market Infrastructure Regulation (Emir) mandates clearing for the following types of derivatives:

Interest Rate Derivatives denominated in the G4 Currencies

These include certain classes of OTC interest rate derivatives contracts denominated in the G4 currencies (EUR, GBP, USD and JPY) and include the following types of contract:

- fixed to-float interest rate swaps (IRS)
- basis swaps
- forward rate agreements
- overnight index swaps

Credit default derivative contracts

- untranchet iTraxx Index credit default swaps (Europe Main, 5-year tenor, series 17 onwards, with EUR as the settlement currency)
- untranchet iTraxx Index credit default swaps (Europe Crossover, 5-year tenor, series 17 onwards, with EUR as the settlement currency)

Interest Rate Derivatives denominated in the non-G4 Currencies

These include certain classes of OTC interest rate derivatives contracts denominated in some non-G4 currencies (SEK, PLN and NOK). These include the following types of contract:

- Fixed to-float interest rate swaps (IRS)
- Forward Rate Agreements

Firm categorisation

Firms and their derivatives counterparties may fall within any of the 4 Emir clearing categories as listed below.

Category 1: Firms that are already clearing members of a CCP. A list of clearing members is publicly available on the relevant CCP websites.

Category 2: Non Category 1 firms whose group's aggregate month-end average of outstanding notional amount of OTC derivatives is above €8bn (assessed over Jan/Feb/Mar of each year).

Category 3: Non Category 1 or Category 2 firms whose group's aggregate month-end average of outstanding notional amount of OTC derivatives is below €8bn (assessed over Jan/Feb/Mar of each year).

Category 4: Non-financial counterparties.

ARE YOU CURRENTLY OR PLANNING ON CLEARING ANY OTC INSTRUMENTS AHEAD OF THE EXPIRY OF THE PENSION FUND EXEMPTION?



- No but we are ready to clear when the exemption expires
- No we haven't set up to clear yet
- Yes some instruments
- Yes, all instruments (0%)

The main challenge for the banks in providing collateral services is the interaction between the LCR and the leverage ratio with the former requiring banks to hold high quality assets on their balance sheets and the latter imposing capital costs for doing so.

Implementation of the Clearing Obligation for standardised OTC derivatives has been staggered across instruments and company types.

Category 1 and 2 firms, entities with aggregate month-end averages of outstanding OTC derivatives above €8bn, began clearing G4 IRS last year and CDS in February and August this year respectively.

The mandate for Category 3 firms was also set to be introduced this year but was delayed to June 2019 for all G4 and EEA IRS and European index CDS to give firms more time to prepare.

The clearing exemption granted to pension funds has also been extended to 2020 and could be further extended.

However, the collision of the Clearing Obligation with the Uncleared Margin Rules, and the pressure on banks' balance sheets from providing OTC services, means Category 3 firms and pension funds are moving into central clearing regardless of their obligation.

A third of pension funds surveyed reported that they were already clearing some OTC instruments with IRS and CDS the most commonly cited.

J.P. MORGAN'S VIEW

ADJUSTING TO TIGHTER TIMEFRAMES

Increased STP is now an imperative for the buy side. With the need to agree and settle margin same day, the operating window is significantly compressed while the volume of margin calls have increased dramatically.

We have invested heavily in our platforms and processes to support our clients through the entire process--from margin call calculation to agreement, and from selection of collateral to instruction, settlement, cash sweeps and reporting. We work closely with clients and counterparties to increase adoption of best practices, such as the use of Acadiasoft, to further increase STP and ensure the timely settlement of margin.

Firms with current exemptions are making choices to clear as a result of favourable terms being offered by the sellside to clear rather than trade bilaterally and the requirements to post variation margin in cash under the Uncleared Margin Rules.

Collateral pressures are also stemming from the use of securities across other areas of a firm's operations. Financing, securities lending and other services also require effective management of collateral and the buy-side today is increasingly looking at collateral across all regulatory requirements and all operations to ensure the best use of assets.

CASH IS KING: ACCEPTABLE VS ACCEPTED COLLATERAL

The biggest change for the buy-side emanating from the Clearing Obligation and the Uncleared Margin Rules is a significantly increased (and for some entirely new) requirement to post collateral against daily margin calls from both CCPs and bilateral counterparties.

Historically, most buy-side firms had to post margin against OTC trades with their counterparties but there were significant differences in the timings of the calls and the sellside was flexible in terms of what it accepted as collateral and often also flexible in the timing and legal enforcement of settlement.

In addition, many asset managers and pension funds operated limited futures portfolios resulting in limited involvement with daily variation margin at CCPs.

As firms are forced to clear certain OTC instruments and post margin against daily calls from their bilateral counterparties, they are faced with significant operational burdens as well as an increased requirement to hold cash.

While CCPs generally accept a variety of high quality collateral - such as government bonds, certain equities and gold - as initial margin, they only accept variation margin in cash.

Intending to provide some relief to buy-side firms having to post margin under the Uncleared Margin Rules, BCBS/IOSCO, which was tasked by the G20 to draw up recommendations for the rules, suggested regional regulators allow a wide range of acceptable collateral to be posted as variation margin against uncleared bilateral trades.

The list included high-quality corporate and covered bonds, equities included in major indices and gold. The BCBS/IOSCO recommendations went further stating that the list should not be viewed as being exhaustive.

This approach was mirrored in the Regulatory Technical Standards authored by the Joint Committee of the European Supervisory Authorities, which included in its rules the full list of acceptable collateral specified by BCBS/IOSO.

However, acceptable collateral is not necessarily the same as accepted collateral and the buy-side has found banks much less willing to accept non-cash collateral as variation margin against bilateral positions.

Because of the treatment of non-cash assets held on the balance sheet without title transfer under the LCR and the NSFR, banks face significantly higher costs if they accept anything other than cash as variation margin.

As a result, no respondents to the study reported their sell-side providers were broadening the types of collateral they were prepared to accept.

Indeed, many banks were reported to have used the introduction of the Uncleared Margin Rules and the subsequent need to renegotiate Credit Support Annexes to stipulate in the new agreements that cash was the only acceptable form of collateral as variation margin against bilateral trades.

A handful of larger asset managers reported that they were able to push back against cash-only CSAs but there remains a strong move towards cash-only variation margin payments.

Pension schemes were specifically granted an exemption from certain Basel III-related requirements for banks to hold capital against the risk of client default.

This should have enabled them to continue to access non-cleared markets while posting government bonds as margin, providing relief from the cash VM requirements.

However, in the study, European pension funds reported two behavioral changes by banks. Firstly, there has been a gradual shift by banks towards cleared trades over non-cleared trades.

Secondly, banks have become less willing to accept high-quality government bonds as margin on non-cleared derivatives.

This has led to reports of a dramatic reduction in the number of banks willing to provide liquidity to pension funds and asset managers where those funds have a requirement or preference to post high-quality government bonds as margin, undermining the exemptions provided to pension and smaller buy-side firms by policymakers and forcing them to hold back cash against possible margin calls or explore other options to source cash.

INCREASED FREQUENCY AND RIGIDITY

The buy-side has also had to adapt to the increased frequency and settlement rigidity of margin calls under the new regime.

Numerous respondents to this study reported that the major operational challenges stemmed not just from the amount of collateral they were required to post but the volume, frequency and settlement timings of the margin calls.

Estimates of the increase in margin calls across the market range from a five to a 20 times increase for a typical buy-side entity, which places a significant operational burden on firms.

In the new world, margin calls often need to be settled on the same business day they are agreed. This means that calls must be issued, agreed and collateral to be posted selected by around 14:00 each day.

The other major operational impact stems from the requirement to post variation margin in cash.

Previously, buy-side firms were able to provide the cash desk with an exact end-of-day cash figure of what was required the next day enabling them to hold back that amount to settle margin calls and minimise idle cash.

CITI'S VIEW

By Jane Karczewski,
MD, Strategic Risk
Solutions, Citi

WHEN REGULATIONS COLLIDE

Market Liquidity across all asset classes is reliant upon a consistent interpretation of conflicting regulation impacting all types of asset owners. Addressing individual products and regulatory developments in silos will have impact on investment returns due to increased costs and misuse of assets. At Citi, we offer strategic solutions to our clients across product and asset classes: The Citi Strategic Risk Solutions team addresses specific problems that our clients are facing by reviewing all asset allocations and offering a tailor made approach. Collateral optimization and liquidity management are the key topics currently at the top of clients' agenda as these issue have impact across the whole value chain.

“ In the past we would be fully invested in assets but now a pension fund needs to figure out how much cash to put aside as we don’t think we have sufficient repo access in times of market stress. ”

- Pension fund manager

In the world of cash-settled, daily variation margin, firms are required to be a lot smarter about how they manage cash, running detailed analytics that predict potential cash requirements throughout the day and often being required to hold more cash back to cover any unexpected margin calls.

THE OPERATIONAL CHALLENGES FOR THE BUY-SIDE

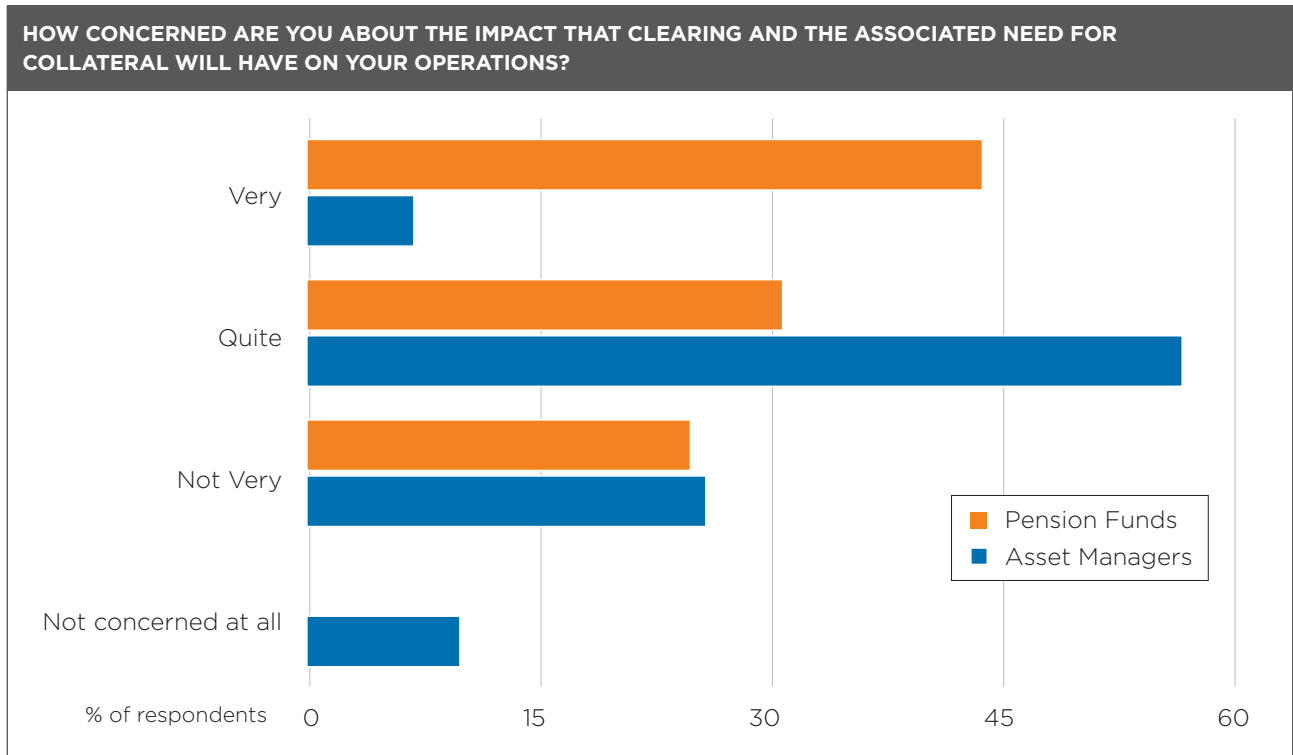
The heaviest burden stemming from the cash requirements under the new rules falls on the shoulders of pension funds, long-only asset managers and equity funds that have historically tended not to hold large cash reserves or in some instances are mandated to be fully invested.

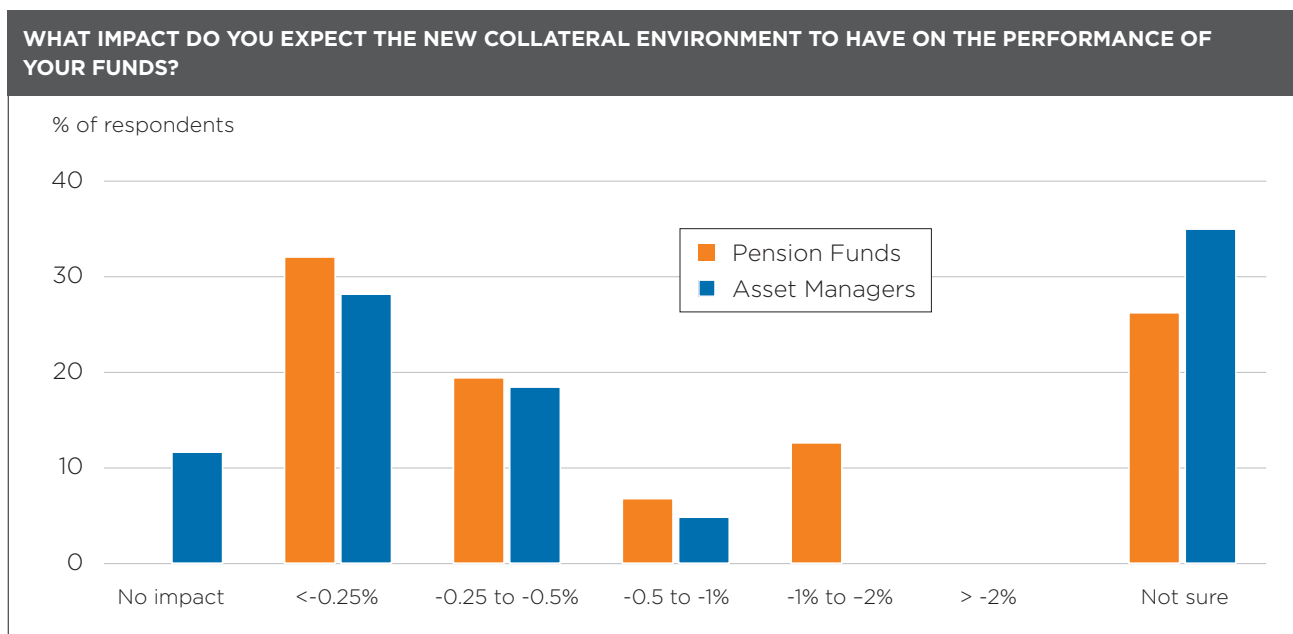
However, the operational burden is felt across the buy-side. All firms have had to renegotiate CSAs with their banks to cover the Uncleared Margin Rules and to put in place processes to enable the calculation and collateral eligibility for variation margin against uncleared trades.

Previously clients tended to have one CSA per counterparty, which was used to trade a range of instruments and covered high-quality assets as collateral.

In the new world, clients often have a minimum of three active agreements to trade derivatives: the clearing addendum, cash-only CSAs, and CSAs covering high-quality liquid assets and cash. This is excluding the repo GMRA, the cash variation margin requirement and the CDEAs required to trade OTC derivatives.

All this adds up to what one fund manager described as “an enormous additional operational requirement just to be where we were before”.





OPPORTUNITY COSTS AND INCREASED LIQUIDITY RISKS

The additional cash requirements will inevitably result in a drag on performance as cash returns less than invested assets. When a fund needs to sell assets or is forced to hold additional cash, there is an opportunity cost from not being fully invested and a risk of slippage as it buys back into the position.

If a pension fund has an average return of 5% a year and it is required to hold an additional billion euros in cash because of the need to post cash variation margin, it faces a major drag on performance.

The survey revealed that pension funds expected the largest performance drag from the need to post more collateral.

Funds reported they were having, or planning, to hold an additional 3% to 6% of AUM in cash. For a fund with €100m in AUM, holding an additional 6% of cash would result in a reduction of returns of around representing a 0.28% drag on overall performance from the cash requirement alone.

If a fund is fully invested in equities, it may be forced to sell off some assets to generate cash to post as variation margin before buying back in to the position. That firm will need to consider the drag of holding that cash and the cost of buying back in to the position against the cost and operational risk of transformation services or using the repo market.

It may be that fund will be able to negotiate a CSA with a bank to accept high quality equities as collateral but the bank would invariably charge a fee to do that and the calculations of what an appropriate fee might be are highly complex and uncertain.

In the old world, a bank could apply a haircut against the collateral to reflect the cost of liquidating it in the event of counterparty default but owing to the balance sheet implications of accepting more in collateral as a result of the haircut, doing so would potentially increase the cost to the bank.

“ The biggest worry we have is that in an extreme situation at quarter or year end, we will not be able to fulfil our obligations. That terrifies us. ”

- Pension fund manager

J.P. MORGAN'S VIEW

IMPORTANCE OF EARLY ACTION/ ADOPTION

The volume of recent market and regulatory-driven changes, including the introduction of initial and variation margin, reinforces the benefits of early engagement.

We recommend institutions proactively reach out to their service providers and other impacted parties to prepare well in advance of new requirements taking effect.

Soon after Variation Margin changes took effect in March 2017, preparations for the margining for FX forwards in January 2018 quickly took center stage.

Based on our experience in effectively implementing market changes, we are discussing comprehensive outsourcing solutions with buy side firms that are not margining FX Forwards today.

So the bank might look to charge a custody or administration fee to accept or transform that collateral. Any fund in such negotiations will need to have calculated the total cost it might face liquidating the assets to post cash collateral vs the opportunity cost of holding back more cash vs what the bank is asking it to pay in a fee to accept non-cash assets as collateral in order to make an informed decision on what action to take.

Some funds might need to review their mandates in order to hold more cash back to meet margin calls, an additional operation burden that will need to be factored in to the calculations.

FX FORWARDS INCLUSION AND INITIAL MARGIN REQUIREMENTS

In January 2018, variation margin will be applied to physically settled FX forwards bringing in more instruments and market participants to the new regime.

For some firms it will be the first time they have engaged in clearing and margining. Certain equity funds in particular, which use FX forwards to hedge their exposures and are fully invested, will be most impacted.

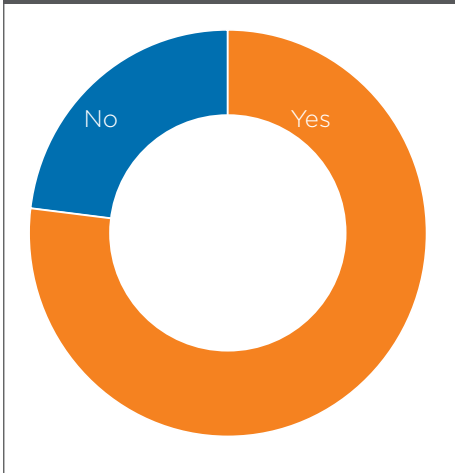
Even among those firms already engaged in posting collateral against bilateral positions and cleared OTC, many will need to invest in their operations to accommodate FX forwards. Almost a quarter of asset managers surveyed reported the need for an overhaul of collateral operations to meet these requirements.

Some in the market are also looking ahead to the phase-in of initial margin requirements under the Uncleared Margin Rules which come in for most of the buy-side in 2019 and 2020.

Most expect banks to accept wider pools of collateral as initial margin mirroring the regime at CCPs. This may even lead to more flexible acceptance of collateral for VM.

However, it will ultimately increase further collateral demand and as such the need for effective collateral management and collateral transmission across the industry. ■

ARE ASSET MANAGERS' EXISTING OPERATIONS CAPABLE OF SCALING UP TO MEET AN INTRODUCTION OF MARGINING FOR FX FORWARDS?



UNCLEARED MARGIN RULES: IMPLEMENTATION TIMELINE

- Jan 2017** – RTS came into force

- February 2017** – IM and VM obligations for entities with over e3tr of uncleared OTC derivatives

- March 2017** – VM obligations introduced

- September 2017** – IM obligations for entities with over e2.5tr of uncleared OTC derivatives

- January 3 2018** – VM requirements applied to physically settled FX forwards

- September 3 2018** – IM obligations for entities with over e1.5tr of uncleared OTC derivatives

- September 2 2019** – IM obligations for entities with over e0.75tr of uncleared OTC derivatives

- January 1 2020** – VM and IM requirements applied to OTC single stock equity and index options

- September 1 2020** – IM obligations for entities with over e8bn of uncleared OTC derivatives

From the coalface

Douwe Schering, Collateral and Securities Lending Manager, MN

What excites you most about the future of pension funds and collateral management?

It is an exciting time to be in asset and fund management, we have a lot of changes happening in both regulation and expectations around performance. For pension funds in particular we see trends while also figuring out new ways to offer the best services

to our clients dependent on fund sizes. Since pension funds are a key component to large scale financial developments, it's extremely important how these are managed.

In general I am excited to see how pension funds can adapt to the ever-changing expectations and evolution of asset management.

What advice do you have for smaller pension funds?

Not all pension funds are created equal. Which is why how larger funds and smaller funds are managed requires specific skill sets, and understanding of the pension fund market as a whole. For smaller funds it's important to leverage being agile and maximising opportunities that wouldn't be available to the larger funds. In general, without proper specialists on board, I have seen smaller pension funds experiencing issues with having access to the OTC derivatives market. These funds don't have the access to trade cleared and non-cleared interest rates swaps, manage the liquidity challenges and often don't have reasonable terms in the legal documentation.

What gets you most excited about the future of collateral management?

Collateral management is an art more than a science. We are seeing changes both in how collateral is being applied and measured so the future of collateral management is poised to evolve and I am excited to see how traditional assets can be used in more non-traditional ways. Historically we bought government bonds, equities or emerging markets. Now we have to think about how we will use those assets for collateral for managing the derivatives portfolio, that is an essential part of the equation now. It is one of the biggest challenges but the most interesting part of my job today. ■



“ In general I am excited to see how pension funds can adapt to the ever-changing expectations and evolution of asset management. ”

Preparing for collateral - Key action points for Buy-Side participants

Collateral management is rapidly becoming a required core competency for many buy side firms due to the ongoing demands of central clearing of derivatives trade activity and the BCBS IOSCO un-cleared margin reform.



Author Bio

Martin Seagroatt is Marketing Director, Securities Finance and Collateral management at Broadridge Financial Solutions, Inc. Previously he was marketing director at 4sight Financial Software. In June 2016 4sight was acquired by Broadridge and the 4sight Securities Finance and Collateral Management System rebranded as the Broadridge Securities Financing and Collateral Management Solution.

In his 11 years at 4sight, he specialized in securities lending, repo and OTC/listed derivatives collateral management solutions. Prior to that Martin worked as a business expert in technology systems for risk management in the energy industry.

Regulatory timelines remain on the distant horizon for many buy side firms. However, their impact is seismic in terms of the changes to systems, people and processes required to operate in the new environment. The complexity of the rules and the number of moving parts means that firms on the buy side need to begin preparations now.

It is important for the buy side to clearly understand the timelines they are facing. With these deadlines in mind, firms can identify the interplay between activities such as those listed below and identify potential bottlenecks and dependencies:

- Operating model definition
- Repapering ISDA Credit Support Annex (CSA) documentation
- Setting up of segregated custodial accounts
- Establishing collateral upgrade counterparties
- Selection and implementation of new technology solutions to support the changes
- Resourcing of staff to ensure compliance.

Collateral and the increased demand for it will become a key cost component for the buy side as regulations unfold. This includes the sourcing of greater quantities of high quality collateral and cash as well as, the operational costs caused by the increase in margin calls and the need to move collateral more quickly.

To remain competitive and not only achieve/exceed benchmarks around alpha generation, buy side firms need to evaluate ways to reduce these costs wherever possible. In so doing, there is also an opportunity to treat collateral management as a way to generate incremental revenue in some circumstances.

For some, outsourcing the collateral function can potentially reduce the operational headaches. However, this option can be costly and results in a loss of control for the buy side firm.

For these reasons, some on the buy side are creating internal collateral functions, underpinned by technology. This enables them to take greater control of their collateral management processes and achieve competitive advantage.

This article will look at some of the trends, challenges and opportunities around collateral and will focus mainly on the technology implications for the buy side in the new collateral paradigm.

OPTIONS FOR SOURCING LIQUIDITY

One of the newly emerging challenges facing the buy side involves the sourcing of liquidity. The evolving regulatory regimes will require increasing quantities of cash to satisfy requirements for variation margin in particular. In addition, many CSAs have also been re-papered to specify cash collateral only. However, holding such large cash surpluses creates a major drag on returns for many on the buy side and is often viewed as a sub-optimal business strategy.

There are a few options for buy side firms in this scenario:

1. Use internal portfolio holdings wherever possible to meet Initial Margin (IM) calls and where possible for Variation Margin (VM)
2. Engage in collateral upgrade trades through traditional

channels in the securities lending & repo markets

3. Use emerging Peer to Peer/All to All networks for collateral upgrades
4. Liquidate portfolio holdings to raise cash

There is no singular magic bullet to solve this emerging problem, so some combination of the above will be required. Most of these options will also involve some form of technology support or enhancement unless the firm will continue to outsource its collateral management processes.

The below diagram (Figure 1) reflects some of these new requirements in the collateral decision making process.

1. Use internal portfolio holdings wherever possible to meet IM calls and where possible for VM.

For option 1, implementing a vendor solution for global inventory management and optimisation can offer significant benefits and become a core alpha driver for the buy side. Firms therefore will require a clear, holistic view of

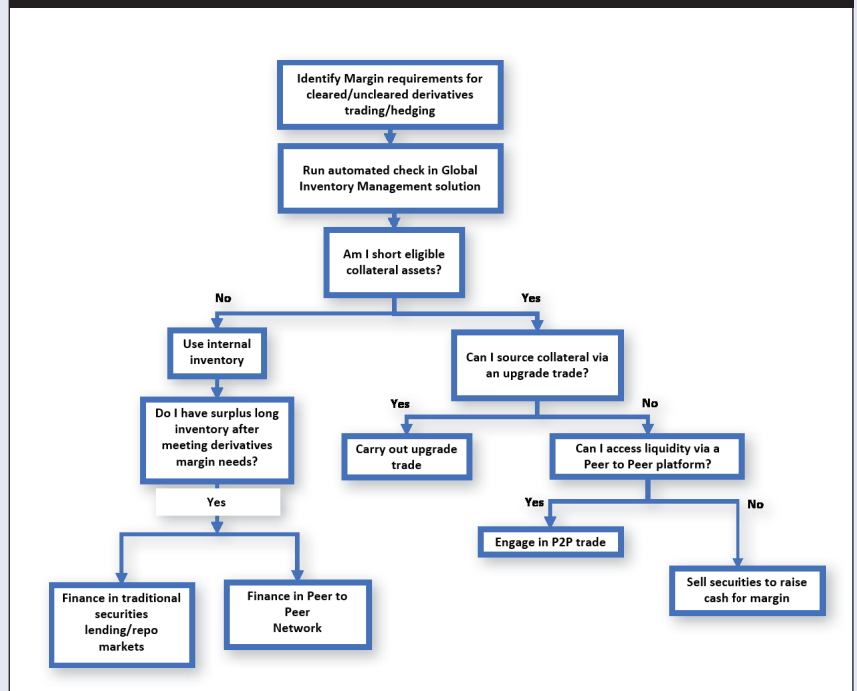
inventory across funds or defined legal entities in order to source collateral for initial and variation margin more efficiently.

Investing in a new solution for matching global inventory with exposures in a single platform has the ability to offer any size firm a positive ROI. The extent of this will depend on the size of its derivatives portfolio and the degree of trading in the securities finance markets.

A key component of collateral optimisation is the ability to forecast collateral requirements to gain a more forward looking view. With shorter cycles for sourcing and posting collateral, a strong technology solution for margin and inventory management can help collateral managers to gain a clearer picture of future liquidity requirements.

From there, an automated solution for selecting cheapest to deliver collateral can offer both time savings and cost efficiency by rapidly sourcing low cost collateral from internal holdings, at the touch of a button.

Figure 1. Some of these new requirements in the collateral decision making process



2. Engage in collateral upgrade trades through traditional channels in the securities lending & repo markets

In figure 2 (below), the clearing broker/FCM takes in non CCP eligible collateral assets from the buy-side firm. It then upgrades them for CCP eligible securities in the securities finance markets and charges an upgrade fee back to the buy-side client.

Alternatively, the buy-side firm may trade directly with other counterparts/intermediaries in the securities finance markets.

In some cases, the buy-side are utilising existing or newly created internal collateral funding functions, integrated with securities lending or repo desks, to bring in asset flow that will help to meet CCP or bilateral margin calls.

An integrated technology solution for managing securities lending, repo and derivatives collateral in a single system can provide major benefits when creating a collateral transformation capability.

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. However, this can

expose the derivatives end user to rollover risk. For many on the buy side, the use of a collateral transformation service may also be prohibitively expensive.

Collateral transformation may also be unavailable for many on the buy side. Sell side firms continue to face balance sheet constraints in the new regulatory environment. As upgrade trades consume balance sheet, transformation services may only be offered to larger buy side participants.

This has led to the emergence of several new platforms that support option 3.

3. Use Peer to Peer/All to All networks for collateral upgrades

The peer to peer model circumvents the balance sheet constraints of the sell side that prevent wider availability of collateral upgrade trades. This model sees for example, a pension fund trading directly with another pension fund (or potentially a hedge fund) via a peer to peer platform.

The buy side in general has expressed interest in on-boarding with peer to peer networks as an added route to sourcing liquidity in conjunction with the traditional financing markets. Technology solutions will begin to offer connectivity with these platforms in line with client demand as the trend gathers pace.

There are continuing questions about whether buy side firms are geared up to monitor counterparty credit risk effectively when engaging in P2P transactions. Maturity transformation and indemnification are also areas where banks and other intermediaries provide services that P2P platforms perhaps cannot match.

It is worth noting that a number of new products are coming onto market employing artificial intelligence that may solve the credit risk problem. However, it is still early days and conservative buy side firms and regulators may balk at using an opaque black box style solution for something as critical as assessing counterparty risk.

Note also that peer to peer networks may become a cheaper route to market than traditional securities finance channels. Pre trade optimisation decisions around where to execute based on a full view of costs and underpinned by technology may therefore become prevalent.

4. Liquidate portfolio holdings to raise cash

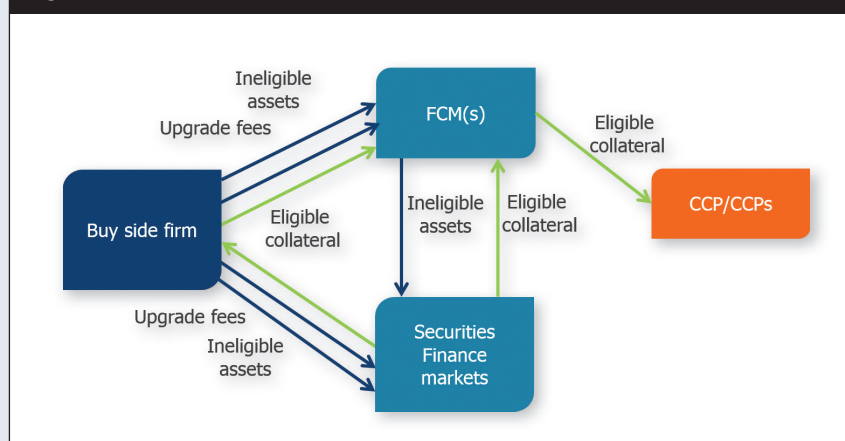
This is the least attractive option and most buy side firms will only do this once all other possibilities are exhausted. It therefore makes sense to make plans to set up viable technology solutions and liquidity sources described in options 1-3 above to avoid this scenario wherever possible.

MAXIMISING SURPLUS INVENTORY

The final step of the decision tree can occur when the firm has met its derivatives margin needs at the lowest cost. Using an integrated global inventory and collateral management solution, the collateral manager can then identify long assets to finance in the securities lending and repo markets for additional revenue.

Technology solutions that can aid in identifying securities

Figure 2. Mechanics of a collateral transformation trade



trading special in the financing markets, Basel III eligible assets, or CCP eligible assets that the firm can utilize and finance can provide a solid ROI.

For this reason, it is important that technology systems provide off the shelf data feeds from multiple CCPs, Bloomberg liquidity class data and securities finance benchmarking solutions.

This model, shown in figure 3 above, sees automated data feeds coming into the global inventory and exposure manager. From there, the system filters down inventory and pushes out long assets to the market in an automated way. This could potentially be transacted via a collateral exchange to match long assets with market participants who need them.

The ability to correctly identify and price collateral assets that may be trading at a premium in the market (e.g. specials, HQLA) can offer revenue enhancement opportunities and a way to boost returns for more forward thinking buy side firms.

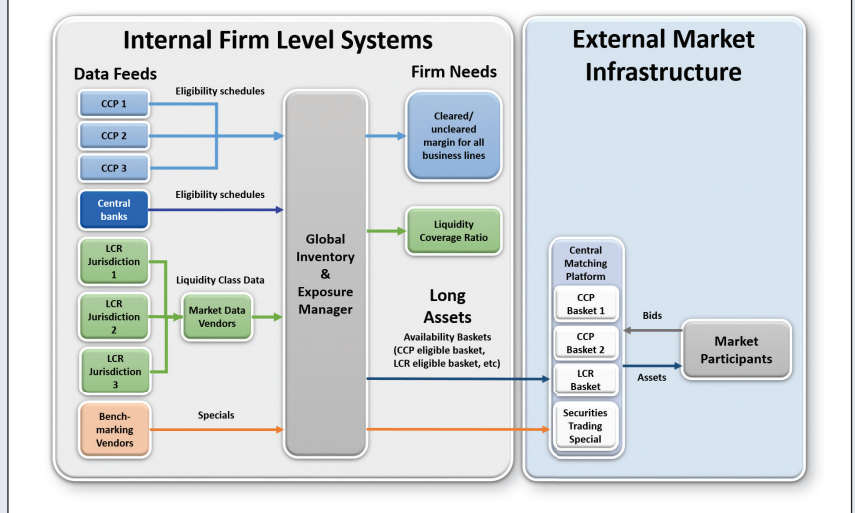
OTHER WAYS TO CONTROL COSTS - OPERATIONAL EFFICIENCY

For the past few years there has been much discussion about collateral optimisation solutions, employing advanced algorithms to allocate collateral at low cost. However, the buy side can achieve many of the major cost savings around collateral management simply through targeting operational efficiency as collateral processes become more complex.

As the number of margin calls increase, the number of collateral movements also rises. Combined with shorter settlement cycles for collateral driven by regulation, this also results in an increase in reconciliations, settlement failures and other collateral lifecycle events.

The implications of this are costly increases in headcount, at

Figure 3. Matching collateral supply with demand



a time when these resources will become more expensive due to higher demand.

To offset these headcount increases, technology solutions that offer automation of manual processes provides huge advantages. Connectivity is also a key element in all of this. Collateral systems providing off the shelf interfaces with margin messaging tools, reconciliation services and market infrastructure can significantly increase straight through processing and mobilise collateral more efficiently, ultimately reducing costs.

LET'S NOT FORGET RISK MITIGATION

First and foremost, collateral is of course a means of managing risk. While cost reduction is an important objective, it should not be pursued at the expense of having a robust risk mitigation framework in place.

The ability to digitize legal agreements and employ a collateral solution that offers sophisticated eligibility and concentration rulesets offers major benefits.

It is also worth noting that the costs and operational risks of using a lightweight or an out of date technology solution significantly outweigh the costs of purchasing

a new state of the art collateral management system.

When adding the costs of inefficient collateral use, combined with liquidity risk, operational inefficiency, settlement failure costs and a plethora of other risk factors included in the diagram below, the breakeven point of an investment in a new solution can stand at around 2 years.

Readers should also note that in the event of another large scale default, an investment in a new collateral solution to manage risk more effectively and automate much of the manual processing around collateral will be money well spent. ■


Risks arising from using unsuitable technology or doing nothing.



Part 2: Efficient collateral management: From nice-to-have to operational requirement

Introduction

Efficient collateral management across the industry is essential to navigating through the post-crisis collateral paradigm.



Exactly what effective collateral management constitutes is still uncertain for many across the buy-side, especially those smaller firms relatively new to dealing with margin calls and clearing trades at CCPs.

The reality is that there is no single silver-bullet to solve the challenges posed by the new collateral paradigm.

Indeed, taken individually, many of the initiatives may have too small an impact to merit the costs of transition for most firms.

But efficient collateral management is not just a compliance issue, it also represents a competitive edge.

As costs rise elsewhere, the ability to be more efficient anywhere in the trade cycle increases margins and boosts performance.

Collateral efficiency applies across the business, across all processes and operations from trading to financing, hedging to securities lending.

A wide range of collateral efficiency processes are available to firms.

They vary from reducing overall collateral requirements through netting, clearing and cross-margining positions, to buy-and-build solutions for internal operations or outsourcing collateral management to a third party in its entirety.

At an industry-wide level, various initiatives are already underway to increase the available pool and effectiveness of the transmission of collateral.

While each step may deliver only small savings or incremental increases in efficiency, the cumulative impact across the industry will ultimately lead to a more efficient and safer market for all.

Four key areas of development are analysed below: reducing collateral requirements, increasing the efficiency of internal collateral management, outsourcing collateral management to a third party and increasing the efficiency of collateral transformation and mobility through peer-to-peer offerings.

We then turn to a series of longer-term and less certain solutions. ■

1) REDUCING COLLATERAL REQUIREMENTS

The most obvious way to reduce collateral pressures is to reduce the amount of collateral that will be required to post against positions. Aside from simply trading less, there are three fundamental ways to reduce collateral requirements:

- Consolidate clearing relationships
- Change what you clear and where
- Change what you trade and where

a) Consolidate clearing relationships

One of the results of the Basel III Accord and associated rules has been that most banks have implemented processes that enable a much more granular understanding of the cost each client has to their business and balance sheet across all activities.

86% of bank respondents to the survey said they had reviewed how they understand the client wallet over the past three years to factor in the balance sheet costs. While most banks' largest clients are measured across the business, most clients will have balance costs allocated at a client or trade level with 80% of respondents measuring at a client level and 16% at individual trade level.

As a result, banks are working with their clients to help them understand how their portfolio fits in with their balance sheets.

These discussions are leading to a greater level of understanding by the client of the impact their activities have on their counterparties' balance sheets.

Clients are able to use this insight to reduce the balance sheet impact for each of their counterparties in a variety of ways including reducing excess margin held with the bank, optimising portfolios to minimise margin requirements, participating in netting and compression cycles on a regular basis and consolidating or moving some portfolios to alternative providers.

86% of the asset managers surveyed reported having discussions with their sell-side providers about their balance sheet usage and in particular an awareness of what they have been allocated and how they can use that allocation in the most efficient way. Of these, almost half changed how they trade as a result. In addition, 42% reported reducing the number of banks they trade with.

By consolidating exchange traded and OTC positions with a single bank, a client can benefit from netting offsetting positions within that portfolio. All leading banks offer some form of cross-product margining or netting programmes to their clients. These are usually VaR-based calculations that allow for margin offsets against other products traded with the firm. In addition, some banks offer their clients the ability to cross margin OTC and futures transactions cleared at the same CCP reducing cleared initial margin requirements.

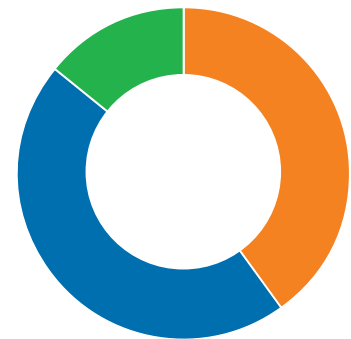
Total savings and calculations vary from bank to bank and the activities of the client but require concentrating positions with a single counterparty to maximise the margin savings.

As more firms become covered by the initial margin rules for non-cleared derivatives, banks will also be able to work with clients to reduce collateral requirements with the use of synthetic swaps and other tools and methods that can decrease required initial margin under the current models.

b) Change what you clear and where

As a simple rule of thumb, the more positions that can be cleared, the lower the collateral requirements for those trades will be. This stems from both the ability to cross-margin between OTC and exchange traded instruments at Clearing Member and CCP level and the treatment of cleared exposures on banks' balance sheets.

HAVE YOU HAD DISCUSSIONS WITH YOUR PRIME BROKERS IN TERMS OF UNDERSTANDING HOW YOUR PORTFOLIO FITS THEIR BALANCE SHEET REQUIREMENTS?

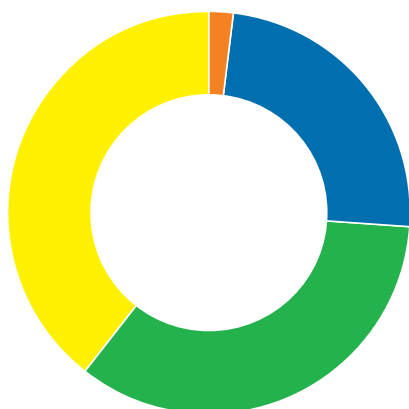


- Yes and have changed how we trade with them as a result
- Yes but have taken no action
- No

“ To date we have seen little migration of business between trading venues and the feedback we have is that clients are mainly concerned with liquidity and risk management ”

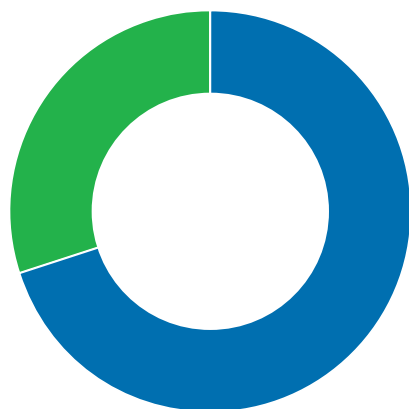
- Clearing firm

WHAT HAVE ASSET MANAGERS CHANGED TO BENEFIT FROM CROSS MARGINING AND NETTING SERVICES?



- Have moved part of portfolio to a different CCP
- Have moved part of portfolio to a different clearing member
- Not benefitted yet but planning on doing so
- Not benefitted and don't expect to

HOW MUCH HAVE BANK RESPONDENTS BENEFITTED FROM CROSS MARGINING BETWEEN ETD AND OTC AT CCPs?



- Reduced margin requirements considerably - 0%
- Reduced margin requirements marginally
- Not benefitted

According to a study by the consultancy firm Deloitte, Clearing Members face capital charges of €3 per €1m notional for an OTC cleared traded against €120 per €1m of notional against non-cleared OTC exposures, enabling them to offer dramatically different pricing to clients able to clear trades.

CCPs also offer cross margining services between OTC and ETD contracts that enable margin savings for correlated positions.

One challenge to realising this potential though is that the current market structure in Europe requires a significant shift in open interest to realise the full potential of margin savings that the theoretical cross-margining models would enable.

Currently LCH SwapClear holds almost all of the open interest in the interest rate swaps market in both Sterling and Dollars and to a lesser extent Euros. However, following the move by ICE to shift the former Liffe ETD positions to ICE Clear Europe, LCH clears a very low market share of the exchange traded rates market.

Eurex Clearing and ICE Clear Europe meanwhile have monopoly positions in the exchange traded rates market but significantly lower levels of interest rate swaps open interest. This fragmentation of the liquidity between swaps and OTC positions compromises the potential for margin savings across the industry.

A number of respondents to the survey reported that they were either moving positions or considering moving positions in order to become more efficient in their margin requirements but scale remained a problem for smaller asset managers with volumes not large enough to justify engagement with two CCPs.

There remains some skepticism in the market about how much can be saved without significant changes in market structure with no Prime Brokers reporting significant savings from cross margining at CCPs and 23% reporting no benefits at all.

Even for some of the larger managers, the margin savings at an individual firm or even individual fund level are not sufficient to merit moving positions over to a new CCP.

Added to that is the risk that margin savings can be eroded by increased costs of trading resulting from preferential pricing being offered by banks to trade in their preferred CCP (as was seen with the emergence of the basis between LCH and CME Clearing in the US).

Another consideration is the choice of account segregation favoured by the client. There are numerous models on offer across EU CCPs but the basic choice is between omnibus and segregated accounts. Under the omnibus model offsetting positions of multiple clients can be pooled to determine the total margin requirements.

As you move further down the road towards full segregation of assets, the ability to pool positions and therefore reduce margin requirements through portfolio margining reduces significantly.

a) Change what you trade and where

As with clearing, the more that can be traded on exchange as futures rather than OTC, the lower the collateral requirements against those positions will be.

Some firms therefore are using futures contracts to achieve exposures that would traditionally have been managed in the OTC markets.

However, standard futures contracts lack the specificity of the OTC market and provide inexact maturity dates and trade sizes to meet the demands of many participants.

For this reason, exchanges have sought to launch futurised versions of OTC contracts.

ICE transferred all of its OTC energy contracts into futures contracts in 2012. However, this was relatively simple in operational complexity owing to the identical contract structure of the OTC instrument and the future.

More challenging have been attempts to bring the OTC interest rate swap complex onto exchange.

Eris Exchange launched in 2010 trading a pared-back swap as a futures contract while CME launched the Deliverable Swap Futures in 2012.

There has been some volume in both products but open interest remains only a small fraction of the OTC market. Other initiatives such as LDX's Constant Maturity Future have also failed to gain traction to date.

A major challenge for exchanges launching new contracts is that much of the buy-side is unable or unwilling to commit to trading a new futures contract until liquidity has reached a certain point. This creates a chicken-and-egg situation in which neither survive.

The challenge of launching new contracts is seen also in attempts to launch new exchanges designed to offer execution platforms that would enable lower margin requirements. Both Nasdaq and, more recently, the London Stock Exchange have launched futures markets designed to reduce margin requirements for interest rates trading by offering trading across the long and short end of the interest rate curve in both UK and European rates.

These positions can then be further cross-margined against LCH's swap positions (currently for sterling products and soon to be for the Euro suite).

In addition both Eurex, which dominates longer term rate futures, and ICE, which dominates the short end, have launched look-alike products on each other's contracts to offer the same one-stop-shop for rates trading on the same platform.

Firms are able to net positions traded down the rates curve so bringing together the two ends of the curve reduces margin by up to 40% on some portfolios according to Nasdaq's calculations.

But Nasdaq's market closed down just three years after its launch having failed to attract enough liquidity. LSE's new market Curve continues to grow its open interest but its market share to date remains in low single digits compared to ICE and Eurex.

Mifid II's Open Access requirements may open up the market but with fungibility and interoperability between execution venues and CCPs not specified, a fully harmonised market structure remains some way off.

COLLATERAL EFFICIENCY JARGON BUSTER

Jargon: centralising your collateral operations

What it means: Developing a central database of all assets that could be posted as collateral. This involved harmonising inputs from across funds, the company and the group into one database.

Jargon: collateral optimisation

What it means: Collateral optimisation is generally used as a catch-all term for optimising the entire collateral process but specifically refers to ensuring that the cheapest-to-deliver acceptable collateral is posted at all times. This is a complex and moving picture so needs to be automated and regularly reviewed.

Algorithms that run calculations across the collateral have been around for some time and are available from a number of vendors.

Jargon: automating the collateral process

What it means: In the new world of significantly more margin calls, it is no longer feasible for most firms to manually process each margin call. Automation should be end-to-end from the custodian through to counterparty and covers the receipt of the margin calls to the agreement to the selection and instruction, delivery, settlement and confirmation.

If any part of this is not automated the ops team could be swamped with just getting the collateral through the pipes before a firm can start to think about optimisation.

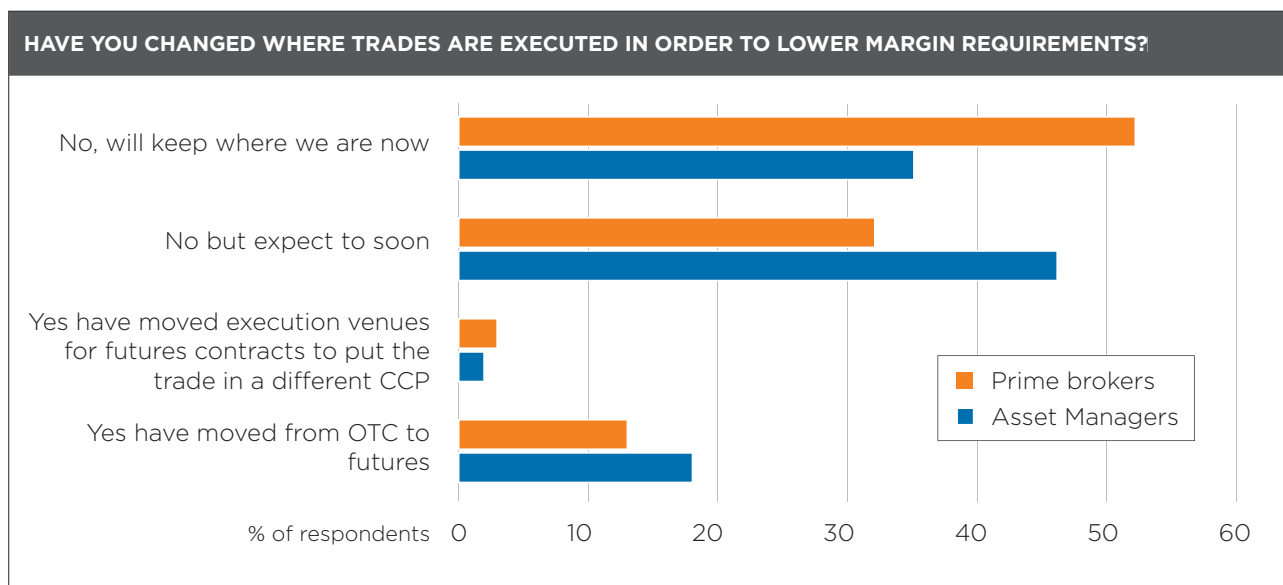
A number of systems are available off the shelf that deal with the full collateral cycle.

Jargon: collateral as a pre-trade consideration

What it means: Pre-trade optimisation is about calculating the total cost analysis of putting on a position. Effective pre-trade optimisation calculates the total costs of a trade right from the trading fee to the collateral cost.

In reality, collateral as a pre-trade consideration is in fact a calculation across the front to back office.

Some firms might choose to run analytics for each trade before it is put on. But for others it might be more efficient to run compression or portfolio management exercises in batches.



J.P. MORGAN'S VIEW

CHANGES IN SUPPLY AND DEMAND

Increased demand for collateral has prompted interest in unlocking collateral supply in various onshore markets. As a result, assets held onshore in the Asia Pacific markets are now being used as collateral in repo and securities lending transactions.

Given the increased cost of holding those assets, and the heightened demand for it to be released into the market and used as collateral, J.P. Morgan is partnering with clients in local markets to deliver solutions.

2) INCREASING THE EFFICIENCY OF INTERNAL COLLATERAL MANAGEMENT

Efficient collateral management is based around three concepts: centralisation, automation and optimisation. Centralisation and automation are fundamental and relatively harmonised concepts, optimisation is broader and more complex.

This section looks at the processes and decisions involved in buying or building software to manage the collateral cycle internally.

To begin the process of reviewing collateral efficiencies, the first thing a firm will need to do is understand the volume and size of the margin calls it will be required to post and to which entities. These will depend on trading volumes and instruments traded and a view can quickly be ascertained with a discussion with your main counterparties.

A firm posting a few million euros of collateral across a limited number of positions will not find it worthwhile to invest across the whole process or bring in significant internal resources to save a few basis points on their collateral costs.

For others, the cost of inefficient collateral management will represent a significant drag on overall performance.

However, every firm will need to ensure they can source and transmit collateral to their counterparties on the same day, which will inevitably require some level of automation.

The days of managing collateral against margin calls on spreadsheets are gone for all.

a) Centralisation

Creating a centralised view of available collateral and collateral requirements is essential to efficient collateral management. Only by gaining a single view of all margin calls and available inventory held both internally and externally can that collateral be analysed and optimised, both in terms of allocation and transmission.

A challenge for firms is that systems across a group tend to have evolved in silos with fragmented architecture. Centralising operations requires a co-ordinated effort to feed-in information on the assets held by the firm across all operations, asset classes and silos and at any custody agents used by the firm or fund.

A firm will also have to decide where the centralised collateral function sits within its operations. For some this will be the treasury department, others

might choose to locate it in the front office.

Larger firms with higher collateral requirements might choose to create a separate business unit that controls collateral management and allocation across the group. This unit would be responsible for monitoring and allocating collateral for each position and all margin calls and collateral allocation decisions are processed through it.

A firm may need to bring in additional expertise to manage its collateral operations, a decision that will stem from the complexity of collateral management, the volume of calls the firm will be dealing with and the overall expected drag on performance that inefficient collateral operations will cause.

The consolidated view links previously fragmented pools of collateral and enables a central inventory from which the right assets can be transmitted to the right place at the right time in the most efficient way.

In addition, it allows a firm to measure how it deploys liquidity across its trading operations and enables more granular and complex risk mitigation analysis such as measuring concentration risk, wrong-way risk, market risk and stress testing.

Inventory consolidation is not just about enabling the optimal collateral allocation to post margin against derivatives trades though. All operations across the firm need to be brought together to gain a holistic view of exposures and assets.

This entails a view across derivatives, fixed income, equities and other asset classes and incorporates trading, securities lending, repo and front office operations.

Also central to inventory consolidation is identifying the location of any given asset and calculating the eligibility and cost of multiple settlement options.

To achieve this, firms need a clear, real-time view of assets held externally at different tri-party agents, CSDs and custodians as well as real-time feeds from CCPs and counterparties.

Because of the wide scope required to achieve holistic inventory management which covers the full range of processes including repo, securities finance and derivatives trading, it is essential that internal operations connect seamlessly to external software architectures.

b) Automation

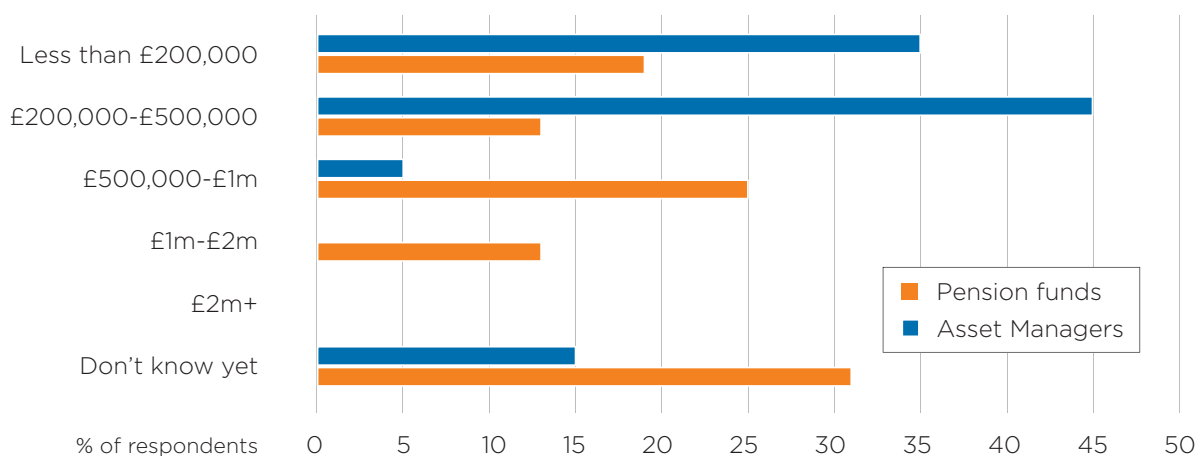
Once collateral is centralised, the next step is to automate processes to receive, agree, select the assets and deliver them against the margin call.

CITI'S VIEW

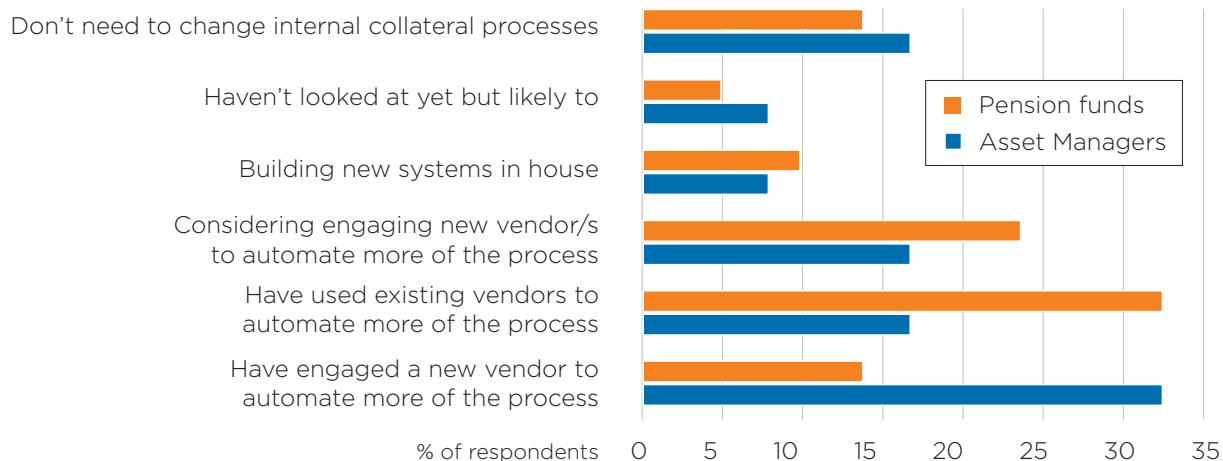
CENTRALISATION

Products can no longer be approached in silos, and many of the large asset managers are well positioned to ensure that collateral and asset optimization drive strategic returns for their underlying investors. This is hugely important in the continued shift to passive investing. Those managers who have their Securities Financing desks integrated with their execution platform are already benefiting from processing and best execution. The next step will be to ensure that "best in class" analytics are available to assist their Fund Managers make educated investment decisions. Citi is leveraging its Velocity platform to do just that. The platform allows us to consolidate and analyze data across multiple flows and asset classes to present the best range of financing and liquidity management options to our clients.

HOW MUCH HAVE YOU SPENT OR ARE YOU BUDGETING TO SPEND TO MEET THE EMIR MANDATE REGARDING OTC CLEARING?



HOW HAVE YOU CHANGED HOW COLLATERAL IS PROCESSED INTERNALLY?



J.P. MORGAN'S VIEW

OPTIMISATION

Long a staple of the tri-party offering to collateral providers, optimisation is now evolving to meet the more granular and dynamic requirements that clients are demanding.

By centralizing collateral requirements for different business units - such as derivatives and securities financing - institutions can optimise collateral across counterparties and underlying exposure drivers.

J.P. Morgan's sophisticated eligibility, allocation and optimisation engines give institutions the ability to tailor their use of collateral based on their own unique needs and requirements, including binding constraints.

In an ideal set-up, a margin call is received, agreed and settled with no human interaction and it is relatively straightforward to achieve this considering the wealth of off-the-shelf technology available in the market today.

The system should be able to receive the call, cross-check it against the expected call calculations made by the firm, confirm it if is the same (or within an accepted and pre-programmed tolerance of difference), select the cheapest-to-deliver collateral and then send the collateral over to the counterparty.

Only margin calls that are rejected by the system should require human interaction, the rest will be managed by STP.

Automation is not a particularly complex process but it will be a new concept for many firms.

The industry standard for transmitting collateral against margin calls is the Arcadia MarginSphere network and most collateral automation software will plug into the network.

One consideration is that full automation is not simply an internal process but will include external data feeds such as those coming in and out to the custodian via Swift and visibility of the long-box held at each custodian in addition to the calls from various counterparties over the Arcadia network.

c) Optimisation of collateral selection

Collateral optimisation is sometimes used as a catch-all term for the entire collateral management process but in this context it refers specifically to the selection of the optimum collateral to deliver against each position.

This requires a centralised view of collateral and a granular understanding of the cost of each asset and the implications of posting that asset as collateral.

Once a central view of all inventory is achieved, a firm can begin adopting advanced collateral optimisation techniques.

In today's world, collateral optimisation is about far more than calculating the cheapest-to-deliver against a specific margin call.

Cheapest-to-deliver is a relatively simple calculation of the cost of posting a specific asset based on the prevailing repo rate adjusted by the haircut a specific counterparty places on that instrument.

More sophisticated algorithms are able to make that calculation in real time against multiple counterparties, which adds a layer of complexity to the calculation.

To find the absolute cheapest-to-deliver, it is necessary to run numerous scenarios across counterparties calculating not just which asset to deliver to each but the order in which each asset is allocated.

This advanced method of collateral optimisation involves two concepts developed by technology firm Broadridge: hardest-to-please and hardest-to-place.

Hardest-to-please analysis ranks collateral against counterparties based on the eligibility criteria of each counterparty with the highest quality of collateral being allocated to the counterparty with the tightest criteria.

Hardest-to-place collateral identifies those assets in a portfolio that appear least often in eligibility schedules from your counterparties. This involves an algorithm running simulations to allocate the cheapest assets to deliver in a collateral pool first and then moving onto the next cheapest to deliver.

Combining hardest-to-place and hardest-to-please allocation methodology results in the largest possible volume of allocations across an inventory, reducing costs and significantly increasing collateral optimisation across all operations.

Numerous software vendors sell off-the-shelf products that run advanced algorithms across a firm's total collateral pool to ascertain the best asset to deliver in specific circumstances.

Overall though, understanding which assets to post is a very narrow part of the solution.

The challenge is understanding how much margin activity will drag on investment performance and ensuring that a firm has the liquidity to settle the daily calls.

d) Optimising cash management

Because of the increased cash requirements in the new collateral paradigm, effective collateral management today is as much about managing cash as managing non-cash assets.

Buy-side firms need to ensure that their cash desks are in step with the terms of all the CSAs they hold with their counterparties and have embedded all expected margin calls into their daily cash requirements.

Again the level of complexity of this process will depend on the size and activities of the firm.

If a fund manager has 50 different funds, they will need to run the expected cash-requirements stemming from daily margin calls across each of those funds against each of their counterparties.

If any of those funds are able to post non-cash collateral under a CSA with a certain counterparty, that needs to be factored in to the calculation.

The first step is to calculate what the calls coming in that day might be as early as possible. Even if the call is coming in at 13:00, a firm can bring its data feed calculations forward to 8:00 so it has visibility on the day's requirements early on.

A firm will need to have processes in place in which it can run simulations each day of the anticipated calls against the inventory and the counterparties to ascertain what can be covered in cash and non-cash assets.

This gives a much more accurate view of the total cash required for the day and the cash desk can be given advanced notice of the cash requirements.

3) OUTSOURCING COLLATERAL MANAGEMENT TO A THIRD PARTY

Firms without the internal resources or appetite to set up the systems required to effectively manage collateral internally can outsource the entire process to a third party collateral manager.

There are a number of leading banks that provide such a service.

Under the outsourced model the collateral management agent will have access to the clients' long box at each custody account and manage the margin calls and collateral allocation on behalf of the client.

CITI'S VIEW

INCREASING THE EFFICIENCY OF INTERNAL COLLATERAL MANAGEMENT

Buy-side firms must tie their cash management into their investment allocation process.

As fund managers make decisions around their fundamental investments, they will need to understand their cash and collateral position to potentially adjust their portfolios.

Citi is working extensively with clients in this space. With passive Equity Funds being fully invested, yet having to margin FX, this could result in an increase in Synthetic delta one replacement products or a further move into ETFs. Active managers also face operational challenges due to the trading frequency and interchange of assets. "Over-processing" of collateral will therefore also have cost implications.

On the Financial Institution side, HQLA financing and collateral eligibility criteria are increasingly part of the investment decision making process and yield alone is no longer the ultimate driver.

Technology is key, and some spend will be required on the buy-side. Key will be for our clients to leverage their existing platform connectivity with Citi to find the cost efficient solution based on their individual needs.

J.P. MORGAN'S VIEW

MARKET TRENDS

Combining new platforms like peer-to-peer with best practice solutions such as tri-party from collateral providers makes it easier to trade with and collateralise multiple trading counterparties.

This is one example of how the collateral ecosystem continues to evolve, meeting new demand generated by market changes such as non-cleared margin rules and European Market Infrastructure Regulations.

We see exciting opportunities for institutions and collateral agents, as new, integrated structures and solutions emerge.

One reason to do this is to avoid the cost and complexity of buying and/or building the required software platforms, integrating the software across existing operations and hiring the required expertise to manage the processes.

The fully loaded costs of buying in a solution vary wildly depending on the volume of transactions and instruments traded and for many firms the calculation of whether to outsource will be a trade-off between the various costs and the day-to-day direct control they seek over operations.

But cost is not the only factor to consider. Risk management, reporting and meeting regulatory requirements are also considerations in the decision to outsource.

So too is the reliability, scalability and efficiency of operations with downtime less likely with an outsourced provider, which will also offer the ability to scale-up when required without significant upfront investment.

The advantage of an outsourced model for collateral management is operational efficiency. As it reduces the need to manage day-to-day collateral operations, firms can concentrate on their core activities.

4) INCREASING THE AVAILABILITY OF COLLATERAL WITH PEER-TO-PEER PLATFORMS

While greater collateral efficiency at a firm level will go some way to easing the pressures faced by the industry, the efficiency of collateral transformation and transmission across the market remains constrained.

Since the financial crisis, more and more buy-side firms are choosing the tri-party model to increase access to collateral. Peer-to-peer collateral platforms are the latest innovation in this area.

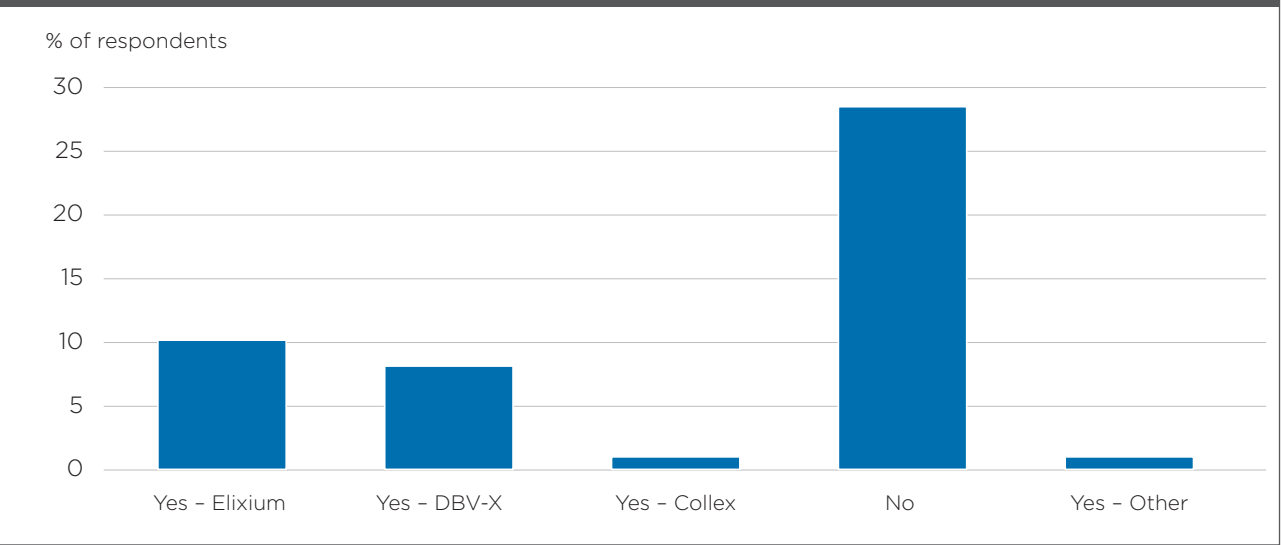
Peer-to-peer platforms such as Elixium, Collex and DBV-X, are multilateral trading facilities designed to provide an all-to-all market for the transfer of collateral.

There are numerous differences in how the three are structured but they offer a range of trading protocols including central limit order book, request-for-quote, indication-of-interest and auctions.

They are designed to provide centralised market places for the sourcing and transfer of collateral from a significantly wider variety of sources than exists in the existing world of client-bank relationships.

Respondents to the study widely welcomed the development of such platforms in theory but several barriers remain to wide-scale adoption.

ARE ASSET MANAGEMENT RESPONDENTS PLANNING ON CONNECTING TO ANY PEER-TO-PEER REPO PLATFORMS?



Not least is the issue of liquidity. As the platforms are in their infancy there is not yet sufficient activity to attract more participants resulting in the chicken-and-egg scenario seen with new futures contracts and exchanges.

A number of respondents to the study indicated that they would connect to two or more platforms so as to ensure they back whichever emerges as the dominant venue in what most expect to be a winner-takes-all market.

Another issue is the bespoke nature of collateral. Considering the vast array of assets that constitute collateral and specificity of acceptance criteria at counterparties, collateral would have to be segmented into baskets and asset types on the platforms further increasing the need for liquidity.

Some respondents also voiced concerns as to whether the model was scalable and whether it was feasible to accommodate the expansion in counterparties that a fully-functioning peer-to-peer market would result in.

Most buy-side firms are not able to perform credit risk management and counterparty due diligence with multiple non-bank institutions. Some platforms are seeking to address this by providing standard agreements and credit checking and certifying participants on their platforms.

The benefits of the peer-to-peer platforms taking off are clear though and once the initial concerns are addressed, they could become an important tool in the future of collateral management providing a valuable addition to the repo market.

One respondent to the study said that they see the platforms not as replacing bank participation in the market but as providing another potential source of liquidity to source collateral.

5) LONGER TERM, LONGER ODDS SOLUTIONS

Aside from the various internal and intra-industry initiatives that are outlined above there are a number of broader solutions that could in time ease the pressures faced by the industry in the new collateral paradigm.

a) Regulatory change

It was clearly not the intention of regulators to create a situation in which pension funds are facing lower returns to comply with rules designed to reduce risk taking and systemic risk at banks.

A loosening of the capital rules on banks would go a long way to solving many of the challenges enabling them to provide liquidity and collateral transformation and commit more balance sheet to providing clearing services to clients.

A number of proposals are in play for this.

The most straightforward would be to exempt HQLA from the leverage ratio meaning that banks can increase liquidity provision without being penalised on their balance sheets.

This would mean that banks are more willing to take HQLA as margin and significantly ease the burden for pension funds and fully invested asset managers.

Other proposals are more radical and include Trumpian promises to roll back Dodd-Frank in the US and proposals for a post-Brexit bonfire of regulations in the City of London.

However, such moves would be regressive in terms of financial stability.

Responsible, targeted and well-co-ordinated changes to current rules to reduce the unintended consequences of the confluence of post-crisis reforms are possible however and, with the right political will, achievable without negating the initial post-crisis goals.

b) Central banks backstop

A number of pension funds that took part in the study called for access to Central Bank liquidity during extreme market events.

CITI'S VIEW

COLLATERAL EXCHANGE

“Peer to Peer” within the UCITs and insurance space is slow to gain momentum, but the more sophisticated hedge funds are already financing their assets directly in the market and sometimes directly with structured products teams of the larger Asset Managers. Regulation requirements coupled with the lack of detailed understanding of the varying risks implied by the financing trades and their technicalities are currently slowing down the process. However with banks’ balance sheets not able to process all of the collateral demand, the “agency” route to market and independent peer-to-peer platform will definitely have an increasing importance in the new collateral and asset optimization era.

They argue that they are being unnecessarily forced to make contingency plans and set cash aside to ensure access to liquidity in a stressed market.

There is no solvency risk to a pension fund that would stem from the margin requirements but there is a huge liquidity risk.

Pension funds believe that were Central Banks to commit to providing them with liquidity to settle and manage margin calls during market stress that would negate the need to hold back significant cash reserves.

They rightly point out that a Central Bank would be forced to step in to guarantee liquidity to pension funds if they were unable to access liquidity to post margin and so setting out the terms of that liquidity in advance would enable more transparency over the process, reduce operational risk and calm nerves.

But Central Banks could also commit to playing a wider role in the repo market to reduce gyrations and providing a floor on negative pricing. The knowledge of this floor alone would go a long way to reducing wild swings in prices.

CCPs have also been called on to do more to provide liquidity to repo and collateral markets. There are a few initiatives operated by CCPs that do this but they tend to be very small-scale and not widely publicised.

c) Create industry utilities

The creation of industry utilities to manage collateral has been touted in a number of markets. Most notably, a number of leading Dutch pension funds were in discussions to create a utility clearing entity that would become a direct member of CCPs.

Other initiatives to create single-purpose entities to manage risk and collateral are also being discussed.

The advantages of such a utility however are over-exaggerated.

While the costs of clearing would come down and it would be very easy for regulators to exempt a single-purpose entity serving solely local pension funds from capital rules designed to limit risky lending, pension funds do not have the expertise or in most cases, the desire, to effectively operate a bank-like entity.

Direct participation as a clearing member at a CCP is not a realistic proposal for all but the largest funds and even then the fragmentation of CCPs would mean that they were looking at establishing direct relationships with multiple CCPs, further increasing the operational burden.

d) Blockchain

The advent of the blockchain, or distributed ledger technology (DLT), could eliminate many of the issues facing the industry when it comes to collateral processing and transmission.

DLT would offer a number of immediate benefits.

Because of the level of transparency it enables, much of the need to move collateral would be eliminated. Using a shared ledger, firms could pledge collateral with full transparency to their counterparties without the need to physically move it.

One of the lessons from the collapse of Lehman Brothers was how difficult it was to identify ownership and claims on assets in a complex web of financial transactions.

In a distributed ledger this information would be instantly available and would give greater transparency over things like the rehypothication of assets creating more efficiencies.

For peer-to-peer platforms, the distributed ledger would overcome many of the concerns around credit worthiness and regulatory checks on counterparties. Information on members of a permissioned ledger would be embedded in their access, greatly simplifying the operational burden of other participants. ■

Conclusion

Avoiding a collateral crunch

Collateral efficiency is no longer a nice-to-have and today represents an essential component of the market.

Asset managers and pension funds that do not invest in collateral efficiency will perform worse than those that do.

The good news is that as collateral management becomes mainstream, the cost and sophistication of solutions is falling.

New technologies are emerging designed to solve the specific challenges that are arising and the pace of innovation at CCPs currently outstrips that of the rest of the market.

But a more pressing reason for collateral efficiency exists.

Collateral inefficiencies across the market represent one of the most serious potential threats to the financial system.

It is easy to envisage a scenario in which an evaporation of liquidity in the repo markets following a financial shock results in firms unable to post margin against positions and creates a collateral crunch across the market paralysing the financial system.

In this scenario, the requirement to post collateral against exposures becomes a weakness not a strength of the financial system.

This study has demonstrated that the sophistication of collateral processing across the industry is not sophisticated enough to withstand a collateral crunch.

It has shown that there is not a shortage of collateral but a lack of effective means of optimizing and transmitting collateral across the market.

There is a long way to run until the G20 mandate results in a market immune to contagion and systemic risk emanating from financial shocks.

A whole new infrastructure for transmitting collateral is required. There are a number of initiatives in progress which will require more support from across the market to succeed.

Market infrastructure too needs to change to realise the potential for collateral savings and ensure that more offsetting positions are held and margined at the same CCP and that in a collateral crunch CCPs do not become a cause of exacerbation through margin calls.

Ultimately a safer and more efficient market for collateral will prevail but it requires regulatory reform, new technology, shifts in market infrastructure and, most importantly, a deeper understanding of the costs and challenges. ■

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