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Panoptic view

For collateral managers, the period since the 2008 financial crisis has been one of constant adaptation. Policymakers have taken steps through the G20 reforms to create a more resilient industry, pushing transactions into central clearing and enforcing requirements, under BCBS-IOSCO Uncleared Margin Rules, for firms to post initial margin and variation margin against OTC derivatives transactions that are not cleared at a central counterparty.

With implementation of Phases 5 and 6 of UMR, regulatory initial margin requirements now impact a wide set of buy-side firms, imposing a need for buy-side organisations of all shapes and sizes to address the technical and contractual requirements necessary to manage these collateral transfers.

For some, this has been an exacting learning experience, requiring them to adapt almost from a standing start – building from non-existent or weakly developed collateral systems that struggle with scalability, automation and the ability to operate near to real time.

Some of the big picture themes discussed in this annual have been with us for many years – how to mobilise, optimise and allocate collateral efficiently across product silos and geographical locations.

This requires a panoptic view of the collateral inventory, understanding where collateral resides and how it can be mobilised and allocated most efficiently. As the annual notes, the days of managing fragmented collateral pools locked within each business silo are on their way out. This is giving way to a stateless pool that can be deployed anytime, anywhere in tri-party channels or bilaterally.

We have been debating this challenge for several decades. But economic conditions fluctuate, new regulations arrive, and technology and connectivity is advancing. The industry is embracing opportunities to trade electronically and to manage this trade and collateral flow in a front-to-back STP environment. Digitisation features prominently in these discussions, powered by efforts to standardise operational processes, legal and contractual agreements.

Contributors to this annual explain how collateral managers are responding to this change agenda and adding new creativity around collateral forecasting, scenario analysis, and advances in optimisation. In doing so, firms aim to maximise the economic utility of the collateral inventory and to lower the capital costs of trading.

But as the industry embraces a commitment to sustainable securities finance solutions, this will also require a capacity to screen collateral according to ESG parameters. Tri-party collateral agents and agent lenders are playing an important role in assisting collateral takers with this process — ensuring that their secured lending transactions meet the sustainability objectives of the organisation and their stewardship responsibilities as traders and investors.

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Inside this issue

Global reach
How COVID has reshaped the securities lending industry
With investor appetite rising for lending in emerging markets, and with different regions and investment strategies requiring different ESG lenses, it can be a big advantage to have an agency lending partner with a global reach, explains Adnan Hussain, global head of agency securities lending at HSBC
10

UMR Update
Industry reacts: UMR Phase 5 goes live
Despite the impact of COVID-19, in-scope firms pulled together effectively over the last 12 months for phase 5 of UMR, but this has not been without its challenges
14

Centralised systems
A centralised view of collateral
The ability to interconnect trading platforms and to drive centralisation of trade input data, execution and post-trade management is a must, says Mike Norwood, Director, Global Trading Product Owner at EquiLend
20

Collateral Resilience
Improving collateral resilience through analytics and optimisation
Collateral resilience is an operational model to ensure there is sufficient collateral to meet any demand in any market. Cassini Systems' CEO Liam Huxley explains how to meet this objective
24

Collateral Mobilisation
The new normal in collateral servicing
Collateral management is currently driven by two primary processes, mobilisation and convergence, says Michael Calandra, specialist in collateral strategy, J.P. Morgan
28

Getting Connected
The value of connectivity
Daniel Griffiths, head of collateral management at Broadridge SFCM, says connectivity is key in providing business with a secure and cost-effective ecosystem, enabling services to be scaled across global jurisdictions and to meet 24/7 operation
32

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Inside this issue

Tri-party Evolution

The evolution of tri-party collateral management

There is a perception that becoming a tri-party participant is a complex endeavour. However, Jérôme Blais, head of business development for tri-party collateral services at BNP Paribas Securities Services, explains that firms already set up with an asset servicer can join up very quickly. Tri-party is just another service

36

Collateral Future

The future of collateral redefined

As ghosts of the past drive the present day approach to collateral, what does the future hold? Staffan Ahlner, global head of Collateral+ at State Street Global Markets, provides some answers

38

Modernising Collateralisation

Centralise, automate, optimise is the new mantra

Ted Allen, director of business development, securities finance and collateral at FIS, reflects on the modernisation of inventory and collateral

42

DvD settlement

New designs in agency securities lending

Elisa Poutanen, sales lead at HQLA^X, describes how the Luxembourg-based company has built an agency securities lending model that enables agent lenders and their counterparties to reap the benefits offered by DvD settlement

46

Collateral Automation

Collateral automation: if not now, when?

Rather than approaching compliance through a narrow lens, focusing only on initial margin objectives, firms need to examine potential for automation across the entire collateral management process, says Neil Murphy, business manager at TriOptima

50

Sustainable Repo

Towards a sustainable repo market

Gerard Denham, senior vice president, funding and financing business development at Eurex, outlines the latest developments in sustainable finance, the role of the repo market and the progress of the Eurex Repo Green Bond General Collateral Baskets

54

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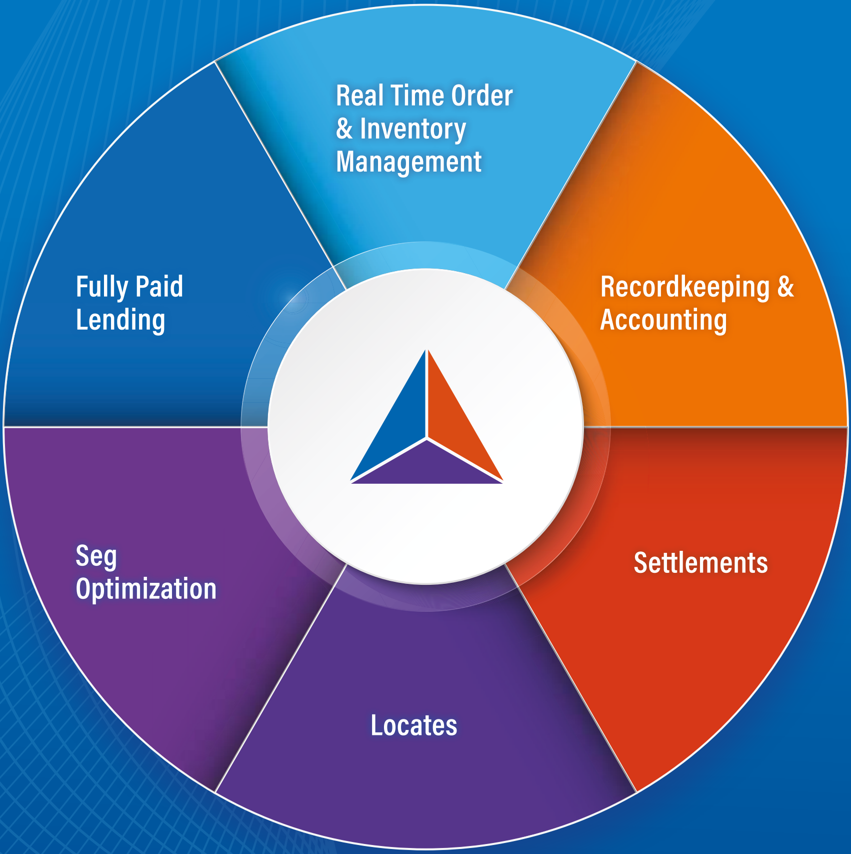

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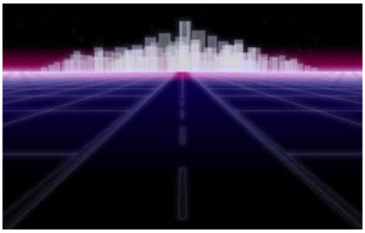
Inside this issue

58 *Collateral Policy*
The road to enhancing liquidity and asset mobility
J.P. Morgan's Bhavna Haswani, BNY Mellon's Grieg Ramsay and Euroclear's Joseph Tan, discuss key steps to effective collateral management



62 *Collateral Optimisation*
Enterprise wide-process improvement: optimisation as an emerging reality
There have been a series of false dawns regarding enterprise-wide collateral management and optimisation. Pirum's chief executive Philip Morgan believes that major advances are within reach, given the optimisation solutions now available and the change process in train at many banks

66 *Technology Transformation*
Leverage technology to transform your collateral management operating model
A third-party solution that centralises collateral management and data, standardises margin workflows and integrates with a wider collateral network can help institutions to optimise their costs and focus on revenue, says Vermeg's director of collateral management product Wassel Dammak

68 *Risk Integration*
Collateral and risk integration: why now?
Sophie Marnier-Foy, global principal product manager, margin and clearing risk at Adenza, explains that regulatory changes are pushing market participants to meet a new level of sophistication regarding risk metrics and collateral exposure calculations

74 *Collateral Mobilisation*
ETFs to join the collateral party?
Institutions, faced with an increasing need to find diversified forms of collateral against securities loans and other trades, are turning their attention to exchange-traded funds (ETFs), says BNY Mellon's Katy Burne

84 **Vendor profiles**

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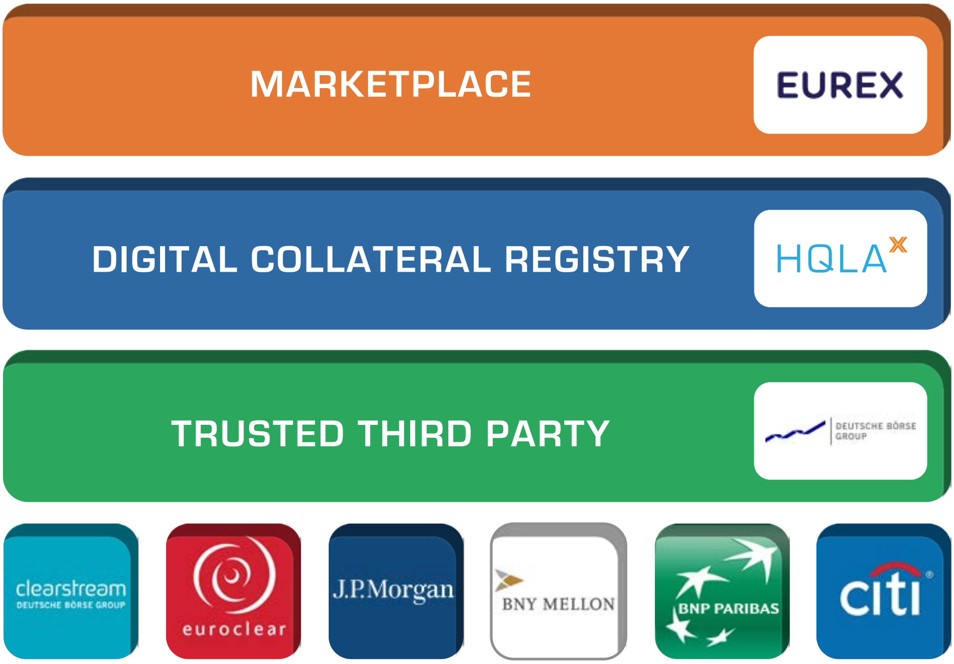
Capital cost savings



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How COVID has reshaped the securities lending industry

With investor appetite rising for lending in emerging markets, and with different regions and investment strategies requiring different ESG lenses, it can be a big advantage to have an agency lending partner with a global reach, explains Adnan Hussain, global head of agency securities lending at HSBC

The COVID-19 pandemic has been a unique black swan event, notable for its uneven and often unpredictable impact across sectors, markets, regions and even individual companies. Many securities lenders have seen less accrual income, given the volatility of 2020. Lending spreads in the fixed income space were healthy, though equities revenue was localised to a few specific and undiversified asset opportunities owing to a general reduction in corporate activity. For beneficial owners, volatility meant that asset allocation became very important, with many redirecting funding towards markets that were at the forefront of the uneven global recovery and, in the pursuit of alpha, stuck to proven lending programmes as a way to generate a consistent revenue stream.

The macro-economic environment

The key risk management strategy for firms and banks during 2020 was to build up balance sheets to protect against the uncertainty of the crisis. However, the anticipated global recession was, in the main, held off by the unprecedented actions of central banks and governments to prop up economies. From furlough schemes to population-wide cheques, these efforts staved off any major recessionary effects and stock markets quickly recovered from the lows seen in March 2020.

Now, equity markets have reached record highs and economic fragility seems to have abated, so over-funding on balance sheets has resulted in widespread unwinds through 2021. Demand for balance sheet upgrades has been declining, leading to securities lending spreads being squeezed.

As equity markets have risen to all-time highs, it has become easier for banks to fund trades within existing collateral sets, pledging collateral further down the credit curve to facilitate a higher internal benefit. Collateral providers have turned to instruments including American Depositary Receipts (ADRs), exchange-traded funds (ETFs), investment grade and sub-investment grade credit, which have seen high volume and depth of issuance since the COVID pandemic began. Indeed, even the rush for the surety of the USD has abated, which has been reflected in the spreads of many USD cross-currency trades during most of 2021. This marks an increased risk appetite amongst market participants now, as opposed to 18 months ago.

How smart investment strategies managed COVID risk

Smart investors were able to maintain returns even in a higher risk environment. At HSBC, we saw clients direct flow to Asia, which arguably recovered faster at the height of the pandemic than other regions. This asset flow towards higher spread and yielding markets has seen our clients' returns increase significantly from lending over this past year. It has also changed borrower behaviour and collateral demand, as these markets tend to be structurally harder to mobilise.

Through the pandemic, credit default swap (CDS) spreads widened, highlighting greater risk of defaults among companies. In such times, there is a focus on counterparty risk; and, in the collateral landscape, a natural consequence was an increased demand for pledged collateral, which, particularly for borrowers, can enhance the counterparty risk profile of their trade as well as reduce their risk-weighted asset (RWA) footprint. Indeed, we are increasingly seeing collateral being managed and used as a trade function (covered by trading desks), as many borrowers realise that collateral optimisation can reduce costs and improve the economics of their trading strategies.

Opportunities in new markets

As investors develop an appetite for new markets, they are looking for partners that already know the lie of the land. HSBC is a natural choice for Asian markets, though we are also building securities lending expertise in other regions. HSBC was the first to facilitate a securities lending transaction in Saudi Arabia and we are also exploring ways to introduce securities financing in other emerging markets, using securities listed on their respective exchanges. To complete our global reach, HSBC is also planning to open our third agency securities lending hub in New York, adding to existing desks in London and Hong Kong.

Additionally, HSBC is looking to grow a cash collateral and cash reinvestment agency business, as it offers diversification of revenue for investors which is important in times of stress. As central bank interest rates have bottomed out and liquidity has been pumped into developed economies, we have seen interbank cash benchmarks in developed market currencies track down with them.

What is interesting, however, is that the yield curves have also flattened with a tail that becomes steeper at the 10-year mark. As such, there is little opportunity for cash traders and money market funds to generate incremental yield from transforming maturity to longer-dates on a sub 10-year horizon. This has created a market for reinvestment that offers little upside in such liquid conditions and that only offers opportunity for enhanced spread from moving down the credit curve. This movement has not yet been widespread by participants, with many remembering the pain of credit and maturity transformation unwinds in 2008.

ESG in the wake of the pandemic

We have seen our clients increasingly view their investment strategies through the ESG lens. According to Morningstar data, in 2012 there was around US$645 billion invested in sustainable funding like mutual funds, variable annuities, closed-end funds and ETFs. These funds saw combined assets climb to US$2.3 trillion in Q2 2021, their fifth consecutive quarter of growth.

Accordingly, we have promptly adapted our securities lending programme to meet the ESG needs of our clients. Our ability to provide bespoke programmes for each of our lenders has enabled HSBC to adapt to the unique needs of our clients.

Technology as a differentiator

Digitisation has been high on the agenda of financial service firms for some time, but this accelerated during the COVID crisis. With homeworking during lockdowns, existing trading automation and digitisation became crucial. Companies had to drive through tech-driven strategies to make even higher volumes possible.

Around 95 per cent of the trades HSBC executes in agency lending, on behalf of our clients, are automated. Clients gain from the data-driven analytical functions that are available, which can enhance customer value and client returns. As well as expanding our reach, HSBC has invested in technology with a keen focus on results for our clients.

Securities lending in a post-pandemic world

Looking to the future means weaving these macro trends into investment and trading strategies. Investors looking to allocate more capital towards developing markets may require the expertise of a banking partner with a strong presence in these markets and deep understanding of local market regulations. Emerging markets offer potentially higher returns (because markets are less deep, with a lower supply of securities), which is why we have seen investor appetite for them increasing.

> ***"Aligning with ESG principles and using cutting-edge technology and automation will also give market participants an edge"***

Aligning with ESG principles and using cutting-edge technology and automation will also give market participants an edge. Different regions, funds and investment strategies require different ESG lenses on them, so having a banking partner with global reach can be hugely beneficial.

As the global economy starts its recovery – although at what speed continues to be debated – there are opportunities ahead for investors with the right strategy and the right partner to help them grow and prosper.

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Industry reacts: UMR Phase 5 goes live

Despite the impact of COVID-19, in-scope firms pulled together effectively over the last 12 months for phase 5 of UMR, but this has not been without its challenges

The Uncleared Margin Rules (UMR) represent a major change in the industry as this regulation aims to bring greater stability and transparency to the over-the-counter (OTC) derivatives market. UMR affects the trading of non-centrally cleared OTC derivatives and the future of collateral management. This regulation is so extensive that it has been carried out over several years in different phases. The first phase went live in 2016 and the final phase (phase 6) is set for next year.

Asset managers, pension funds and insurance companies are scheduled to come in-scope of UMR based on their volume thresholds either with phase 5, which came into effect in September 2021, or phase 6, which will come into effect in September 2022.

UMR phases 5 and 6 will introduce more and more buy-side firms to the world of regulatory initial margin (IM), which takes the form of collateral posted to help reduce risk to a given counterparty. UMR IM requirements seek to establish international standards for non-centrally cleared derivatives.

On 1 September 2021, under phase 5, buy-side firms of all sizes had to effectively manage and optimise their liquidity and collateral needs with the right solutions and technology in place.

These deadlines were initially set for a year prior, but in April 2020 the Basel Committee on Banking Supervision and the International Organization of Securities Commissions agreed to extend the deadline for completing the two final implementation phases of the margin requirements for non-centrally cleared derivatives by one year.

The deferral came in response to the worldwide market disruption brought on by COVID-19.

In the main, the delay was welcomed by industry participants as it allowed the financial industry to focus on its clients during the volatility of the pandemic.

But with this extra time afforded, did industry participants experience a smooth transition for phase 5?

The UMR phase 5 transition

Bearing in mind the impact of COVID-19, in-scope firms, custodians and vendors that are involved in the front-to-back changes generally pulled together effectively over the last 12 months for phase 5.

The lead up to the start of UMR phase 5 was intensive for in-scope parties. The move also marked the biggest phase so far in terms of newly in-scope firms. Nearly all of those new firms are buy-side with limited previous experience of IM, and experts say this means there has been a steep learning curve for those involved.

The model laid out by phase 1, 2, 3 and 4 parties made the transition smoother than it would have been if there had not been such a well-established precedent.

For example, Hazeltree, a provider of integrated treasury management and portfolio finance solutions for investment managers, spent years developing a collateral product that allows clients to operate within the frame of UMR in the same model as a tier 1 broker-dealer, while still focusing on the unique needs of the buy-side.

“The ability to calculate according to any of the three industry standard margin approaches, calculate required value (RQV) for tri-party accounts, and expanded functionality for IM credit support annexes (CSAs) are just a few of the important features that have made this transition smooth for Hazeltree clients," says Joseph Spiro, director of product management, collateral management, Hazeltree.

Meanwhile, Margin Tonic, a specialist consultancy that simplifies and accelerates high-quality change within collateral and related domains, has been working with a variety of firms for phase 5 go-live, including buy-side firms, their administrators and multiple custodians.

Weighing in on whether it has been a smooth transition, Mark Demo, head of community development, Acadia, comments: "It has not been without issue but, given the scale of clients that we had to onboard this year (which was more than four times the sum of the prior years), we would say that phase 5 was a smashing success for Acadia!"

However, not all participants were quite so optimistic last year when a State Street survey from September 2020 revealed 81 per cent of asset management firms were unprepared to comply with UMR despite the deadline extensions. Preparedness was measured by the perceptions, plans and readiness of 300 asset managers and allocators in 16 countries.

Of those surveyed, 86 per cent were preparing for either a phase 5 or phase 6 deadline. Only 19 per cent of firms in the preparation stage indicated they were fully prepared for compliance. Almost 80 per cent of firms stated they were struggling to agree on an approach regarding how to settle segregated collateral with counterparties. Those that had agreed generally chose third-party custody with account control agreements.

"Those firms that have had the smoothest go-live so far are those that have used the one year COVID-19 delay the most productively. The firms that kept their IM readiness moving forwards over this period are now reaping the rewards with a smoother go-live," says Chris Watts, co-founder and director at Margin Tonic.

Although some firms did not take their feet off the gas, there is a feeling that plenty of in-scope phase 5 firms — both buy-sides and dealers — put their tools down when the one-year delay was confirmed. Watts observes that these firms have been caught up in the inevitable queues at custodians, vendors and legal teams and found it more difficult to deliver the right changes. Outcomes here often include tactical, temporary solutions, which may unnecessarily increase costs, operational risk and still need future remediation.

According to Watts, the reality is that go-live success will still play out across coming months, as standard initial margin model (SIMM)/Grid exposure (referring to calculation methodologies for initial margin) grows, firms breach thresholds and then settle collateral at the custodian accounts. Only then will firms see their end-to-end solutions working successfully.

The main challenges

There have been many challenges associated with UMR compliance. One of the important nuances of the phase 5 UMR transition, which was not as prevalent in the earlier phases, is the new IM CSA term.

This defines how Reg IM under UMR will be treated when the buy-side party is already subject to a house independent amount (IA) requirement.

Spiro explains: "Since this term is negotiated in each IM CSA separately, a phase 5 firm could have all three approaches included within different agreements among their counterparties. Depending on which approach is chosen for each agreement, the daily margin call calculation can vary significantly, adding a layer of complexity that did not exist before."

Another challenge is the communication of collateral movements to custodians. While many buy-side parties are familiar with the third-party custody model, the tri-party model utilised by dealers since UMR phase 1 is much less familiar. Even if a phase 5 firm chooses to use a third-party account rather than a tri-party account, they will still have to confirm the tri-party RQV to the tri-party custodian for the dealer's collateral posting to work. According to Spiro, this is another nuance that may not have been obvious to some phase 5 firms.

Given that there is so much to know about this process that is completely new to a buy-side firm, and firms do not get extra credit for going at it alone, industry participants believe it really pays off to work with someone who specialises in Reg IM compliance. This is also because the volumes are so much greater than in any phase prior so firms can be in trouble if they delay.

"It is why Acadia offers the ability to go-live in its production environment — monitoring, calculating and reconciling well before a firm's go-live compliance date. There should be no surprises," says Demo.

From Margin Tonic's perspective, Watts comments: "Being on the ground with IM since before phase 1, we have seen a lot of challenges! IM readiness has evolved over that time."

One of the key challenges Watts sees for phase 6 is the scale of change. He notes: "Almost all newly in-scope firms underestimate the IM solutions they will need to deliver. There is genuine front-to-back change required across risk, operations, treasury and legal for those firms who expect to breach threshold and exchange collateral."

It is therefore important for firms to understand their compliance scope now and then accelerate the delivery of those changes, by choosing the right solutions for each part of their process flow.

Additionally, 'beating the queues' is another challenge associated with phase 6. This is as the International Swaps and Derivatives Association estimates almost 800 new firms will be caught in-scope in phase 6.

"The industry queues we have already seen in phase 5 will become far longer and more painful. Firms need to do all they can to ensure they are ready with their new IM operating model as early as possible, avoiding the worst parts of those queues and therefore ensuring no trading impact, which is a critical goal for all," Watts affirms.

He adds: "The combination of a high scale of change and the industry queues to come is not a great one…"

New firms need to ensure they clearly understand the IM rules and changes, in order to quickly make the right solution decisions and get a headstart on the industry queues.

However, Watts explains internal education is often a challenge for latter phase firms, with limited internal IM experience, key teams often working in their own silos and competing priorities.

According to Watts, phase 6 firms should leverage external expertise to accelerate internal knowledge and decision-making where they have gaps, either via the likes of Margin Tonic or vendor partners who have had deep experience of previous phases.

No gain without pain

Industry participants have worked extremely hard to comply with UMR, and all of the hard work and challenges have not been in vain. Demo points out that the ability to delay operational readiness is a great financial benefit to firms who will not exceed their Reg IM threshold on the compliance data. It does, however, create a need for solutions such as Acadia's IM Threshold Monitor service. This service enables in-scope firms to see the Reg IM exposure and threshold that their dealer counterparties calculate before go-live and without cost to them.

Meanwhile, UMR is also an opportunity for firms to update their manual processes with new, enhanced technology. Spiro explains: "As operational processes become more complex, to avoid any regulatory breach, buy-side firms may take the

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US +1 646 443 6601 **UK** +44 20 7031 5730 **AUS** +61 2 9037 3521 opportunity to automate some of their manual processes, which can make them even more efficient than they were in the pre-UMR world.”

Also discussing the opportunities UMR can provide, Watts suggests it can future-proof profits. He elaborates: “You will not find many firms with nice things to say about IM! But if we take a wider view, the main opportunity from IM is that the cost increases it brings are forcing firms to strategically re-assess their derivatives and collateral infrastructure.”

“As a result, firms are proactively finding new ways to bring their costs down, in order to future-proof profits.”

Watts explains there is a whole world of different techniques that firms can use to reduce their derivative cost base, some internal and some often via vendors.

These include, but are not limited to, operations outsourcing, removal of cross-product silos, single asset inventories, improved internal collateral mobilisation, increased clearing, new optimisation techniques, pre and post-trade, among others.

“Perhaps obvious but the key for each firm is to understand their own unique circumstances and choose solutions which will have the greatest positive impact on their profits. These solutions may vary for the short-term and long-term,” Watts comments.

Upcoming changes?

AST finds that there are some parts of the UMR ruling that may cause global regulators to collectively look to tweak or change in the near future.

Demo says: “The industry does expect some level of relief from European regulators around the model validation requirements for buy-side firms who are caught up in UMR but do not have traditional quant capabilities. This would level the playing field somewhat with US regulations that place the UMR requirement squarely on the prudentially regulated entity.”

Spiro remarks: “Some aspects of the rules have been viewed by the industry as a bit inconsistent from the start. One example is that physically settled foreign exchange forwards are included within the average aggregated notional amount calculation to determine which firms are in-scope for UMR rules, but then once in scope, those same trades are not included in the SIMM calculation.”

Spiro suggests that this leaves some firms technically in-scope for the rules, and having to repaper their agreements, but with a high likelihood of never having to actually move collateral.

Another example would be the inconsistency of rules from one regulatory jurisdiction to the next; in the US, a swap dealer has an obligation to post collateral to their counterparties, but a buy-side firm does not have an obligation to collect.

In practice, Spiro explains this means that a buy-side firm has no obligation to independently calculate the SIMM requirement. Rather, they can rely on their dealer counterparty’s calculation, potentially avoiding a large expense.

Spiro adds: “This is not the case in other regulatory regimes, where both parties have an obligation to post and receive. There has been industry advocacy to try to normalise certain aspects of the rules such as these.”

With potential tweaks and changes upcoming for UMR, along with the outcome of the go-live yet still to play out fully, it is hard to say how successful the transition has been to phase 5 for the industry as a whole.

Generally, given the challenges with the pandemic, the industry has worked well during this transition period. The clear winners will be those who continued to plan and prepare during the extra time afforded and those who work collaboratively with the rest of the industry.

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J.P. Morgan was named Collateral manager of the year at the AsiaRisk Awards 2020, in September last year.

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Centralised systems

20

A centralised view of collateral

The ability to interconnect trading platforms and to drive centralisation of trade input data, execution and post-trade management is a must, says Mike Norwood, Director, Global Trading Product Owner at EquiLend

The long-term vision for securities finance is of a sector equipped with centralised systems which support firms in making, managing, and settling collateral, and the trades which they underpin, efficiently and cost-effectively. Weighty regulation has both aided this vision and, in the short term, slowed the forward march of progress, but the future is closer than firms can imagine.

Monumental change

Outside of securities finance the decade got off to a turbulent start, but within the sector waves were also being made with the introduction of the Securities Financing Transactions Regulation (SFTR) and the impending, much delayed, Central Securities Depositories Regulation (CSDR). Uncleared Margin Rules (UMR) under the European Market Infrastructure Regulation (EMIR), while initially aimed at regulating the derivative space, also placed pressure on the buy-side in securities lending. The requirement to post specific classes of collateral has liquidity, resource and funding implications for firms. The swathe of such regulations aims to unify the sector and foster collaboration and centralisation of resources for greater efficiency.

The vision of dual macro and micro reporting made real by SFTR presents data collection and interpretation challenges for regulators. Staff at impacted firms are acutely aware of the importance of day-to-day reporting and are doubly aware of the largely manual management of new and existing trades which has traditionally come with that. Requirements such as those of back-loading trades to fulfil regulatory back reporting while day-to-day trade activity is ongoing creates a polarising scenario. Fulfilling one requirement pulls necessary focus from the other, contributing to point-of-trade fails and further backlogs in reporting. STP technology works to mitigate inaccuracy and subsequent latency at point of trade, additionally facilitating post-trade management.

UMR adds an additional pressure across securities lending desks not only in the increased volume of margin calls but where High Quality Liquid Assets (HQLA) are required to fulfil margin calls, yet inventory information may be unavailable quickly. In the new regime, under-reporting of collateral has been noted for a number of reasons, not limited to illiquid collateral types, reuse of collateral and long-tail settlement dates impacting delivery of collateral and its reporting. Greater matching at point of trade through readily available technology can offer a real-time resolution.

Wholesale regulation seeks to simplify processes and timelines for efficiency and transparency. For firms, this means getting ahead of change to avoid penalties, latency and the potential for demoralised staff, overwhelmed by the weight of new workload brought by systematic change. The weight of such significant legislation for market participants will in time change behaviours and, for most firms, such benefits can be achieved through simple upgrades to existing software to immediately deliver benefit.

Centralisation and transparency

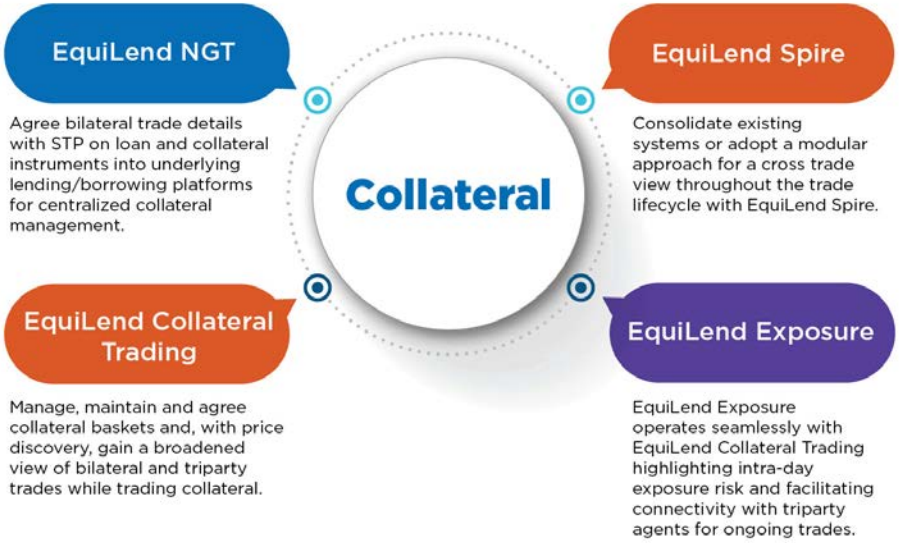
Centralisation of trade input data, execution and post-trade management offers many benefits and can mitigate compound latency at several stages in the trade lifecycle. In facing down the challenges of creating greater industry transparency, interconnectedness of trading platforms is a must. EquiLend's proprietary trading tool, NGT, has long offered platform interoperability for clients in seamlessly making, placing, and executing trades, no matter their internal technology capabilities.

Central to the EquiLend vision throughout our 20-year history, products such as EquiLend NGT provide a base from which clients may further enhance their trading capabilities in line with technological advancements newly built into familiar platforms. Recent enhancements to our EquiLend Exposure and Collateral Trading tools further support centralisation and greater control for each market participant.

EquiLend Collateral Trading (CLT) offers a centralised way for funding and financing desks to execute and manage termed trade structures with their counterparties. Each may advertise intent and manage the process of collateral management from negotiation to allocation, centrally. The true benefit of this is realised for firms impacted by UMR, where a centralised view of collateral type and value will benefit a number of business areas. The price discovery screen, True Market View, is a key feature of CLT and uniquely enables clients to access a transparent view of the global basket trading. This facilitates greater price discovery and, when paired with the broad range of basket types available to view, offers a truly transparent view of liquidity, demand, and execution on the platform.

With centralised communication across multiple counterparties also a feature of CLT, parties in a transaction can have a clear view of inventory on both sides of the trade. STP messaging through Shared Trade Tickets now connects NGT trades and each client's collateral activity. This facilitates centralisation and market transparency, moving each counterpart a step toward faster collateralisation of a pending trade.

Where EquiLend Collateral Trading offers a broad



EquiLend NGT

Agree bilateral trade details with STP on loan and collateral instruments into underlying lending/borrowing platforms for centralized collateral management.

EquiLend Spire

Consolidate existing systems or adopt a modular approach for a cross trade view throughout the trade lifecycle with EquiLend Spire.

Collateral

EquiLend Collateral Trading

Manage, maintain and agree collateral baskets and, with price discovery, gain a broadened view of bilateral and triparty trades while trading collateral.

EquiLend Exposure

EquiLend Exposure operates seamlessly with EquiLend Collateral Trading highlighting intra-day exposure risk and facilitating connectivity with triparty agents for ongoing trades.

EquiLend products offer a number of touch points for managing your collateral requirements throughout the trade lifecycle.

view of bilateral trades, EquiLend Exposure plays a vital role in highlighting intraday exposure risk through a centralised platform. Enabling connectivity to tri-party agents and aiding transparency with ongoing trades, real-time reconciliation reduces settlement latency while increasing the accuracy of the transactional data.

With EquiLend Exposure, on-screen visibility of intraday settlement activity offers clients a sure way to ensure accurate, up-to-date collateral requirement calculations. EquiLend Exposure additionally supports the effectiveness of EquiLend Collateral Trading with real-time receipt of collateral allocations from tri-party agents, enhancing the ability to prioritise collateral allocation for seamless settlement.

Each of these tools interconnects seamlessly with the other services in the EquiLend ecosystem, each dealing with the market need they address in the most efficient way. True efficiency is not only found in solving the problem but in delivering the solution in the most accessible way.

The future is now

Firms have long had a requirement to simplify trading processes in the pursuit of more efficient trading. They now have a duty to deliver this while additionally generating greater transparency. With trades made every second of the day, preparing for and subsequently adhering to regulation has, and will continue to be, an incredible task for the securities finance industry.

Gaining ground on the granularity of trade data and capitalising on efficiencies through greater centralisation from execution to post trade must be the focus. While regulation has most recently driven these efficiencies, it is now time for firms to enjoy the benefits of the technology. Further adoption of this technology will be the true driver for change.

"Gaining ground on the granularity of trade data and capitalising on efficiencies through greater centralisation from execution to post trade must be the focus"

Mike Norwood
Director, Global Trading Product Owner
EquiLend

Improving collateral resilience through analytics and optimisation

Collateral resilience is an operational model to ensure there is sufficient collateral to meet any demand in any market. Cassini Systems' CEO Liam Huxley explains how to meet this objective

Historically collateral management has been seen to be secondary to the trading, risk or financing functions. Although it has always been the case that some derivative trades required collateral to be moved, there was not typically concern over the availability of collateral as a whole – despite the collateral workflow being complex.

However, this has been changing in recent years owing to the increasing regulation affecting different parts of the industry, for example, clearing mandates impacted by Dodd Frank, and Uncleared Margin Rules (UMR) from BCBS-IOSCO that have mandated movement of both variation margin (VM) and initial margin (IM) on derivatives that cannot be cleared at a central counterparty (CCP).

In addition, volatility across the markets has been responsible for sudden and very significant spikes in margin requirements as dynamic risk-based margin models adapt to short-term market stress.

The charts opposite illustrate some of the changes in IM and VM requirements over the last two years. Some highlights are:

- Among the major banks, regulatory VM has roughly tripled from 2019 levels.
- As highlighted in the ISDA margin survey 2020, the amount of IM for cleared derivatives, including interest rate derivatives (IRD) and credit default swaps (CDS), significantly increased in 2020.
- Total IM for IRD and CDS products reached US$330.6 billion at the end of Q4 2020, compared with US$269.1 billion at the end of Q4 2019.
- With the UMR rules having just rolled out to phase 5 firms, and phase 6 coming into force in September 2022, many more firms are now having to move IM on uncleared trades. This is adding to the demand for collateral.

Overall, this means that firms actively using derivatives now have to manage daily VM and IM movements, as well as posting significant amounts of collateral against IM. They also need to ensure they have a sufficient supply of eligible collateral, whether that is cash or non-cash assets.

Figure 1: Increase in VM posting by the largest firms in phase 2 and 3. This is indicative of the effect phase 5 will have on the broader market

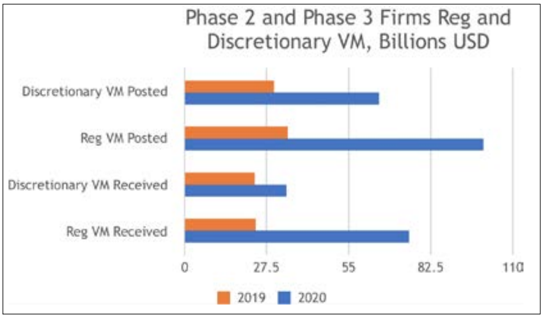
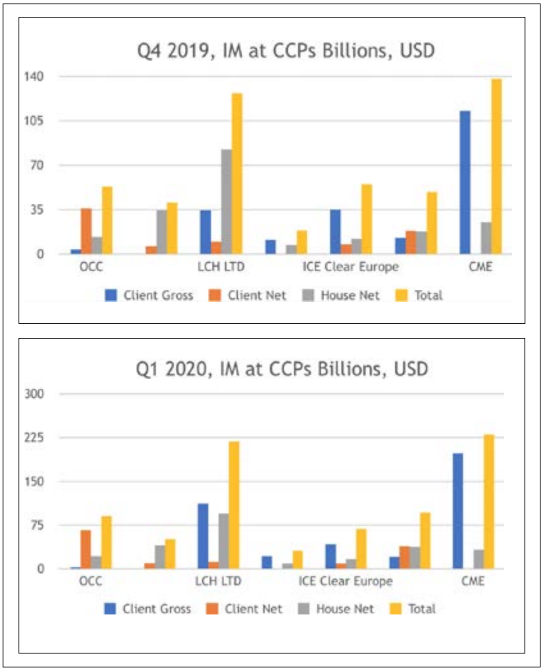


Figure 2: Year-on-year increase in IM at clearing houses



Collateral Resilience

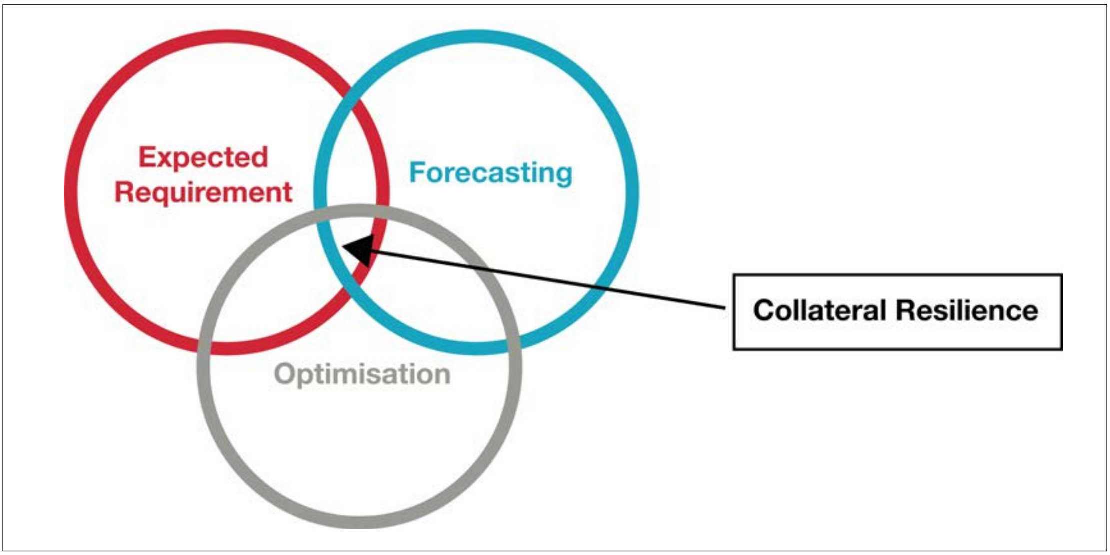
If a firm is in a position where it has insufficient assets available to meet a margin call, it has no option but to address this urgently. It can do so via a range of tools, such as freeing up cash, reassigning assets, or entering into collateral transformation trades to meet the requirement. Handling a collateral shortfall in this way is expensive, operationally difficult and creates trading risk since it can result in a forced close out of trades causing losses on the portfolio. This is where collateral resilience comes into play.

Collateral resilience is an operational model that aims to ensure there is always sufficient collateral to meet any demand in any market.

To achieve true collateral resilience requires several elements:

1. End of day (EOD) requirement

The first stop in building resilience is knowing what



you are going to be required to post out as collateral. This means having the tools in house to calculate your T+1 IM and VM exposures across all business lines and external counterparties.

Calculating your expected IM or VM requirement in advance of the daily collateral management process allows you to determine if you will have sufficient eligible collateral before you receive the margin calls from your brokers or counterparties. This also gives you the added benefit of being able to validate broker statements and margin calls.

Consistency across all business lines is key in this process, since only being able to predict T+1 requirements on some agreements gives a partial picture and does not provide the ability to guarantee collateral coverage.

2. Forecasting

The next step is to put in place the ability to forecast potential collateral future needs on short and medium-term horizons.

VM Forecasting provides a view on the maximum amount of VM that may be called over a defined time horizon (e.g. the next five business days) and in a certain confidence level. This is used by firms to ensure they have the right amount held in cash buffers to meet calls, while freeing up excess cash for trading activities.

Forecasting of IM is also a powerful tool. For example, forward projecting portfolio growth or drift over time, or defining stress scenarios of extreme market conditions. This provides a set of metrics for possible IM requirement levels which can then be analysed against inventory to determine where collateral shortfalls could occur in future.

Another extension of this concept is **collateral what-if analysis,** where a firm can test impact of changes to collateral eligibility haircuts or availability. This scenario examines situations where the overall margin requirements may not alter, but changes to the eligibility or rating of collateral assets means that there is no longer sufficient collateral available and a shortfall can occur.

3. Optimisation

The third leg of the collateral resilience solution is optimisation, and this applies to both margin and collateral.

Margin Optimisation. Using techniques to optimise and reduce your margin requirement clearly improves collateral resilience because less collateral is needed. There are multiple ways to do this, starting with pre-trade checks to identify the clearing house or counterparty that has the lowest margin impact and then moving towards post-trade analytics to identify trades that can be replaced or novated.

These optimisation techniques allow for the same portfolio risk to be expressed, while maximising portfolio offsets by counterparties. Examples that we see with clients are where trades are novated among futures commission merchants (FCMs) or futures contracts are rebooked with risk equivalent trades on a competing exchange.

Collateral Optimisation

The last piece of the jigsaw to ensure collateral resilience is to implement a fully featured collateral optimisation engine. Rather than the waterfall allocation models commonly used by collateral systems, a true collateral optimisation allows you to ensure that collateral is deployed in the most efficient way, depending on each organisation's individual constraints, and that the maximum amount of liquid assets are retained to provide a buffer for any unforeseen margin calls. A complete collateral optimiser will support substitution and rebalancing and allow for configuration defining what inventory can be used and when.

Data Requirements

These tools require robust data across all business lines including:

Visibility on CSA terms	All collateral agreements, eligibility terms and constraints
Accurate Inventory	Knowing accurately what is available as collateral inventory across the organisation is essential, and this includes asset reference data and data on holding location, as well as trading constraints that may restrict ability to pledge certain assets
Good trade data	Calculating the initial and variation margin in various scenarios, needs full portfolio and trade economics

This data is not always easy for firms to access – often the information is being managed by an outsource service provider or else in in-house systems that cannot integrate to the front or middle office.

Challenges

So how easy is it to put these tools and processes in place? Naturally, it is not straightforward, or everyone would have done it already.

There are three areas that commonly create hurdles to implementing a true collateral resilience strategy: systems, data and organisation.

The systems that need to be linked, for all the above to be possible, are often separate and siloed and are not designed for integration or for bringing back-office information into the front and middle office.

Additionally, data is represented differently between front and back-office systems, with neither having the full picture. Consequently, this has to be combined and harmonised. The agreement and funding data may not even be in a system or may be managed externally by an outsource service provider. All the usual issues of mismatched identifiers and patchy trade economics come into play.

Sitting across all of this are the organisational barriers. To implement the strategies described above requires collaboration between front and back-office teams and, of course, that creates challenges in aligning priorities, allocating budgets etc.

Outcomes

While none of the above is simple, it is well worth the investment and focus for any firm that has significant collateral exposure. Investing in systems and workflows to put in place the various tools and transparency on collateral information produces great rewards. These include:

- Reduction of locked up cash buffers, resulting in profit and loss (P/L) gains
- Deeper pool of eligible collateral on hand for a rainy day
- Reduction of collateral risk
- Lowered cost of carry for derivative trades

The new normal in collateral servicing

Some of the more interesting developments in the collateral management space are being driven by two primary themes, mobilisation and convergence, says Michael Calandra, Americas Collateral Strategy, J.P. Morgan

As the focus on efficiency in the collateral space continues to accelerate, providers of agency collateral services must transform themselves to meet the growing expectations of market participants. While the market's appetite for traditional solutions including tri-party and outsourced collateral management remains, buying behaviour and consumption methods globally will continue to evolve. Gone are the days of viewing your collateral solely within the ecosystem in which it currently resides. That is giving way to a stateless pool of collateral that can be deployed anytime, anywhere in tri-party or bilaterally.

Market participants are looking to the providers of agency collateral solutions to partner in the development of tech-focused, modular offerings to meet their current and future needs on an à la carte basis or holistically. This demand is propelled by a variety of catalysts, including regulation, the need for more efficient funding channels, industry consolidation and harmonisation.

Thematically, the collateral industry's current state of evolution can be summarised by two driving forces: mobilisation and convergence. Mobilisation is impacting everything from platform development and enhancements, to value added services (e.g. optimisation), to the utilisation of collateral (both complex and traditional). A diverse array of strategic initiatives is representative of these changes, all following the common thread of seeking to liberate collateral types and make these available outside of their traditional use cases.

Mobilisation

Addressing an immediate need, J.P. Morgan's mobilisation efforts are supporting the increasing number of buy-side firms adapting to the Uncleared Margin Rules (UMR) for Segregated Initial Margin and the resultant requirement to fulfill these mandatory margin obligations. It is critical to have a vehicle that can support these margin requirements by mobilising collateral dynamically, while maintaining its availability for trading and lending opportunities.

J.P. Morgan Collateral Transport is an end-to-end asset inventory management solution that enables clients to seamlessly cover margin obligations and preserve trading and lending opportunities, while reducing their operational burden.

To facilitate asset mobilisation and optimal allocation, J.P. Morgan Collateral Transport provides an integrated solution to manage asset inventory across trading, lending and collateral activities. Leveraging the J.P. Morgan Agency Securities Financing platform, Collateral Transport provides the tools to mobilise, deploy and service assets between agency securities financing (ASF) opportunities and J.P. Morgan Collateral Services to meet collateral obligations utilising assets without intrinsic ASF value. Collateral Transport manages this deployment of assets agnostic to our clients' underlying custodial or tri-party agent relationships.

"J.P. Morgan operates a global technology-driven collateral and agency lending business integrated across the securities services value chain. Our modular and flexible solutions deliver optimised asset returns and collateral usage, whilst increasing operational efficiency and transparency of the sources and uses of assets"

Michael Calandra, J.P. Morgan

This offers a number of direct benefits to users:

- **Maximising the use of long assets.** By using unencumbered assets as collateral, Collateral Transport unleashes the collateral value of the unencumbered assets to maximise their financial benefits. The transport of collateral can be supported for both in-house and externally managed assets, creating the ability for clients to better utilise assets regardless of their custodial location.
- **Efficiently meet regulatory margin requirements.** As assets are mobilised to a tri-party collateral agent, clients will be able to seamlessly collateralise their margin obligations to their counterparties. J.P. Morgan tri-party as collateral agent can customise the prioritisation of asset selection based on asset types and

counterparty rankings to ensure clients meet their margin obligations optimally and effectively.

- **Minimising impact to day-to-day trading and lending.** The agency securities financing platform will support clients for asset delivery to a tri-party collateral agent, as well as the return of assets in the event of lending or sales opportunities. Securities lending traders will monitor the outstanding securities posted via Collateral Transport and recall assets if there is demand for that asset to be lent. In addition, if a security that sits on Collateral Transport is sold, it will be substituted or recalled, ensuring its availability for sale.
- **Preserving standard processes for income and corporate action events.** The impact for clients receiving contractual settlement for income is managed through the return of the Collateral Transport asset via substitution of an equivalent asset to its custodian ahead of the income event. Similarly, the recall or substitution process can also be initiated for proxy voting and other corporate action events prior to the event dates to ensure the rights are preserved for the client.

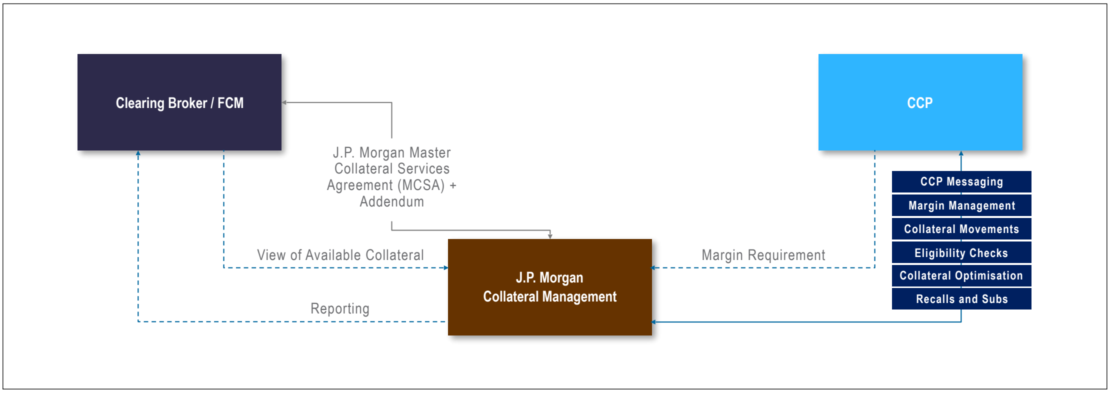
Collateral Convergence

In the here and now, mobilisation efforts enable our second driving force in the collateral servicing space, convergence. By this we mean the fungibility of collateral across agency securities financing, collateral management, and even traditional custody. As consumers of agency solutions look to manage their business across these needs more efficiently, providers of these products and solutions must continue to do the same.

Additionally, as margin requirements have increased at central clearing counterparties (CCPs), highly manual processes can result in less-than-optimal outcomes. There is, however, an opportunity to make the delivery and return of CCP-related collateral, including intra-day recalls and substitutions, substantially more efficient by using automated solutions. Further, replacing cash auto-debited by CCPs with securities margin can create economic benefits for clearing members. In line with our strategic pillars of asset mobilisation and collateral efficiency, and in response to CCP member feedback, J.P. Morgan Collateral Services is expanding its tri-party collateral offering to include margin requirements at CCPs.

By combining tri-party's optimisation and eligibility engines with its bilateral collateral management capabilities, J.P. Morgan can move collateral bilaterally while still providing the benefits of robust optimisation, automation and eligibility tests that tri-party offers. This solution is now actively delivering efficiencies for sizeable initial margin requirements for a large global broker-dealer at a major CCP.

Weaving together repo, securities lending, pledge, UMR and now CCP collateral activity, J.P. Morgan's tri-party platform (Collateral Central) provides clients with a consolidated view of their collateral obligations across various financing markets and trade-types.



Efficiencies are created when the CCP member outsources their daily margin interaction with the CCP to J.P. Morgan.

Automation	Optimisation	Custodian Agnostic
Outsource consumption of CCP margin requirements, collateral valuation and collateral movements	Prioritise assets based on various collateral parameters to meet margin requirements optimally across multiple CCPs	Designate funding a longbox at J.P. Morgan or enabling connectivity with external custodians via a power of attorney model

- CCPs will send the margin requirements on behalf of clearing members to J.P. Morgan Collateral Services. When the relevant pool of collateral is accessible, J.P. Morgan's service manages that collateral against margin obligations, continuously adhering to the CCP's eligibility requirements, the clearing member's optimisation parameters and the CCP's specific messaging protocols.
- Once the CCP confirms the proposed assets, the service automatically delivers the asset in the market to the CCP. The management of collateral includes the ability to substitute securities at the CCP and replace cash posted as margin with securities.

In designing this service, J.P. Morgan considered both house and client margin requirements.

For house requirements, a traditional funded longbox approach is employed where collateral is selected based on pre-defined algorithm rules and the CCP's eligibility schedule, as matched up against the available pool of the CCP member's collateral held in the J.P. Morgan longbox. This longbox can be leveraged across traditional repo, securities lending, pledge and UMR activity.

For client margin requirements at a CCP, J.P. Morgan will integrate the existing capability to source collateral from internal or external custodial locations with tri-party functionality. This eliminates the need to change standing settlement instructions (SSIs) with underlying clients, thereby optimising the client clearing organisation's underlying client margin requirements at the CCP by delivering a more efficient operating model and funding profile.

J.P. Morgan's CCP Margin Exchange offers the opportunity to provide the first end-to-end clearing collateral workflow solution with the ability to support bilateral delivery or traditional tri-party based on the preference of the CCP. J.P. Morgan has long facilitated the collateralisation of client margining to clearing members and, by connecting clearing members to CCPs, provides the prospect of bringing together these different elements to complete a longer term vision. This is a holistic clearing collateral service, automating the management of collateral throughout the CCP ecosystem, from client to clearing member to CCP, irrespective of region or time zone.

The New Normal

With these themes in mind, the target state for providers of agency collateral services, including J.P. Morgan, will continue to be a focus on connectivity across pools of assets, current depots and utilities, as well as the extension of existing services to address more of the value chain for our clients.

At J.P. Morgan, we are dedicated to advancing the collective industry and consistently improving the experience and output for our clients. We have developed a three-pillar strategy of asset mobilisation (unlocking under-utilised assets), collateral efficiency (convergence of offering), and integration through innovation (integrating and leveraging vendors and partners with our own securities services franchise architecture in an open manner). This strategy, and the underlying initiatives and partnerships, will drive the future of our collateral business at J.P. Morgan and the advancement of the industry at large.

The value of connectivity

Dan Griffiths, head of collateral management at Broadridge SFCM, says connectivity is key in providing businesses with a secure and cost-effective ecosystem, enabling services to be scaled across global jurisdictions and to meet 24/7 operation

Following the financial crisis and the reform of the global financial system, we have seen much change in recent years with the introduction of new regulations, along with market utilities and third-party vendors competing to support today's industry. One of the major challenges for capital markets, with more and more vendors providing services to clients, is connectivity. Firms need to connect to multiple systems to ensure a secure and efficient flow of data around their ecosystems.

The growth in the industry has added competitive pressure on firms to deliver greater value to investors by utilising these new services. The complexity of these networks can highlight the limitations of ageing legacy systems that are no longer cost effective or fit for purpose and ultimately need replacing with newer, more capable solutions that can provide that edge for firms.

Broadridge Securities Financing and Collateral Management (SFCM) has focused on connectivity for many years since this is key to providing full front-to-back capital markets solutions to our clients. This has been important to our success and, in recent years, we have seen it become even more integral owing to the markets' expectation for greater integration and automation. SFCM creates links with external vendors such as market utilities, central counterparties (CCPs), tri-party agents and custodians, providing direct access to the markets and helping our clients to grow their business in today's evolving industry.

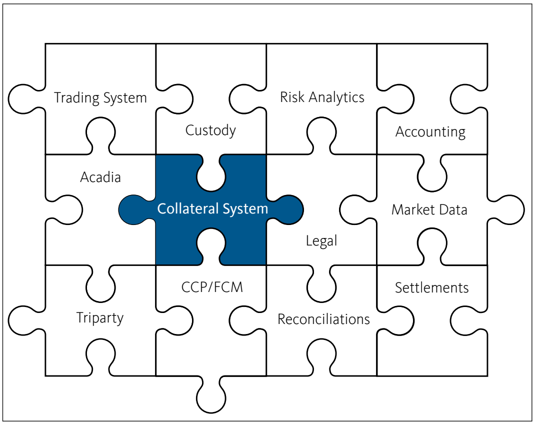
Equally important are the internal links that support data flows to other critical areas of the business, including settlements, legal and accounting. When providing connectivity for our clients, one of the first factors that we look at is the data quality. We must ensure that the data quality has not been compromised and be constantly aware of the importance of having readily available data for other systems to consume effectively.

Looking at Apple as an example, they have established an ecosystem where multiple products can be sold and integrated seamlessly across other Apple products, thus creating automation across devices and user experiences that are considered second to none.

If we now look at capital markets, and focus specifically on collateral management, market participants expect a similar experience where products can integrate, processes are automated, and data can be communicated in real-time — ensuring that users are informed and able to make key decisions.

The distinction between these examples is that systems supporting capital markets must connect to multiple external and internal sources with no common interface. In this context, the value of connectivity which provides real-time market access can be a game changer for firms. By supporting a real-time view of available positions and profit opportunities, this can help prevent delays in feeding data back into the core trading systems and reduce errors such as over-selling. It can also reduce the risk of manual errors, where vast amounts of data need processing in minimal timeframes, such as mobilising collateral through the SWIFT network and managing settlement within short time windows at custody and tri-party agents.

Collateral management has evolved considerably in recent years, with some firms moving the function away from the operations department. This should be seen as a primary function and integrated across the client ecosystem in order to deliver value across the business.



Following recent innovative advances in technology, we have seen a surge in automation while simultaneously reducing the burden and risks around manual processes. Feeding data through a client's ecosystem can be complex when dealing with multiple external and internal systems all behaving very differently. There may be fragmented data, limited data views, unconventional formats and availability at different times of the day. When we have data coming from different sources, then tools may be required to process the data in a set order and into a consolidated format, adding further control and ensuring no loss of productivity.

We continuously work with clients to help establish an efficient ecosystem where connectivity between systems is critical when supporting daily activities and data flows across networks. The feed and control of new or amended data from legal systems to capture collateral agreements, to exchange information between investor departments or downstream settlement systems, these are just some of the essential pieces of the jigsaw in delivering value to our clients. By having the links across the business, and seamless integration to our securities finance platform, we have seen clients benefit hugely from centralising inventory management for trading and collateral activities where users are actively delivering increased value to their business.

Building networks

The value in connectivity also comes in creating networks with market utilities, third-party vendors, clearing houses, tri-party agents and custodians for a full front-to-back securities financing solution. The industry has taken positive steps towards standardisation in recent years through various initiatives by ISDA, such as the Common Domain Model (CDM), the ISDA Standard Initial Margin Model (SIMM), along with the digitisation of ISDA Master Agreements on ISDA Create, just to name the higher profile areas. For the industry to achieve greater automation and sophistication in the collateral space, we must seek further standardisation in key areas and adopt these new initiatives into everyday practices.

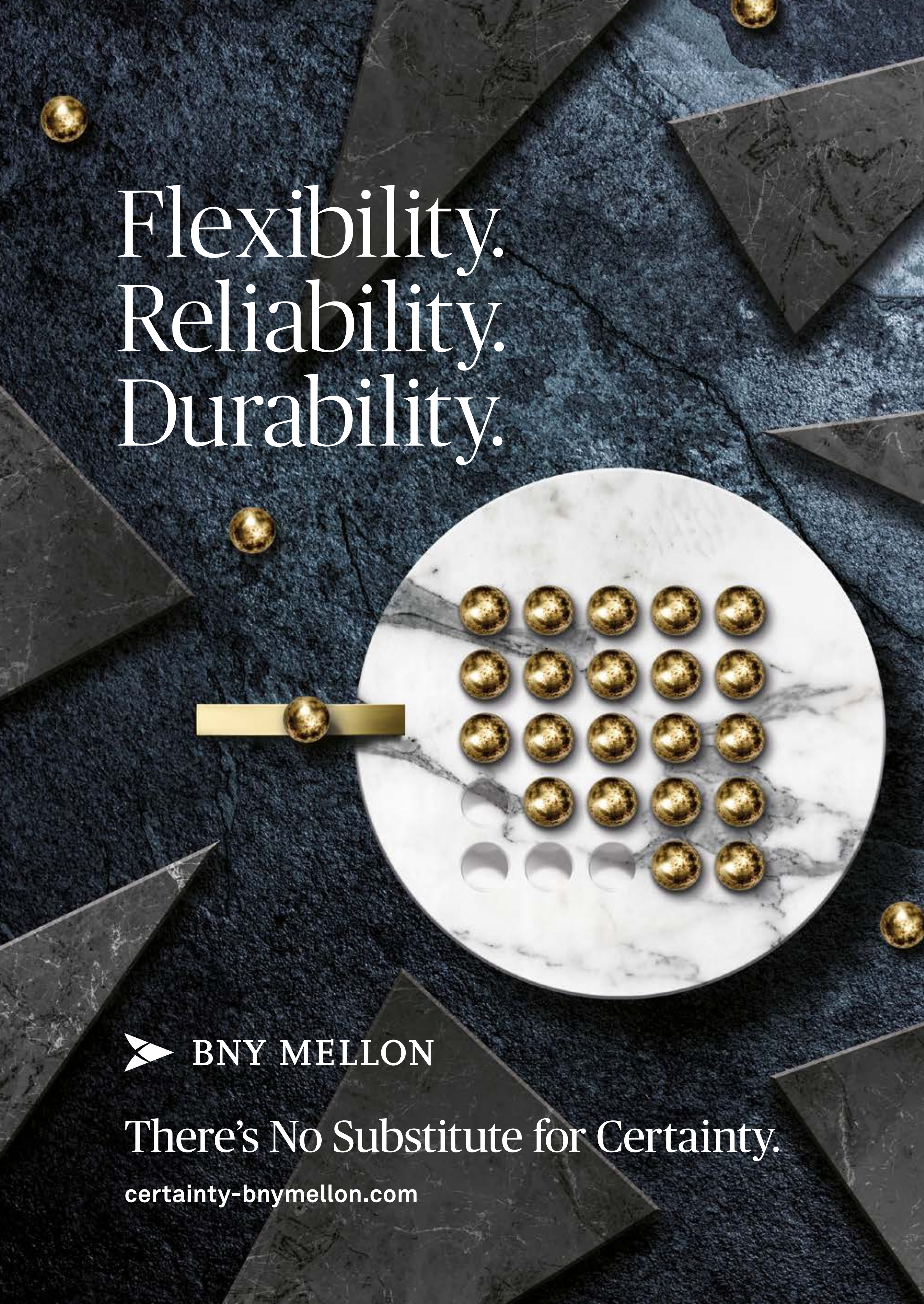
One of these important areas, where connectivity is critical in maintaining efficiency and automation across the industry, is in derivatives clearing. Volumes have risen significantly in recent years with mandatory clearing and Uncleared Margin Rules (UMR) set by the regulators as part of the global reform.

Despite the increasing demand for derivatives clearing, there is still a lack of standardisation across the clearing houses. Investors need a clear view of the margin and collateral data produced daily, so they are able to manage their exposures and mobilise collateral effectively. However, each clearing house and futures commission merchant (FCM) produces different data sets, which results in fragmentation across the industry and a need to interface separately to each clearing house. This can be costly to maintain.

At Broadridge, we support direct connectivity to global clearing houses and FCM's to feed harmonised data into SFCM's collateral management system. The connectivity removes the need for clients to have multiple interfaces to clearing houses and reduces the risk around data quality. Investors have an holistic view of margin and collateral across the entire derivatives clearing business and are able to rapidly mobilise eligible collateral in response to the margin call demands.

Over the years, the industry has seen increasing value in connectivity — and more so in the collateral space, where there are high levels of automation and sophistication available to deliver more advanced capabilities to firms. We expect to see a continued increase in demand for connectivity over the coming years as we see more and more innovation within the capital markets industry.

Connectivity plays a key role in providing any business with a secure, stable and cost-effective ecosystem, where the business can be scaled across global jurisdictions and be operational 24/7 in some cases. This leads to greater opportunities for the business to grow and adapt to these challenging times ahead as we all look forward to leaving the global pandemic behind us.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The evolution of tri-party collateral management

There is a perception that becoming a tri-party participant is a complex endeavour. However, Jérôme Blais, head of business development for tri-party collateral services at BNP Paribas Securities Services, explains that firms already set up with an asset servicer can join up very quickly. Tri-party is just another service alongside fund administration, depositary banking services and agency lending

Four years ago, BNP Paribas Securities Services became a tri-party agent in order to answer the demand for this type of solution and anticipating opportunities it would unlock in the future.

Fast forward to 2021 and tri-party collateral management has confirmed its value to market participants in terms of operational efficiency and reduction of risk.

With the buy-side getting to grips with tri-party, new eligible forms of collateral, and the advent of new technologies, the future is bright for tri-party services.

Buy-side demand for tri-party services

Participants in repos and securities lending enjoy operational savings, reduced risk and greater trading opportunities. Given these benefits, buy-side firms are being encouraged by sell-side firms to adopt tri-party to deliver greater connectivity between market participants and homogenised operating models. This, in turn, will allow the sell-side to benefit from improved collateral optimisation.

There is a perception that becoming a tri-party participant is a complex endeavour. While new clients of a tri-party custodian need to go through a full onboarding process, firms already set up with an asset servicer can join up very quickly. Tri-party is just another service alongside fund administration, depositary banking services and agency lending.

IM motivates further adoption

While the market was beginning to prepare for the first wave of the uncleared margin rules (UMR) in 2015 and 2016, discussions were underway as to how the buy-side would approach these regulatory waves. On the one hand, buy-side firms might favour existing non-tri-party custodians (also known as third-party custodians according to the dedicated market terminology), which made sense on paper given that these buy-side firms tend to benefit from a wide range of services from their primary service providers. On the other hand, the clear operational and optimisation benefits of tri-party services meant that buy-side firms might see the advantage of sometimes establishing tri-party relationships away from their primary custodians and depositary banks.

We firmly believed in the latter and, at least in Europe, this has already materialised for Wave 5. To think that the market would mostly rely on third-party custodians for Wave 5 was underestimating the benefits of the tri-party model and also the sell-side's appetite for a more coherent model across the board. To a certain extent, brokers have a vested interest in capitalising on their investments in tri-party models and building a robust straight-through processing model such as tri-party.

With Wave 6, which applies to a much larger population of market participants, we believe we are set to see the continuation of this trend and a wide adoption of tri-party models to manage initial margin.

Pushing the boundaries of eligible collateral

The collateral landscape is evolving and becoming more diversified by geography and asset type. This includes what was previously considered 'non-standard' collateral, such as ETFs.

This said, we have not seen wholesale movement to utilising ETFs in collateral management thus far. This is because essential pieces of the puzzle are still to be solved, such as rating (HQLA vs. non HQLA), synthetic versus physical management of indices, and ETF groups as opposed to endless lists of individual ETFs. With better and more coherent data, the market is set to move in the right direction and this will allow for a broader use of ETFs as collateral going forward.

The future of collateral will be digital and sustainable

When it comes to sustainable or ESG-compliant collateral, our asset manager and asset owner clients can expect us to support them by fine tuning their collateral policies according to their own ESG standards. As the definition of ESG baskets is still remote, we made sure we could support our clients with custom solutions in the first instance — with inclusion or exclusion of specific assets or industry sectors and the ability to guarantee a proportion of ESG-compliant assets received as collateral.

Recent discussions at market level (e.g. ISLA, Global Principles for Sustainable Securities Lending) confirm that it is a challenge to define commonly agreed ESG collateral baskets, which validates the need for custom solutions in the meantime. But agreed definitions will happen and this is where service and data providers must act collectively to aim towards standardisation.

With regards to digitalisation of collateral management, there are a myriad of possibilities. Distributed Ledger Technologies (DLT) and tokenisation are two areas that are being broadly discussed. Digital solutions can help answer real market needs such as interoperability, capital consumption and collateral silos. This is why we decided to participate in HQLA^x, which leverages R3's distributed ledger technology Corda Enterprise to enable market participants to transfer ownership of securities seamlessly across disparate collateral pools at precise moments in time to optimise their liquidity management and collateral management activities. This is where digital technologies can help boost operational efficiency gains and capital cost savings.

The future of collateral redefined

As ghosts of the past drive the present day approach to collateral, what does the future hold? Staffan Ahlner, global head of Collateral+ at State Street Global Markets, provides some answers

The Global Financial Crisis in 2008 made the importance of collateral management apparent to both individual firms and the financial system as a whole. Collateral has consistently proven its resilience in times of turbulence whether caused by bank defaults, pandemics or due to unprecedented macroeconomic shifts. Organisations with efficient and effective collateral management sustained their operations through challenging times. Organisations that understood the turbulence and were prepared could take advantage of the changes to modify their working practices and behaviours to dramatically reshape and increase business.

Meanwhile, collateral management has adapted to the economic changes, regulatory developments and the evolution of technology. Service providers must continue to search for improvements and new ways to solve challenges, while maintaining their core role of protecting against risks in order to maintain the financial security of their clients. Collateral management, if done well, not only solves risk but also provides incremental revenue opportunities. However, if done poorly, it increases risk, drains liquidity and increases a firm's capital requirements with high operational and opportunity costs. It is, therefore, not surprising that collateral management must continue to evolve, with innovation at its core, to continue to find alternatives for each shift in the paradigm.

Sell-side demand caused innovation

Collateral was first widely used by the sell-side as firms needed to maximise their investment activities despite increasingly scarce resources. Regulatory pressures then added further incentives for them to optimise their activities, while economic pressures forced the same firms to seek ongoing incremental returns. As a consequence, several collateral tools and processes were developed for the sell-side and, for the most part, processes are still shaped around their needs. However, these changes were not without challenges, — which is apparent considering it took over a decade for many sell-side firms to merge fixed income and equity collateral for use to meet obligations arising from the same trade type.

Some progress

Most sell-side firms have now merged the post-trade processing for funding, with many now having combined securities lending for equities and fixed income. The post-trade management teams for derivatives are often still outside of these centralised functions and it is only over the last few years that we have seen leading sell-side firms set up resource management units that bridge the disciplines.

Contrast with buy-side approaches

The buy side, however, does not share the same historical divisional split, considering post-trade centralisation is taken for granted for many buy-side firms. Additionally, hedge funds, asset managers and asset owner firms have access to securities according to the type of trading activity they undertake; as opposed to a sell-side firm that sources the collateral to be used by means of re-use or securities lending.

While for buy-side firms, some of their collateral management focus has been driven by risk mitigation, much of this has developed as a result of the regulation governing their counterparts on the sell-side. The regulation, however, has recently begun to impact the buy-side firms directly. With this background and the lack of clear financial incentive, many buy-side firms have relatively underdeveloped collateral functions that are yet to build or access scalable, automated processes and technology.

However, the buy-side is working more closely with their global custodians than their sell-side cousins. Several buy-side firms need holistic solutions that cut across the full range of collateral optimisation capabilities. But for a majority, who are now only about to come under regulatory obligations, an initial compliance-based approach makes sense, while ensuring that they have the options and approach to add further elements as requirements evolve.

The future offers an opportunity to thrive

Collateral is about thriving. Therefore, achieving the base level of compliance is just the beginning of the journey. Each firm will have its own path as it develops operational workflows, settlement automation, analytics and optimisation engines and access to the funding solutions it requires. Stepping back to ensure an understanding of the broader ecosystem, the organisation's role in the ecosystem, and the objectives in the long term, are as key to developing a collateral strategy as they are to any part of a business.

For custodians, in their role as service providers, it is important to develop a deep understanding of their clients' business, capabilities and objectives, as well as leveraging the latest technology and market utilities to help guide firms at all stages of the collateral development spectrum. At State Street, this has led us to build a brand new cloud-enabled platform with a modular approach that connects clients to all key market utilities, as well as future proofing their collateral optimisation and analytics needs. Organisations do not want to pay for services until they are required. Therefore, enabling this approach gives us flexibility to cater to a client's current compliance need while providing ease of access to future pre and post-trade optimisation tools that keep down the costs of compliance in a margin-sensitive environment. The final pillar to the State Street Collateral+ service is provided by direct access to financing markets via sponsored and peer-to-peer repo, securities lending and cash reinvestment alternatives such as Fund Connect.

Delivering the product is just the first piece. Staying connected to our client's business – past, present and future – is what enables a custodian to help deliver the right services and products to meet a firm's needs as it grows and the revenue enhancement opportunities accelerate.

As we look to resolve the golden triangle of collateral challenges: inventory visibility, optimisation and mobilisation, the focus of work moves to crystallise the benefits coming from asset digitalisation. The next generation of securities financing tools bring with them much greater flexibility in digital form, further enabling collateral's ability to reduce credit risk and enhance returns.

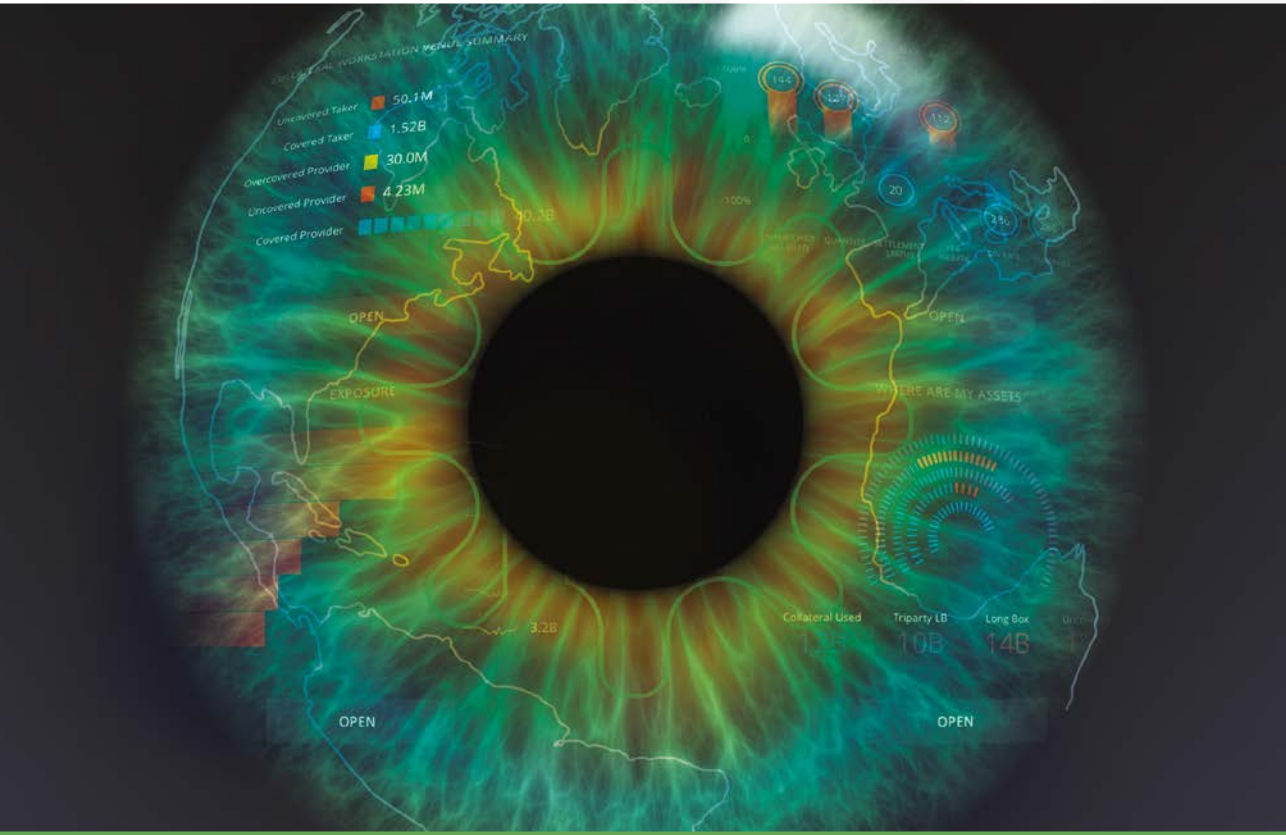
> ***"Delivering the product is just the first piece. Staying connected to our client's business – past, present and future – is what enables a custodian to help deliver the right services and products to meet a firm's needs"***

Staffan Ahlner
Senior vice president and global head of Collateral+
State Street

GetConnected
GetCollateralised

CollateralConnect & ExposureConnect

Enterprise-wide, end-to-end collateral visibility, efficiency and exposure management



COLLATERAL WORKSTATION VENUE SUMMARY
Uncovered Taker
50.1M
Covered Taker
1.52B
Overcovered Provider
30.0M
Uncovered Provider
4.23M
Covered Provider
20.2B
OPEN
EXPOSURE
OPEN
WHERE ARE MY ASSETS
Collateral Used
Triparty LB
10B
Long Box
14B
3.2B
OPEN
OPEN

Control

Consolidated, real-time visibility across Repo, Stock Loan & OTC

Connect

Turnkey, web-based connectivity to the collateral ecosystem

Collaborate

Streamlined, automated workflows supporting all market participants

Cover

Tools to ensure best coverage and maximum efficiencies

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Ted Allen
Director of business development, securities finance and collateral
FIS

Centralise, automate, optimise is the new mantra

Ted Allen, director of business development, securities finance and collateral at FIS, reflects on the modernisation of inventory and collateral

Some things age well. They develop strong roots and spread their branches. Others are more like the leaves on those branches, briefly dazzling before fading away.

Let's step back 30 years to 1992. It's not commonly cited as epoch-defining, but at least a couple of things took root that year that have grown to uncommon ubiquity. The greatest rock album of its time burst seemingly from nowhere to change the face of popular music (if you don't agree, never mind). Something significant also happened in our world of securities finance and collateral – securities lending was just getting going and a new breed of technology was needed to service it.

Consequently, Global One came in bloom, and the first four clients were onboarded onto a platform that would come to dominate the industry for the next 30 years. Something in the way that platform serviced exactly the right market need clearly touched a chord. Fast forward to today and of those original four clients, three are still using the system and it remains the backbone of the international securities lending business for a wide segment of the market.

We are now in the next era of securities finance and collateral technology. Capital market firms are undergoing two contrasting transformations simultaneously. They are moving to a less siloed organisational structure to cope with the ever-growing client, market and regulatory pressures. At the same time, they are transforming their IT infrastructure to a componentised and increasingly cloud-based architecture that can adapt to emerging industry standards. The market and technology have moved on and firms demand more modern, connected and efficient tools to help them increase revenues and drive down costs. With the new mantra of centralise, automate and optimise, advanced technologies are poised to evolve securities finance and collateral management even further.

Global One is so successful because it does what it does fantastically well. It is focused firmly on the securities lending domain and if a firm is trading across other silos, then additional platforms come into scope. Firms now need to look across silos but lack any place to bring the inventory together. As demand for high-quality assets rises ever faster to satisfy liquidity, capital and collateral needs, it is unsurprising that efficiencies can be found in consolidation.

Many firms operate in multiple silos of business. Those silos may cover cleared, listed and bilateral derivatives, as well as repo and securities lending products and they may be split across regions and even across legal entities. Each of these silos has their own view of their inventory and collateral and their goals on how it should best be allocated. Of course, each entity and each desk is motivated to maximise their own return on assets, but what is best for one desk is not always best for the firm as a whole. This impacts sell-side banks and broker-dealers, futures commission merchants (FCMs) as well as buy-side asset managers, insurance firms and pension managers. The consequences are that costs of collateral are higher, securities finance returns are lower and balance sheet costs may be higher.

Financing across fixed income and equities and managing collateral across the firm all call on the same pools of assets. Trying to manage those pools individually without a global view of the sources and uses of collateral will never be optimal.

When you consider efficiency in the securities finance programme and optimising the collateral allocation across the firm, the first place to start is by gathering the inventory of assets that could be deployed. To see what is in front of one's nose is a constant struggle. It can be a problem to gather this information together in a meaningful and useful way when dealing with multiple silos with multiple custodians across multiple markets.

The importance of centralising inventory management can be considered by asking a set of simple questions:

- What assets do I have available right now across the whole firm that could be deployed?
- Where are these assets and when can they be moved?
- How long do I have these assets?
- Where are the eligible assets to be used and what will they be worth?

To answer these questions in a meaningful way, you need as real-time a view as possible of your traded and settled positions across the firm. There are many challenges to overcome to build that view and consolidate your global, real-time inventory. Nonetheless, you need to be able to answer these questions as the starting point for optimising the collateral allocation.

Your global inventory will tell you what assets you have available and where, when and for how long they could be deployed, but not necessarily how best to deploy them. This is the role of collateral optimisation.

The concept is often simplified to just a waterfall approach of selecting the cheapest way to deliver assets for a given requirement. It is a simple and obvious place to start, but it ignores the broader goals of maximising your total available funding capacity and maximising the returns of your securities lending programme.

Substitution and transformation

A more optimal approach includes the potential of making substitution rights work for you and of transforming assets to take advantage of different eligibility and haircuts applied across collateral agreements. It is one thing to calculate the cheapest to deliver asset to allocate to a particular requirement at a single point in time. It is quite another matter to consider all the allocations you have already made and how you might redeploy assets as your inventory and requirements change.

This can be solved by deploying similar tools to those used for portfolio optimisation. That means performing a numerical optimisation across the entire set of requirements and inventory, considering how assets can be actively redeployed. It requires simulation of a huge number of different possible allocations to find the optimal allocation that minimises the cost of collateral and satisfies the constraints of the problem set. To take it one stage further, if you layer machine learning on top of that comprehensive view of your positions and market data, you can really optimise your decisions.

The optimal allocation solution still needs to be feasible, taking into account operational constraints, risk factors and costs in collateral movements or substitutions and different settlement cycles across markets. It is a problem of complexity and scale that requires sophisticated technology. It works best when the collateral optimisation tool is an intrinsic part of the inventory.

If the technology is disjointed, the optimisation algorithm may not consider the up-to-date inventory positions and the full complexity of the collateral eligibility rules. However, it must run alongside those older securities finance and collateral operations systems if you are to avoid ripping out and replacing your entire infrastructure. Those tools that have taken root and spread their branches across the firm are not always easily renewed. What's needed is a global inventory and optimisation tool that can simply be deployed as the brain on top to optimise and automate the process.

The industry is waking up to the need for a new approach to managing inventory and optimisation. We'll see increasing applications of artificial intelligence and machine learning to make better decisions, as well as the use of other technologies, including distributed ledgers, to drive out costs. To prosper in today's fast-paced global securities finance world, you need all the efficiencies you can get.

In the search for alpha, you need more than just a lending agent.

RETURNS

You need complexity made simple. Uncertainty made clear.
Decisions made with confidence.

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Above all, you need a trusted partner like State Street.

SIMPLE

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[1] *Global Investor* ISF Survey 2020 – Securities Finance Agency Lending named Most Innovative Lender

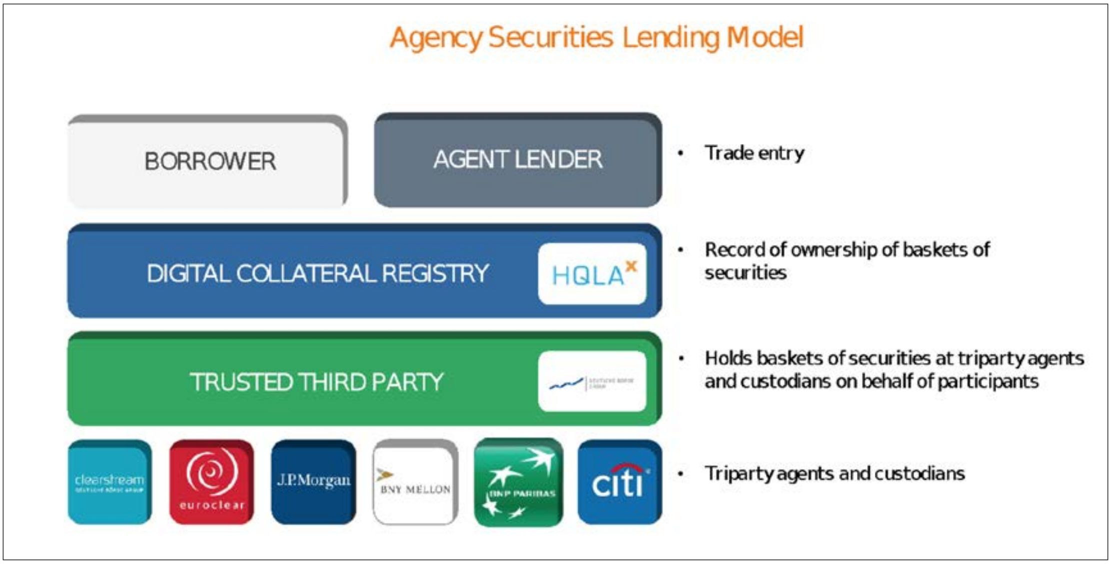
New designs in agency securities lending

Elisa Poutanen, sales lead at HQLA^X, describes how the Luxembourg-based company has built an agency securities lending model that enables agent lenders and their counterparties to reap the benefits offered by DvD settlement

In terms of our value proposition for market participants, HQLA^X was initially designed to enable capital efficient balance sheet management for banks. While our current production solution caters for upgrade transactions settling in tri-party environments, it is paramount for us to keep expanding the HQLA^X product scope and provide seamless access onto our platform for a wider community of securities financing market participants.

Through consultations with our strategic investors, partners, and clients, we have built a model that enables agent lenders and their counterparties to use and reap the benefits that our delivery-versus-delivery (DvD) settlement achieves. Our custody vs. tri-party model provides an opportunity for both agent lenders and borrowers to enter the flow with minimal operational and technical impact on their systems and to keep as many parts of their trading and settlement flows the same as they are today.

To onboard banks versus agent lenders on our platform, at least in the initial phases, much of the underlying value proposition will reside with the capital efficiencies that the operating model provides for the bank users. The simultaneous DvD settlement reduces intraday credit exposures by ensuring the ownership exchange of the principal and collateral legs takes place simultaneously. For the agent lenders, the value proposition can be characterised as being the lender of choice, enabling the agents to lend more securities out as the model is more capital efficient to bank borrowers.



Agency Securities Lending Model

BORROWER

AGENT LENDER

- Trade entry

DIGITAL COLLATERAL REGISTRY

- Record of ownership of baskets of securities

TRUSTED THIRD PARTY

- Holds baskets of securities at triparty agents and custodians on behalf of participants

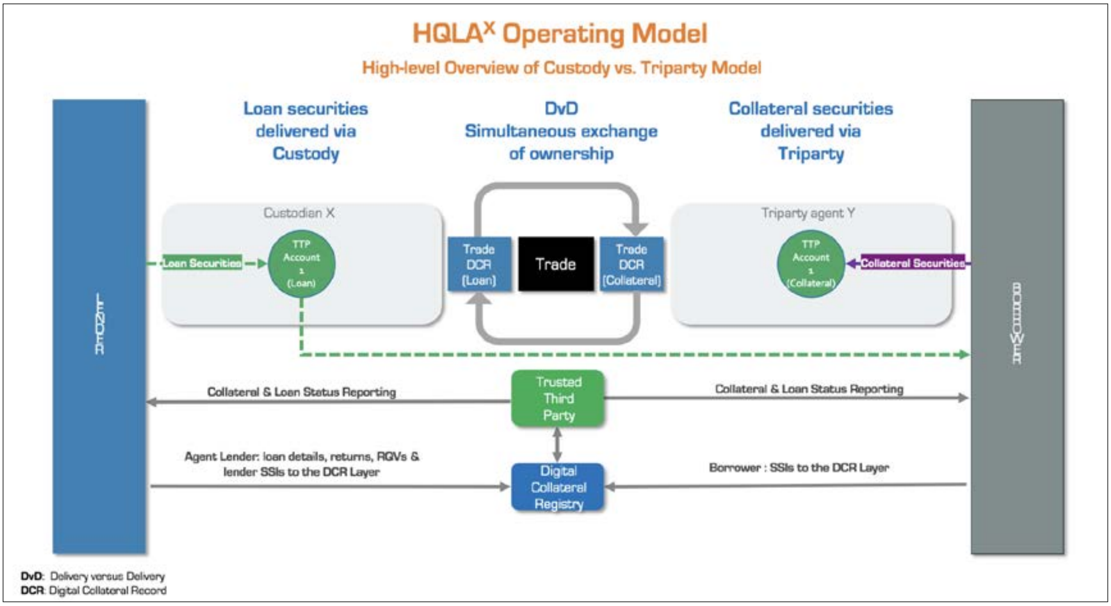
- Triparty agents and custodians

HQLA^X
clearstream
euroclear
J.P.Morgan
BNY MELLON
BNP PARIBAS
citi

For these specific flows, and in collaboration with two leading agent lenders, we have enhanced our current operating model to fit into the current agency lending market practice in which principal loan securities are settled through existing custody networks while the collateral leg settles through tri-party.

Collateralisation

HQLAX's current operating model enables the segregation and transfer of ownership of baskets of securities via tri-party. Consequently, we are already well positioned on the collateral side to segregate the collateral for the agency lending



HQLA^X Operating Model

High-level Overview of Custody vs. Triparty Model

Loan securities delivered via Custody

DvD Simultaneous exchange of ownership

Collateral securities delivered via Triparty

Collateral & Loan Status Reporting

Collateral & Loan Status Reporting

Agent Lender: loan details, returns, RGVs & lender SSIs to the DCR Layer

Borrower : SSIs to the DCR Layer

LENDER
Custodian X
Loan Securities
TTP Account 1 (Loan)
Trade DCR (Loan)
Trade
Trade DCR (Collateral)
Triparty agent Y
TTP Account 1 (Collateral)
Collateral Securities
BORROWER
Trusted Third Party
Digital Collateral Registry

DvD: Delivery versus Delivery
DCR: Digital Collateral Record

flow. In our operating model, the trusted third party (TTP) holds the collateral account in the books of the tri-party agent of the borrower, either on behalf of the lender or borrower, as recorded by HQLA^X on the digital collateral registry.

From an operational perspective, there is little or no change for the borrower as a collateral giver. The TTP, in its role as commissionaire under our legal construct, can hold the collateral securities on behalf of the participants and report the ownership of the collateral based on digital collateral records (DCRs) on our digital collateral registry.

Loan securities delivery

On the loan side, we have adapted our operating model to support the delivery of loan securities to the TTP via custody. After the loan securities have been delivered to the TTP by the agent lender and the change of ownership has been executed (DvD), the loan securities are immediately delivered onwards to the borrower. The key difference from the traditional agency lending flow for the loan securities is that the TTP acts as a neutral account holder in the flow on both collateral and principal securities sides and on behalf of both the agent lender and the borrower.

DvD at precise moments in time

DvD is achieved by using a combination of the TTP's ability to hold securities on behalf of the participants and the Digital Collateral Registry being able to record the simultaneous ownership exchange of the DCRs that represent the record of ownership of the loan securities and the collateral securities. For both the start leg and end leg of the trade, it is possible to define a precise moment in time for the ownership exchanges to take place, allowing borrowers finer control over their collateral optimisation, especially when intraday or time zone efficiency matters.

Operational aspects "getting connected"

From an operational perspective, trades can be booked via any of the platforms that are currently supported by the agent lenders. The post-trade data flows for loan opening, returns and recalls, and tri-party collateral required value (RQV) remain very much the same as today. No additional connectivity is required for the borrower to be able to take advantage of the operating model. All existing contract comparison, return services and RQV matching services remain the same.

Future benefits

Looking forward, we are analysing potential medium-to-longer term use cases for agent lenders and underlying beneficial owners, especially in the light of Uncleared Margin Rules and the requirement for the buy-side to collateralise margin exposures. One such use case is to enable beneficial owners to re-assign ownership of collateral received via DCRs on our platform in onward margin pledge obligations. This process could be facilitated by agent lenders connected to our platform, hereby enabling buy-side market participants to seamlessly re-deploy collateral via their existing agent lender relationships.

We are also working on enabling borrowers to benefit from even greater collateral mobility via the use of pre-collateralised DCRs, held in a "DCR Long-box" and instantly transferable at any moment from multiple custody or tri-party locations. This will help our clients to avoid issues related to having the right collateral in the right place at the right time. A DCR reuse feature will also allow our customers to mobilise DCRs received and held on ledger instantaneously in favour of the agent lenders, even outside of the settlement and tri-party collateral management same-day deadlines.

We are continuously adapting our services to include new product developments. We are intent on listening to input from our clients, prospective future clients and stakeholders to ensure we are providing significant solutions to address the market's pain points — while remaining true to our guiding principle of being 'designed by the industry, for the industry'.

Fair practice makes perfect

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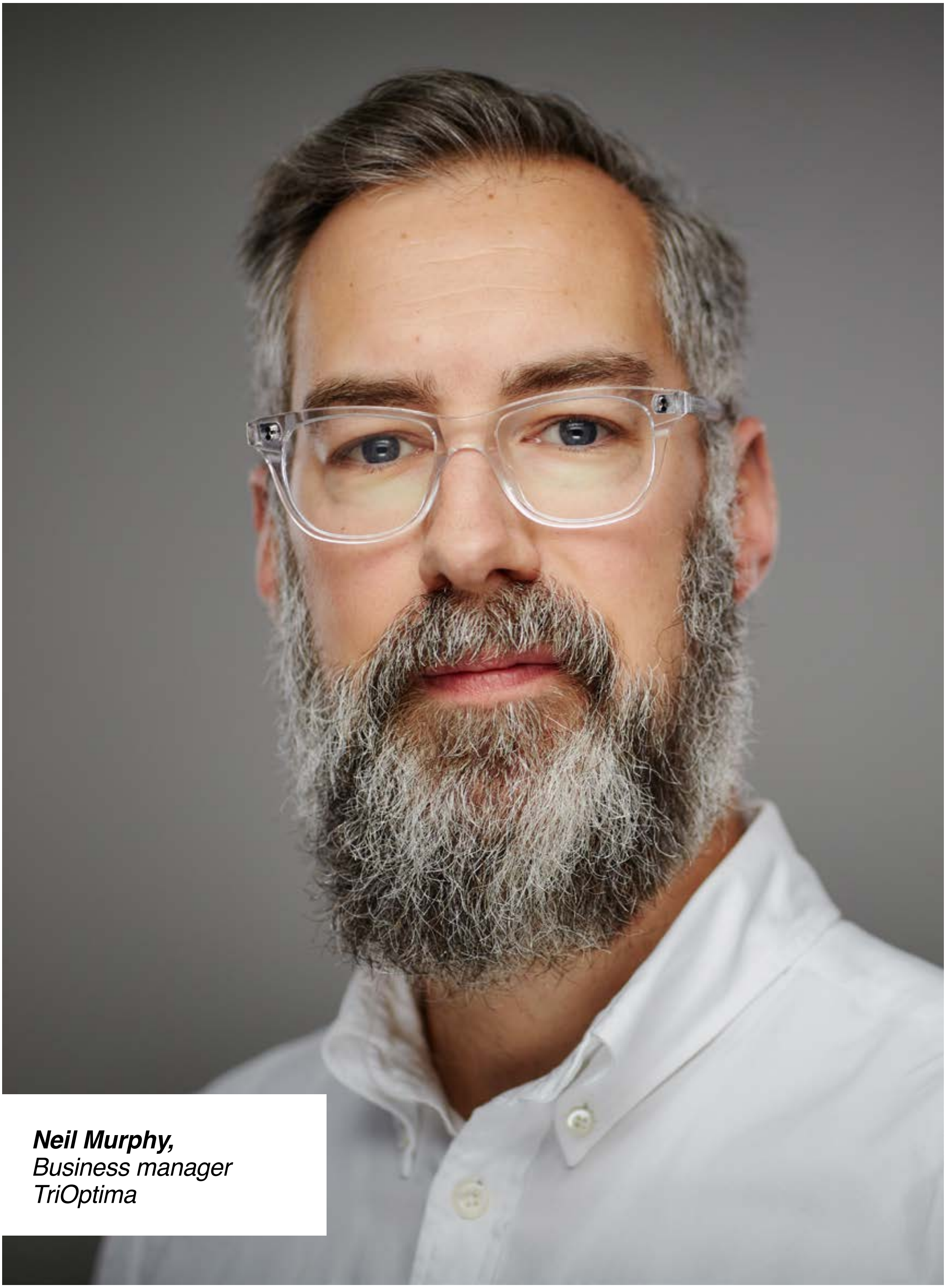


Neil Murphy,
Business manager
TriOptima

Collateral automation: if not now, when?

Rather than approaching compliance through a narrow lens, focusing only on initial margin objectives, firms need to examine potential for automation across the entire collateral management process, says Neil Murphy, business manager at TriOptima

At its core, collateral management encompasses a set of relatively standardised, but distinct and fragmented, operational tasks. Regardless of a firm's size, those tasks are likely to include:

- trade data capture and validation
- legal agreement storage
- margin calculation
- margin call workflow
- collateral booking and optimisation
- settlement

Collateral automation should ideally target each of these tasks, allowing each to be performed directly while simultaneously connecting each task, thus enabling straight-through-processing with zero or minimal user intervention. Put more simply, users should not be required to load data, initiate tasks, approve workflow items or manually book payments. Instead they should be focused on exceptions and reduction of risk.

Automation should also include reporting and connectivity to other functions, including risk, accounting and payments.

As someone who started their career in collateral management using Excel for margin calculations and sending calls via fax, I have seen considerable progress over the years. However, there is room for improvement, with too many firms still reliant on outdated manual processes.

Traditional barriers to automation

If we step back five years, the barrier was plain and simple. There were limited or no options for collateral automation available in the market. While technology now provides a multitude of automation options, unfortunately some firms are still slow to adopt.

The first, and perhaps most worrying barrier, is a failure to recognise that the existing operational setup creates unnecessary work and increases risk — a so-called 'head in the sand' problem. Similarly, some firms have not kept up-to-date and are in the dark about the new automation options available to the industry.

Those that recognise that automation will benefit their firm, but are still not able to move forwards, often cite 'other project priorities' as a blocker. To these companies I ask the question, 'if not now, then when?' Similarly, many firms suggest that budget constraints hold them back. However, given the emergence of cloud and web-based collateral services such as triResolve Margin, this barrier is rapidly diminishing as the industry moves away from upfront licence fees and costly long-term contracts.

For firms that use in-house or installed vendor solutions, new automation will typically require an upgrade or will need to wait for the build-out of new features. This, in turn, creates its own barrier to adoption.

The final barrier is more of a cultural or organisational challenge, characterised by a reluctance to embrace change — or perhaps a failure to truly understand the benefits of automation. The arguments 'we're not that big, automation doesn't really matter for us', 'we've always done it this way', or 'it's an audit requirement to do it this way' remain strong, despite the obvious benefits that automation offers to firms of all sizes.

Why should firms automate now?

Perhaps the most critical reason to automate was highlighted during the COVID-19 pandemic. A perfect storm of market volatility and remote working left many firms struggling to meet capacity and called attention to both a high dependency on manual processing and limited capacity to deal with a spike in volumes.

Going forward, an inability to send out margin calls on time, coupled with a counterparty default, could have a significant impact on a firm. Rather than wait for the next market stress, firms should undertake steps to automate their processes as quickly as possible, thereby providing greater future resilience.

With both buy and sell-side firms increasingly impacted by regulation (for example, Uncleared Margin Rules, UMR, the Securities Financing Transactions Regulation, SFTR, and LIBOR transition), the day-to-day demands on a collateral manager are increasing. Therefore, automation is vital to meet increased workloads and regulatory objectives. Firms subject to new initial margin (IM) requirements under UMR potentially face increases in call volumes, settlements and reconciliations as well as the additional effort of preparing to comply.

Similarly, automation can support business scalability, allowing the front office to trade more products with a greater number of counterparties. With increased operational volumes, the risk of manual processing errors (incorrect or failed payments etc) rises too, so automation should be viewed not only as a solution to deliver more bandwidth, but also to mitigate the risk of error.

While these factors should provide more than enough justification to support a firm's business case for automation, there is also a human element. For reasons of staff retention and professional development, moving away from manual processing may result in higher levels of satisfaction — employees are tasked less with clicking buttons and more with managing risk and exceptions.

Where should firms focus their time and investment?

Rather than simply automate the current process, firms should use the opportunity to review their end-to-end flow, ensuring it can support business growth and regulatory change. While the target should be end-to-end automation, each firm should identify those aspects they want to prioritise — for example, improved dispute resolution or reduced failed payments.

Perhaps the most critical focus is to ensure firms adopt existing industry standards and best practice. Standardised solutions exist for reconciliation (triResolve), margin call messaging (Acadia) and settlement (SWIFT), thus providing coverage for much of the operational flow. Adopting these solutions can provide a fast-track to automation and help to reduce costs.

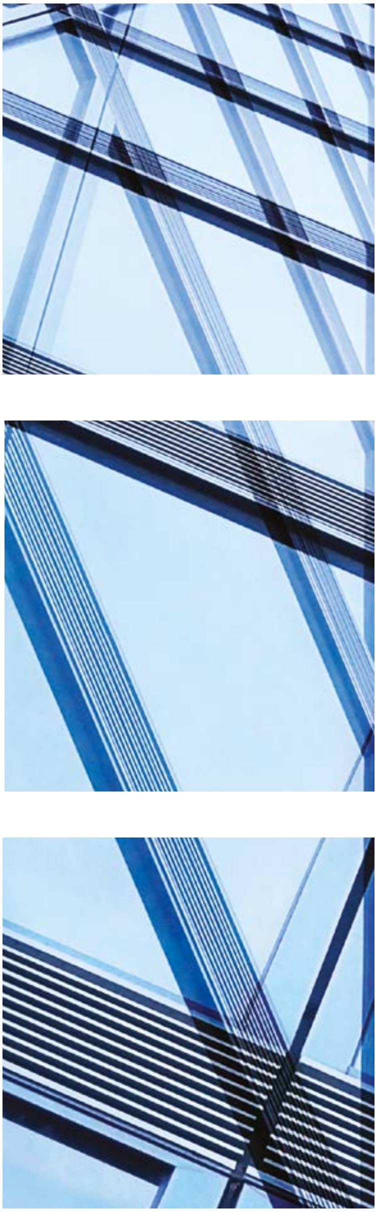
Implementing these standards is one thing, but firms must also focus on connectivity. A piecemeal approach, consisting of multiple providers, is likely to require more effort to maintain with additional potential for multiple points of failure. In contrast, a single provider offering can deliver off-the-shelf connectivity combined with end-to-end functional support.

While UMR largely impacts firms for IM purposes, TriOptima has observed, during the various phases of UMR implementation, that many clients have chosen to onboard well ahead of their IM deadline. This has delivered immediate variation margin (VM) automation benefits and improved their capacity to help deliver IM compliance when the time comes. So rather than consider compliance through a narrow lens (i.e. in meeting IM objectives), firms should look at the potential for automation across the entire collateral management process, including dispute resolution.

For disclaimer see page 96

We clear the path

OCC has the largest centrally-cleared stock loan offering in the world with approximately $80 billion in cleared loan balances. Over the last 25 years, OCC has built an innovative and unique U.S. program for securities lending transactions where OCC steps in as the counterparty (with a two percent risk weight) and guarantees the return of stock or collateral. We continue to enhance and expand access to our stock loan program in order to offer clearing solutions and capital efficiencies for our members and the entire securities finance industry.



As the world's largest equity derivatives clearinghouse, OCC is committed to providing market participants with high quality and efficient clearing, settlement and risk management services. As a Systemically Important Financial Market Utility, we work to enhance our resiliency in order to reduce systemic risk, increase market transparency, and provide capital and collateral efficiencies for the U.S. capital markets.

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THE FOUNDATION FOR SECURE MARKETS

Towards a sustainable repo market

Gerard Denham, senior vice president, funding and financing business development at Eurex, outlines the latest developments in sustainable finance, the role of the repo market and the progress of the Eurex Repo Green Bond General Collateral Baskets

Sustainable finance has been a prominent and intensive focus for financial markets over the past 18 months owing to increasing demand from investors for ESG-compliant investment opportunities, as well as the coordinated and concentrated attention on this subject by policy makers and regulators. This focus has been particularly intense in Europe.

Governments, as well as many of the world's largest asset managers, pension funds, banks and insurance companies, have declared their intentions to agree to a range of net-zero emissions initiatives, as well as sustainable finance regulatory directives, by adopting multiple schemes and treaties that will culminate in the COP26 Summit — the 26th UN Climate Change

Conference of the Parties in Glasgow, hosted by the UK Government in November 2021.

This year's summit is expected to reveal a proliferation in sustainable finance initiatives, as governments seek to demonstrate their climate leadership credentials before the world.

Green Bond and Sovereign Issuance

The sustainable debt market (Green, Social and Sustainability bonds, or GSS) reached a cumulative US$1.7 trillion at the end of 2020, with almost 10,000 instruments issued under GSS labels since 2006. This current critical decade has begun with labelled issuance evolving into the mainstream. US$700 billion worth of GSS instruments were issued in the calendar year 2020, almost double the 2019 figure of US$358 billion, indicating the intensive growth in sustainable debt despite the impact of the COVID-19 global pandemic.

Sustainable finance is a focus of national and supranational governance alike, with Europe exceeding a cumulative US$500 billion of green bond issuance at the end of April 2021, according to Climate Bonds Market Intelligence.

The European Union (EU) is committed to climate-neutrality by 2050, and the response from governments and corporates suggests that sustainable finance is growing in strategic significance. The EU plans to ringfence almost a third of its sizeable pandemic recovery programme for green investments, as the European Commission continues to work on defining its green economic activity.

National governments in Europe are also making strides — 2021 has already seen Italy, Spain and the UK go to the sustainable finance market with inaugural sovereign green bonds. In September, the UK issued £10 billion of its first green gilt after attracting over £100 billion of demand from investors, setting a record high which showed the strong demand for assets which can be classified as good for sustainable purposes.

The German and French bond markets have both been supported by issuance from their national governments. Germany's green bond debut arrived in 2020 , alongside vanilla equivalents, with its innovative 'twin bond' model — from which green yield curves can be recorded and used as a reference point for companies and other nations looking to tap the European bond markets. In May this year, Germany issued a further series of twin bonds, this time extending the yield curve out to 30 years, and strengthened this in September with a €3 billion 10-year Green Bond.

The COVID-19 global pandemic has provided a renewed incentive to position environmental considerations at the centre of global recovery and resilience programmes. The EU will safeguard up to €250 billion of a €800 billion Coronavirus recovery package for green investments over the next five years with its 'NextGenerationEU'.

This is the new temporary recovery instrument at the heart of the EU response and aims to support the economic recovery and build a greener, more digital and more resilient future. To finance the NextGenerationEU, the European Commission, on behalf of the EU, will borrow on the capital markets. This activity will be concentrated between 2021 and 2026 and repaid by 2058.

The Commission seeks to raise 30 per cent of the funds, amounting up to €250 billion in current prices, through the issuance of NextGenerationEU green bonds and to use the proceeds to finance green policies, while simultaneously boosting the size of the green bond market and inspiring more issuers to issue green bonds. The Commission issued the first NextGenerationEU Green Bond in October 2021, raising €12 billion to be used exclusively for green and sustainable investments across the EU. The EU is set to become the world's largest green bond issuer by far, providing a significant boost to sustainable finance markets. The 15-year green bond was more than 11 times oversubscribed, with books exceeding €135 billion, making it the largest green bond launch in the government bond market to date.

The EU has also been working to create a landmark classification system for green investments. The EU Taxonomy, and subsequent EU Green Bond Standard, aim to establish a catalogue of environmentally sustainable economic activities to supplement investment into sustainable infrastructure to meet the EU's European Green Deal targets.

View from the repo market

Eurex Repo launched its green bond GC basket in November 2020. The green bond basket encompasses Euro-denominated fixed income securities that are issued in accordance with certain guidelines that include renewable energy, preservation of biodiversity, sustainable waste management and other sustainability-related criteria.

On the sell-side, bank treasury desks have an environmental, social and governance (ESG) focus and are strong supporters of new green bond issuance. Meanwhile, the buy-side has already demonstrated that they are at the forefront of sustainable finance within the financial industry. The new Eurex Repo green bond general collateral (GC) basket is a useful component for the overall buy-side strategy as it offers repo market participants the opportunity to manage their short-term cash (i.e. money-market positions) in an ESG and green bond-compliant way.

Eurex Repo initially started with a single basket for green bonds which includes government as well as non-government bonds. The green bond GC basket encompasses euro-denominated debt securities that observe the guidelines and principles for green bonds.

In an extensive client consultation period with repo market participants, sustainable finance initiatives are a top priority for all clients but this has not yet resulted in a distinct mandate regarding repo transactions. Feedback specified that adequate supply of liquid collateral is key to support any sustainable finance initiative and the use of green bonds as the collateral in a repo transaction was a key requirement.

The consultation indicated that repo market participants are willing to contribute and participate in market-led sustainable finance working groups and consultation forums to achieve the goal of a sustainable repo market.

In the longer term, there is the potential to introduce green bond baskets for the Eurex GC Pooling market once the green bond repo market becomes more established in terms of liquidity. Eurex has the flexibility to supplement the product range with more specialised GC baskets based on developing client demand — by potentially including other sustainable finance bond types such as social bonds and sustainable bonds.

The green bond GC basket was designed to meet demand from both buy and sell-side clients with strong ESG mandates and has really kicked off the discussion regarding sustainable finance in the repo market.

As a result of the Eurex Repo client consultation, two new green bond GC baskets became available for trading on Eurex Repo's F7 trading platform in July 2021. One basket features higher credit quality, ECB eligible, government and supranational issued green bonds with a maturity date not exceeding 10 years.

The second new basket contains the same features, except that the maturity date will not have a restriction. This basket enables repo market participants to transact in the longer-dated 30-year green bond issues, such as the recent issues by the German Finance Agency.

ICMA and the ERCC discussion paper

The International Capital Market Association's (ICMA) European Repo Collateral Council (ERCC) issued a discussion paper in May 2021 entitled Green and Sustainable Finance: What is the role of the Repo Market? The paper highlights the role of repo in green and sustainable finance, exploring the sustainability aspects of repo and collateral.

The paper identifies different possible intersections between the repo and collateral market and sustainable finance: repo with green and sustainable collateral; repo with green and sustainable cash proceeds; and repo between green and sustainable counterparties. The subsequent summary report, analysing market responses, was published in September 2021.

The ERCC envisions a green repo market where buyers and sellers will only transfer bonds that are classified as green, such as the green bond GC basket launched by Eurex which acts as a short-term funding vehicle for green assets.

One of the key functions of the repo market is to support liquidity in the secondary market and facilitate price discovery. While evolving regulatory initiatives and central bank policy measures will be important to encourage investment in, and mobilisation of, sustainable assets, repo has a key role to play in the growth of sustainable assets such as green bonds, social bonds and sustainability-linked bonds.

Segments such as green bonds still lack secondary market liquidity for some of the reasons mentioned in the ICMA paper. Use cases which involve collateral baskets with a sustainability focus include investors (or trading agents acting on their behalf) lending cash against securities that investors can report as meeting their sustainability policies and objectives (e.g. an inclusive approach to fund green bonds) in their investment disclosures.

Aside from any ‘value-based’ considerations, other risk-based criteria (evolving around credit risk) should apply such as collateral haircuts, concentrations and exclusions managed by tri-party collateral agents.

Eurex Repo offers centrally-cleared repos with green and sustainable collateral. The bonds included in the Eurex Repo green bond GC basket are subject to Eurex Clearing eligibility and follow the ICMA Green Bonds Principles.

Other sustainable finance bond classifications such as social bonds and sustainable bonds can be included in additional collateral baskets based on sustainable finance themes, given appropriate consultation with market participants, data vendors, and market infrastructure providers.

A sustainable repo transaction could also be based upon an index of sustainable collateral for cash management purposes (i.e. the cash leg of a repo transaction could be aligned to an index based on green, social, sustainable and sustainability-linked bonds classified under the ICMA’s respective guidelines and principles).

Additionally, there is potential for repo collateral to be based upon the upcoming EU Green Bond Standard linked to the EU Taxonomy criteria and the UN Sustainable Development Goals (SDGs).

The most important aspect of the Eurex Repo green bond GC basket, and other potential service offerings, is to ensure its role in supporting liquidity and collateral fluidity and to contribute to the development of an efficient and transparent sustainable finance market.

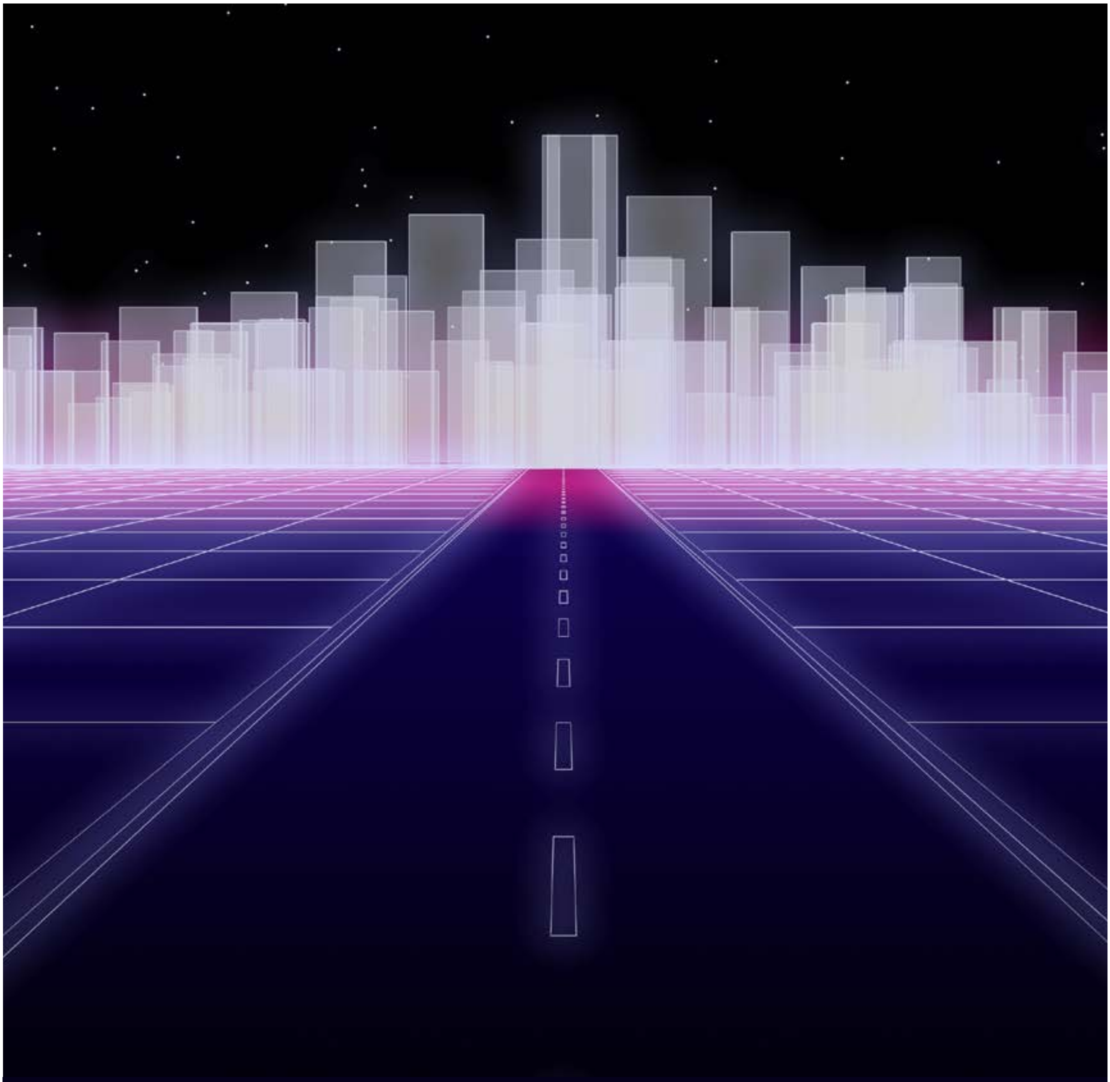
Collateral eligibility and collateral quality will still be determined by market participants and assisted by the subsequent infrastructure providers such as exchanges (for bond listings), data providers, rating agencies, second party opinion providers, trading platforms, central counterparties, ICSDs, tri-party collateral agents and trade repositories.

It is also the role of market participants and market infrastructure to continue to support issuance and liquidity across all asset classes (i.e. green and non-green), while the transition to a more prominent level of sustainable finance is accomplished.

The role of all repo market participants is to promote and strengthen issuance in the primary market and support liquidity in the secondary market. There is undoubtedly potential to embrace the concept of green and sustainable finance more actively in repo markets. Trade associations may also consider supporting any potential regulation intended to ensure that the repo and collateral market plays a central role in the overall development of sustainable finance.

Additional consideration could be given by policymakers and regulators to supporting the repo and collateral market’s role in the overall development of sustainable finance. For example, this might include the introduction of prudential regulation that is risk-based to ensure there is an increased allocation of sustainable assets as outlined by the EU (or equivalent) Taxonomy.

The responsibility is now with repo and collateral market participants to promote a robust and sustainable repo and collateral market and, in doing so, to support transition towards a sustainable global economy.



The road to enhancing liquidity and asset mobility

J.P. Morgan’s Bhavna Haswani, BNY Mellon’s Grieg Ramsay and Euroclear’s Joseph Tan, discuss key steps to effective collateral management

At a webinar hosted by Pan Asia Securities Lending Association (PASLA) titled Collateral Management 2021 - Everything You Need To Know, a discussion was split over three overarching themes; the importance of collateral management, the different models available and how effective collateral utilisation can contribute to enhanced liquidity and asset mobility.

Collateral management is a central aspect of the securities financing world that is fundamental to the operation of securities lending and repurchase agreement (repo) transactions. Aside from providing opportunity to generate greater value from securities held in inventory, this mobilises assets, creates additional equity and reduces risk. The webinar, led by PASLA director Paul Solway, examines best practice in constructing margin frameworks, highlighting that these need to be commercially acceptable and appropriate for the risk tolerance of the lender and borrower.

The importance of collateral management

Collateral management provides a safety net to mitigate counterparty risk associated with financial transactions.

Greig Ramsay, BNY Mellon product manager and head of PASLA's collateral working group, says: "The efficient use of collateral can have a significant impact on the firm's bottom line. The ability to utilise collateral is a key part of the financial ecosystem, particularly with the increase in regulatory capital requirements, the need to post collateral for derivative transactions, and a genuine focus in optimising firms' balance sheets. Managing your assets as efficiently as possible has never been so important and is a central function of any organisation."

However, the process of collateral management can be operationally intensive, according to speaker Bhavna Haswani, J.P. Morgan product manager and PASLA executive board member.

As with bonds, cash and commodities, equities may be used as collateral, but the value of equities may fluctuate on a day-to-day basis. Therefore, it is important that principal parties take responsibility for monitoring the collateral valuation and ensure it remains above the trade valuation. They are also responsible for physical settlement on movement of the assets, asset servicing and substitution, in case a recall is required.

One solution to juggling these priorities is by using a tri-party model, which involves an independent third party that takes control of the post-trade collateral management operation. The webinar explained how tri-party models offer potential to reduce risk of trade failure, to increase automation and provide timely reporting on credit risk, as well as automatic and efficient end-to-end workflow and connectivity.

The different models available

Trading parties may manage collateral movements bilaterally or via a tri-party model and deciding between the two will depend on the specific needs of that client.

J.P. Morgan's Haswani says: "Bilateral collateral management makes sense when there is limited stocks or counterparties involved, making it easier for collateral providers to manage associated lifecycle operations such as settlement, asset servicing, substitution, recall process.

"However, if you have a basket of stocks involving different asset types, with requirements to post to multiple counterparts with multiple obligations at different trading avenues, that's where the strength of the tri-party platform lies. Tri-party infrastructure allows fully automated, efficient workflow resulting in significant operational and cost efficiencies underpinned by a strong risk framework."

In terms of a tri-party model, Joseph Tan, chief representative of Euroclear and PASLA member, explains: "One of the key functions of the tri-party agent is the administration of the collateral throughout the lifecycle. One very important aspect of that is managing the corporate action, the income lifecycle of the piece of collateral, during the duration of the transaction."

The second is to mark-to-market the collateral that is being held in the escrow account. This is to ensure that there is sufficient collateral value. He adds: “In most cases, the lenders are almost always over collateralised due to the haircuts. That haircut is a premium to cover for market risk, liquidity risk and credit risk.”

Thirdly, a tri-party model can provide detailed, comprehensive and transparent reporting on all tri-party transactions to clients, as with day-to-day trading reporting, says Tan. He adds: “Typically, you get reporting on your positions, both in your escrow account as well as your longbox, if you’re both a collateral giver and a collateral receiver.”

A longbox is a place where all of the long assets of the collateral provider from different markets can be settled.

How effective collateral utilisation can contribute to enhanced liquidity and asset mobility

To define the securities which can be used as collateral in a tri-party transaction, the counterparties will need to agree upon a collateral schedule. This profile is built within the tri-party system, ensuring only specified securities within defined parameters can be allocated.

Tan takes the audience through the different parameters of the tri-party model and how utilising these can enhance rewards for collateral management.

Commenting on the instrument type, Tan says: “The whole purpose of receiving collateral is to protect the lender, when the counterparty defaults. Having collateral is one thing, but the ability to realise or liquidate the collateral in times of need, especially during market stress, is the overriding concern. That is why it is so critical to have a robust and efficient collateral management process in place.”

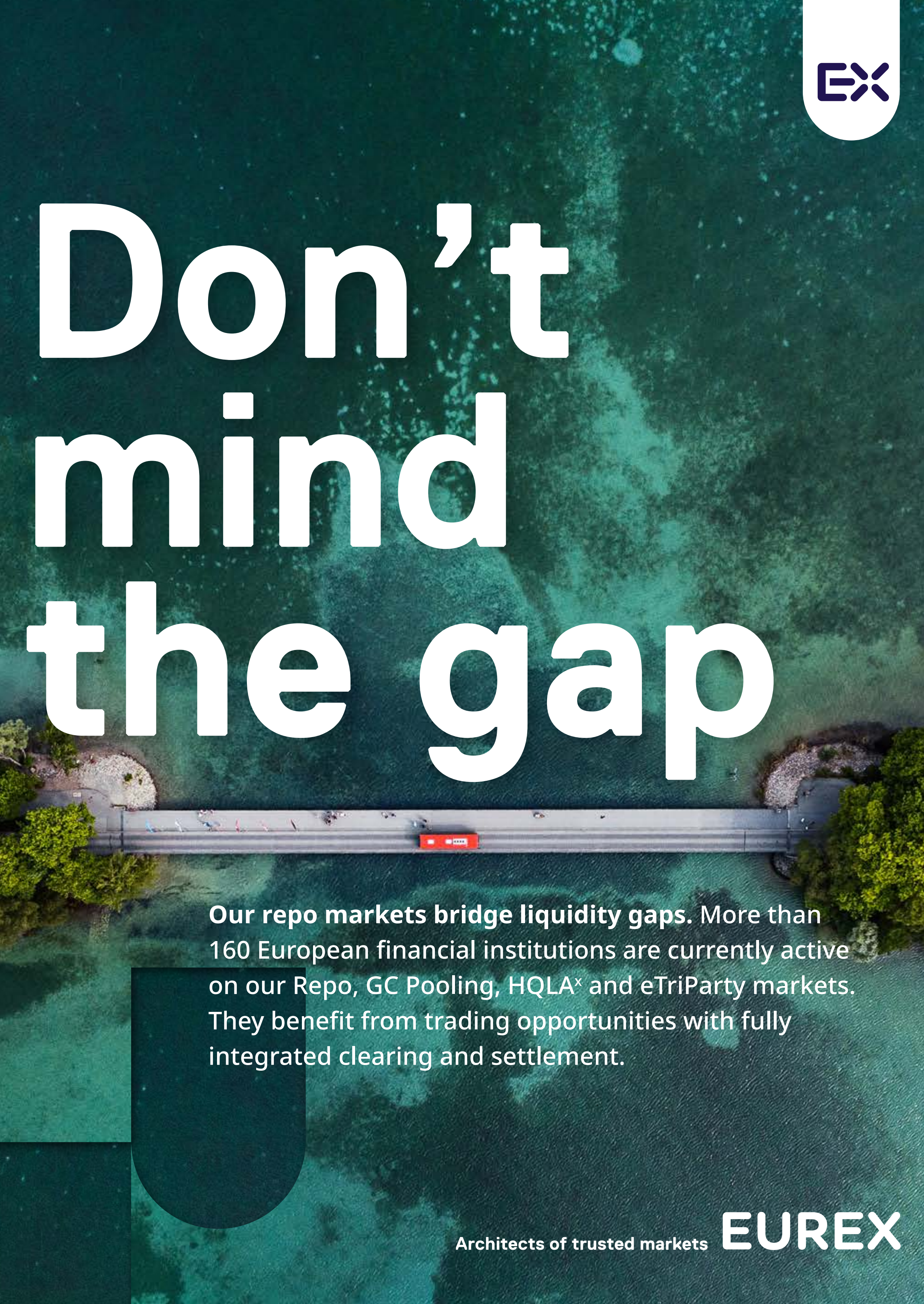
When it comes to ratings, having only highly rated securities collateral on a profile can be very restrictive, Tan says. This could pose an issue with borrowers that do not have many high-quality assets in their inventory. Tan advises that if you can make a compromise or accommodate the borrower on this front, it could lead to a better trade on the repo side.

Average traded volumes, market capitalisation and condition age can all help determine the liquidity of an asset class. The average traded volumes determine how much is traded on any given day. In terms of market capitalisation, the bigger the market capitalisation of a particular security, the better chances you are able to buy or sell in the market and the bid-offer spread will be narrower. The condition age, whereby investors or trading parties typically stay in your profile, if a particular piece of asset or collateral is not priced for more than five business days, it should not be in your profile, according to Tan.

> ***“The whole purpose of receiving collateral is to protect the lender, when the counterparty defaults. Having collateral is one thing, but the ability to realise or liquidate the collateral in times of need, especially during market stress, is the overriding concern.”***

Collateral receivers may also apply concentration limits, where investors want to limit their exposure to a certain security or asset type.

Additionally, Tan explores the minimum margin amount, which is the threshold set before the system triggers a margin call on the borrower if, on any given business day after the mark-to-market calculation, the collateral value falls below the loan amount or the repurchase amount. This is to avoid triggering margin calls too frequently and causing unnecessary disruptions to the trading activities of the borrower.



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Philip Morgan
Chief executive
Pirum

Enterprise wide-process improvement: optimisation as an emerging reality

There have been a series of false dawns regarding enterprise-wide collateral management and optimisation. Pirum's chief executive Philip Morgan believes that major advances are within reach, given the optimisation solutions now available and the change process in train at many banks

The goal of managing and optimising collateral across all instruments and asset classes has been an industry wide aspiration for many years, indeed decades. Despite a clear understanding of the structural, cultural and technological challenges, it is only recently that we have seen real progress. Over the last 12 to 24 months, a combination of better, arguably more accessible, technology and an increase in the cost of inefficiency (read: bigger P&L benefits) have been the catalyst for far greater progress.

Increasingly, banks need to be systemically efficient. So why have we not seen faster progress in instituting those structural and cultural changes necessary to make them more efficient, responsive and agile? Breaking down structural and cultural barriers takes time, however. We are now seeing more joined up, front-to-back processing which is leading to significant gains in the efficiency of process and optimisation. A chief beneficiary of this (r)evolution is enterprise-wide collateral management.

This said, we are seeing great strides being made in all areas. Progress has certainly been assisted by the adoption of technology as a means of expediting change.

No surprises, therefore, that one of the triggers for material progress has been a potent combination of regulatory and cost pressures combined with technological advancement. In relation to topics such as optimisation, the question of regulation is interesting. One might credibly argue that since the financial crisis, the sheer volume of new regulation has forced banks to focus more on simply achieving compliance rather than 'optimising' their approach.

While no one would argue that there is a complete hiatus in new regulation (especially with CSDR just around the corner), it does appear that the ‘onslaught’ has slowed — enough at least to give some capacity for focusing on optimising collateral usage. In addition, and in some sort of virtuous circle, greater understanding of the nature and impact of these newer regulations has added the clarity and urgency necessary to address the challenge of optimisation with more confidence.

Therefore, the technology necessary to improve optimisation has become the final piece of the puzzle. From this standpoint, the challenge of collateral optimisation can be broken down into three distinct areas.

First, identifying the sources and uses of collateral. This is, in the main, a ‘pipes and plumbing’ issue. However, in most institutions of scale this is a non-trivial challenge, given the sheer scale of legacy systems architecture.

The second challenge is the optimisation process, or the “brain”. With a sound view of sources and uses of collateral, this is a clearly defined mathematical and processing challenge. It’s interesting that, while this is the part of the process that can drive real alpha, it is arguably by far the simplest part to solve. After all, linear programme models, or algos, have been around for over a century.

The third and final step is the mobilisation of the optimised assets themselves. This is another highly material challenge given the sheer scale of the legacy systems that go to comprise most banks’ operations’ networks.

To revisit the first step in the process for a moment, that of pipes and plumbing, this is characterised as a data issue in a number of institutions. While this is strictly true, it is hard to argue that the data is unavailable. Rather the issue is accessibility. That is why, at Pirum, we describe it as a pipes and plumbing issue. Put differently, with the correct pipes and plumbing the data will flow readily. To drill a little deeper, the accessibility challenge is, in the crudest sense, a question of time and effort. Critically, it is not a cerebral challenge. With enough time and enough effort, it is straightforward to overcome. The question, therefore, becomes the value of building it oneself versus leveraging an existing service — or, to revisit that question through a commercial lens, where in the end-to-end process does the alpha reside? Is it in the data provision or in the algo and optimisation itself. Feedback suggests strongly that it is the latter, not the former. To summarise, viewing the optimisation challenge through the lens of technology, we see three well-defined problem statements. It’s only recently, however, that technology has really stepped up to the plate to solve these issues. To some degree the resolution is aligned to the birth of a new wave of technology companies — the fintech revolution.

“A combination of better, more accessible, technology and an increase in the cost of inefficiency (read bigger P&L benefits) have been the catalyst for far greater progress.”

Fintech companies very typically seek to solve clearly defined, discrete problems in an elegant and cost-effective manner. The nature of the optimisation challenge is interesting in this regard. For those who subscribe to the ‘three elements’ view described above, only the second element, the optimiser itself, is uniquely a technology challenge. The other two leverage developing technology to provide the required connectivity, automation and digitisation of data. This is perhaps why optimisation has been such a hard nut to crack, until now.

In conclusion, there have been a series of false dawns where enterprise-wide collateral management and optimisation is concerned. It seems now, given the process of change that many banks started some years ago, along with the creation of optimisation solutions embedded within existing robust and effective networks, it is finally within reach.

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Leverage technology to transform your collateral management operating model

A third-party solution that centralises collateral management and data, standardises margin workflows and integrates with a wider collateral network can help financial institutions to optimise their collateral costs and focus on revenue generation, says Vermeg's director of collateral management product Wassel Dammak

Collateral management transformation is still top of the priority list for financial institutions (FIs). Such transformation is mainly driven by compliance to regulations, sustainable efficiency and adoption of a transformative IT architecture. It is also an opportunity for FIs to assess their end-to-end operating model across processes, technology, people and data.

Technology could be the main enabler for such a transformation, provided the vision of the target operating model is articulated, agreed and shared among the teams working around the collateral space. The journey needs to be agile, delivering value in relatively rapid cycles at a low cost. We must also keep in mind that the target state is, by nature, a transformative model ready to adapt on a timely basis to market threats and opportunities.

Collateral resources can be seen in the future as a collection of interconnected business microservices integrating easily to legacy systems through application programme interfaces (APIs) and interacting with external platforms through webservices.

How can a third-party solution help?

Collateral management is a sensitive function. It requires an underlying IT stack that is robust, resilient and evolutive. A third-party solution that centralises collateral management and data across business lines, standardises and automates margin workflows and integrates with a wider collateral network can help FIs focus on revenue generating activities and optimise their collateral costs.

Typically, a third-party solution can achieve one or more of the following objectives, depending on the target model:

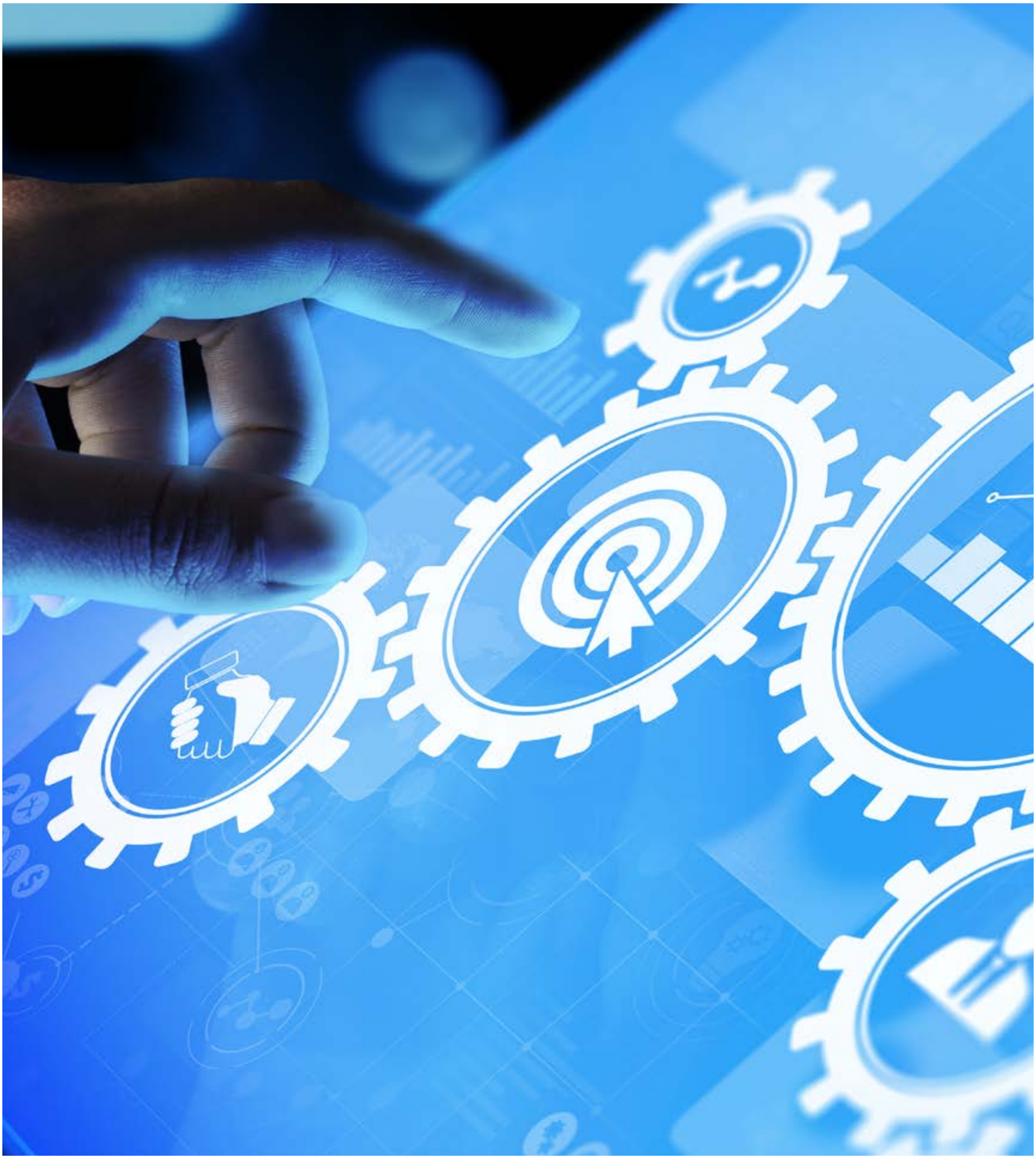
- Consolidation of collateral management across bilateral and cleared OTC derivatives, exchange-traded derivatives, exchange-traded funds, securities finance transactions and other products to be announced. Multiple synergies are possible through such consolidation (IT infrastructure, teams, etc…)
- Standardisation and automation of margin calls workflow, communication and settlement with cross margining capabilities whenever possible.
- Digitisation of legal agreements, eligibility schedules, haircuts and concentration limits to achieve greater interoperability, as these may be negotiated, applied and frequently exchanged between many firms in the chain such as tri-party agents, collateral services providers, buy-side clients and banks.
- Control of data quality to make sure that input (trades, prices, inventories, SSIs, etc) to the margining algorithm is exhaustive, coherent and good enough to avoid any STP break in the margining workflow.
- Centralisation of a real-time enterprise inventory to optimise collateral allocations (cheapest to deliver etc) and to automate collateral returns and delivery allocations, taking into consideration legal and business requirements (eligibility schedules, haircuts, wrong way risks, concentration limits, organisational risks limits, inventory fungibility, etc).

Beyond the solution, choose a partner

Behind each collateral solution there is a philosophy and a collaboration model that differs from one vendor to another. At Vermeg, we establish long-term partnerships because we think that we can help financial firms achieve efficiency, comply with regulations and maximise profits — while transforming their IT legacy stack towards a target state that is flexible, componentised and permanently ready to adapt and deliver value in short cycles and timeframes.

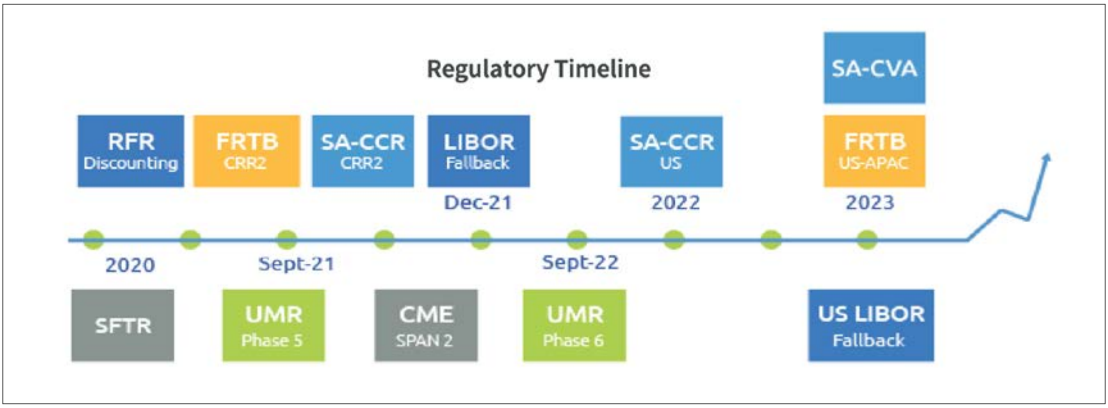
We offer a comprehensive digital store with a set of technical and business components to enable and accelerate such transformation. Adopting a componentised approach with a technology that can interoperate and seamlessly integrate with existing systems is a key driver of our product strategy.

We accompany FIs in their transformational journey and can extend our support through a cost-efficient end-to-end collateral management service via a cloud hosted software-as-a-service (SaaS) for firms that would like to avoid the burdens of buying, supporting and running the software and the related hardware.



Collateral and risk integration: why now?

Sophie Marnhier-Foy, director, product strategy at Adenza, explains that regulatory changes are pushing market participants to meet a new level of sophistication regarding risk metrics and collateral exposure calculations



In the context of Uncleared Margin Rules (UMR) and Basel Framework adoption, firms need to comply with a set of interdependent new regulations and optimise the corresponding total cost of ownership (TCO) impact. Market best practices around counterparty credit risk management are also quickly evolving. In terms of risk, clearing, margin, and collateral management functions and their integration, now is the time for organisations to position themselves for change.

Why now?

These multiple regulation changes will compel financial institutions to reach a new level of sophistication within a tight timeframe. It defines new derivatives exposure metrics (Standardised Approach - Counterparty Credit Risk, SA-CCR), new initial margin collateral (UMR), and a fundamental review of market risk capital charges (Fundamental Review of the Trading Book, FRTB).

For firms to manage the active global regulatory roll-out depicted in the regulatory timeline, this requires a new level of sophistication covering these new risk metrics, risk management, and collateral exposure calculations. Influenced by the evolving regulatory mandates, new market best practices around counterparty credit risk are also emerging. In parallel, clearing programmes are expanding, adding new approaches for capital optimisation and margin efficiency. Firms will need to institute much more robust collateral management systems to incorporate this expansion.

Taking a tactical approach to regulatory adoption may result in operational risk, inefficiencies, and increased costs. Indeed, relying upon a fragmented approach will require firms to update many systems, resulting in duplication of effort and increasing the TCO for regulatory requirements that are here to stay.

Therefore, reassessing the firm’s current risk systems is imperative to developing a strong strategic approach that simplifies operational challenges.

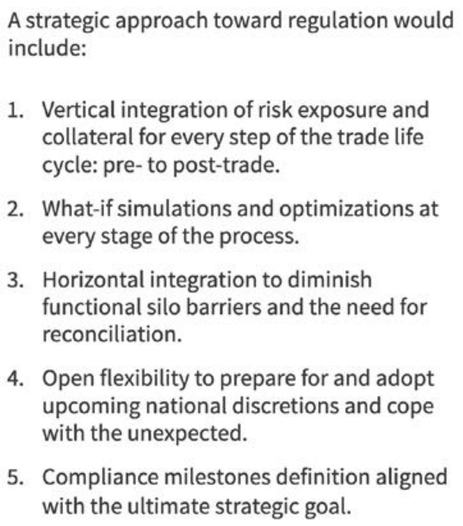
Collateral, post-trade processing and risk integration: A must-have to turn a mandatory exercise into a business benefit

The foundation of an optimised collateral implementation definitively starts with a complete integration between securities inventory, margin exposures, collateral processes, and tri-party settlement – in real time. The resulting holistic view leads to inventory optimisation and collateral cost reduction. Driving collateral fluidity, transformation, and optimisation is strategic. But is that enough to efficiently optimise collateral and reach compliance with new regulations and new market requirements around counterparty credit risk, now and beyond?

Requirements have changed and expanded and the pressure on collateral costs is increasing.

The most advanced institutions don’t simply allocate, they anticipate and optimise before exchanging collateral. They recognise that simulations are required pre and post-trade

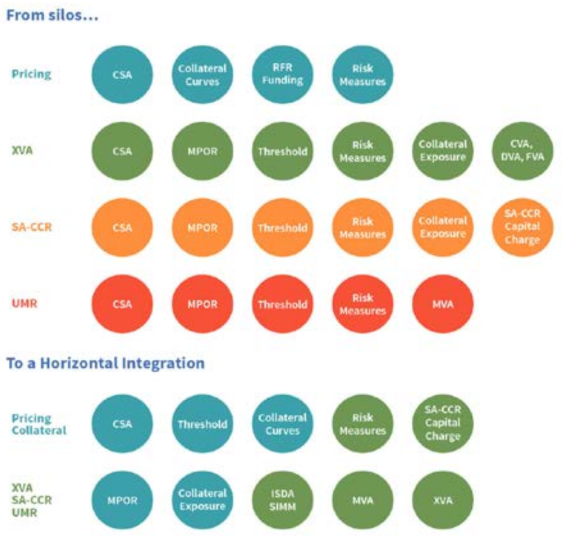
5 Steps towards strategic simplification



A strategic approach toward regulation would include:

1. Vertical integration of risk exposure and collateral for every step of the trade life cycle: pre- to post-trade.
2. What-if simulations and optimizations at every stage of the process.
3. Horizontal integration to diminish functional silo barriers and the need for reconciliation.
4. Open flexibility to prepare for and adopt upcoming national discretions and cope with the unexpected.
5. Compliance milestones definition aligned with the ultimate strategic goal.

Horizontal integration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MVA
XVA

and must include detailed collateral inputs. Thus, the marketplace now considers the need for complete what-if collateral, margin, and capital charge simulations to be imperative, fully integrated in a single platform.In this current environment of increased regulatory requirements, with its amplified focus on counterparty credit risk and market fluctuations, new best practices are also emerging around the integration of collateral and risk.

Drivers for risk and collateral integration

The Basel Framework is one of the most significant post-crisis reforms and covers a vast array of regulations – the so-called ‘Basel IV’, FRTB, UMR, Liquidity Coverage Ratio (LCR), Internal Capital and Liquidity Adequacy Assessment Process (ICLAAP), and others.

This has increased the need for high-quality liquid assets (HQLA) to cover liquidity risk and redefined the amount of capital required to cover counterparty credit risk exposures. For instance, additional amounts of capital are required for non-centrally cleared derivatives with long maturities and insufficient collateral.

It has also increased the demand for collateral for cleared and uncleared trades. Basel IV changes the entire dynamic of the trading process, as each transaction now generates collateral and capital costs. The increase in clearing volumes also generates new collateral flows.

In parallel, the collateral exposure used to determine the collateral to call or deliver is now based on more complex risk calculations. Indeed, the market has shifted from a simple market-value based exposure to value at risk (VaR) and sensitivity-based initial margin (IM) calculations for cleared and uncleared OTC derivatives. Those new risk metrics are not additive; each needs to be adjusted, simulated, and recalculated very quickly – often intraday.

At the trade level, these new regulatory charges have created a new “total cost” of the trade. Interestingly, an analysis of this new total cost and the related new regulatory risk metrics reveals a common denominator – and that is collateral. The parameters and exposures of collateral are key inputs to the risk calculation of SA-CCR, Monte

Carlo potential future exposure (MC PFE), credit valuation adjustment (CVA), margin valuation adjustment (MVA), and so on.

In 2020, risk and collateral interdependencies were highlighted due to market volatility. Indeed, under those conditions, the margin procyclicality effect could generate unmanageable collateral calls: when market risk increases, margin and collateral requirements increase. Under such circumstances, procyclicality mitigation tools will be required. How better to do that than in an integrated risk and collateral platform?

What does integration mean for financial institutions?

Firms need an approach where managing collateral is not a sequential process, but rather the centerpiece of the solution.

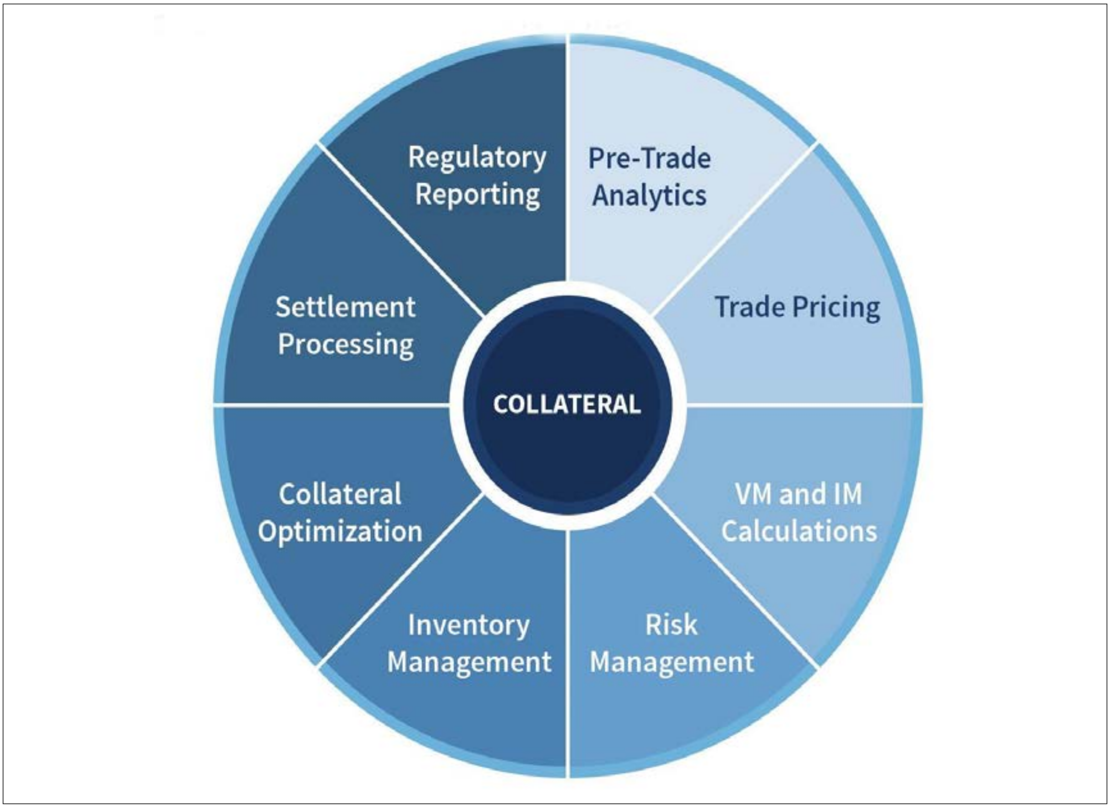
As represented by the diagram, an ultimate solution integrates collateral parameters, collateral exposure, securities and cash inventory, risk metrics, and margin calculation.

Optimisation needs to be integrated at every stage of the trade lifecycle

Beyond the need for an integrated risk and collateral solution, organisations need to completely rethink optimisation use cases. Usually considered in isolation, use cases can be asynchronous and therefore apply at every stage of a trade lifecycle because:

- Traders need to anticipate the impact of new regulations upfront.
- Collateral managers continually strive to assess the impact of new regulations on future margin calls.
- Risk managers must forecast clearing, credit, and market risk exposures ahead of regulatory milestones.

Viewing collateral and regulatory risk compliance

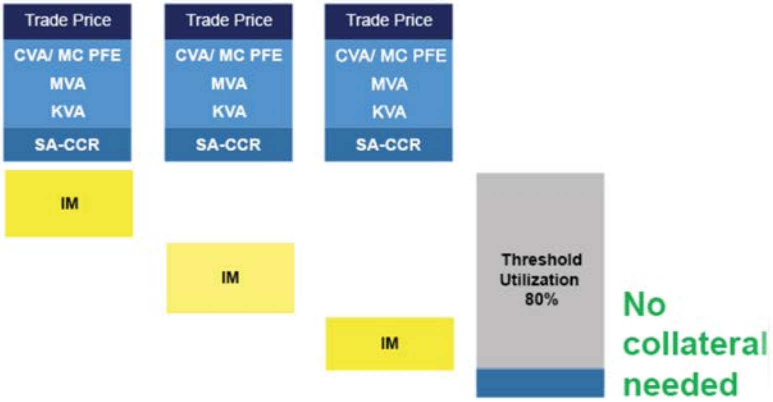

Regulatory Reporting
Pre-Trade Analytics
Settlement Processing
Trade Pricing
COLLATERAL
Collateral Optimization
VM and IM Calculations
Inventory Management
Risk Management

as a sequential process – downstream from trade negotiation and execution – is a thing of the past. In contrast, regulatory compliance and optimisation must now start before trades are negotiated, sometimes months before!

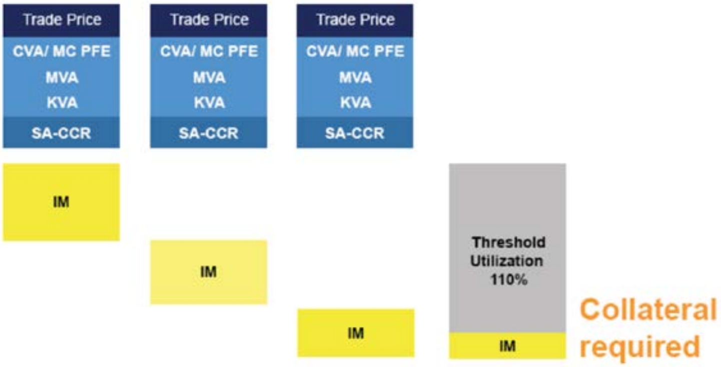
The recent UMR preparation exercise is a good illustration. Hundreds of firms fell under UMR compliance in September 2021 as part of the UMR Phase 5 milestones (all firms with AANA greater than US$50 billion). Many of those firms have been proactively anticipating their collateral needs to avoid exchanging collateral altogether. How is this possible? The regulation allows firms to not exchange collateral if the total IM exposure is below the UMR threshold. Reducing the collateral to zero is clearly the best optimisation. But, for that to happen, it must take place before the trade is booked. In fact, most firms are running simulations months in advance, using legacy portfolios to anticipate and manage their UMR threshold.

UMR THRESHOLD OPTIMIZATION

IM Optimisation at the Portfolio Level


Trade Price
CVA/ MC PFE
MVA
KVA
SA-CCR
Trade Price
CVA/ MC PFE
MVA
KVA
SA-CCR
Trade Price
CVA/ MC PFE
MVA
KVA
SA-CCR
IM
IM
IM
Threshold Utilization 80%
No collateral needed

IM Optimisation at the Portfolio Level


Trade Price
CVA/ MC PFE
MVA
KVA
SA-CCR
Trade Price
CVA/ MC PFE
MVA
KVA
SA-CCR
Trade Price
CVA/ MC PFE
MVA
KVA
SA-CCR
IM
IM
IM
Threshold Utilization 110%
IM
Collateral required

Regulatory compliance and collateral input are also part of the mix during the clearing novation process, where the headroom check process includes VaR, sensitivities, and unsettled collateral. For central counterparties (CCPs), collateral and risk integration at every stage of the lifecycle has long been required; they are mandated to calculate risk in less than 10 seconds, including collateral inputs.

With the adoption of new regulatory metrics like SA-CCR, the expansion of clearing volumes, and UMR regulatory IM, implementing a risk and collateral integration is mission critical to stay competitive.

The list of what-if simulations is long and can be leveraged by an integrated solution

The powerful benefits brought by incorporating pre-trade simulations in an integrated solution include:

- Identifying the cheapest clearing venue to minimise total IM and related collateral costs that take the existing portfolio into account.
- Comparing the cost of not clearing vs clearing by comparing a standard initial margin model (SIMM) margin to a CCP margin.
- Analysing the impact of a credit support annex (CSA) threshold into a CVA charge.
- Understanding how the margin period of risk (MPOR) will affect the SA-CCR for a selected counterparty.

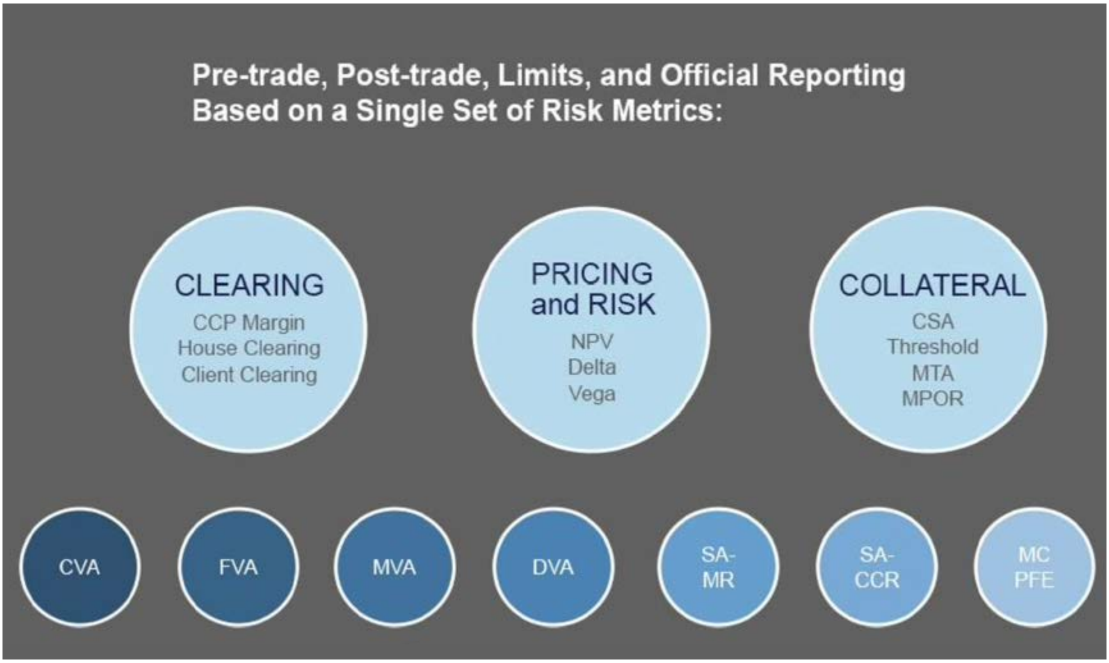
Now is time to plan for a platform change and target optimal consolidation and efficiency beyond compliance

In summary, in the context of regulatory compliance and beyond – and starting now – firms need an integrated collateral and risk platform in an optimised framework that must include:

- An integrated front-to-back solution with real-time exposures and inventory.
- A solid but flexible risk engine.
- A holistic approach to risk and collateral without sequential steps – where collateral is risk, and risk is collateral.

After dealing with pandemic-driven disruptions, firms today seek to build agile operating foundations. They know that they will continue to need to deal with the unknown and unexpected.

Calypso’s one-stop shop for regulation, risk, and collateral is an excellent place to start.


Pre-trade, Post-trade, Limits, and Official Reporting
Based on a Single Set of Risk Metrics:
CLEARING
CCP Margin
House Clearing
Client Clearing
PRICING and RISK
NPV
Delta
Vega
COLLATERAL
CSA
Threshold
MTA
MPOR
CVA
FVA
MVA
DVA
SA-MR
SA-CCR
MC PFE

ETFs to join the collateral party?

Institutions, faced with an increasing need to find diversified forms of collateral against securities loans and other trades, are turning their attention to exchange-traded funds (ETFs), says BNY Mellon's Katy Burne

The market for exchange-traded funds (ETFs) has skyrocketed over the past quarter-century, thanks to the trillions of dollars investors are putting to work in passive, index-tracking strategies. What hasn't yet exploded is the use of ETFs backing securities-financing arrangements and loans.

Clients of BNY Mellon were pledging and receiving US$41.9 billion of ETFs daily as of late March, up from a low of US$14 billion six years ago. The share those funds represent of overall equity collateral balances at BNY Mellon has barely budged, hovering at around 5.5 per cent of equity collateral and just 1 per cent of total collateral.

Many participants say this could change, if participants can overcome their early scepticism toward ETFs and regulators can allow more favourable terms between those providing and receiving collateral. Indeed, change might be more likely for fixed-income ETFs containing securities that can be easily converted to cash or sold in the market.

Several signs point to a wider adoption of ETF collateral, even though some on the front lines are not currently pushing it. Some buy-side firms that previously rejected ETFs are now warming up to receiving them against securities loans and repurchase agreements (or "repos") where their risk committees will allow.

At the same time, there is a growing interest from some lenders and brokers to provide ETFs as collateral rather than other assets in their inventory. There is also an opinion, on the part of some traders, that regulators might one day allow ETFs full of short-dated Treasury bills to be counted as high-quality liquid assets (HQLA) for regulatory collateral purposes. This could increase the demand for fixed-income ETFs in general.

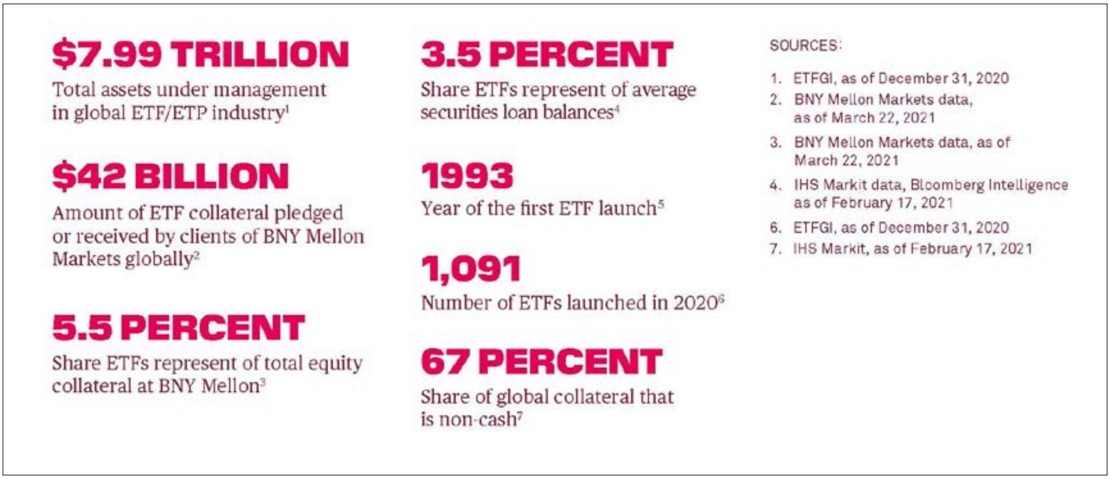
Proponents say the more ETFs are mobilised as collateral, the more it will increase the funds' liquidity and reduce market friction. ETFs could be easier to move and manage than other assets and provide additional liquidity into the market.

Our discussion will be presented in four categories: the background, the arguments for ETF collateral, the roadblocks, and a path forward.

Green Shoots

As of 31 December, there were 8,607 ETFs or exchange-traded products globally with assets of US$7.99 trillion across 75 exchanges in 60 countries, according to ETFGI. But while ETFs have grown since their invention in the early 1990s, the perception of the funds' safety has not.

They remain a rounding error in collateral terms,



$7.99 TRILLION
Total assets under management in global ETF/ETP industry[1]

$42 BILLION
Amount of ETF collateral pledged or received by clients of BNY Mellon Markets globally[2]

5.5 PERCENT
Share ETFs represent of total equity collateral at BNY Mellon[3]

3.5 PERCENT
Share ETFs represent of average securities loan balances[4]

1993
Year of the first ETF launch[5]

1,091
Number of ETFs launched in 2020[6]

67 PERCENT
Share of global collateral that is non-cash[7]

SOURCES:

1. ETFGI, as of December 31, 2020
2. BNY Mellon Markets data, as of March 22, 2021
3. BNY Mellon Markets data, as of March 22, 2021
4. IHS Markit data, Bloomberg Intelligence as of February 17, 2021
6. ETFGI, as of December 31, 2020
7. IHS Markit, as of February 17, 2021

accounting for US$41.9 billion or 5.5 per cent of the US$777 billion in equity collateral across BNY Mellon's global client balances as of 22 March this year. Those are on trades where BNY Mellon sits in between two parties as a middleman or "triparty" agent, agnostic to which collateral clients use.

When a host of lenders and broker dealers were asked in an informal BNY Mellon poll in the spring of 2019 whether ETFs were a meaningful part of the collateral they provide today, they indicated it was negligible. Most said they would have an appetite to provide more collateral, however, especially if liquidity increases and collateral receivers are open to it.

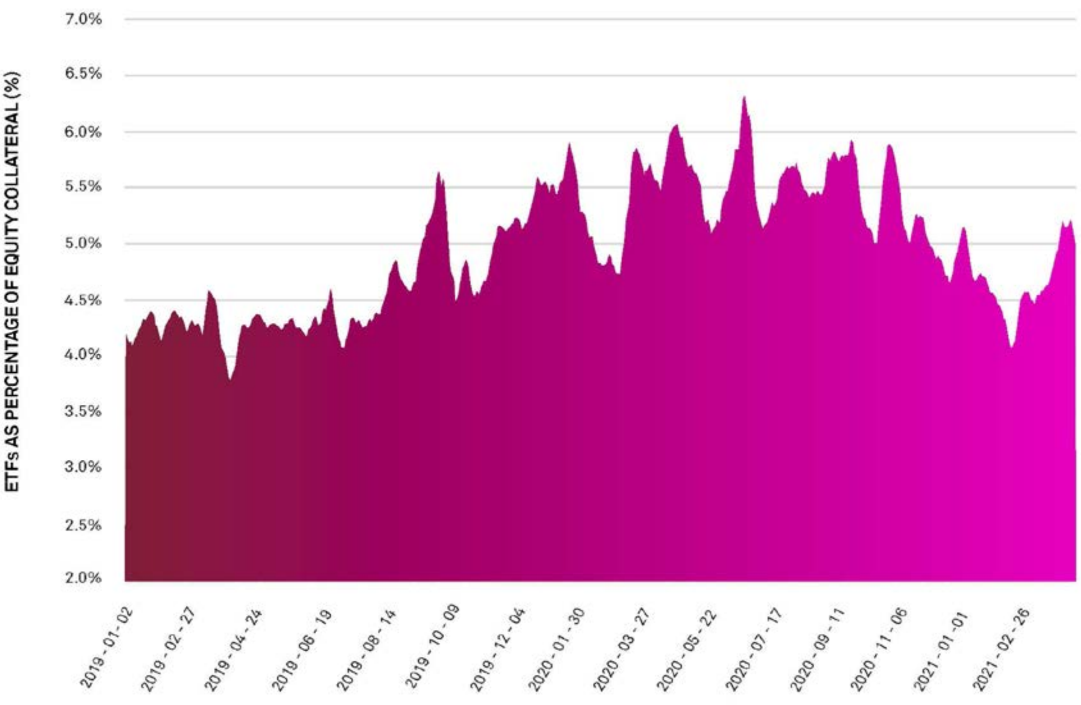
The picture is different on the collateral receiver side. Our survey suggested the majority of firms on the buy-side are willing to take ETFs and many larger ones already are. In practice, however, many smaller clients still are not. Some do not have explicit permission from their risk teams.

"Right now ETF collateral is underutilised and trapped," says Gesa Benda, head of clearance and collateral management in EMEA for BNY Mellon. "Making it more mainstream would increase liquidity and provide more choice for clients in their funding strategies."

There are several reasons for the hesitation. While ETFs are useful baskets that allow investors to get broad-based exposure through one security,

GRASSROOTS MOVEMENT

ETFs as a percentage of total equity* collateral at BNY Mellon*



*EQUITY INCORPORATES COMMON STOCK, PREFERRED STOCK, UNITS, ADR, GDR, REIT AND ETF.

SOURCE: BNY MELLON TRIPARTY COLLATERAL MANAGEMENT DATA few understand how the funds trade under severe market stress and how they would be redeemed. That's why many investors tend to sell their ETFs as whole units through exchanges. It then becomes the job of Wall Street service providers or "authorised participants" to deconstruct the basket and deliver cash back to the investor.

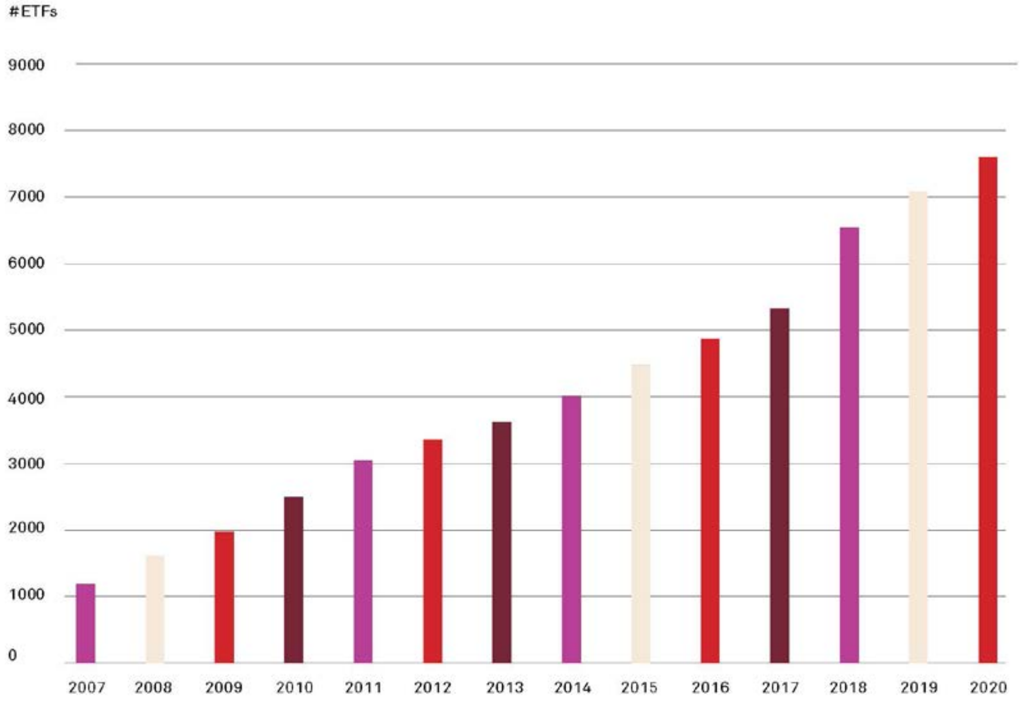
Some risk managers would rather take a single share of Apple stock than a share of an ETF that exposes them to a plethora of blue-chip corporate names — or even a bunch of short-term Treasury bills — to avoid some of those steps. They tend not to have the bandwidth to sort through how the funds' liquidity works or what securities are in the underlying basket.

This is despite there being relatively few instances of ETF disruption. Some firms have had a stab at addressing the perception problem. In 2015, IHS Markit introduced a list of equity and fixed-income ETFs that had broadly conservative parameters, such as not holding derivatives. ETF collateral balances at BNY Mellon Markets rose around 40 per cent the year after those lists came out.

"It's just a matter of time before we see ETFs as an established security in the collateral ecosystem," says Siamak Mashoof, director in ETF and equity sales at IHS Markit. "It still remains a difficult sell to the risk officers, who ultimately determine collateral schedules."

RAMPING UP PRODUCTION

The growth in ETF launches has been rapid over the past decade



SOURCE: ETFGI

"It is just a matter of time before we see ETFs as an established security in the collateral ecosystem."

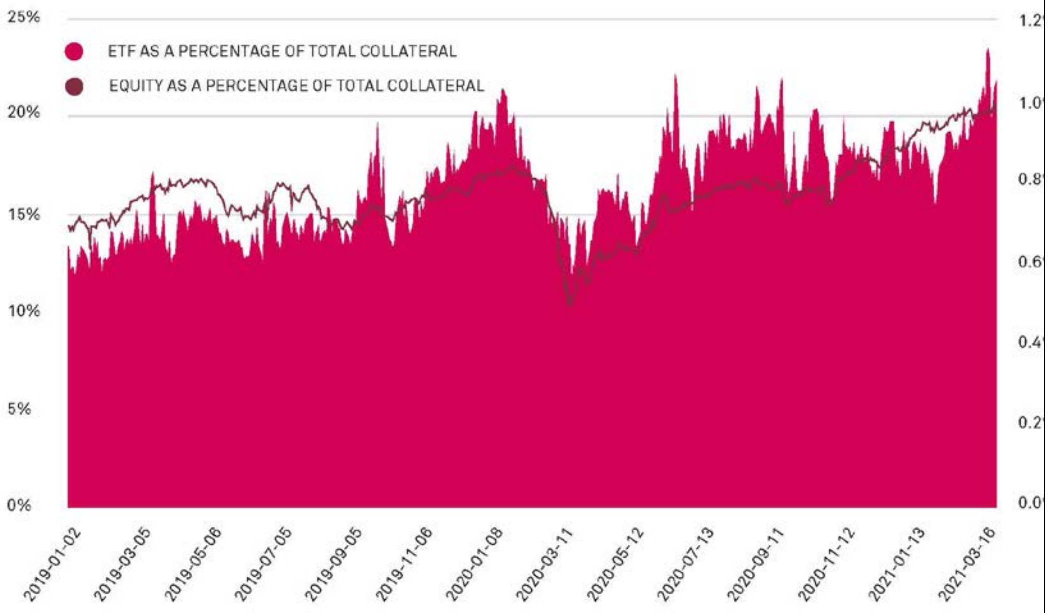
Siamak Mashoof, IHS Markit

In February, IHS Markit launched ETF Collateral Lists 2.0, which enables collateral receivers to identify ETFs based on their risk criteria. According to Brian Ruane, CEO of BNY Mellon Government Securities Services Corporation, Clearance and Collateral Management and Credit Services, "BNY Mellon stands ready to work with clients to expand their use of ETFs as collateral in secured transactions. Providing custom eligibility capabilities, leveraging IHS Markit ETF Collateral Lists 2.0, is a recent example of this."

The expectation is that the new universe will cover more than 50 per cent of the total global ETF assets under management that are eligible to be accepted as collateral today, versus only 15 per cent before. "The first two [Markit] lists were very vanilla," says Matthew Fowles, director in iShares Global Markets for EMEA at BlackRock. "But they were a proof of concept to assist risk managers to understand their construct and promote adoption. That's happened now, and hence there was a real need for a second generation of these lists."

NECK AND NECK

Balances of equity collateral and ETF collateral have been closely aligned.



SOURCE: BNY MELLON TRIPARTY COLLATERAL MANAGEMENT DATA

"Right now, ETF collateral is underutilised and trapped. Making it more mainstream would increase liquidity and provide more choice for clients in their funding strategies."

Gesa Benda, BNY Mellon

BlackRock accepts physically replicating ETFs as collateral from a number of issuers, including iShares, as collateral in its securities lending programme. As of 17 February, ETFs make up 3.5 per cent of average global securities loan balances, up from 2.6 per cent in 2019, according to IHS Markit data.

Time is Ripe

There are several market forces that might increase the potential for ETF collateral use. Many institutions are growing more comfortable with how ETF baskets are built and dismantled and collateral flexibility is becoming increasingly important.

"ETFs have become more ubiquitous throughout the financial system, so it's natural that collateral would be another use," says Samara Cohen, co-head of iShares Markets and Investments at BlackRock. "People are just now really becoming aware of the desire to do this and figuring out the best way."

A second factor is how much easier ETFs are to move through the plumbing underneath Wall Street's securities markets than cash. Money market fund shares, while safe, settle through the individual fund companies that issue them, whereas ETFs settle like equities.

"The world is better piped to move equities than money market funds," says James Slater, global head of business solutions for asset servicing at BNY Mellon. "The need to collateralise transactions is increasing, and in some cases regulations restrict the use of cash."

The International Swaps and Derivatives Association has supported market participants in recent years as they have been required to post collateral against derivatives that cannot be cleared through clearing houses. This work continues as the industry prepares for the final two phases of implementation in September 2021 and September 2022.
As of 1 September this year, any financial firm trading US$50 billion or more of these non-cleared derivatives will be required to post a percentage of its trading exposure as collateral. Global regulators also are pushing financial firms to hold more high-quality liquid assets (HQLA) to meet various new capital and leverage tests.

One discussion is around the potential for additional forms of non-cash collateral. Clive Ansell, head of market infrastructure and technology at ISDA, says this might include money market funds and UCITS funds, and some market participants have inquired about using ETFs as collateral.

Pre-crisis, cash accounted for 63 per cent of all collateral, whereas today 67 per cent of collateral is non-cash, according to IHS Markit.

A third driver is the new breed of ETFs coming to market containing short-term Treasuries. Their attractiveness to asset managers who typically provide short-duration instruments as collateral is clear.

Treasury bills need to be replaced or "rolled" on routine dates when those securities mature, whereas ETFs live on perpetually until they are switched out for something else.

"If you're a global macro hedge fund, and you don't have fixed-income expertise, you don't necessarily want to spend time on this," says Steve Sachs, head of capital markets at Goldman Sachs Asset Management, which created one of the Treasury bill

> ***"ETFs have become more ubiquitous throughout the financial system so it's natural that collateral would be another use. People are just now really becoming aware of the desire to do this and figuring out the best way."***
>
> Samara Cohen, BlackRock

ETF products. "It's operational and not an alpha-generation exercise."

The genesis of Goldman's idea was to deliver a money market fund experience in an ETF format, says Sachs. The Goldman fund, GBIL, launched in 2016 and invests in Treasuries out to one year in duration. Users of GBIL are mostly registered investment advisors today. But Sachs says: "We do have a number of [institutional] clients that are using it for collateral purposes — the collateral usage aspect of GBIL was absolutely contemplated from day one."

One current sticking point is that regulators, in determining what collateral can be provided against derivatives, currently treat GBIL no differently than an ETF containing Russell 2000 stocks. When traders provide US$100 of collateral, the regulators guide the receivers of that collateral about how to discount its value in case one side goes belly up. With the typical equity-like haircut for ETF collateral, the requirement today can be north of 15 per cent.

Invesco Ltd, which runs a Treasury collateral ETF with the ticker symbol CLTL, received a waiver from the Securities and Exchange Commission in March 2018 to apply a 2 per cent haircut for collateral posting. Next, the firm is waiting on a decision from the Commodity Futures Trading Commission, which currently does not allow any ETFs to be used for collateral on cleared derivatives.

Jason Bloom, head of fixed income and alternative product strategies at Invesco, explains that recent periods of volatility for fixed-income ETFs, including a liquidity stress scenario in March and April 2020, have proven that in many cases fixed income ETFs can offer liquidity superior to the underlying bonds themselves.

This validation of the ETF technology through those periods when markets have been most challenged is opening doors for further use cases for the ETF structure, he says.

Goldman is separately working with regulators to allow GBIL to be posted as collateral in cleared trades as well as exchange-traded derivatives, and to lower the haircut to two per cent or less from its current 15-50 per cent range.

Rough Turf

For all these developments, the constraints to broader adoption of ETF collateral are not small. For securities dealers, they may be a question of prioritisation. For an asset manager, they may be the risk management of ETFs or convincing a board of directors.

On top of that, very few ETFs are alike. Even the same ETF can trade on a dozen different exchanges. In the US, trading volumes have been easy to come by but in Europe, under MiFID II, there was no requirement to post trading volumes for ETFs until January 2018, so volumes were scarce. Traditional approaches for tracking ETF trading volumes are typically problematic because ETFs tend to trade across multiple exchanges at once and have significant off-exchange activity. This results in understated liquidity for ETFs and overly restrictive concentration limits for those collateral providers that want to use ETFs as collateral.

Bloomberg LP has an analytics tool called PORT that allows investors to drill down into an ETF's characteristics, based on the fund's underlying portfolio. In addition, Bloomberg Terminal users can access fund flow data and metrics that provide average aggregate trading volumes in ETFs globally across multiple trading venues. BNY Mellon plans to use these aggregate trading volumes as part of its collateral management service in the near future.

ETF proponents believe that industry practitioners should be looking at the liquidity of the components anyway, not how often the fund trades. "The key collateral quality metric should be underlying liquidity and the collateral receivers' ability to liquidate through a liquidation agent," says Jean-Christophe Mas, head of ETF trading at BNY Mellon Capital Markets LLC, which is a broker-dealer affiliate of the bank and authorised participant, or "AP", for such funds.

Not all firms that receive ETFs as collateral have appointed an AP to help them liquidate those holdings in a turbulent market, so they may not be able to price the ETFs themselves or have the ability to create or redeem shares. If more firms were familiar with the redemption process, perhaps the fuller benefits of ETF collateral could be realised, Mas points out.

ABN AMRO Clearing brought its collateral activity to BNY Mellon's tri-party systems after going live on the platform in 2018. Valerie Rossi, global head of securities finance of ABN AMRO Clearing based in Hong Kong, says she has noticed more widespread industry adoption of ETF collateral than there was four to five years ago, especially for ETFs that replicate main indices.

But she says there is still a reluctance on the part of some participants. "If the average traded volume of that ETF is significantly lower than its components, then firms may exercise caution and limit exposure to those instruments," says Rossi. For any "synthetic," leveraged or inverse ETFs, she says, "the conversation becomes a lot more restrictive." ABN AMRO Clearing primarily provides ETFs and other forms of collateral to receive high-quality assets such as government bonds in a collateral transformation trade designed to optimise its balance sheet.

In 2018, BNP Paribas Securities Services, a unit of BNP Paribas Group, was an early mover in starting to accept ETFs as collateral against securities lending arrangements in which it acts as the principal lender. Yannick Bierre, head of principal lending, says the firm is now authorised to accept a predetermined list of ETFs — primarily ones it can reuse as collateral itself — from a handful of issuers, but the list may evolve over time. "The ETF market is growing, so we are changing our approach to the product," he says.

Also in 2018, Citigroup added ETFs to its list of acceptable collateral against agency securities lending transactions in which the bank acts as an intermediary between a borrower and lender.

On the Radar

The rise in ETF collateral is on the minds of sophisticated players in the securities lending and collateral markets. Agreeing with trading counterparties to add ETFs to their collateral schedules will take some time. Once agreed in principle, the process of executing the collateral schedule amendments is made easier with a new BNY Mellon tool called RULE, which enables clients to agree changes to their existing collateral schedules to include ETFs.

"BNY Mellon agency lending is now live in accepting ETFs as collateral and is starting to see traction with borrowers."

Simon Tomlinson, BNY Mellon k

Educating participants about the uses and behaviour of ETFs is one near-term focus, closely followed by getting regulatory attention on ETFs in the context of high-quality liquid assets, proponents say. Some commenters in the months leading up to the US iteration of the Basel III Liquidity Coverage Ratio final rule argued that ETFs tracking indices of HQLA assets should be classified as HQLA. However, the final rule does not include ETFs, as US regulators indicated that they do not consider the liquidity characteristics of ETFs and their underlying components to be identical.

Another conversation under way is designed to benefit clearing risk managers and to educate clearing houses about how to think about ETFs as a new form of margin. A critical step from regulators would be to allow ETFs to back swaps that are not suitable for such clearing houses. Eurex Clearing is one that has already extended the scope of its admissible collateral for margin purposes to include five ETFs in Europe back in April 2016.

Eurex Clearing is one of the clearing houses that has already expanded the scope of its eligible collateral for margin purposes to include the ETF asset class. However, there is currently no single ETF that meets the European Market Infrastructure Regulation (EMIR) requirements to serve as margin collateral.

BNY Mellon agency lending is now live in accepting ETFs as collateral and is starting to see traction with borrowers, which are building balances collateralised by them.

Simon Tomlinson, global head of agency lending trading at BNY Mellon, says ETFs will no doubt form an important part of the bank's collateral options going forward. In the first quarter of 2021 alone, ETF collateral balances in the agency programme have risen 65 per cent. "We expect this growth to continue throughout 2021 as we look to further expand our offering," he notes.

In the meantime, backers of GBIL and CLTL are in a wait-and-see mode to see if non-leveraged, physically backed Treasury bill ETFs will be viewed as similar enough to cash collateral.

BNY MELLON

BNY MELLON
AERIAL VIEW
ACCESS A BROADER MARKET PERSPECTIVE
ETFs TO JOIN THE COLLATERAL PARTY?
BY KATY BURNE

ACCESS A BROADER MARKET PERSPECTIVE

Aerial View Magazine is your essential field guide for market structure, investing, trading and liquidity. This article and other unique perspectives are available from BNY Mellon at www.bnymellon.com/us/en/insights/aerial- view-magazine.html

SURVEY

QUESTIONS FOR COLLATERAL PROVIDERS

1. Are ETFs a meaningful part of the collateral you pledge today?

25%	No (0%)
40%	Negligible (under 2%)
20%	Between 2% and 10%
15%	Yes (10% or greater)

2. Do you see your use of ETF collateral growing?

35%	Yes
20%	No
30%	Depends on buyside appetite (If I can find somewhere to put it)
15%	If ETF liquidity and circulation increases (giving me more inventory)

3. What factors would positively sway your opinion in relation to using more ETF collateral?

15%	More favorable regulatory haircuts on ETF collateral
5%	Increased transparency over the tracking difference between ETF and its underlying
25%	Expanded IHS Markit equity and fixed income lists
35%	Increased volume and liquidity data
20%	None of the above

4. How helpful are the current IHS Markit ETF collateral lists in the context of this discussion?

10%	List is too conservative, need to relax the criteria
10%	Too small an AUM of ETF universe covered
5%	Requires further tweaking by sector, geography
40%	All of the above
35%	None of the above

SOURCE: BNY MELLON

QUESTIONS FOR COLLATERAL RECEIVERS

1. Are you currently accepting ETFs as collateral?

81.8%	Yes
18.18%	No
0%	Discussing with beneficial owners/ risk committees/ compliance
0%	Working on adding ETFs to collateral schedule

2. If you don't currently accept ETFs, what is the reason?

0%	No interest
18.18%	Our risk teams do not permit us
9.09%	Insufficient information on the asset class
0%	Technology obstacles to risk managing ETFs
0%	All of the above
72.72%	Not applicable (we accept them)

3. Has your opinion about the viability of ETF collateral changed over the last two years? If yes, how?

9.09%	Interested in the discussion, but as a bystander
0%	Prepared to now discuss taking ETFs as collateral
18.18%	Considering ETFs as part of collateral schedule changes for 2019
63.63%	Already accepting them and will be looking to expand use cases
9.09%	None of the above

4. How helpful are the current IHS Markit ETF collateral lists in the context of this discussion?

27.27%	Too small an AUM of ETF universe covered
18.18%	Not conservative enough
18.18%	Requires further tweaking in terms of sectors, geographies
36.36%	All of the above

SOURCE: BNY MELLON

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BNP Paribas Securities Services is a multi-asset servicing specialist with local expertise in 35 markets around the world and a global reach covering 90+ markets. This extensive network enables us to provide our institutional investor clients with the connectivity and local knowledge they need to navigate change in a fast-moving world.

As of 31 December 2020, BNP Paribas Securities Services had USD 13.413 trillion in assets under custody, USD 3.248 trillion in assets under administration and 10,729 funds administered.

With an in-depth knowledge of global markets across multiple asset classes and currencies, BNP Paribas Securities Services has supported securities lending and borrowing activities for many years. Our seven trading desks covering all established securities lending and borrowing markets allow us to provide in-depth knowledge of local market trends across multiple asset classes. BNP Paribas Securities Services' proven track record in the securities lending and borrowing industry is the result of strong trading expertise, robust risk management policy and control, as well as the continuous development of operational efficiencies. We are able to provide both agency and principal lending services and our agency lending capabilities are also available in third-party.

Since 2017 we also support our clients with our triparty collateral management services, providing advanced technology and seamless user experience. With this solution, we enable you to connect with a large community of banks, asset owners, asset managers, hedge funds and corporates to manage your collateral for repo, securities lending, uncleared derivatives and other activity generating counterparty risk. Our solution is fully integrated with the rest of the BNP Paribas ecosystem to ease the connection between collateral takers and collateral givers.

BNY MELLON

www.certainty-bnymellon.com

BNY Mellon is a global investments company dedicated to helping its clients manage and service their financial assets throughout the investment lifecycle. Whether providing financial services for institutions, corporations or individual investors, BNY Mellon delivers informed investment and wealth management and investment services in 35 countries. As of June 30, 2021, BNY Mellon had $45.0 trillion in assets under custody and/or administration, and $2.3 trillion in assets under management. BNY Mellon can act as a single point of contact for clients looking to create, trade, hold, manage, service, distribute or restructure investments. BNY Mellon is the corporate brand of The Bank of New York Mellon Corporation (NYSE: BK). Additional information is available on www.bnymellon.com. Follow us on Twitter @ BNYMellon or visit our newsroom at www.bnymellon.com/newsroom for the latest company news.

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Broadridge Financial Solutions, a global Fintech leader with over $4.5 billion in revenues, provides the critical infrastructure that powers investing, corporate governance, and communications to enable better financial lives. We lead business transformation and deliver technology-driven solutions for enriching client engagement, navigating risk, optimising efficiency, and generating revenue growth, helping our clients get ahead of today's challenges with products that streamline and simplify the Securities Finance industry.

Broadridge Securities Finance and Collateral Management (SFCM) offers a suite of global, front to back office securities finance solutions for buy side and sell side. Both our full service integrated Mainline solution and new FastStart rapid spin up operating solution both support agency and principal trading of equities and fixed income securities across securities lending, repo, collateral management, collateral optimisation, and end to end transaction reporting solutions. Broadridge's solutions help customers comply with new regulations, increase efficiency, improve strategic decision making and make more intelligent use of capital, balance sheet and liquidity.

In addition, Broadridge provides project management, consultancy, business analysis and testing support to augment firms' internal regulatory project teams and help them comply with the rules in a timely manner. Broadridge's technology and operations platforms underpin the daily trading of on average more than U.S. $10 trillion of equities, fixed income, and other securities globally.

For more information about Broadridge and our proven securities finance, collateral management, and transaction reporting solutions, please visit our website.

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\With headquarters in London and New York, Adenza has more than 60,000 users across the world's largest financial institutions spanning global and regional banks, broker dealers, insurers, asset managers, pension funds, hedge funds, central banks, stock exchanges and clearing houses, securities services providers and corporates.

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Founded in 2014, Cassini Systems offers an award-winning derivatives margin analytical platform that provides the industry's only front-to-back margin and cost analysis across the entire lifecycle of a trade. Cassini users can calculate any margin on any cleared or uncleared derivatives asset; analyse drivers and movement in margin exposure; reduce Initial Margin levels; and maximise margin efficiency with the firm's industry leading, advanced algorithms.

Cassini services have a proven track record of enhancing portfolio returns at every point in the daily business cycle, empowering traders, and portfolio managers with the ability to analyse instantly in the pre-trade stage the all-in, lifetime cost of a transaction. Top-tier hedge funds, asset managers and Tier 1 banks rely on Cassini for powerful, flexible, automated tools to manage their portfolios of over-the-counter (OTC) and exchange-traded derivatives(ETD) products.

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EquiLend is a global financial technology firm offering trading, post-trade, market data, regulatory and clearing services for the securities lending, collateral and swaps industries.

EquiLend's services include:

- NGT, the securities finance industry's most active trading platform
- Collateral Trading, enabling funding and financing desks a centralised way to execute and manage trade structures with their counterparties
- Swaptimization, automating global equity total return swaps trading workflow
- EquiLend Post-Trade Suite for securities finance operations
- DataLend, providing performance reporting and global securities finance data to agent lenders, broker-dealers, beneficial owners and other market participants
- EquiLend Clearing Services, offering trading services and CCP connectivity
- EquiLend SFTR, a no-touch, straight-through solution for the Securities Financing Transactions Regulation
- EquiLend Spire, a front-, middle- and back-office platform for securities finance businesses

EUREX

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Eurex Securities Transaction Services' (Eurex STS) Buy-in Agent Service provides an innovative solution to the obligation to trigger buy-ins that forms part of the next stage of the Central Securities Depository Regulation (CSDR). Our solution is designed to support the market in increasing settlement efficiency and drive forward new industry-wide standards in this respect.

When a buy-in needs to be triggered, Eurex STS will act as the neutral third party – the Buy-in Agent – and close the gap for clients, enabling them to efficiently comply with the new European regulation. The offered solution provides a high level of standardization and automation, and Eurex STS will act in the best interests of both its client and the failing counterparty. Our new Buy-in Agent platform B7® is fully automated and allows flexible settlement between Network Partners, Eurex STS, and clients. Eurex STS offers a range of participation models that include the possibility of institutions participating directly as a client, as well as offering the Buy-in Agent Service indirectly to their own clients.

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Whether on the supply or demand side, FIS' comprehensive range of market data, securities finance and collateral management solutions gives our clients the efficiency to run smarter operations and the agility to capitalise on opportunities.

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HQLA^{X} is an innovative financial technology firm founded by financial market practitioners. Our vision is to accelerate the financial ecosystem's transition towards frictionless ownership transfers of assets, and our core clients are financial institutions active in securities lending and collateral management. Our immediate goal is to improve collateral mobility amongst market-leading triparty agents and custodians. Together with Deutsche Börse, we created a multi-layer operating model which enables our clients to exchange ownership of baskets of securities across disparate collateral pools at precise moments in time.

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With more than 20 years of providing collateral solutions to the Securities Finance industry, J.P. Morgan’s Collateral Services has the proven expertise to help navigate through the changing regulatory landscape; investing in process automation and industry integration to provide flexible client solutions, with real time oversight and transparency. Through continuous investment, innovation and exceptional client service, J.P. Morgan Collateral Services is both a provider of choice and a partner for the future for industry participants with an objective to mitigate risk, reduce costs and gain optimal performance from collateral portfolios.

OCC THE FOUNDATION FOR SECURE MARKETS

John Davidson
CEO

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Pirum offers a secure, centralised automation and connectivity hub for international securities finance (Stock Loan and Repo), cleared and uncleared derivatives and other bilateral transactions.

Our position within the securities financing market enables banks and buyside institutions to seamlessly access counterparts, tri-party agents, trading venues, market data companies and CCPs, as well as regulatory reporting facilities.

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Pirum's innovative designs and customer focus have resulted in widespread industry recognition and multiple Awards.

Pirum was most recently named Global Post-Trade Service Provider of the Year at the International Securities Finance 2020 Awards, and our CollateralConnect product was named as the winner of the software solution Award.

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VERMEG is a specialized software house covering three main market segments in financial services: Banking, Capital Markets and Insurance.

Our business solutions are designed to address the challenges linked to the transformation of the financial services industry. As information system architects, we ensure our clients can achieve cost reductions and Time-To-Market control in the modernization of their information systems.

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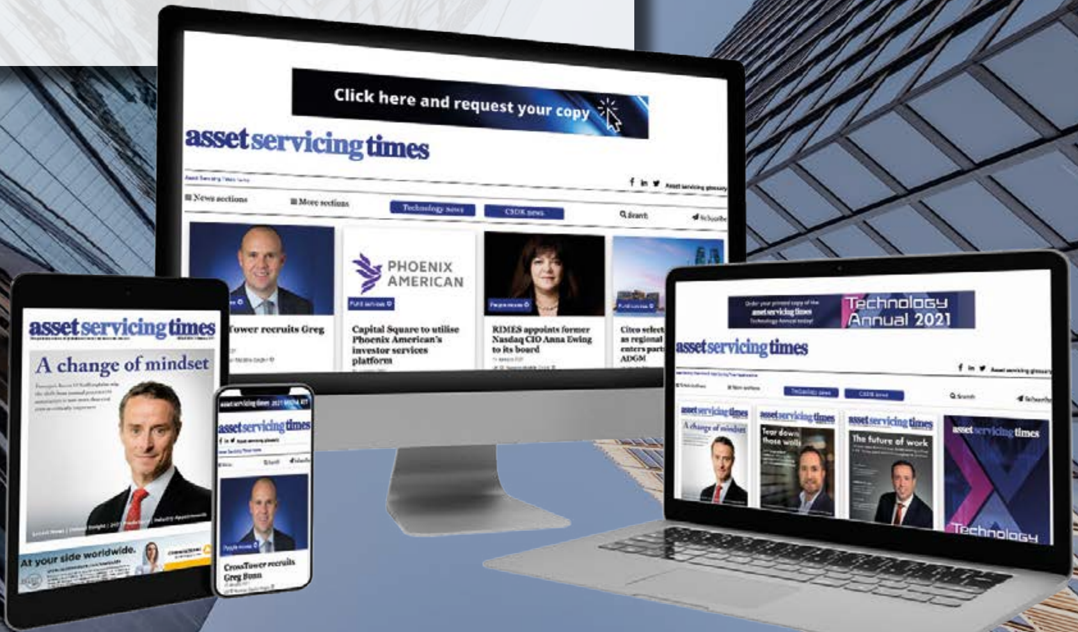

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