Securities Finance Times

Pirum's Todd Crowther discusses the power of technology-enabled collateral optimisation

COLLATERAL 2025

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Collateral Management

The Collateral Technology of the Future

COLLINE is a cloud-native solution that supports all your regulatory and strategic collateral management needs and provides an efficient and resilient model to mitigate credit risk and minimize collateral asset costs.

COLLINE helps firms to achieve all or one of the following targets:

- **Consolidate collateral management** in a single platform **across asset classes**: over-the-counter (OTC) derivatives, cleared OTCs derivatives, repo, Stock Borrow and Loans (SBL), to-be-announced trades (TBAs) and exchange-traded derivatives (ETDs).
- **Optimize collateral pledges** to reduce related costs, automate deliveries to meet margin calls, manage liquidity and optimize the inventory utilization, "What if" scenarios complement such optimization.
- **Streamline connectivity** to utilities and agents through the onboarding of new standards such as the Common Domain Model in credit support annex (CSAs) and complex eligible collateral schedule representation.
- **Reduce IT costs** through established and efficient SaaS services, and leveraging new technologies such as PostgreSQL for the database management system.

COLLINE AT A GLANCE

Centralized risk management, margin automation and collateral services across asset classes

OPTIMIZER

- Post Trade Optimization
- Native eligibility checks
- Automated Allocations
- Simplex algorithms

COLLINE Calcs

- Trade Sensitivities
- Margin analytics
- Pre-Trade Optimization
- Funding analysis

INVENTORY MANAGEMENT

- Centralised inventory
- Inventory projection
- Real time / Intraday
- Shortfall coverage
- Asset segregation and segregation
- Liquidity management
- Maturity ladders
- Forward funding

OTC | CLEARED | REPO | SBL | ETD | ETF | TBA

COLLINE CORE

- Legal Repository
- Eligibility Schedules
- Margin process
- Real time Settlement
- Exposure Management
- Dispute Management
- Workflow Automation
- Interest / Substitution
- Collateral Assets
- Reconciliation
- Real time reporting/MIS
- SIMM Licensed Vendor*

CONNECTIVITY

- CDM Connector
- Acadia
- Email Processor
- Self-service portal
- Triparty agents
- Third Party Custodians
- CCPs Connectivity

VERMEG OVERVIEW

Key figures

550+ Clients

40+ Countries

15/20 Biggest Banks

>30% of staff in R&D

Presence

AUSTRALIA · BELGIUM · BRAZIL · FRANCE · GERMANY · HONG KONG · JAPAN

LUXEMBOURG · NETHERLANDS · SINGAPORE · SPAIN · TUNISIA · UNITED KINGDOM · UNITED STATES

Market Recognitions

Awards

RiskTech Quadrant® Category Leader Collateral Management Systems for Capital Markets, 2023

COLLINE: Category Leader, Collateral Management Systems for Capital Market 2023

Recongnition of innovation, 2023 VERMEG Large Entreprise Insurance/ Asset Management Collateral Coverage

VERMEG Recognition of Innovation 2023

CENTRAL BANKING AWARDS 2022 COLLATERAL MANAGEMENT SERVICES

Collateral Management Services 2022 winner for MEGARA

Innovation Award Digital Custody

COLLINE best sell-side COLLATERAL MANAGEMENT solution 2022

ISDA Collateral Initiatives Badge

RegTech Insight Awards APAC 2024 Winner Best MAS 610 Solution VERMEG

VERMEG: Best MAS 610 Solution - 2024

Certifications

Swift Compatible Application Corporate Actions 2023

Swift Compatible Application Collateral Management 2023

Swift Compatible Application Securities Settlement 2023

SOCII TYPE II CERTIFIED

ISO 27001 Certified

Microsoft Partner Silver Application Development

aws PARTNER Premier Tier Services

ecovadis GOLD 2023

BEST PLACES TO WORK 2022 for LGBTQ Equality

United Nations Global Compact

About VERMEG

VERMEG is a specialized software house covering three main market segments in financial services: Collateral Management & Asset Servicing, Regulatory reporting and Digital transformation.

VERMEG is the number one provider worldwide of Collateral Management solutions for Central Banks. Its business solutions have been designed to address the biggest banks and major CSDs & CCPs' challenges linked to the transformation of the financial services industry, but also to support these players in the overhaul of their information system; through cost reductions and time-to-market control.

In addition to offering standard software solutions that meet evolving digitized needs, VERMEG offers tailor-made solutions based on our own tools, project and business expertise.

Ask how VERMEG Financial Markets & Securities Services solutions can bring agility and competitive advantage to your business.

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Collateral Annual 2025

As we enter 2025, the world of collateral management stands on the cusp of a transformative shift, propelled by technology that rivals even the most famous power couples. AI and data, much like Taylor Swift and Travis Kelce's headline-grabbing pairing, are now the dynamic duo capturing the spotlight in the financial sector. These powerful tools are revolutionising securities finance, streamlining processes, solving complex challenges, and enhancing operational efficiencies like never before.

This edition of the Securities Finance Times Collateral Annual presents insights from industry leaders who are shaping the future of collateral management. Darren Crowther of Broadridge highlights how AI and data are the driving forces transforming operations. Meanwhile, Pirum's Todd Crowther emphasises the growing business case for technology-enabled collateral optimisation, and Matthew Chessum of S&P Global Market Intelligence explores how ETFs can enhance collateral strategies.

Additionally, Graham Gooden from J.P. Morgan outlines the five key themes set to define collateral priorities for 2025, while Neil Murphy of OSTTRA addresses the upcoming technological and compliance challenges. Thomas Griffiths of Cassini offers steps to bolster liquidity preparedness, ensuring firms are equipped for future market volatility, and Sam Edwards of State Street discusses innovations in buy side collateral management, bringing essential lessons to a broader market.

And this is just the beginning — there are many more exciting articles for you to explore. This edition serves as your comprehensive guide to navigating the future of collateral management, with AI and data leading the way.

Justin Lawson
Publisher
Black Knight Media

Publisher: Justin Lawson
justinlawson@securitiesfinancetimes.com
020 3667 3244

Group editor: Karl Loomes
karlloomes@blackknightmedialtd.com
020 3617 1722

Deputy editor: Carmella Haswell
carmellahaswell@securitiesfinancetimes.com
020 3617 1722

Reporter: Daniel Tisoň
danieltison@securitiesfinancetimes.com
020 3617 1722

Accounts: Chelsea Bowles
accounts@securitiesfinancetimes.com
020 3667 3979

Sales and Events Support: Vanessa Hayes
vanessahayes@blackknightmedialtd.com
020 3667 3979

Studio director: Steven Lafferty
design@securitiesfinancetimes.com

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Avaloq and Comyno launch solution

Avaloq and Comyno have launched a pre-integrated securities financing solution to offer comprehensive collateral inventory overviews, easier access to liquidity and enhanced risk management.

The company says the new solution, integrated into the Avaloq platform, broadens access to securities lending business and helps firms fulfil their collateralisation requirements, aiming to create an interconnected financial market and improve access to liquidity, while simplifying compliance with the Securities Financing Transaction Regulation (SFTR) and the Uncleared Margin Rules (UMR).

The solution aims to deliver detailed and timely reporting on collateral valuation, including daily fluctuation data which is crucial for meeting SFTR and UMR requirements.

Martin Greweldinger, group CEO at Avaloq, says: “With this project, we are helping to create an even more stable and liquid financial marketplace while ensuring that our clients comply with regulations across multiple jurisdictions.

“We are proud of our commitment to innovation, investing 25 per cent of our annual software revenue into research and development. We are firmly committed to our role as an orchestrator of the financial ecosystem, with an extensive network of specialised partners such as Comyno.”

Frank Becker, chief operating officer head of sales at Comyno, comments: “Our expertise in crafting intuitive software solutions for the securities finance market, especially with our C-ONE platform, aligns perfectly with the project’s goal to foster a more interconnected and liquid financial ecosystem.”

Murex extends scope at Mediobanca with collateral management

Murex, in partnership with Mediobanca, has completed a new implementation of MX.3 solutions for collateral management and SIMM.

With this move, the Milan-based bank aims to improve overall operational capacity, enhancing rationalisation and capitalisation of investment.

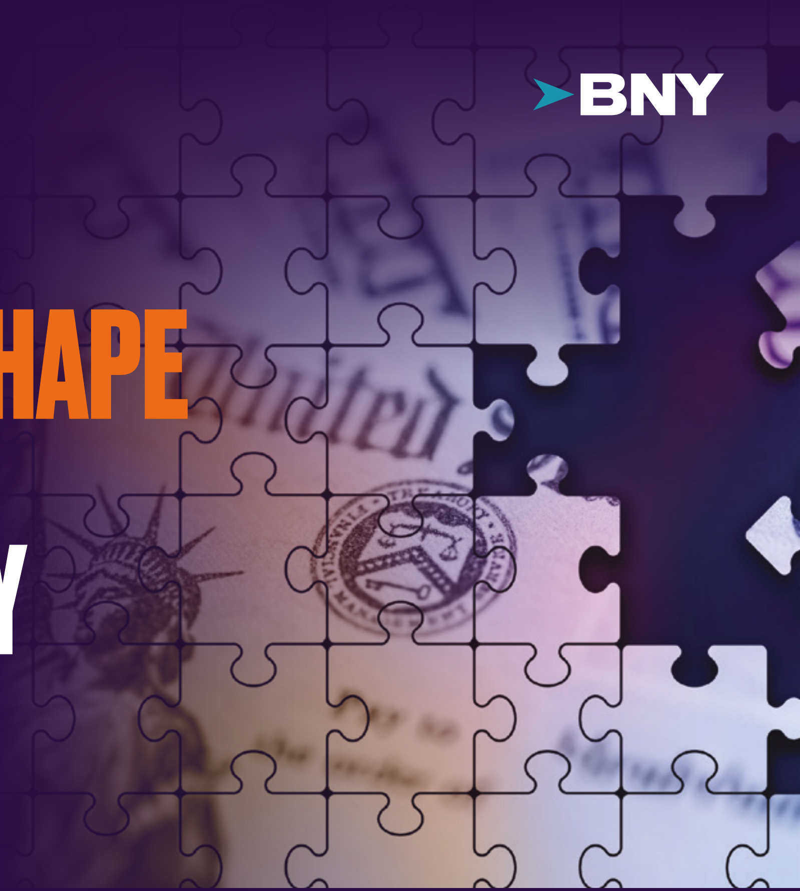
This new addition completes Mediobanca’s front-to-back operations, including accounting and payments, which now operate on a single system.

The collateral scope includes OTC, cleared and listed derivatives, repos, and securities.

The core SIMM solution consists of CRIF file generation and SIMM back-testing, and allows Mediobanca to have real-time connectivity to process variation margins.

Working closely with Murex, Mediobanca’s IT architecture is now more integrated, including the enhancement of interfaces and reporting, according to the firm.

Marco Pozzi, Mediobanca’s group chief operating officer, says: “After a deep analysis performed to assess the best target software infrastructure, we decided to migrate collateral management to MX.3 and extended the scope to include initial margin management integration.



Fnality and HQLA^X complete cross-chain intraday repo settlement testing

Fnality and HQLA^X have completed the initial end-to-end testing of cross-chain intraday repo settlement.

The testing follows the firms' first proof of concept delivery-versus-payment repo settlement in Q4 2022.

The PoC was the first cross-chain repo swap pilot across R3's Corda platform and Enterprise Ethereum. According to the two firms, it set the foundations for the "rapid settlement" of intraday transactions.

The firms claim that this testing "paves the way for the precise control and easy mobility of liquidity and collateral, ensuring the clearing of wholesale payments in minutes with unprecedented visibility and control".

They continue to add that the success of the tests will enable the ability to settle at a precise moment in time.

Simone Cortese, director of Product Management at Fnality International, says: "[This] showcases a complete end-to-end process: from a trade originating in Eurex to the transaction settling seamlessly and atomically across FnPS and HQLA^X in mere seconds.

"As we stand on the cusp of our first 'real' live transaction, we are poised to unlock groundbreaking opportunities within the intraday finance sector."

"Murex has a strong reputation in the collateral management space, with successful implementation achieved among a diverse group of clients. We are pleased with the collaboration and we are confident we have strengthened our framework and processes."

Murex representatives said that strong collaboration with Mediobanca throughout the implementation process, as well as clear objectives from the bank, were critical.

Philippe Helou, co-founder and managing partner at Murex, adds: "Collateral management and the SIMM addition are an important step forward in a long-term relationship with Mediobanca. We look forward to future collaboration and further innovation."

MUFG EMEA and Doha Bank close first green repo in Middle East

MUFG EMEA and Qatar-based Doha Bank have closed their first green repurchase scheme in the Middle East and North Africa (MENA) region.

This transaction marks the first green repo scheme for both institutions that utilises green bonds as the underlying collateral.

Green repo schemes use the proceeds of green collateral, such as green bonds, to finance further green initiatives.

In line with its Sustainable Finance Framework, Doha Bank

MUREX

MX.3 for Collateral Management and Securities Finance

Banks can now break silos and bridge the gap between collateral management, settlement and securities finance for a wide asset class catalog.

Benefit from Murex technology and deploy centralized real-time inventory management, a holistic strategy on funding activities and a high level of automation that can mitigate risk, manage liquidity and reduce cost.

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will commit the cash proceeds generated from the repurchase of green bonds issued by the State of Qatar to the funding of green assets.

Sheikh Abdulrahman bin Fahad Al-Thani, group CEO at Doha Bank, says: "Innovative products such as green repos are central to Doha Bank's ESG initiative.

"These funding initiatives help in raising liquidity to invest into 'green eligible' collateral that acts as a bridge in achieving our sustainability targets in line with Qatar National Vision 2030".

Andre Van Hese, international head of securities financing at MUFG, adds: "MUFG remains committed to working with clients in the MENA region to build bespoke solutions to help navigate the importance of fostering an ESG-compliant ecosystem."

According to MUFG's analysis, regulators and policymakers in the Gulf Cooperation Council (GCC) economies are undertaking extensive investments to progress a net zero target across the region.

Looking ahead, the GCC region remains well-positioned to become a vital global decarbonisation leader, MUFG says.

Cassini expands platform to benefit hedge funds

Cassini Systems has updated its platform to increase its offering for hedge funds.

The firm says the latest enhancements will expand its capability to replicate prime brokerage margin across a diverse array of policy types.

Cassini will also introduce a stress testing feature that fortifies hedge funds against forced liquidation events, therefore contributing to the robustness of their risk frameworks.

Through these developments, Cassini aims to provide firms with enhanced operational and liquidity risk controls.

Thomas Griffiths, head of product at Cassini, comments: "This development for hedge funds will enable them to take charge of their margin and collateral costs and ensure liquidity in volatile markets.

"Transparency into margin and collateral requirements is key; these newly released enhanced analytics allow hedge funds to understand the drivers of their margin, reconcile margin calls and, importantly, fulfil fiduciary responsibilities to their investors."

VERMEG and IDClear to bring digital solutions to Indonesia

VERMEG has signed a Memorandum of Understanding (MoU) to formalise its collaboration with IDClear, the clearing and guarantee central counterparty (CCP) for the Indonesian financial market.

IDClear has been a client partner of VERMEG since 2021, using the firm's cross-product collateral management solution MEGARA.

The firm will now extend its collaboration with VERMEG to include its Digital CCP platform, which offers collateral optimisation, collateral assessment, customer onboarding, and default management.

AmInvestment Bank deploys Broadridge SFCM platform

AmInvestment Bank, one of the largest banking groups in Malaysia, has deployed Broadridge Financial Solutions's platform to transform and expand its prime brokerage business lines in the APAC region.

The Securities Financing and Collateral Management platform is a front-to-back SaaS solution for securities finance, used widely across the global buy and sell side securities lending, repo, and collateral trading markets.

This move will allow AmInvestment Bank to enable its securities borrowing and lending product offerings, simplify and innovate trading, manage collateral, and handle trade lifecycle events, while integrating with its existing systems.

Tracy Chen Wee Keng, CEO of AmInvestment Bank, says: "Broadridge's solution has a strong track record for delivering industry-leading systems, which will deliver a better experience for our customers.

"Additionally, we are now able to manage the operational aspects of securities lending more effectively, within a controlled and scalable environment, setting us up for robust future growth and adaptability to evolving market dynamics."

Darren Crowther, head of securities finance and collateral management solutions at Broadridge, adds: "The financial landscape is rapidly evolving, and our Securities Financing and Collateral Management platform is designed to help forward-thinking institutions like AmInvestment Bank stay ahead in the market.

"This implementation is particularly significant as it addresses the growing need for sophisticated financial solutions amid the opening of emerging markets and evolving stock lending agreements."

The platform, built on a cloud-native application programming interface (API) architecture, is designed to assist market infrastructure and capital markets clients to optimise their assets, increase productivity and enhance risk management capabilities.

Badreddine Ouali, VERMEG CEO, says: "By combining IDClear's collateral management expertise with our flexible Digital CCP solutions, we are empowering IDClear and its members to optimise their inventory and productivity, increasing profitability, as well as to help to reduce their credit, market, and systemic risk."

Iding Pardi, president director of IDClear, adds: "We are delighted to partner with VERMEG to extend their CCP solutions to the Indonesian financial market. This allows our clearing members with the opportunity to benefit from the latest in cloud-ready digital technologies."

Fidelity International goes live on J.P. Morgan's Tokenized Collateral Network

Investment management services firm Fidelity International has gone live on J.P. Morgan's Tokenized Collateral Network (TCN).

TCN sits on J.P. Morgan's Onyx Digital Assets, and operates as a private blockchain-based platform, which is used for tokenised asset movements including collateral settlement.

Fidelity International has tokenised the representation of shares in Fidelity International money market funds (MMF) through the TCN.

The ability to post MMF shares as collateral directly without first redeeming to cash, offers the prospect of greater efficiency and stability in times of market stress, the firms say.

TCN has started with the tokenisation of money market shares, with a view to expanding across equities, fixed income and a range of asset classes.

According to J.P. Morgan, the ability to tokenise assets and use them under both title transfer and pledge structures, outside of any limiting market operating hours, has the potential to create new opportunities in the collateral market.

Commenting on the news Stephen Whyman, head of Debt Capital Markets at Fidelity International, says: "Tokenising our money market fund shares to use as collateral is an important and natural first step in scaling our adoption of this technology.

"The benefits to our clients and the wider financial system are clear — in particular, the improved efficiency in delivering margin requirements and reduction in transaction costs and operational risk."

Harpreet Bains, managing director and head of trading services digital at J.P. Morgan, adds: "Growing the number of participants on TCN was a key objective from the outset, and we're delighted to welcome Fidelity International to the network.

"We believe TCN has the potential to transform collateral markets, allowing our clients to extract greater utility from existing asset pools, and broadening the network is the next important step on that journey."

BNY and Pirum live with joint collateral optimisation service

BNY and Pirum Systems have announced they are live with the first client, an international Canadian bank, for their joint collateral optimisation service, ECPOConnect.

The new service combines BNY's collateral management service, ECPO, with Pirum's CollateralConnect platform.

The companies aim to aid collateral providers by allowing them to centralise collateral management across business lines.

Victor O'Laughlen, managing director at BNY, comments: "We are pleased to collaborate with Pirum to bring to market ECPOConnect, an optimisation solution that allows clients to increase profit margins. Client demand for real-time data-driven efficiencies to navigate complex markets is increasing, and we are building solutions to meet those needs."

Todd Crowther, head of corporate development and collateral services at Pirum, adds: "ECPOConnect is an innovative solution offering industry participants a flexible set of optimisation solutions to fit their needs."

Tech-enabled collateral optimisation: From must-have to game changer

The business case for tech-enabled collateral optimisation at enterprise level has never been stronger and the ROI case has never been more compelling, says Pirum's Todd Crowther, head of corporate development and collateral services

The post-global financial crisis regulatory wave continues to impact our industry. Regulators, globally, have focused on reforms to reduce systemic risk and improve liquidity in global capital markets.

However, this resulted in dramatic and costly obligations for financial institutions, as can be seen across two macro-trends.

First, prudential regulations seeking to reduce default risk and boost resiliency have placed costly capital requirements on firms to improve backstops and liquidity.

Second, regulator-led structural changes aimed at increasing efficiency and addressing systemic risk in capital markets. For example, mandating minimum margin, expanding margin participants, migrating more products to clearing and reducing settlement periods have proved expensive obligations to implement.

The scale of what is at play also bears mentioning. The global collateral market of around US$28 trillion or more, plays a critical role in facilitating secondary capital market activity across margining and financing. To put these figures into perspective, EY estimated that collateral posted in North America and Europe accounted for around 30 per cent of aggregate bank balance sheets in these capital markets.

This collateral market is also growing in terms of size. To illustrate, the European repo market doubled from €4.6 trillion in 2008 to €10.9 trillion in 2024, and the International Capital Market Association (ICMA) estimates that primary issuances will continue to grow from €225 trillion today to €336 trillion by 2030.

During times of market stress, the demand for collateral also expands dramatically. For example, due to market volatility in January to February 2020, CCP margin increased by 560 per cent for initial margin (IM) from US$25 to US$140 billion and, from February to March 2024, variation margin (VM) increased by around 40 per cent or more to around US$415 billion (BIS).

These new regulatory capital requirements seeking to ensure high-quality liquid assets (HQLA), coupled with the growing demand and velocity of collateral, have meant that firms need to focus on becoming highly efficient in managing their costs and finite financial resources.

Higher-cost environment presents opportunities to optimise revenues

These two macro-trends have reverberated across firms, increasing their cost to comply significantly, as well as acting as a meaningful drag on business performance. As a result, when it comes to collateral management and optimisation, efficiency has increasingly become the difference between profit and loss.

Inefficiency in meeting regulatory obligations results from the need to maintain larger (and in many cases excessive) capital buffers, balance sheet and risk-weighted assets (RWAs), as well as high liquidity add-ons for liquidity capital ratio (LCR) and net stable funding ratio (NSFR). These can drag down P&L and hamper a firms' ability to grow its business, support clients and challenge competitors.

As a result, rather than focus on cost downside, firms are approaching collateral optimisation as an opportunity to realise meaningful savings or increase revenues. Through a one per cent improvement in collateral efficiency, Deloitte estimates that medium and large-sized firms can generate additional revenue or reduce costs by over US$1.1 million in normal market conditions and from US$1.7 million to US$3.5 million in stressed market conditions.

From cost to profit centre

The cost of secured funding and financing rose three to four times in the wake of the global financial crisis, resulting in securities finance becoming the largest non-FTE cost within secondary capital markets.

As the Basel 3.5 Endgame and Basel 4 are being implemented, particularly during a positive interest rate environment, the cost pressures are not going to abate.

Beyond new prudential standards, newly mandated regulatory market structural and practice changes also continue to increase the cost to comply. From a collateral management perspective:

1. Mandated central clearing and uncleared margin rules for existing products continues to increase the volume and complexity through two-way, segregated margining. As a result, market infrastructure is being updated to meet requirements to collateralise a growing number of counterparties, products and locations.

2. T+1 accelerated settlement is now live in North America and soon coming to Europe. The shortened timelines push for improved speed and accuracy of post-trade processing. This is especially so for collateralised transactions which benefit from lower net margin requirements, but which suffer from increased fail rates for same day or next day margining.

3. New market structures are developing, such as increased activity in peer-to-peer, pledge and CCP products, including securities financing transactions (SFTs), which provide capital friendly alternatives to traditional securities finance structures.

Legacy technology stacks and the reliance on large teams to manage margin and collateral are ill-suited for these three trends. As a result, the cost of doing business for those utilising them is increasingly prohibitive given the increases in volumes and complexity.

Inefficient processing still plagues the industry. To illustrate, in Europe, the average daily fail rates on 6,000 trades creates an estimated €1.7 billion in settlement penalties.

> "Harnessed properly, technology helps firms address not only ongoing changes, but is also a game changer in improving business performance"

The knock-on effects of inefficient operations mean higher costs, including greater risk (credit, operational, default etc), increased collateral needs, greater credit line usage, as well as higher funding and liquidity charges.

Updating technology is now seen as the only real answer to evolving market structures.

Increasingly, firms view new technology, such as collateral management solutions, as a positive return on investment (ROI), which by lowering overheads, improving efficiency and client service levels can generate additional revenues while also reducing costs, thereby facilitating scaling and business growth.

What does good look like?

Digital. Interoperable. Automated. Smart.

Technology is the enabler. Harnessed properly, technology helps firms address not only ongoing changes, but is also a game changer in improving business performance.

As our industry evolves, firms focused on collateral management challenges are increasingly leveraging market infrastructure providers, agents and vendors, to adapt platform infrastructure.

The key benefits of this cooperation are threefold. Mutualised solutions, like Pirum's CollateralConnect, enable industry participants to materially:

- Reduce initial and ongoing development costs and resource burdens.
- Accelerate time to market and ROI payoffs.
- Mitigate risk, including delivery risk and future compatibility risk.

By adopting networked, proven digital solutions, like Pirum's CollateralConnect, firms can improve their P&L, reduce their cost base, decrease their investment costs and ensure they successfully deliver in shorter time frames.

The objective of firms should be to create the data and infrastructure ecosystem that facilitates an algorithmic optimisation that automatically and intelligently manages the collateralised transactions and meets margin obligations.

Below we look at four crucial areas of technology that enable these benefits.

Networked

Connecting to the wider collateral ecosystem is a foundational requirement. Firms can leverage established and newly emerging market networks developed by third parties to get plugged into the ecosystem more easily and quickly. These networks bring better plumbing and enable turnkey access to new margin participants, traditionally bilateral margin venues, new triparty jurisdictions and emerging CCPs for secured financing.

Digitised

Digitisation improves the ability of firms to harmonise data models and processes, which is critical in managing collateral across multiple, disparate internal and external platforms. Participants can further standardise and streamline data exchange and digitise workflows across the full trade lifecycle through the adoption of emerging technology, such as common domain model (CDM) and distributed ledger technology (DLT).

Automation

Automation concurrently enables networked interoperability and real-time digitised data exchange and processing (eg smart contracts), to provide enhanced straight-through-processing (STP), operational scalability and accuracy. In this regard, Pirum achieves 99.8 per cent STP, meaning firms that had previously managed manually intensive processes can now focus on growing their businesses.

Intelligence

Algorithms are increasingly being utilised for collateral optimisation for better trade and collateral decision making, as well as for optimising P&L, financial resources and regulatory operations. Machine learning and artificial intelligence are being leveraged with connectivity, data and automation, to better support timely decision making and execution.

A compelling case for collateral optimisation investment

Firms are increasingly prioritising efficiency and alpha generation through collateral optimisation.

During this time of revenue and margin pressure, firms want to realise such efficiencies and are turning to technology as a key enabler.

From a ROI perspective, the business case for investing in collateral optimisation has never been more compelling.

Revenue upside. The potential opportunity size can be up to US$150 million or more annually in funding cost savings, combined with the ability to drive liquidity, capital and RWA benefits (EY). Firms are investing in technology to break down silos and maximise portfolio benefits, enable smart algorithms to maximise profitability while remaining regulation compliant, and use networked solutions to better connect and automate the full transaction lifecycle.

Cost-effective investment. Optimisation initiatives have a significant payback on the investment cost, where industry participants typically realise annual ROI in excess of 10 times of their investment (EY). Mutualised providers and vendors, like Pirum's software-as-a-service (SaaS) platform, offer networked, automated solutions, which can fully outsource the build, maintenance and ongoing support of new technology.

Rapid payback. Optimisation projects can be self-funded through near-term savings, where typically 40 per cent of the opportunities are realised within the first year, enabling same-year payback (EY). Industry participants are increasingly choosing to leverage off-the-shelf solutions from service providers, such as Pirum, where the time to market can be three to six months, compared to a multi-year in-house project.

Return risk. Given the scale and complexity of a collateral infrastructure project, the choice of the solution needs to be carefully considered from a risk-return perspective. Associated project risks, including delays, roadblocks and missteps, can materially affect the probable return, total investment cost and payback time frame. Trusted solution providers with well-established and resilient platforms and a track record of successful implementation, can de-risk delivery and provide certainty of success.

Today, firms are investing in data and infrastructure enhancements that will ensure they are well positioned for long-term growth and profitability. Technology investments enable firms to utilise collateral optimisation to maximise profitability and ROI, while remaining compliant with regulatory requirements and enabling them to adapt to structural changes in global capital markets. Technology offers game changing benefits (including positive ROI) to firms looking to face these challenges head on.

Collateral management: Where innovative strategies meet cutting-edge technology

Matthew Chessum, director of securities finance at S&P Global Market Intelligence, delves into the intricacies of raising, posting, and managing collateral, and explores the advantages of incorporating ETFs, cross product pricing and exception reporting into collateral management strategies

Collateral management has evolved into a central component of the global financial infrastructure, particularly in securities lending and financing markets. As regulatory frameworks tighten, financial institutions face growing complexities in managing collateral efficiently while ensuring compliance.

At the same time, exchange traded funds (ETFs) have emerged as a versatile tool, offering a range of benefits that can enhance liquidity, transparency, and risk management in these markets.

The expanding role of collateral in financial markets

In the post-crisis regulatory landscape, collateral plays a pivotal role in mitigating counterparty risk and ensuring the stability of the financial system. Collateral is essential for many activities, including derivatives trading, repo transactions, and securities lending.

However, the scope of collateral requirements has expanded due to regulatory frameworks such as the

Basel III accords, the European Market Infrastructure Regulation (EMIR), and Dodd-Frank in the US. These regulations mandate higher capital and liquidity buffers, thereby increasing the demand for high-quality liquid assets (HQLA) to meet margin and capital requirements.

In this environment, financial institutions must optimise collateral management processes. Raising, posting, and managing collateral have become significantly more complex, as firms need to balance the use of cash and non-cash collateral, handle the re-hypothecation of assets, and manage collateral transformation trades to ensure adequate liquidity. These operational complexities create challenges for both lenders and borrowers in securities financing transactions.

The benefits of ETFs in collateral management

ETFs have emerged as an increasingly valuable tool for institutions seeking to improve their collateral management processes. Initially developed to provide investors with diversified, low-cost access to a broad range of asset classes, ETFs are now being recognised for their utility in securities lending, repo transactions, and other collateralised financing markets.

Some of the key benefits of incorporating ETFs into collateral management include:

Liquidity and flexibility

ETFs, particularly those that track broad-based indices, offer high levels of liquidity. This liquidity is especially valuable in collateral management, where quick access to liquid assets is critical for meeting margin requirements or replacing collateral on short notice. Moreover, ETFs can be used to collateralise a wide range of transactions, from repo agreements to securities lending trades.

The ability to trade ETFs intraday ensures that institutions can manage their collateral portfolios dynamically, allowing for the rapid adjustment of collateral in response to market conditions or regulatory changes. This flexibility reduces the likelihood of margin calls and enhances operational efficiency.

Diversification of collateral pools

ETFs provide a cost-effective way to diversify collateral portfolios. Instead of posting single-issue bonds or equities, firms can use ETFs that track baskets of securities across various sectors, geographies, or asset classes. This diversification lowers counterparty risk by reducing exposure to any single issuer or asset type, enhancing the overall credit quality of the collateral pool.

ETF collateral lists, which are predefined sets of eligible ETFs that can be posted as collateral, offer further convenience and standardisation. These lists, developed by S&P Global Market Intelligence, ensure that the collateral meets predefined eligibility criteria, streamlining the collateral posting process.

Cost efficiency

ETFs are generally more cost-effective than individual securities when used as collateral. Their lower transaction costs, coupled with the ability to acquire diversified exposure in a single trade, make them an attractive option for institutions looking to minimise the operational and financial costs of managing large collateral portfolios. Moreover, ETFs are highly standardised, which facilitates easier pricing, valuation, and risk monitoring compared to more esoteric assets.

S&P ETF collateral lists: Standardisation and operational efficiency

One of the most compelling advantages of using ETFs in collateral management is the ability to harness the power of ETF collateral lists. These lists simplify the collateral posting process by specifying which ETFs are eligible for use as collateral in securities financing arrangements. This standardisation reduces operational risks and errors, ensuring that all posted collateral meets the necessary regulatory and counterparty criteria.

ETF collateral lists also improve transparency and pricing efficiency in securities lending and repo markets.

By using predefined lists of eligible ETFs, market participants can more easily assess the value and liquidity of the collateral, allowing for more accurate pricing of securities financing agreements. This, in turn, reduces the risk of disputes over collateral valuation and enhances the efficiency of collateral pools.

Revolutionise pricing in securities financing markets

Access to pricing in both the securities lending and repo markets for multiple asset classes offers significant advantages by ensuring transparent, accurate, and consistent valuations. In both markets, the value of the collateral directly influences the terms of transactions, and being able to cross-reference pricing between these markets strengthens confidence in those valuations.

Trends and market analysis

The demand for high-quality collateral has increased, driven by regulatory requirements and market participants' preference for risk mitigation. This has led to tighter spreads and increased competition for high-quality assets. Additionally, the rise of central clearing and collateral optimisation strategies has reshaped the market dynamics, emphasising the need for efficient collateral management pricing.

Collateral plays a critical role in determining pricing in securities financing markets. The quality and liquidity of the collateral influence the terms of the transaction, including the interest rate or lending fee. High-quality collateral, such as government bonds or blue-chip equities, typically commands lower rates due to lower risk, while lower-quality collateral may attract higher rates to compensate for increased risk.

In the securities lending market, understanding asset pricing helps lenders assess the true market value of the collateral, allowing them to set fair lending fees. Liquid and reliably priced collateral, such as ETFs, reduces risk and leads to more favourable terms for both parties. Borrowers, in turn, benefit from lower costs due to increased confidence in the collateral's value.

In the repo market, accurate and efficient collateral pricing is equally crucial. Repo agreements, which involve short-term borrowing backed by securities, rely on clear, transparent pricing to reduce the risk of misvaluation. Being able to track the asset's pricing across both the securities lending and repo markets ensures that the terms of the repo transaction are fair and based on solid market data, mitigating counterparty risk.

The ability to see how assets are priced in both the securities lending and repo markets brings significant benefits to both lenders and borrowers by enhancing transparency, risk management, and market efficiency. For lenders, access to dual-market pricing allows for more accurate risk assessments and better decision-making when determining lending fees, as they can compare liquidity and collateral quality across markets.

This helps to optimise their portfolios by selecting the most liquid and reliable assets for lending, reducing counterparty risk. Borrowers, on the other hand, benefit from improved pricing visibility by identifying the most cost-effective route to market, whether through securities lending or repo.

This dual-market insight offered by S&P Global Market Intelligence enables them to optimise their collateral management strategy, ensuring they are using assets that will yield the most favourable terms while maintaining liquidity. Overall, cross-market transparency enhances liquidity, improves risk mitigation, and enables more strategic collateral deployment, creating a more efficient and optimised market for both parties. Seeing unified pricing across these markets increases market efficiency, ensures consistency in valuing assets, and ultimately improves the terms for both lenders and borrowers.

Collateral compliance reporting and risk management

As collateral management becomes more complex, financial institutions are increasingly relying on sophisticated collateral compliance reporting systems to ensure that they remain within their risk parameters. In the context of securities financing, these systems play a critical role in managing the collateral that has been posted or received.

One key feature of modern collateral compliance systems is the ability to create alerts and exception reports based on predefined risk parameters. These parameters may include factors such as collateral concentration limits, asset quality, liquidity requirements, and credit risk exposure. For instance, if a financial institution has received a particular security as collateral in a securities lending trade, the system can monitor the credit quality of that security and alert the institution if its rating falls below a certain threshold.

Tailored alerts and exception reports

By generating real-time alerts and exception reports, institutions can respond proactively to risks that may arise in their collateral portfolios. For example, if a firm has accepted an equity as collateral in a securities lending transaction and the liquidity of that equity deteriorates, the system can trigger an alert. This allows the institution to act, such as requesting additional collateral or replacing the deteriorating asset, thereby mitigating potential losses.

Moreover, S&P Global Market Intelligence's upcoming collateral compliance reporting module, can be customised to align with an institution's specific risk tolerance. Firms can set their own risk parameters based on factors such as the type of collateral, counterparty risk, and market conditions. Exception reports can be generated to highlight situations where collateral fails to meet the required standards, allowing for timely intervention.

In addition to enhancing risk management, collateral compliance systems also support regulatory reporting. With regulators requiring more detailed and frequent reporting on collateral usage, automated systems that can generate exception reports and maintain a comprehensive audit trail are essential for ensuring compliance with global regulatory frameworks.

A new era of collateral management

The complexities of collateral management, particularly in the securities lending and repo markets, continue to grow as institutions face heightened regulatory scrutiny and increased operational demands. However, the use of ETFs as collateral offers numerous advantages, including enhanced liquidity, diversification, and cost efficiency. By leveraging ETF collateral lists, firms can standardise and streamline their collateral management processes, reducing risks and improving transparency.

In tandem with the use of ETFs, advanced collateral compliance reporting systems play a crucial role in managing risk. Through tailored alerts and exception reports, institutions can ensure that they remain within their risk parameters, respond swiftly to potential threats, and comply with evolving regulatory requirements.
As the financial landscape continues to evolve, the integration of ETFs and sophisticated risk management tools will be essential for institutions seeking to optimise their collateral management strategies and navigate the complexities of the modern financial markets.

In conclusion, the complexities of collateral management in securities finance are ever-increasing, driven by regulatory pressures, market volatility, and the demand for liquidity. Pricing transparency, ETFs and advanced collateral compliance reporting systems offer valuable tools for navigating these challenges. By leveraging these innovations, financial institutions can optimise their collateral management practices, ensure compliance, and achieve greater resilience in the face of market uncertainties.

Matthew Chessum
Director of securities finance
S&P Global Market Intelligence

Collateral supply, demand and mobility

Graham Gooden, EMEA head of triparty collateral management at J.P. Morgan, outlines the five core themes the firm and its partners are focused on in H2 2024 and 2025

Collateral supply, demand and mobility are all factors influencing the expanding and ever-evolving global collateral ecosystem, now estimated to be over US$25 trillion in size.

The expected Basel III Endgame rules coming into effect from 2025-26 and the long tail of segregated initial margin implementation are two drivers of increased demand, while the growth of new collateral markets and digital innovation represent examples of how supply and mobility of collateral is expanding in parallel.

Capital efficient structures

Given the potential impact of Basel III Endgame, it comes as no surprise that capital efficiency continues to be near the top of the in-tray for many sell side firms. There is no one-size-fits-all, and approaches should be seen as a suite of options, deployable to target different challenges, depending upon the relative and dynamic inputs and constraints of the individual firms.

Key areas of focus that have been leading our discussions include pledge, transfer title pledge-back, and securities financing-focused central counterparties (CCPs).

Exchanging collateral under a pledge arrangement for securities finance has been established for a number of years, with the market coalescing around standardised documentation and a standardised operational model. Pledge has worked well, mainly for non-US banks with increasing uptake expected as we move towards 2025 and beyond.

Driven by the differing client needs such as those of US-regulated banks, an augmented approach is 'transfer title pledge-back', where collateral is transferred under full title, with either the margin or full collateralised amount, pledged back to the collateral provider — the aim being to help reduce the cost of capital associated with the unsecured exposure caused by over-collateralisation of the margin.

Reduced capital footprint is a key benefit of transacting through a CCP, and we are seeing strong collaboration across the collateral ecosystem in both securities lending and repo on both sides of the pond. Combining new securities finance cleared models with the established automation and scale of existing industry solutions like triparty, offers the opportunity of market adoption at scale within tangible timeframes.

Intraday liquidity

Traditionally, liquidity can take many forms, at its simplest as credit lines, excess cash, or security buffers (eg longboxes in triparty parlance). But more recently, we have been able to help facilitate more complex approaches to structuring and sourcing liquidity.

Liquidity is not cost-free, attracting commitment fees, direct usage fees, or the indirect cost of forgoing the benefit of a fully funded inventory. As settlement cycles shorten, technological advancements increasingly enable real-time, firm-wide monitoring, as does the monetisation of liquidity intraday, with the cost to use liquidity in some cases starting to be applied by the minute.

Repo has long been a key pillar of liquidity management with sell side firms raising cash to the tenor and currency as necessary, providing a yield to the buy side in return. As liquidity requirements gravitate to intraday, so too has the need for intraday repo, which as a structured trade can be more cost efficient than incurring liquidity costs at a custodian, triparty agent, or infrastructure provider.

Intraday repo through blockchain has been one area of focus and has been a reality for a number of years. The same goes for the ability to transact intraday repo through traditional triparty — providing an additional source of liquidity for dealers and yield enhancement for cash providers.

From a triparty programme perspective, we have seen a number of alternative approaches to source additional securities collateral that can be used to provide liquidity for allocation, substitution, and optimisation strategies throughout the day. Some strategies include sweeping excess collateral to be made available intraday, others include more structured trades such as high-quality liquid asset (HQLA) contingent funding trades.

Collateral expansion — emerging markets

Expanding collateral supply can take a number of forms, with expansion of existing product scope to new geographical locations perhaps the most obvious but not always the most straightforward. Local regulation, legal requirements, and tax or market settlement processes can necessitate bespoke or innovative solutions.

As emerging markets build out the full breadth of financial services infrastructure, use of issued securities as collateral is often not at the forefront of regulator or legal frameworks, however important a post-trade activity it has become.

As a collateral practitioner, adding incremental markets can take time to undertake due diligence and understand local market nuances to augment standard international product offerings to the local market requirements. Led by success in the Asia Pacific region in recent years, the collateral ecosystem has developed a good cadence for adapting to new markets like South Korea and Taiwan, and we see a promising pipeline of new collateral markets including Saudi Arabia, South Africa, Indonesia, and Malaysia.

Simply adding a new market does not necessarily mean adoption is immediate and substantial. Building that network of providers and receivers comfortable with documentation and operational processes can take time.

Mexico is a market we have long served, and after steady initial growth, we are anticipating strong uplift over the next year there. While initial margin collateral requirements under the Uncleared Margin Rules (UMR) have been live across major jurisdictions since 2016, mandatory posting of regulatory initial margin is effective in Mexico from 31 December 2024 and is proving a catalyst for triparty adoption, initially to satisfy for UMR, but also a stepping stone for other types of collateral management and securities financing activity.

“Expanding collateral supply can take a number of forms, with expansion of existing product scope to new geographical locations perhaps the most obvious but not always the most straightforward.”

Graham Gooden
EMEA head of triparty collateral management
J.P. Morgan

Many local firms are excited to set up triparty, not only for their initial margin requirements, but as it will be a bridge to expand financing opportunities such as repo with Mexican-issued securities and pesos.

Collateral expansion — digital assets

In addition to increased operational efficiency and collateral velocity, part of the appeal of digital assets is to improve liquidity by increasing fractional ownership through asset division or transfer of baskets through aggregation, making assets more accessible to a wider range of investors.

Tokenisation also offers the opportunity to expand the supply of collateral, ranging from tokenisation of physical assets, individual assets, or a pool of securities. Once assets are tokenised, ownership can be transferred across the blockchain at speed, scale, and transparency throughout the chain.

Real world examples of how this can expand the scope of collateral markets include money market funds (MMFs) — long regarded as a great source of credit but with limited transferability between counterparties limiting their utility as a form of collateral. Tokenised MMFs retain the same credit qualities but are freely transferable and are now being used as initial margin, expanding the potential supply of available collateral for the broader ecosystem.

Similar to the issuance of natively digital assets, which we have seen through a number of nascent private blockchain platforms, a key factor for greater adoption hinges on whether digital assets can be mobilised once acquired and whether they can be used as collateral or be financed. Therefore connecting private blockchains issuing digital assets, with the full suite of triparty functionality and established networks of collateral providers and receivers, could prove to be a key facilitator to building greater adoption.

Optimisation

No conversation around collateral supply and demand is complete without covering optimisation. Ensuring the most effective use of collateral has been core to collateral management for the past 20 years. Approaches vary. Large firms — many of which have already developed in house algorithms to optimise collateral at a granular level, calculating the most optimal allocations of collateral depending on the prevailing regulatory constraint of the day — are increasingly expanding those algorithms to capture greater scope of the firms' cross-enterprise inventory and exposures.

Smaller firms can benefit from a vendor approach with many off-the-shelf optimisers available, often already integrated with industry infrastructure and standards. There is seemingly no endpoint for building out an optimisation solution. As rules, regulations and trade structures evolve, so will the inputs and desired outputs of the optimiser algo.

Data strategy is the backbone of such an ecosystem, as is the ability to not only calculate the most optimal outcome but also to deploy that effectively through collateral mobilisation and enable as nimble and as future-proofed a solution as possible.

Effective data strategy also makes the adoption of advanced analytics tools and artificial intelligence more of a reality, unlocking a multitude of opportunities that enable more refined negotiations of trade terms, better preparation for market events, as well as faster and controlled data workflows.

Change is the only constant

The interdependency and complementary nature of many of these initiatives demonstrates the collateral ecosystem in its truest sense — many roles, actors, and relationships being expanded and supplemented by new elements and buffeted by the mega-trends seen more broadly in financial services of globalisation and digitalisation.

Collaboration and stamina are both necessary, as use cases cannot be proved out in isolation and can take many iterations. Through partnership, we have the best opportunity to identify the most optimal solution, road test its effectiveness, and build momentum for broader industry adoption.

The next power couple: AI and data are taking over from Taylor Swift and Travis Kelce

Darren Crowther, head of securities finance solutions at Broadridge, explores how AI and data are becoming the dominant duo in the banking sector by solving complex problems and enhancing operations

In the world of celebrity power couples, few have recently generated as much buzz as Taylor Swift and Travis Kelce. Their whirlwind romance, blending pop music royalty with NFL superstardom, has captivated the public's imagination and dominated headlines. However, as intriguing as their dynamic is, another power couple is steadily making its way into the spotlight, one that is reshaping entire industries and altering the future of finance: artificial intelligence and data.

AI and data are more than just technological tools; together, they are a synergistic force that is redefining how businesses — particularly in the capital markets — operate. In the same way that Taylor Swift's influence reaches across industries from music to fashion, AI's capabilities extend across various sectors, revolutionising operations and strategies. This is all achieved via the backbone of quality and depth of data being made available.

The game-changing duo

Before diving into specifics, it is crucial to understand why AI and data are considered the new power couple. Like any effective relationship, their strength lies in how they complement and enhance each other's capabilities. Data, often referred to as 'the new oil', provides the raw material that fuels AI algorithms. It is the massive amounts of data generated from transactions, trading and client behaviour, market trends, and more that give AI the context and information it needs to function.

On the flip side, AI's ability to process and analyse vast datasets at extraordinary speeds turns data into actionable insights. AI technologies such as machine learning (ML), natural language processing (NLP), and deep learning allow computers to 'learn' from data, improving their predictions, recommendations, and problem-solving abilities over time. This is particularly crucial in industries like capital markets, where speed, accuracy, and the ability to predict trends are paramount.

In short, AI provides the intelligence, while data provides the knowledge base. Together, they are driving a fundamental shift in how industries operate, particularly in finance, where the ability to analyse vast amounts of data in real time is a game-changer.

Securities finance: An industry primed for disruption

In capital markets, AI and Data have proven to be transformative. High-frequency trading, predictive analytics, and algorithmic trading are all areas where AI is being utilised to gain an edge. These systems analyse huge volumes of market data, identify patterns, and make trades in fractions of a second — far faster than any human could.

One area of finance that is particularly primed for disruption by AI and data is securities finance. Securities finance, which includes securities lending, repo transactions, and collateral management, is a critical component of the global financial system. However, it is also a highly complex and data-intensive area, making it a perfect candidate for AI-driven innovation.

Traditional systems for managing securities finance have often been fragmented and siloed, with different participants in the market using their own systems and processes. This lack of standardisation can lead to inefficiencies, delays, and even operational risk. Moreover, as regulatory requirements become more stringent, firms are under increasing pressure to ensure that they have a clear and accurate view of their securities finance operations.

Leading the way in data and AI innovation

Broadridge has recently launched Tradeverse, a data management platform designed to streamline and enhance the use of trading activity data. Tradeverse functions as a sophisticated data lake, consolidating and simplifying data from various Broadridge platforms supporting front office, securities finance and post-trade among others.

Using Broadridge's BRx data model, it offers a unified and harmonised view of data, which can be quickly integrated and accessed across different platforms. The platform's flexibility is further demonstrated by its ability to incorporate data from third-party applications, making it a versatile tool in a multi-vendor environment.

One of Tradeverse's key advantages lies in its ability to serve as a foundational element for a range of AI-driven initiatives at Broadridge. By centralising access to high-quality, real-time trade lifecycle data, Tradeverse facilitates the development of AI applications such as OpsGPT. These applications rely heavily on consistent and comprehensive data, and Tradeverse eliminates the need for separate data sources, reducing overlap and increasing efficiency.

Furthermore, Tradeverse supports multi-asset data management and operates in real time, subject to the speed of data publication from source systems. Its cloud-native architecture, currently utilising Snowflake, ensures scalability and adaptability to future database technologies.

All of these capabilities will allow Broadridge to bring improvements in workflow processing and bring operational efficiencies into the securities finance arena.

Looking ahead, Tradeverse is set to become the cornerstone of Broadridge's data strategy. While existing systems will continue to operate, Tradeverse represents the future of data access and will be the basis for new capabilities within the Broadridge ecosystem.

With a roadmap for expanding data sources, including Broadridge's securities finance and collateral solutions, and ongoing AI and analytics developments, Tradeverse is positioned to significantly advance the role of data in financial services.

Conclusion

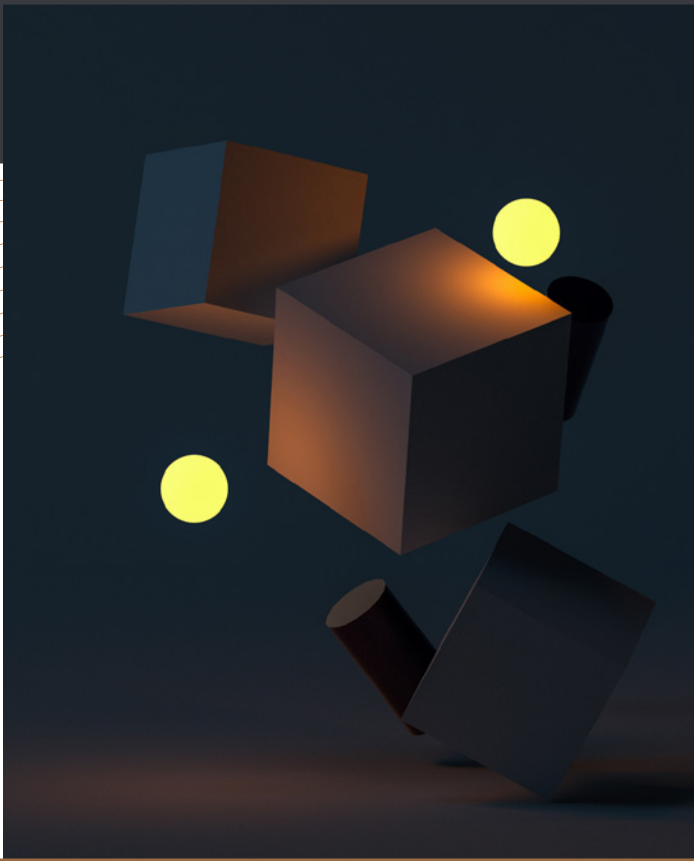
Just as Taylor Swift and Travis Kelce capture the world's attention with their celebrity power, AI and data are capturing the attention of industries worldwide, particularly in finance. In capital markets, banking, and securities finance, AI and data are working together to solve complex problems, enhance efficiency, and drive innovation.

As demonstrated by Broadridge Tradeverse and the industry wide interest in AI and data — we are seeing the start of a fundamental shift in how the financial industry operates.

In the end, while celebrity power couples may come and go, the partnership between AI and data is here to stay.

“As demonstrated by Broadridge Tradeverse and the industry wide interest in AI and data – we are seeing the start of a fundamental shift in how the financial industry operates.”

Darren Crowther
Head of securities finance solutions
Broadridge



Focusing on collateral in 2025, it's not just about the back office

Neil Murphy, business manager at OSTTRA triResolve Margin, explores the myriad demands of technology, compliance and risk, as well as key focus areas for 2025

While the use of collateral to secure loans and reduce risk has existed for centuries, the evolution of financial markets — combined with volatility and regulation — has seen collateral importance grow at considerable pace over the last decade. In the post-2008 landscape, the role of collateral managers has become increasingly critical in maintaining operational efficiency, ensuring regulatory compliance, and mitigating counterparty risk.

Correspondingly, the focus on the 'what and how' of collateral management has evolved, creating new demands from front office, risk, compliance and technology. Viewing collateral management through a back-office lens is very much a 20th century perspective.

Front office

Faced with meeting a need to post larger amounts of collateral — driven by Uncleared Margin Rules (UMR) and volatility — combined with increasing funding costs, 2025 will see front office teams looking to reduce the cost of posting collateral and improve overall capital efficiency. Collateral optimisation is therefore becoming a larger focus for those who manage collateral P&L. It is expected to become a more critical aspect of collateral management, with growing pressures on firms to use their assets more effectively.

How firms select collateral to meet margin calls varies from firm to firm, with many defaulting to deliver cash. While this removes any decision-making and is operationally simple, it comes with a funding cost.

Firms who have traditionally relied on cash are starting to consider whether non-cash assets (including government, agency and corporate bonds, as well as equities) would help to reduce cost. For those firms already holding non-cash inventories, this is an easier step, while for those without, it may mean exploring alternative funding sources, such as repo markets or intraday liquidity facilities to leverage these asset types.

While collateral optimisation can help firms to reduce funding costs, it can also be used to meet other objectives, including improved asset allocation and operational efficiency. As such, developing an optimisation approach should be a firm-wide decision. While 'cheapest to deliver' might be an obvious optimisation approach, it is no good if it comes with huge operational costs (managing hundreds of small collateral positions; dealing with substitutions and corporate actions; settlement costs, etc).

The combined interests of front office and collateral managers should ensure a focus on allocating the 'right' collateral, where 'right' may vary from one firm to another, and even from one day to the next. This means they should ensure they are using the most appropriate, cost-effective collateral, such as high-quality liquid assets (HQLA), while preserving their best assets for other business purposes.

An effective optimisation programme must dovetail with the operational collateral process, allowing real-time decisions about collateral allocation, while taking into consideration eligibility criteria, liquidity needs and cross-asset margin requirements (including bilateral OTC, cleared and repo).

Post-UMR, front office teams are also taking a proactive approach to assess the impact of new trades and looking to leverage pre-deal analytics to assess the collateral impact of new positions, therefore helping them to select an optimal counterparty and minimise collateral postings or remain under UMR thresholds.

Similarly, an increased focus on minimising the cost of capital required to meet margin requirements means front office are looking to portfolio optimisation tools that will allow them to net exposures across multiple counterparties, reducing the overall collateral burden. While both pre-deal checks and portfolio compression are priorities for the front office, they have a direct impact on collateral managers and may require new system interoperability, as well as being dependent on high levels of data quality.

Other areas of overlap between front office and collateral managers may be driven by counterparty preference, where end clients insist on specific credit support annex (CSA) terms, or use of industry-standard tools (including OSTTRA triResolve portfolio reconciliation or Acadia messaging) to sign a CSA. Ensuring these terms can be met — particularly where related to industry standards and technology — may require collaboration and prioritisation.

The UK liability-driven investment (LDI) crisis in September 2022 highlighted the importance of liquidity management. And while collateral managers themselves cannot do anything to improve liquidity, their role as client-facing and managing margin calls highlights the importance of transparency between them and the front office.

They will often be the first to understand the amount of funding that is required across counterparties, and increasingly front office teams are leaning on them for early insight and confirmation of calls. This highlights the importance to a collateral manager of being able to support early margin calls, leverage an automated workflow and gain real-time insight into margin disputes.

Risk and compliance

In recent years, one of the primary responsibilities of a collateral manager has been to ensure compliance with various regulatory frameworks, notably the European Market Infrastructure Regulation (EMIR) and UMR. Ensuring they do this correctly means greater collaboration with risk and compliance teams, as well as the front office, who are aware that a lack of compliance may impact or restrict their trading opportunities.

Since the rollout of UMR, collateral managers have had to adapt their practices to meet variation margin (VM) — and potentially — initial margin (IM) requirements. Whether your firm is 'done' with UMR largely depends on the size of your portfolio, your jurisdiction and the level of any existing IM exposure.

Most firms already in-scope should have fully integrated support for the regulations into their collateral management processes. For larger firms, IM has quickly become part of their BAU process, while for smaller firms not yet fully impacted, their focus now lies on ensuring they continue to avoid the full impact by remaining below threshold levels, or ensuring they are prepared once threshold levels are breached. This means:

- Threshold monitoring: constant monitoring of IM exposure to ensure that exposures remain within regulatory limits.
- Legal documentation preparation: negotiation of new regulatory compliant IM CSAs.
- Custodian onboarding: ensuring support for segregation requirements to hold IM collateral at a third-party custodian or triparty

Collateral managers must ensure that they comply with the regulatory requirements of each jurisdiction

"The emergence of new technologies such as blockchain and DLT are already creating noise in the collateral world, and firms will struggle to adopt these next-gen capabilities if they are already behind from a technology perspective."

Neil Murphy
Business manager
OSTTRA triResolve Margin

in which they operate. This includes adhering to local collateral eligibility rules, margin requirements, and reporting standards. The introduction of margin rules in new jurisdictions over 2024-25 will ensure collateral managers remain busy.

Basel III Endgame's capital adequacy regulations, particularly those governing the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR), continue to influence firms' thoughts about collateral at a higher level. The impact being a focus on optimising collateral portfolios to meet these requirements, ensuring they minimise the impact on liquidity and operational costs.

An increased regulatory focus on stress testing may mean firms will be required to consider liquidity stress tests that model various market scenarios and allow them to anticipate potential liquidity shortfalls while ensuring they can meet margin calls during periods of volatility.

Technology

The role of technology in collateral management has expanded significantly in recent years. Automation and digitisation are now transforming how collateral is managed for many firms, with a focus on reducing operational risk, improving efficiency, and increasing transparency. However, for those firms that find themselves behind in the race to update their systems and move to industry standards, 2025 may be a year for catch-up.

Automation has become a cornerstone of collateral management. By automating routine processes such as margin calls, settlements, and reconciliations, collateral managers have largely been able to reduce the risk of human error, lower operational costs, and improve efficiency — while similarly allowing business growth and scalability. If not already done, adoption of these standards should be a priority for collateral managers, allowing them to move away from high-touch manual processing and move towards real-time capabilities.

Adoption of industry standards and new technology — particularly in terms of collateral workflow — are essential building blocks. The emergence of new technologies such as blockchain and distributed ledger technology (DLT) are already creating noise in the collateral world, and firms will struggle to adopt these next-gen capabilities if they are already behind from a technology perspective. Their use case is becoming clearer, with these technologies expected to enhance the transparency and security of collateral movements, allowing improved automation, while ensuring real-time collateral transfers.

Effective November 2025, new ISO 20022 requirements will necessitate that collateral managers upgrade their SWIFT capabilities to meet new standards for payment instructions, ensuring collaboration with technology teams should have likely begun already.

Largely thanks to ChatGPT, 2023 was the year AI entered the mainstream. With this increased acceptance, more and more firms are looking to adopt AI and machine learning strategies as a means of reducing cost and increasing capacity. For the collateral manager, use cases include margin workflow and collateral optimisation, while the data analytics capabilities of AI will provide insights into collateral usage, market trends, and counterparty behaviour.

Conclusion

The role of a collateral manager in 2025 is likely to be more challenging and technology-driven than ever before. Collateral managers will need to ensure they are ready to support the growing focus of their colleagues in front office, risk, and technology, ensuring their firms can meet compliance requirements and optimise collateral positions, while supporting a wider focus on liquidity management and risk mitigation.

To do so, they will need to continue evolving their collateral technology, ensuring the integration of new industry-standard tools, and adoption of new technologies to stay competitive in a rapidly evolving market. By focusing on these key areas, collateral managers can help to navigate ongoing volatility while driving efficiency, reducing costs, and managing risk effectively.

Preparing for the unpredictable

Cassini's Thomas Griffiths, head of product, reviews liquidity preparedness for margin and collateral management, and the key steps to improving financial stability

Recent market upheavals, from the Covid-19 pandemic to geopolitical conflicts, underscore the urgent need for enhanced liquidity preparedness for margin and collateral. Non-bank financial institutions (NBFIs), or the buy side, face significant challenges in this area, often lacking the necessary tools and resources.

Recent regulatory developments stress the importance of three key strategies in improving financial stability: enhanced transparency, rigorous stress testing, and a unified liquidity view.

Regulatory response

In September 2022, the Basel Committee on Banking Supervision (BCBS), the BIS Committee on Payments and Market Infrastructures (CPMI), and the International Organization of Securities Commissions (IOSCO), published the 'Review of Margining Practices', which concluded that additional work was needed on liquidity preparedness as it pertains to margin and collateral.

Similarly, in the UK, the Bank of England (BoE) and the Financial Policy Committee (FPC) reached similar conclusions regarding UK pension funds, resulting in a defined liquidity resiliency criteria for UK pension funds.

The latest phase in this ongoing regulatory push towards liquidity resilience within the NBFI sector is from the Financial Stability Board (FSB) in April 2024 and BCBS IOSCO in January 2024. The two entities go one step further in defining the best practices for the buy side by outlining their high-level recommendations:

In January 2024, BCBS called for additional transparency in margin across CCPs and futures commission merchants (FCMs), resulting in 10 policy recommendations that would accomplish this aim.

In the April 2024 consultation report, the FSB highlighted weaknesses in liquidity risk management across the buy side, particularly regarding margin requirements and collateral calls. They also set out eight policy recommendations from their analysis.

These announcements highlight the priority and increased oversight of regulators for improving transparency and understanding of margin and collateral requirements within the buy side, with the overall aim of significant improvements in liquidity resilience.

Liquidity resilience, or preparedness

Liquidity resilience, or preparedness, is based on three fundamental tenets:

1. Enhanced transparency

One of the key themes outlined across these reports, particularly in BCBS's document, was the desire to increase transparency for end customers on how CCP margin is calculated.

This increased transparency pertains to margin requirements under current market conditions and a transparent view of how margin requirements may change in adverse or stressed markets.

The BCBS report broadly sees two routes for achieving these aims.

The first is the disclosure of IM models. CCPs should provide more detailed information about their IM models, including the methodologies, key parameters, and assumptions used in calculating IM.

Second, is regular updates. CCPs should update disclosures regularly to reflect model changes or significant market conditions shifts.

2. Stress testing

While the initial aim of increasing transparency is to improve the predictability of potential margin changes for the buy side, the regulators have also recognised the critical need for the impact of changes to market conditions to be equally well understood by all users.

As has been shown repeatedly, the nature and characteristics of individual market stress events can vary from past events. For this reason, CCPs should conduct regular stress testing and backtesting of their IM models to ensure they remain effective and responsive under different market scenarios.

However, it is becoming clear that buy side firms also need access to tools to model their portfolios and understand their liquidity resilience in the context of their trading strategy and portfolio composition.

3. Combining margin and collateral into a single liquidity view

The LDI crisis in the UK highlighted that although margin transparency and stress testing of margin are essential, the impact on the broader financial system from stress events is not limited to just a need to find additional assets to post as collateral.

Only by adding to the equation the effect on collateral from market stress, can a firm see a holistic view of liquidity risks across its portfolio. By combining the collateral asset and margin liability sides of the liquidity equation when performing a stress test, a firm can truly understand where it stands on the target of full liquidity resilience.

Conclusion

These three core themes are consistent with recent global regulatory updates and reflect an emerging new market standard approach to ensuring liquidity preparedness.

Modern tech stacks now vital as collateral market seeks resilience

The industry must ensure its underlying technology enables collateral resilience and risk reduction going forward, say CloudMargin's David White, chief commercial officer, and Nicky Lawrence, director of technology, who review the significance of modern technology

A series of significant macroeconomic events in recent years have tested collateral teams and transformed the landscape in which they operate.

The Covid-19 pandemic and the Ukraine conflict elicited intensive periods of volatility and consequentially high margin call volumes — sometimes at a rate of 25 times what firms would normally see.

The UK mini-budget tested those investors who had significant gilt exposure with plunging asset prices. Collateral teams had to address not only large margin calls, but high volumes of substitution requests and dislocation of inventory as desks rushed to sell.

The Credit Suisse and US banking liquidity crises tested firms further as the focus turned to collateral teams' ability to understand exactly what exposure they had against each one of their counterparties, across all of the assets classes they traded, as well as through their inventory and holdings.

Lessons learnt

Clearly there are key take-aways for the industry regarding improved levels of automation for margin call workflows. For many firms a fully automated workflow — where margin calls are sent and agreed, collateral is selected, pledged and instructed for settlement — is still not rooted in their operations. Firms without straight-through processing (STP) have paid a heavy price with large margin call backlogs and significant risk.

Similarly, for substitutions during the UK mini-budget, acute pain was felt industry wide, and backlogs were again observed. The industry has realised this is a key area of improvement and is now working towards automating the substitution process during 2025.

Underlying collateral tech stacks

Through these events it became clear that large sections of the industry relied on underlying legacy technology stacks. Many firms were using old platforms requiring patching and upgrading and suffered from immobile data due to module-based solutions with inflexible and latent data feeds.

There are a number of key legacy technology challenges, including:

Performance processing issues. Some systems crashed under the strain of the dramatically increased volumes, while others remained running, yet operations teams experienced significant drags in performance. This brought increased risk into both their processes and the broader market.

Data extraction. Data in legacy systems can be very difficult to extract in a timely manner. Old systems have inefficient data hierarchies and module-based platforms lead to data inconsistency. Data often needs to be stitched together to provide a consolidated and consistent view. Firms found it difficult to understand their true risk at any given time and were therefore hamstrung in their ability to manage it effectively.

Versioning issues. Legacy technology requires patching and upgrading which is a resource-intensive process, especially at larger firms with large and complex broader technology ecosystems. Consequently, many participants on older versions of systems had not upgraded and did not have access to improved functionality or more automated workflows.

To be truly resilient going forward, it is clear the industry needs to address the significant problems caused by this dated underlying technology.

The risk created by legacy technology is considerable, especially when considering its effects on the industry more broadly. The potential for contagion risk created by these backlogs has not been lost on the regulators.

Regulatory response

Regulators have since demanded firms have collateral resilience to prevent future disasters, stressing the importance of accurate collateralisation for financial stability. Using history as a guide for the future, often regulatory advisory has been an early warning shot for subsequent regulatory requirements, and therefore, all signs point toward more mandates and guidelines for meeting industry best practices — including automation of collateral processes. Firms need to anticipate this outcome and get ahead of it.

It is clear that regulators are calling for improved scalability and preparedness for responding to margin calls during times of market-wide stress. The Financial Stability Board (FSB) published its 'Liquidity Preparedness for Margin and Collateral Calls: Consultation report' in April 2024.

The report sets out eight proposed policy recommendations to enhance the liquidity preparedness of non-bank market participants for margin and collateral calls in centrally and non-centrally cleared derivatives and securities markets, to help mitigate the impact of these calls during times of market-wide stress. The report stated: "Market participants should consider the advantages of standardisation and automation of their collateral management processes to reduce frictions and the possibility of operational delays or failures in collateral use, especially during stress periods."

Modern technology ensures future resilience

Microservices architecture and autoscaling.

Microservices architecture is a design approach where software is composed of small, independent services that work together as a cohesive application. Unlike monolithic systems, microservices allow firms to isolate and scale specific functions without disrupting the entire platform. This flexibility is crucial during periods of high volatility, as it ensures critical services can scale dynamically in response to increased demand.

Autoscaling, a key feature of microservices architecture, enables systems to automatically adjust resources based on current workloads. During market surges, like those experienced during the UK mini-budget crisis, systems can expand capacity instantly to handle the spike in activity. By contrast, legacy systems often buckle under similar pressure, leading to delays, backlogs and increased operational risk.

Single-instance SaaS versus multi-instance installed systems.

The shift from traditional multi-instance installed systems to single-instance software-as-a-service (SaaS) models represents a major technological advancement. Multi-instance systems require individual installations for each user, with complex patching, upgrading and testing cycles that can take months, if not years, to complete. This approach often leaves firms operating on outdated versions of the software, unable to access the latest functionality and improvements.

Single-instance SaaS models on the other hand, deliver a unified platform where updates and new features

"To be truly resilient going forward, it's clear the industry needs to address the significant problems caused by this dated underlying technology."

David White
Chief commercial officer
CloudMargin

are automatically deployed to all users simultaneously. Maintenance overhead is reduced, and firms are always equipped with the most up-to-date tools to manage their collateral efficiently. SaaS platforms leverage automated testing and seamless release processes, which significantly reduce the time needed to implement new features, often making them available in days or weeks, rather than months.

Unified data structures and real-time reporting.

One of the most significant advantages of modern technology is the ability to consolidate data across all asset classes and functions into a single, unified structure. Legacy systems often store data in silos, requiring extensive manual effort to stitch together a complete picture of risk and holdings. This fragmented approach can lead to inconsistencies and delays in data reporting, making it difficult for firms to react swiftly in times of market stress.

Modern systems, equipped with flexible extract, transform, load (ETL) processes and comprehensive application programming interfaces (APIs), enable real-time data integration and reporting. This ensures all data points are structured and accessible, allowing firms to generate real-time reports and dashboards that provide a transparent view of their risk exposure.

Real-time APIs and intraday transparency.

The implementation of real-time APIs, in combination with the data handling discussed above, is a game-changer for collateral management. APIs facilitate the seamless flow of data between different systems, enabling firms to provide real-time inventory, market data and exposure updates. This capability is particularly valuable in a fast-paced market environment, where the ability to act swiftly can make a significant difference in managing risk and maintaining liquidity.

For example, should market conditions suddenly shift, real-time APIs allow firms to update their collateral inventory status instantaneously, ensuring the latest information is always available to collateral teams, and vice versa to trading desks and portfolio managers.

The risk of inventory dislocation, where assets may be misallocated or unavailable when needed most, is also minimised.

Seamless integration and agility.

Modern technology stacks also offer unmatched integration capabilities, allowing firms to connect their collateral management systems with other internal and external platforms effortlessly, easily maintaining connectivity post upstream or downstream change. This level of integration supports the development of resilient end-to-end workflows spanning the entire lifecycle of collateral management, from trade execution to settlement.

Such agility ensures firms can adapt to changing market conditions and regulatory requirements. For instance, should new compliance standards or processing requirements be introduced, the systems' feeds can be updated in minutes to incorporate necessary changes, minimising disruption and ensuring continued compliance. This stands in stark contrast to legacy systems, where similar changes require lengthy development and testing cycles.

Ensuring future resilience.

To build resilience against future market volatility, firms must invest in modern technology solutions providing the flexibility, speed and transparency needed to navigate complex market environments.

By adopting microservices architecture, single-instance SaaS models and real-time data capabilities, firms can create a robust infrastructure to withstand market stresses, seize opportunities and deliver cost reduction and collateral funding savings.

The time is now to modernise

The industry must ensure its underlying technology enables collateral resilience and risk reduction going forward. With increased volatility predicted to continue, we can expect that another period of market stress is just around the corner. The longer firms sit on legacy

"By adopting auto-scaling, cloud-based and agile SaaS platforms, firms can create a robust infrastructure to withstand market stresses and adapt quickly to changing conditions."

Nicky Lawrence
Director of technology
CloudMargin

technology, the greater the risk they face — and more worryingly — the more risk they invite on the broader industry. The time is now to modernise.

Providing modern technology via rapid implementation

CloudMargin's cloud-based infrastructure and fully flexible data capabilities eliminate the pain points and perils of upgrading legacy technology. Firms can get up and running quickly — in as little as a few weeks — reducing time, costs and risks of implementation while delivering a resilient tech stack.

CloudMargin is a purpose-built collateral management cloud solution trusted by more than 215 buy side and sell side institutions across the globe. Our SaaS technology helps firms ensure collateral resilience through automated end-to-end collateral management across front, middle and back offices. Fast decision-making is enabled through real-time data and analytics across all traded asset classes, holdings and inventory. Firms are connected to internal and external collateral ecosystems through comprehensive APIs.

Teams are freed up to proactively manage their collateral, dedicating more time to strategic projects and handling exceptions earlier in the day. Full STP with optimised collateral allocation is embedded from calculation through to settlement, eliminating repetitive and complex manual tasks and errors. Real-time reports and dashboards can be configured and visualised on the fly, and data disseminated automatically to configurable schedules.

CloudMargin's modern technology delivers cost and resource savings, optimised collateral allocation, reduced risk and — perhaps most importantly — equips firms to navigate all market conditions and ensure collateral resilience.

Solutions for central clearing in the US Treasury repo market

Nathaniel Wuerffel, head of market structure at BNY, explores the challenges of the upcoming and transformative US Treasury central clearing rule, and its potential impact on the repo market

The structure of US markets has changed significantly over the past several years, as the industry and regulators have worked to make markets more resilient to the episodes of dysfunction that have been experienced over the past decade.

These structural changes are set to accelerate as the US Treasury market — the largest and most liquid government securities market in the world — transitions to mandatory central clearing for cash and repo transactions in 2025 and 2026 respectively.

The rule will transform the Treasury market by requiring most cash and repo transactions to be submitted by direct participants of a US Treasury covered clearing agency (a central counterparty, or CCP), which then becomes the legal counterparty to each participant in the trade.

In doing so, central clearing is designed to reduce counterparty credit risk and make the Treasury market more resilient in times of stress. However, it could also increase transaction costs and could reduce liquidity somewhat in normal market conditions, at least initially. The rule will have a particularly large impact on Treasury repo markets, where over US$3 trillion in daily trading activity is not centrally cleared.

The centrally cleared versions of triparty repo will play a critical role by allowing market participants to centrally clear their repo transactions and optimise their collateral processes to better handle the increased margin levels and transaction costs.

The Treasury market and BNY

The central clearing rule is a top priority at BNY because of the unique role we play in the Treasury market. For more than 235 years, we have supported the markets for US government finance, having provided the first loan to the US Treasury department in 1789.

Today, BNY is the primary settlement provider in the Treasury market, including for Treasuries that are newly issued by the US Treasury department; we safeguard more than US$10 trillion of Treasury securities in custody; we are one of the largest sponsors of centrally cleared repo in money markets; and we have the single largest government securities triparty repo financing platform in the world.

BNY provides settlement and collateral management services to the Federal Reserve for monetary policy implementation, and for the Fixed Income Clearing Corporation (FICC) — currently the only CCP for Treasury securities. As the Treasury market evolves, we believe it is our responsibility to support clients with solutions to help them navigate change.

Central clearing implementation

US Treasury central clearing will create several significant implementation challenges for participants in the US$4.5 trillion Treasury repo market. Under the new rule, all repo and reverse repo agreements collateralised by US Treasury securities, to which a direct participant is a counterparty, must be submitted for central clearing, with few exceptions.

The rule provides an exemption for a small set of counterparty types, like central banks, and does not require clearing of certain trades that the FICC does not currently clear, such as evergreen, intraday, or open repo. Despite this, FICC surveys suggest that over US$2 trillion in additional repo transactions are likely to be cleared under the mandate.

The requirement to clear repo trades is not geographically bound; eligible transactions must be centrally cleared wherever they are conducted around the globe.

To comply with the rule, market participants will need to:

- Determine which of their trades require clearing.
- Choose how to centrally clear those trades using various access models provided by the CCP.
- Manage collateral and margin requirements.

- Launch change management programmes to be ready by the implementation deadlines of 31 December 2025 for cash transactions and 30 June 2026 for repo.

The move to central clearing will raise the cost of transacting in funding markets in the short term, as more trades will require margin to be posted, and liquidity commitments could grow.

While netting should reduce some balance sheet costs, additional margin and the costs of sponsorship are likely to push bid-ask spreads wider initially, increasing the cost of repo funding and leverage.

Repo market impact

The various repo market segments will face different challenges in the move to central clearing. Although over US$1 trillion in daily activity is centrally cleared today, most of the repo market is currently made up of bilateral and triparty repo market segments that are not centrally cleared.

The non-centrally cleared bilateral repo (NCCBR) market makes up over US$2 trillion in daily repo and reverse repo activity that is settled and collateralised on a bilateral basis between dealers and their individual clients.

With over US$1 trillion in daily triparty repo transactions in Treasury securities, BNY's collateral management platform is the single largest settlement location in triparty repo markets. Though BNY serves as a central settlement agent for these transactions, most trades in the triparty repo market today are not centrally cleared, with only US$250 billion in daily FICC Sponsored GC activity as of September 2024.

Both the NCCBR and triparty repo markets are set to see a dramatic shift toward central clearing. In the NCCBR market, some trades may shift toward use of

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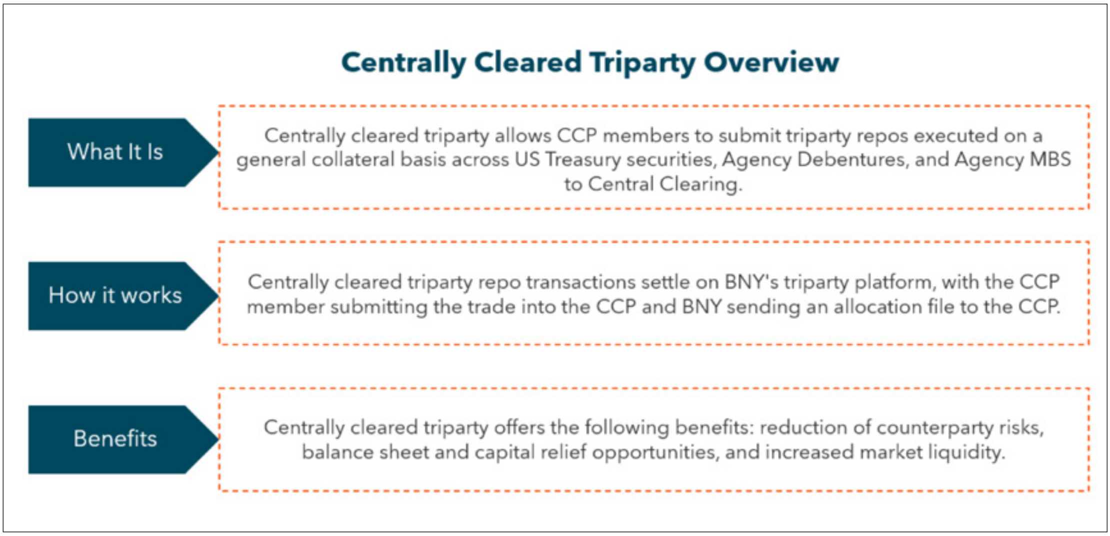
Nathaniel Wuerffel
Head of market structure
BNY



centrally cleared DvP services, for example FICC DvP.

DVP repos, even if centrally cleared, still require the parties involved to handle many of the collateral management duties that surround the trade, including the calculation of collateral requirements, daily mark-to-market of collateral, and collateral substitutions. Many marketparticipants look to BNY to outsource these functions as a triparty collateral agent.

Centrally cleared triparty transactions

In the triparty repo market, centrally cleared triparty transactions will be crucial in the transition because they will allow market participants to utilise triparty collateral management while still complying with the requirements of the central clearing mandate.

For example, FICC Sponsored GC combines many of the features of the triparty repo market with the broader FICC Sponsored Service. Dealers use BNY's triparty infrastructure to finance their securities inventory and manage multiple collateral obligations across their enterprise, while investors leverage BNY's platform as a third party so that their transactions with dealers and other collateral providers remain secured.

Sponsored GC repo transactions are cleared at FICC and will continue to settle on BNY's triparty platform in a similar fashion to how triparty repo transactions are handled outside of central clearing today. For market participants who are already active in the triparty repo market, the transition to Sponsored GC is simple, as the onboarding process and trade flow is very similar to the standard triparty processes. It is important that firms start working with their clients to migrate activity into centrally cleared repo, as the 2026 implementation deadline will come quickly.

The transition to US Treasury central clearing will be challenging, but it should make the market more resilient in times of stress by reducing counterparty credit risk.

BNY has played a central role in building the safety and liquidity of the Treasury market since its inception, and we look forward to continuing that role and partnering with clients as we navigate through central clearing. We believe centrally cleared triparty repo will be critical in helping market participants manage their transition to central clearing because it can simplify the process of complying with the rule while providing the benefits of efficient collateral management, safety, and increased resiliency.

The importance of data and analytics in today’s complex world of collateral

The introduction of UMR has irrevocably changed the world of collateral, says Hiroshi Tanase, executive director, product analysis and design, at S&P Global Market Intelligence, who reviews the significance of data quality and the accuracy of models

More than 1,000 firms were estimated to be subject to the Uncleared Margin Rules (UMR) in the final two years of its implementation. “Requiring so many firms to perform such complex margin calculations daily is suicidal,” a seasoned Tier 1 bank quant told me with a sigh of resignation. Such was the sentiment among some practitioners when the industry was preparing for the last phase of UMR.

In the end, with a concerted effort and good outsourced initial margin (IM) solutions developed by several third-party companies (S&P Global being one of them), the industry marched past the monumental Phase 5 and 6 go-live dates in 2021 and 2022 without a catastrophe some had feared.

However, there is no doubt that the world of collateral after the introduction of UMR bears no resemblance to what it was in the past. It is now a highly analytical world where the quality of data and the accuracy of models have severe consequences on the outcome.

Two years after the last phase of UMR (Phase 6 go-live on 1 September 2022), it is a good time now to reflect on the importance of data and analytics in the context of the International Swaps and Derivatives Association (ISDA) Standard Initial Margin Model (SIMM) calculations. Reviewing and buttressing the analytical and data foundations should be a priority for firms looking to stay ahead.

The margin requirement for non-centrally cleared derivatives was added in 2011 to the Group of Twenty's (G20) reform programme on OTC derivatives in light of the lesson learned from the great financial crisis that began in 2007. The primary objective of UMR is to reduce systemic risk caused by the trading of uncleared derivatives. To fulfil the systemic objective, an industry-wide unified margin methodology was adopted in the form of ISDA SIMM to ensure consistency across firms. In many ways, the creation and adoption of SIMM was a major success of UMR implementation.

Although SIMM standardises a major part of the margin calculation process, the risk sensitivities of trading portfolios, the key ingredients to SIMM, are left to individual firms to calculate. Therefore, the accuracy and soundness of the initial margin amount depend entirely on the quality of risk sensitivities. The calculation of risk sensitivities — a highly complex process given the complexities of many of the derivatives models — is now fundamental to achieving the goal of adequately mitigating counterparty credit risk with collateral.

Build the foundation

SIMM calculation could go wrong due to inaccurate calculation of risk sensitivities. Here, we show an example that involves a swaption.

Swaptions are a widely used product. It allows financial institutions to express a view on and hedge against interest rate movement. Although pricing swaptions is not generally considered a challenge, accurately pricing them is difficult, especially when the option is deep out-of-the-money (OTM) or in-the-money (ITM) because of the presence of volatility skew. OTM and ITM positions are commonly found in firms' portfolios as certain strategies call for them (such as a low-strike put as a crash insurance). In addition, initially, at- or near-the-money positions can drift to become ITM or OTM as market levels move.

Consider a US$100 million 10Y-into-10Y ATM-300 bps receiver swaption position, where the correct volatility to use is 74.5 bps. What happens if the input volatility is mismarked by around 10 bps? The input volatility level impacts the present value and risk sensitivities, affecting the SIMM amount. Figure 1 shows margin calculations when the input volatility is correct, too high or too low. The SIMM amount swings by circa 20 per cent when the input volatility is off by 10 bps.

This example shows the importance of using high-quality market data to calculate accurate margin amounts. Correct calculation enables a firm to move the right amount of margin and avoid adverse economic consequences.

Figure 1: Swaption SIMM calculation

	PV	SIMM	Delta	Vega	Implied Vol
#1 Correct vol	$630,368	$1,256,985	$6,245	$34,513	74.5bps
#2 Vol is too high	$1,079,249	$1,526,807	$8,049	$41,334	84.5bps
#3 Vol is too low	$393,560	$1,002,230	$4,352	$4,352	64.5bps

Defend your position

What is the next step once a solid foundation — a reliable operational workflow that produces accurate IM numbers — is built? Counterparties may call amounts in excess of a firm's calculation. A firm needs to be able to defend its position by reconciling IM amounts with its counterparties. The firm must have a robust operational process with good quality control (QC). In addition, the following elements are key to reconcile IM effectively:

- Transparency around the risk sensitivity calculation process, especially if calculation is outsourced to a third party.
- The input data is of high quality and defensible.
- The model is sound and in line with the industry's best practice.

> "There is no doubt that the world of collateral after the introduction of UMR bears no resemblance to what it was in the past."

In addition, counterparties can request to increase SIMM margin amounts bilaterally by applying add-on factors if the current margin level is deemed insufficient by their backtesting results. This is not a situation that occurs frequently, but when it does, the additional amount demanded can be very material. The only way to stay in control and be able to validate and challenge the demands of the counterparty is to backtest SIMM on a regular basis, regardless of whether it is required by the regulator.

SIMM backtesting is a complex exercise if it is to be performed in full. A light version of it may only cover testing SIMM against actual P&L as you go. This type of backtesting is often called dynamic backtesting. While dynamic backtesting is useful and critical for detecting changes to the market environment (besides assessing risks-not-in-SIMM), it must be complemented with static backtesting which tests the validity of SIMM against historical market movements.

Static backtesting requires good derivatives models and a full set of historical time-series of all relevant risk factors (eg interest rates, equity spot prices) spanning across periods including the stress period from the great financial crisis in 2008-09.

Since historical data across all risk factors is not widely available, it is important for a firm to review its current backtesting arrangement, especially the historical data used in the exercise (for example, whether actual data is used or is substituted with a proxy). Having an effective backtesting process and running it with at least a quarterly frequency enables the firm to validate and challenge counterparties' requests to increase margin.

Optimise your margin

There is a tangible economic cost to posting margin. Therefore, the next step is understanding and minimising current and future margin requirements. A pre-trade IM calculator comes in handy to achieve that objective. A firm can investigate how much initial margin is required for a new product it plans to trade next. Before trade execution, it can compare the cost of margin across counterparties to optimise execution.

A sample calculation is shown in Figure 2 using an equity auto-callable structure referencing the performance of EURO STOXX 50 and Nikkei 225 with a notional of €10 million. The standalone SIMM amount for this hypothetical trade is €2,091,200, or 20.9 per cent of notional.

Since the initial margin is calculated at the portfolio level (ie for each netting set), the cost of incremental IM depends on the risk of the existing portfolio. If there is more offsetting risk in the existing portfolio the incremental margin amount will be smaller. Incremental IM amount may even be negative if the new trade reduces the risk of the portfolio sufficiently.

Figure 2: Auto-callable IM impact

Counterparty	Before	After	IM Impact	IM Impact in %
Bank B	1,956,242	1,930,361	(25,880)	-0.26%
Bank F	2,491,753	2,656,872	165,119	1.65%
Bank D	2,095,877	2,440,845	344,969	3.45%
Bank C	1,878,705	3,402,104	1,523,399	15.23%
Bank A	1,809,698	3,498,929	1,689,231	15.89%
Bank E	2,351,021	4,066,058	1,715,037	17.15%
Standalone	#N/A	2,091,200	2,091,200	20.91%

Figure 2 illustrates a scenario with six counterparties (each representing a netting set) with varying amounts of incremental IM before and after adding the new auto-callable trade. The incremental IM amount varies widely across counterparties in this example, which endorses the utility of pre-trade IM calculation.

Conclusion

The introduction of UMR has irrevocably changed the world of collateral; trading of uncleared derivatives now comes with an obligation and burden of dealing with initial margin. First, an effective operational solution must be put in place to achieve regulatory compliance. Second, the initial margin amount must be calculated with accuracy and a firm must systematically defend its position when the counterparty calls for a larger-than-expected margin. In addition, the economic cost of funding initial margin should be understood and optimised.

The SIMM calculation process is complex due to the complexity of derivatives pricing models and risk sensitivity calculation. Great care must be taken to ensure that high-quality data and analytics are used. Failing that, a firm may face some or all of the following issues:

- An insufficient amount of margin is collected, or an excess amount of margin is posted.
- The firm is unable to effectively validate or challenge the counterparty's margin calls.
- The cost of funding margin diminishes the effectiveness of the derivatives the firm uses.

Good solutions are available from third-party providers. It goes a long way to do due diligence on the quality of the services on offer. By having a good solution, a firm can meet regulatory requirements, avoid serious issues, and stay ahead of competition.

Hiroshi Tanase
Executive director, product analysis and design
S&P Global Market Intelligence

Transforming businesses: Preparing for the future

Sam Edwards, managing director, head of collateral services EMEA and APAC at State Street, discusses the firm's work to transform the world of buy side collateral management and bring tools and lessons to a broader market

While State Street has been providing collateral management services for over 20 years, and currently offers a complete outsourced collateral management solution to clients, the introduction of our Collateral+ service has enabled a transformation in the way our clients manage their businesses. In addition, our clients are benefiting from our expanded and triparty offering.

Whether a current custody, State Street Alpha or direct client with Collateral+, our next generation platform integrates with internal and external platforms and trading systems. We leverage our extensive relationships globally to coordinate settlement of collateral through the full range of custodians and integrate our platform in real time with our client Investment Book of Record (IBORs).

Our service is agnostic to the underlying product that requires collateralisation (eg securities lending, futures, cleared, OTC derivatives, repos and longevity swaps). With the evolving challenges and opportunities our clients face post the completion of the role out of the Uncleared Margin Rules (UMR), we have adapted our services to span end-to-end through the collateral lifecycle, bringing pre and post-trade optimisation and enhanced liquidity and financing product access.

State Street's expanded triparty solutions replace the legacy approach to bilateral, physical settlement of collateral, bringing technology driven optimisation engines and book movement transfer. Resource heavy, operationally risk intensive, volume sensitive processes that have raised significant market and regulatory interest in the past 12 months are removed, with triparty providing the platform for modern outsourced collateral management in a digitally prepared solution.

State Street triparty services tailored to the needs of buy side clients have facilitated settlement and inventory deployment optimisation for hedge funds, undertakings for collective investment in transferable securities (UCITS) funds and pension and insurance mandates, allowing them to access efficiencies that have historically been the preserve of the broker-dealer community.

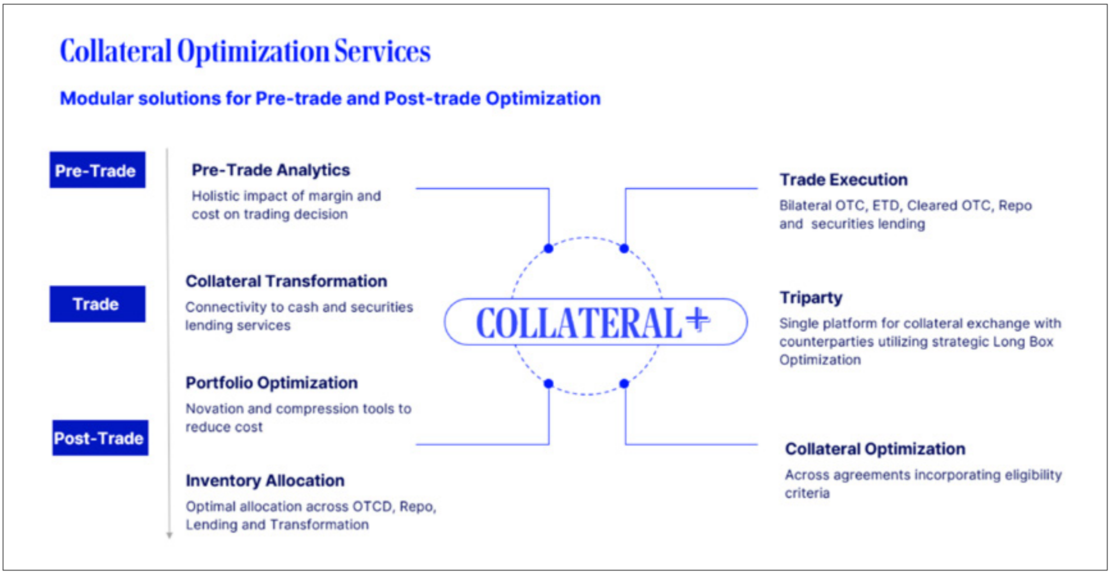
In combination with our triparty, analytics and optimisation capabilities, Collateral+ is designed to optimise the cost of collateral, enable greater trading capabilities and integrate from front-to-back with a full suite of securities financing solutions. However, our modular approach enables us to provide the services our clients need at the time appropriate for them whether it be initial margin calculation and segregation, collateral administration, securities lending or financing. Our triparty platform is designed to fully collateralised and optimise across all traditional exposures, as well as new and innovative products such as Peer-to-Peer repo.

Collateral+ is a full service platform that combines sophisticated systems into a seamless client offering. Collateral+ technology is underpinned by a modern microservices architecture coupled with big data enhancing the performance, security and agility of the platform. It leverages private cloud for scalability and provides a multi-service, multi-tenant environment secured through robust data entitlements.

This technology is built with client focus and is integrated to their front, middle and back office systems, and provides access to dashboard reporting via the Collateral+ portal. This helps to ensure that our clients have up-to-date data in near real-time for better decision making and reducing financing and capital costs.

Our platform includes accelerators for faster client onboarding and digital representation of economic terms and conditions of governing collateral agreements. Technologies like Hadoop, Spark, Kafka, Scala, React, etc, enable the execution of complex use cases for clients. Clients also benefit through a wide array of network connectivity including AcadiaSoft, Pirum and TriOptima. Collateral+ enables straight-through processing (STP) via SWIFT or through application programme interface (API) connectives. Collateral+ integration with Acadia's Initial Margin Exposure Manager (IMEM) and Margin Manager (MM) service helps our clients simplify the compliance requirements for UMR.

For the provision of analytics and optimisation, we partner with Cassini Systems to include the latest technology and integration for the Collateral+ service. This partnership with Cassini allows the integration of collateral and



funding into the front office decision strategy before trades are placed thereby, enabling optimisation of margin and carry cost impact. This provides the best trade route by identifying all possible ways to execute and clear the trade, and highlights the lowest cost.

Collateral+ offers margin optimisation, utilising pre-trade what-if analysis and a post-trade utility with tools including novation and compression, to lower margin and funding requirements. We offer holistic data architecture and models designed to integrate across multi-product trading obligations. Our optimisation tools cover one or many products, counterparties, margin types and opportunities throughout the day. The analytics tools facilitate decision making and can be combined with third-party or triparty execution plans.

"We are excited to partner with State Street on further enhancing the Collateral+ offering with optimisation capabilities and analytics that can bring its clients substantial cost savings and a true understanding of front-to-back costs across the entire lifecycle of a trade," said Liam Huxley, CEO of Cassini Systems. "The ability to apply these analytics to the Initial Margin requirements of UMR is a powerful way to identify optimal counterparties and manage thresholds strategically with each and every trading decision."

Collateral+ is an integrated platform founded on modular components that empower clients to tailor their collateral management services, manage their day-to-day exposure risks and compliance obligations, of particular focus and criticality in times of market stress.

Our platform offers a solution for UMR compliance and optimisation, and helps to increase overall operational efficiency with real-time, aggregated data transparency and added STP to meet collateral demands. Collateral+ provides efficient pre and post-trade, and collateral analytics enabling clients to reduce margin and funding costs, therefore minimising any associated portfolio drag. Moreover, our dedicated, global team is well-placed to support our global client base on a follow the sun model.

We are proud to help transform the world of buy side collateral management and to bring those tools and lessons to a broader market, as sell side pre-trade and exposure management practices benefit from the enhanced processes and solutions. Creating Collateral+ with an ethos of ongoing development on the latest architecture, is enabling us to prepare for the future and we are excited to further develop our digital and distributed ledger technologies (DLTs) as we continue our disruptive thought leadership journey into 2024.

Transforming collateral management with DLT

Elisa Poutanen, sales lead at HQLA^X, discusses the challenges facing banks when executing cross-custodian settlements, and the firm's recent work on triparty interoperability

With the global collateral market topping €25 trillion in 2024, and heightened regulatory focus on counterparty credit risk and collateral management, efficient collateral management has become a strategic competitive advantage for those who do it well.

In today's world, financial institutions often have to navigate a complex network of custodian and counterparty relationships, resulting in costly and inefficient collateral mobility. A solution to address this is becoming a key priority to add to a bank's toolkit for effective collateral management.

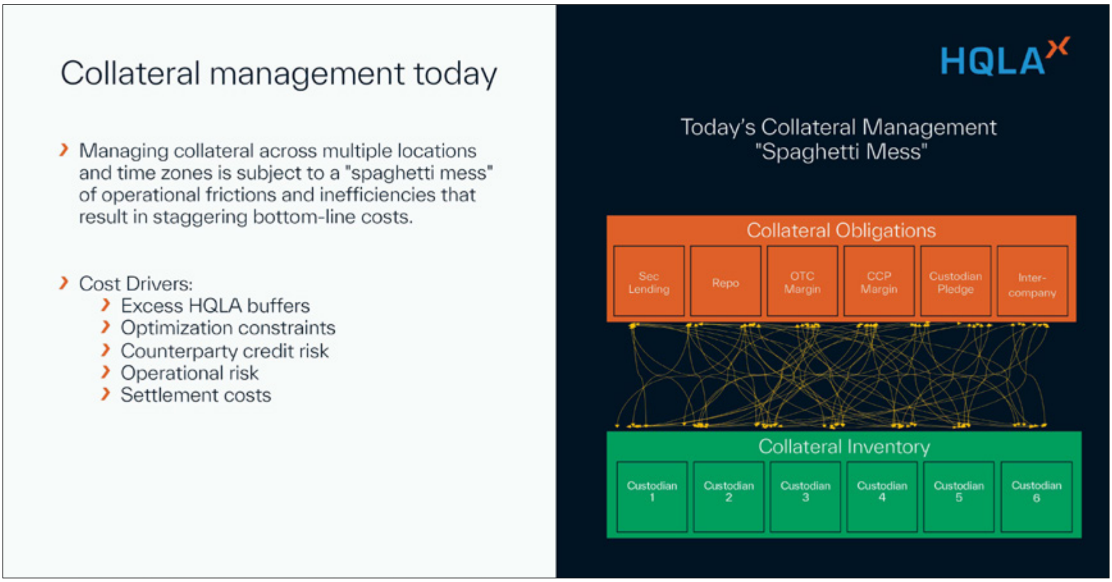


Figure 1: Illustrates the 'spaghetti mess' when delivering collateral to meet obligations across the different custody locations and the cost drivers resulting from it.

HQLA^{X} offers an innovative platform that eradicates the need for cross-custodian moves required to meet this matrix of collateral obligations, including securities lending, repo, and margin management. HQLA^{X} enhances the efficiency and security of asset transfers and ownership exchanges by using digital ledger technology (DLT).

HQLA^{X}'s Digital Collateral Records (DCR) solution helps market players seeking access to their inventory within client, counterparty, and service provider ecosystems. This includes custodians, central securities depositories (CSDs), triparty agents, banks, and investment firms.

The DCR solution represents the ownership of an underlying ISIN held in an account within an existing inventory location, which can be delivered to other participants on the platform in a frictionless manner, without the need to move the underlying ISIN. This therefore decouples ownership transfers from moves of collateral between physical locations.

As reflected in Figure 2, HQLA^{X} acts as a digital collateral registry, enabling banks to manage collateral from multiple locations seamlessly within a single digitised platform and to assimilate real-time data. This helps banks to enhance capital efficiency, collateral mobility, to mitigate the risk of fails and to lower operating costs by merging DLT advantages with traditional triparty and custody services.

Securities lending DvD

Traditional free-of-payment exchanges in securities lending create significant intraday credit exposures due to the 'give before you get' market practice. HQLA^{X}'s delivery-versus-delivery (DvD) solution eliminates this pain point by enabling participants to exchange loan securities for collateral through a simultaneous DvD swap on the digital ledger.

This streamlined process reduces intraday liquidity spikes, operational costs, and settlement failures, fostering greater collateral optimisation. Our securities lending DvD offering is catered for both collateral transformation and short-covering trades. Agent lenders and principal lenders are able to connect to the platform using their existing technical channels such as API or SWIFT messaging, therefore avoiding any technical build.

The platform's DvD functionality ensures lenders only release ownership of loaned securities in exchange for corresponding collateral. This includes releasing a portion of the loan book that matches the delivered

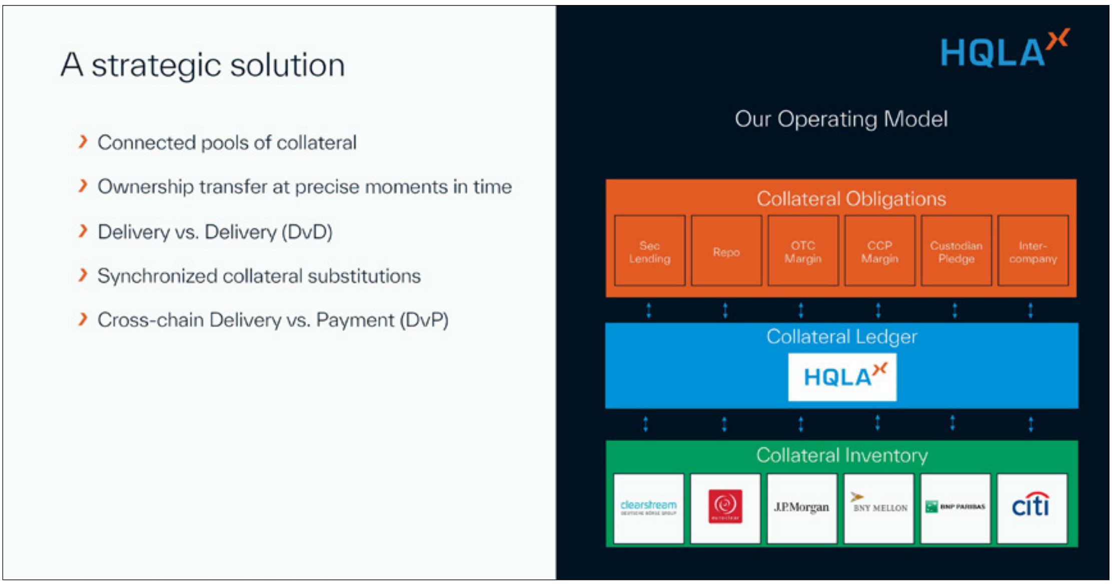


Figure 2: Operating model

collateral value even if the full required value (RQV) has yet to be collateralised.

Borrowers also gain from reduced capital costs and enhanced liquidity management, making HQLA^{X} a flexible tool for both sides of a securities lending transaction. Securities can be freely moved between participants on the platform and to and from the platform to the clients preferred custodian. HQLA^{X} supports collateral posting both under a title transfer and pledge legal structures and our clients are able to use their preferred triparty agent to cover their RQVs, removing the need to move collateral between longboxes to achieve optimised usage.

US Treasury borrowing versus Japanese government bonds (JGB) offers a practical example of one of the benefits that DvD settlement can offer. Such securities lending transactions require collateral movement across different time zones, creating settlement delays and credit exposures. Utilising HQLA^{X}'s DvD capability eliminates these issues, as digital ownership transfer allows simultaneous execution as illustrated in Figure 3. This minimises credit risk, enhances liquidity, and streamlines the entire process, crucial in fast-paced trading environments.

Digital DvP

To launch in Q4 2024, HQLA^{X}'s digital delivery-versus-payment (DvP) solutions will complement its existing offerings, enabling the monetisation of mobilised collateral and increased liquidity. The greatest advantage lies in the creation of new intraday repo markets. By allowing precise scheduling of transaction times down to the minute, participants can better manage liquidity, reduce funding costs, and utilise balance sheets more effectively.

Cash lenders can also gain incremental revenue by investing cash traditionally held overnight into intraday markets. This creates a dual advantage, providing new liquidity tools for banks and enhancing financial stability during stress events.

HQLA^{X}'s DvP solutions integrate with both digital cash ledgers and traditional fiat systems. Collaborating with partners like Fnality (digital central bank money) and Onyx by J.P. Morgan (digital commercial bank money), HQLA^{X} stands at the intersection of digital and legacy systems, promoting interoperability as a key driver of market liquidity.

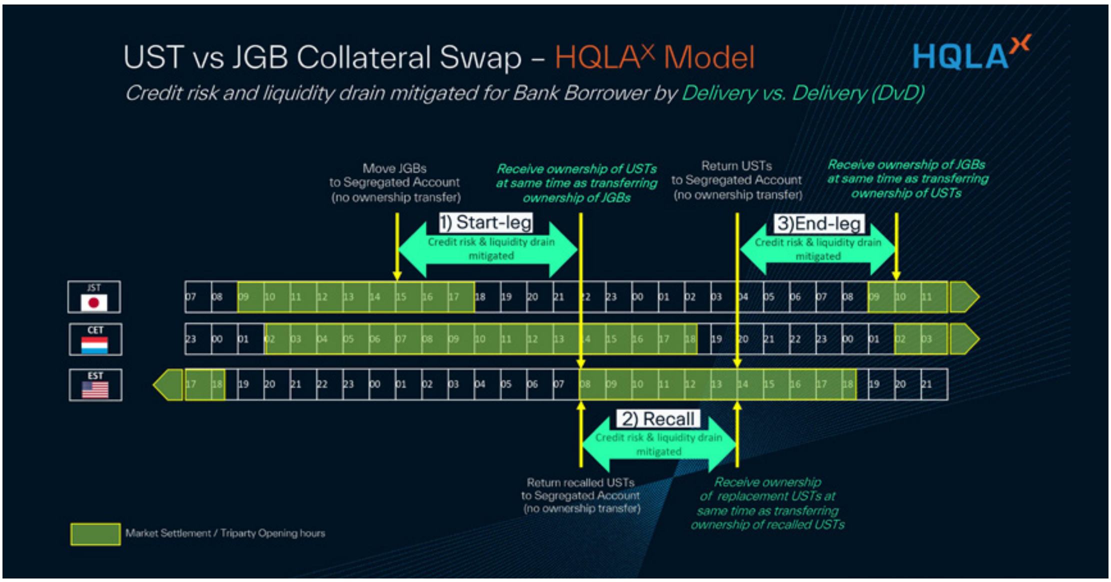


Figure 3: US Treasury versus JGB collateral swap.

Margin management

Effective collateral re-use is essential for securities finance, ensuring timely mobilisation of eligible collateral. HQLA^X addresses settlement delays and credit risks through its advanced DvD capabilities, enabling precise collateral substitutions and real-time margining between market participants. This automated process helps firms meet tight margin call deadlines, particularly in centrally cleared transactions, reducing operational risks and securing financial stability.

By decoupling ownership transfer from asset movement, the platform enhances the efficiency of margin collateralisation, minimises cross-custodian movements, and bolsters operational resilience. Clients can rely on HQLA^X to manage their end-to-end margin processes, ensuring they meet their obligations without the risk of failure.

What next?

HQLA^X remains at the forefront of addressing inefficiencies in securities finance post-trade and settlement processes. Together with a group of five global systemically important banks (G-SIBs), three triparty agents, and two software service providers, we have explored DLT-based solutions for triparty interoperability.

As previously alluded to, banks often need to execute cross-custodian settlements to transfer securities between triparty agents. This process is time-consuming, frequently manual, and prone to settlement fails. The economic repercussions are significant, necessitating larger operational buffers and missing out on potential optimisation benefits. Addressing these issues requires a streamlined approach to collateral mobility, ensuring efficient allocation, optimal collateralisation, and cost-effective tenor utilisation.

The HQLA^X platform aims to mitigate these pain points by enabling seamless reassignment of securities between different triparty agent accounts on-ledger, eliminating the need for cross-custodian settlements. This innovation translates to lower operational costs for triparty agents and substantial benefits for banks, including increased automation, enhanced optimisation, and improved capital efficiency.

Together with our partners, we are actively working on mobilising the initial stages of a production deployment, promising significant advancements in the efficiency and robustness of securities finance operations.

“Effective collateral re-use is essential for securities finance, ensuring timely mobilisation of eligible collateral.”

Elisa Poutanen
Sales lead
HQLA^X

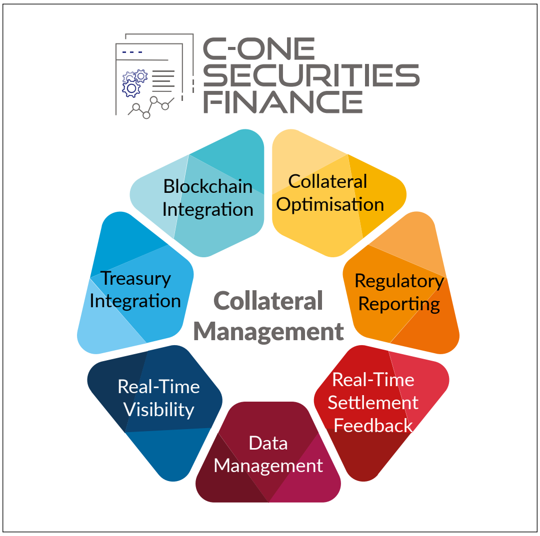
Streamlining collateral management through seamless connectivity and automation

Comyno chief operating officer Frank Becker unpacks areas of collateral management and highlights cost-efficient solutions for automation

The development of platforms and networks that enable enhanced connectivity is at the forefront of what we do. By establishing seamless connections across systems and counterparties, institutions can significantly reduce manual labour and automate processes, driving greater efficiency.

This shift towards interconnected, automated platforms not only minimise operational burdens but also leads to the creation of larger liquidity pools. As a result, institutions can optimise their collateral management, ensuring faster access to liquidity while maintaining compliance with regulatory frameworks.

C-ONE Securities Finance includes a collateral management tool that is designed to meet the growing demand for seamless connectivity across systems and sources, driving efficiency in collateral processes. This article explores how C-ONE improves key collateral management functions, such as margin management, collateral optimisation, settlement, automation, real-time data integration, and position monitoring — enabling institutions to operate with increased precision, speed, and reliability.



Comyno's C-ONE offers collateral inventory overviews, enhanced liquidity access, and improved risk management, underscoring their commitment to building a more interconnected financial ecosystem. Comyno's platform C-ONE simplifies access to the securities lending business while ensuring compliance with key regulations like the Securities Financing Transaction Regulation (SFTR) and the Uncleared Margin Rules (UMR).

C-ONE streamlines the securities financing lifecycle. By integrating a multi-entity platform, the solution allows institutions to pool assets, create larger liquidity reservoirs, and enable direct trading between counterparties.

The platform's real-time negotiation and execution of securities lending requests further highlight its efficiency. It not only addresses the growing demand for transparency and regulatory compliance but also aids firms in navigating the complexities of collateralisation and margin requirements.

Collateral management is at the core of the financial system's stability, and C-ONE addresses this with a wide array of advanced tools and features to optimise collateral allocation, asset selection, and overall efficiency.

The platform's ability to automatically optimise collateral allows institutions to minimise costs while ensuring compliance with the necessary regulatory frameworks and counterparty requirements. This optimisation process utilises advanced algorithms to assess the best mix of assets for each transaction, balancing cost efficiency with liquidity requirements.

The ability to automate these processes reduces the need for manual intervention, freeing up resources for more strategic tasks and ensuring that collateral pools are used to their full potential.

A standout feature of C-ONE is its integration of machine learning, particularly for reading and interpreting collateral schedules. This automation reduces the time spent on manual data input and minimises the risk of human error. By streamlining the process, institutions can focus on high-value activities, improving operational efficiency. Additionally, machine learning ensures accuracy in interpreting complex collateral requirements, resulting in smoother workflows.

Beyond this, C-ONE offers sophisticated asset selection tools designed to assist institutions in choosing the most suitable collateral assets. These tools take into consideration factors like liquidity, risk profile, and the specific requirements of each transaction. By ensuring that the best assets are used, institutions can enhance the overall efficiency of their collateral management strategies while simultaneously reducing costs and minimising risk.

Settlement processes and real-time feedback

Effective settlement processes are crucial for the smooth functioning of the securities finance market, and C-ONE is built to support real-time settlements with straight-through processing (STP) capabilities. This allows institutions to execute trades and settlements more quickly and efficiently, reducing the likelihood of delays or settlement failures that could result in financial penalties or operational risks.

By incorporating real-time feedback mechanisms, institutions can continuously monitor the status of their trades and collateral movements, adjusting as necessary to ensure everything remains on track.

Real-time feedback also plays an essential role in enhancing transparency throughout the transaction lifecycle. Institutions can immediately identify any discrepancies in their settlements, enabling quicker resolution of potential issues.

This increased level of visibility is particularly important when managing high volumes of transactions or dealing with complex cross-border settlements, where timing and accuracy are critical. With C-ONE's integrated system, financial institutions are empowered to manage their settlements with greater speed and precision, reducing the risks associated with operational inefficiencies.

Automation is one of the primary drivers of efficiency in modern collateral management, and C-ONE leverages this through a suite of features designed to minimise manual processes and increase operational accuracy. One of the key automated processes is the import of collateral data from various sources, including custodians and third-party agents (TPAs).

By automating these imports, institutions ensure that all relevant collateral data is constantly updated in real-time, enabling them to make more informed decisions about collateral allocation and management. This automation reduces the risk of errors or delays in the processing of collateral data, which can otherwise result in costly disputes or inefficiencies.

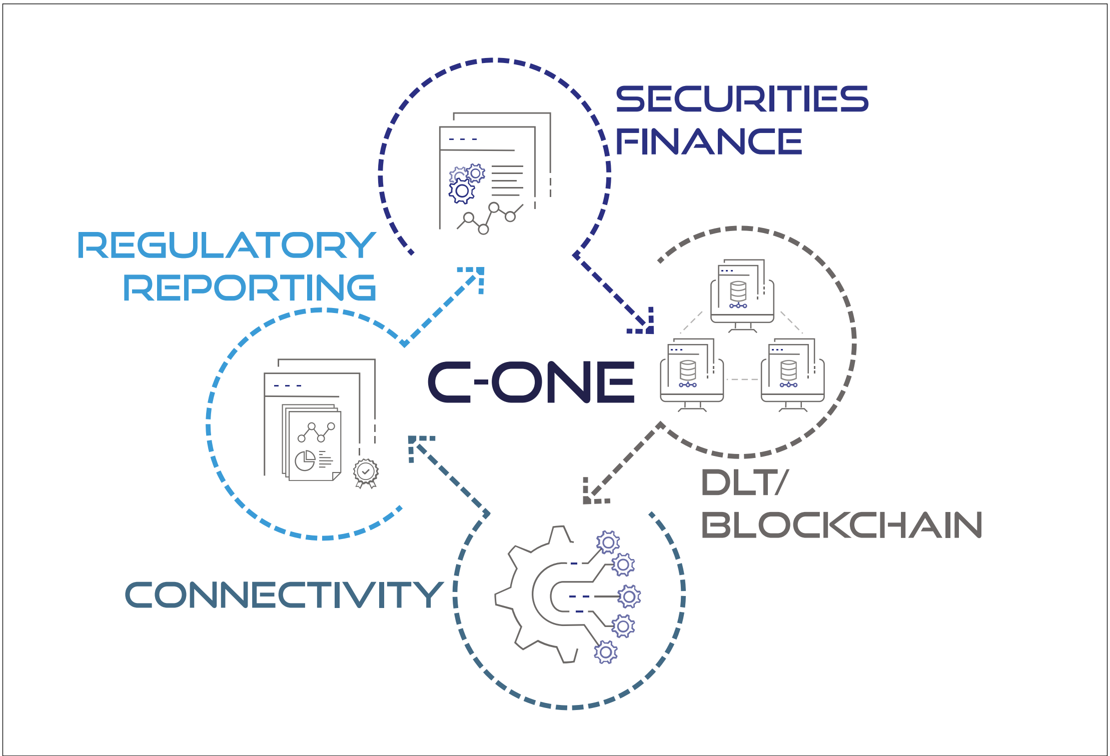
Another critical automated process is the reading of exposure reports. C-ONE eliminates the need for manual data entry by automatically reading and interpreting exposure data, ensuring that institutions have immediate access to the information needed for accurate margin calls and other risk management activities. This level of automation significantly reduces the time spent on routine data processing tasks, allowing institutions to focus on more strategic initiatives.

In addition, C-ONE automates the generation and dispatch of margin calls, ensuring that all margin requirements are met in a timely and compliant manner. By automating this process, institutions reduce the risk of errors or delays in margin call processing, which can otherwise result in non-compliance with regulatory requirements or disputes with counterparties.

The ability to automate the entire margin call lifecycle — from calculation to dispatch — ensures that institutions can manage their margin requirements with greater precision and efficiency, while also reducing operational risks.

In today's fast-paced financial environment, real-time visibility into collateral positions is critical. C-ONE provides institutions with up-to-the-minute updates on their collateral positions, allowing them to monitor their holdings and exposures in real time. This level of transparency enables institutions to make more informed decisions about their collateral management strategies and ensures that they are always prepared to meet regulatory requirements or respond to market changes.

The integration of C-ONE with treasury systems further enhances institutions' ability to manage their liquidity and cash flows. By providing real-time data on collateral and exposure positions, the platform enables treasury departments to make more informed decisions about cash management, improving overall liquidity planning and risk management.



This integration ensures that treasury operations are closely aligned with collateral management activities, enhancing the institution's ability to respond to market demands and optimise its cash and collateral positions.

One of the most important aspects of modern collateral management is the ability to import and integrate data from multiple sources in real time. C-ONE supports real-time data imports from custodians, central counterparties (CCPs), and third-party agents (TPAs), ensuring that institutions always have the most up-to-date information available.

This real-time data integration allows institutions to make faster, more informed decisions about their collateral and liquidity positions, enhancing their ability to respond to market fluctuations and regulatory demands.

C-ONE is a comprehensive Securities Finance and collateral management platform that empowers institutions to streamline their collateral processes effectively. From margin management and collateral optimisation to settlement automation and real-time data integration, C-ONE provides a complete solution that enhances efficiency, reduces operational risks, and ensures regulatory compliance. By leveraging the platform's advanced capabilities, institutions can optimise their collateral management strategies and stay ahead in a rapidly changing financial landscape.

Through our partnership with SWIAT, a blockchain-based financial market infrastructure for digital and traditional assets, we are also able to connect with this blockchain-based platform. This allows us to unlock future potential by integrating both traditional and digital worlds. With this collaboration, Comyno and SWIAT aim to offer solutions that combine the advantages of the conventional securities finance market with cutting-edge digital technology, creating a more robust, flexible, and future-proof financial ecosystem.

BNP PARIBAS

Christian Oger
Head of Market and Financing Services Technical Sales, Securities Services
christian.oger@bnpparibas.com

BNP Paribas' Securities Services business is a leading global custodian providing multi-asset post-trade and asset servicing solutions to buy-side and sell-side market participants, corporates and issuers. With a global reach covering 90+ markets, its custody network is one of the most extensive in the industry, enabling clients to maximise their investment opportunities worldwide.

As of 30 June 2024, Securities Services had USD 13.94 trillion in assets under custody, USD 2.758 trillion in assets under administration and 9,155 funds administered.

With an in-depth knowledge of global markets across multiple asset classes and currencies, BNP Paribas 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' 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.

Furthermore, BNP Paribas offers a full suite of repo services including traditional repos, committed repo facilities and sustainable repos. We can answer your liquidity needs through efficient and customised (e.g. tenor, size...) programmes.

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.

Eric Badger
Managing Director, Global Head of Client Relationships
+ 1 212 635 8229
eric.badger@bnymellon.com

Kevin Reinert
Director, Head of Business Development, Americas
+ 1 212 635 8805
kevin.reinert@bnymellon.com

www.bny.com

BNY is a global financial services company that helps make money work for the world – managing it, moving it and keeping it safe. For 240 years BNY has partnered alongside clients, putting its expertise and platforms to work to help them achieve their ambitions. Today BNY helps over 90% of Fortune 100 companies and nearly all the top 100 banks globally to access the money they need. BNY supports governments in funding local projects and works with over 90% of the top 100 pension plans to safeguard investments for millions of individuals, and so much more. As of June 30, 2024, BNY oversees $49.5 trillion in assets under custody and/or administration and $2.0 trillion in assets under management.

BNY is the corporate brand of The Bank of New York Mellon Corporation (NYSE: BK). Headquartered in New York City, BNY employs over 50,000 people globally and has been named among Fortune's World's Most Admired Companies and Fast Company's Best Workplaces for Innovators. Additional information is available on www.bny.com . Follow on LinkedIn or visit the BNY Newsroom for the latest company news.

Mike Airey
NA Vice President Sales
+1 201 714 3039
Mike.Airey@broadridge.com

Paul Wilson
EMEA Sales Director, SFCM
+44 78 2552 9652
Paul.Wilson@broadridge.com

Kurt Eldridge
Head of APAC Sales
+65 8202 0332
Kurt.Eldridge@broadridge.com

www.broadridge.com

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 US$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.

info@cassinisystems.com
+44 20 7031 5730

www.cassini.com

Cassini, since 2014, has been a forefront provider of margin and collateral analytics for derivatives users, streamlining costs and liquidity management across the trade lifecycle, from pre-trade to end-of-day. Users of our innovative analytics span the buy-side and the sell-side, including asset managers, hedge funds, pension funds, clearing brokers, and prime brokers. Merging cutting-edge algorithms with intelligence-driven insights, firms can enhance returns, minimize risks, and ensure swift margin calculations for all derivatives. Beyond analytics, Cassini partners in optimizing trade efficiency and portfolio performance, allowing instant pre-trade cost analysis and ongoing margin management optimization. Additionally, as an ISDA SIMM licensed vendor, Cassini enables hundreds of firms to meet regulatory compliance under the Uncleared Margin Rules.

Our dedication to innovation and excellence has garnered recognition, including the Best Analytics Solution Derivatives Technology Provider of the Year, and ranked as one of the top 50 Fintech firms in the UK, amongst other awards, and positions us as an intelligent analytical platform beyond traditional legacy systems. For a partnership that empowers smarter margin and collateral management

David White
Chief Commercial Officer
+44 (0)7730 580 195
david.white@cloudmargin.com

www.cloudmargin.com

CloudMargin transforms financial services firms' collateral management workflows with cutting-edge SaaS technology. Over 215 buy-side and sell-side institutions across the globe rely on CloudMargin to streamline their operations through automated, end-to-end collateral management processes. Celebrating our 10 th anniversary in 2024, CloudMargin has always been at the forefront of innovation, creating the world's first cloud-based collateral management workflow tool. Combining market-leading process automation with flexible, real-time analytics, CloudMargin delivers unparalleled efficiencies and risk reduction through smart, simplified workflows and straight-through processing (STP). A high-growth technology company, CloudMargin is committed to solving client and industry challenges with our pioneering solutions, helping firms navigate all market conditions and ensure collateral resilience.

Markus Büttner
Founder & CEO
T: +49 (0)173 672 6225
markus.buettner@comyno.com

Admir Spahic
COO & Head of Consulting
T: +49 (0)177 4367027
admir.spahic@comyno.com

Frank Becker
COO & Head of Sales
T: +49 (0)151 4249 0801
frank.becker@comyno.com

www.comyno.com

Comyno is a specialised FinTech company with more than two decades of experience in Securities Finance, focusing on software and consulting. We work with leading private and public financial institutions, asset managers, clearing houses, and triparty agents, combining their expertise in strategy, business know-how, and technology.

Our extensive experience in providing standardised and tailor-made solutions increases functionality and efficiency across the entire value chain of Securities Finance business. This is the main reason why customers choose Comyno's C-ONE software solution and consulting services.

Comyno's innovative strength is demonstrated by our expertise in the area of DLT/Blockchain and its practical application. We founded Comyno DLT hub in 2017 and have implemented blockchain technology in our trading software C-ONE.

Consulting Services

- Strategic Consulting
- Project & Program Management
- Business Analysis & Consulting
- Technical & Infrastructure Consulting
- Product Architecture & Design
- Software Development
- Blockchain Development

Software Solutions

- C-ONE Securities Finance
  In-house/Platform Hybrid Solution
- C-ONE Connectivity
  Standard Market Interfaces
- C-ONE RegReporting Solutions
  SFTR | CSDR | MiFID
- C-ONE DLT/Blockchain

Elisa Poutanen
Sales Lead
elisa.poutanen@hqla-x.com

Charlie Amesbury
Sales
charlie.amesbury@hqla-x.com

www.hqla-x.com

HQLA^{X} is an innovative financial technology firm that leverages Distributed Ledger Technology (DLT) to bring game-changing efficiencies to the securities finance and repo industry. Our core clients are banks and asset managers active in the global securities finance and repo markets, and our unique platform enables market participants to execute frictionless, precise and real-time transfer of ownership of securities.

Eileen Herlihy
Global Head of Sales, Trading Services
+44 (0)207 8626
Eileen.herlihy@jpmorgan.com

www.jpmorgan.com

As one of the world's leading global custodians operating in over 100 markets, J.P. Morgan offers an industry leading and innovative suite of settlement, asset servicing, tax, FX, collateral management, agency securities finance, cash and liquidity products.

Recognising the increased convergence between the securities finance and collateral ecosystems, a key pillar of J.P. Morgan's Trading Services business is a suite of Collateral Services products where a single global platform allows clients to efficiently manage collateral using innovative solutions.

Banks, broker-dealers, asset managers, insurers, central banks and pension funds can optimize their portfolios with sophisticated analytics and eligibility tools bilaterally or via tri-party.

Global capabilities and best in class client services are delivered locally supporting institutions in managing collateral internationally or onshore to meet increasingly complex financing, liquidity and regulatory requirements.

MUREX

www.murex.com

Murex provides enterprise-wide, cross-asset financial technology solutions to sell-side and buy-side capital markets players. With more than 60,000 daily users in 65 countries, its cross-function platform, MX.3, supports trading, treasury, risk, post-trade operations, as well as end-to-end investment management operations for private and public assets. This helps clients better meet regulatory requirements, manage enterprise-wide risk, and control IT costs.

MX.3 for Collateral Management

MX.3 for Collateral Management streamlines enterprise-wide margining, optimization and compliance for cleared and uncleared OTCs derivatives and ETDs, as well as bilateral and tri-party repos and securities lending alongside real-time global inventory management. Fully integrated front-to-back-to-risk and seamlessly connected to key utilities, the solution helps to simplify operations, increase efficiency, control risk and reduce cost.

MX.3 for Securities Finance

MX.3 for Securities Finance covers the entire range of repo, securities lending and synthetic products across equities and fixed income. It centralizes firmwide inventory in real time with settlement awareness, fostering informed decision-making and optimal allocations. Fully integrated from front to back to risk and seamlessly connected to key utilities, the solution streamlines trading, collateral operations and life cycle management.

osttra.com

OSTTRA – The home of industry-shaping businesses MarkitServ, Traiana, TriOptima and Reset, OSTTRA (osttra.com) brings the expertise, processes and networks together to solve the post-trade challenges of the global financial markets. OSTTRA strengthens the post-trade ecosystem with robust, progressive end-to-end solutions and unrivalled connectivity.

OSTTRA triResolve Margin provides much more than a collateral workflow solution. By enabling STP of calls from issuance through to pledge and settlement, customers can complete margin calls in seconds, not hours. The unique integration with OSTTRA triResolve means users gain access to their counterparty network. This connectivity delivers valuable insight into portfolio differences, facilitating proactive investigation of discrepancies and prompt dispute resolution.

Cloud-based and cross-asset class, our integrated solution covers bi-lateral and cleared trades across OTC and ETD instruments, providing a comprehensive view of all activity across counterparties in real time.

Reconciled portfolio data improves margin call quality & allows proactive dispute resolution.

Calculation of VM/IM margin calls in real-time gives unique insight into counterparty calls in advance.

Optimise margin workflow with automatic selection of collateral to deliver to counterparties based on client priority.

Automated SWIFT connectivity with access to a large network of custodians & triparty agents.

Margin & risk analytics support pre-trade decision making with scenarios to assess margin implications before execution.

Initial Margin optimisation to reduce IM funding costs & free up capital.

For more information contact info@osttra.com or go to **osttra.com/complete-margin-management**

www.pirum.com/contact-us

Pirum was founded in 2000 with the objective of automating the securities finance and collateral management industries.

The Software as a Service (SaaS) platform has since become the industry gold-standard, globally, for automation and connectivity solutions.

Today, the Pirum product suite, which uniquely covers pre- and post-trade as well as collateral management, is used and trusted by over 150 leading financial institutions around the world, covering both buy- and sell-side activities.

Pirum delivers automation, operational efficiency, regulatory compliance, resilience, and reduced cost for its network of clients, who use Pirum's solutions to connect, communicate, optimize and process their trades in global financial markets.

By connecting market participants around the world, the Pirum dynamo sits at the heart of a complex multi-party financial markets eco-system, all the while increasing transparency and resilience, streamlining operations and fostering collaboration.

S&P Global Market Intelligence

h-ihsm-global-equitysalesspecialists@spglobal.com

www.spglobal.com/marketintelligence

As one of the world's leading global custodians operating in over 100 markets, J.P. Morgan offers an industry leading and innovative suite of settlement, asset servicing, tax, FX, collateral management, agency securities finance, cash and liquidity products.

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Global capabilities and best in class client services are delivered locally supporting institutions in managing collateral internationally or onshore to meet increasingly complex financing, liquidity and regulatory requirements.

Sam Edwards
MD, Head of Collateral Services – EMEA and APAC
sedwards1@statestreet.com

Wayne Forsythe
MD, Head of Collateral Services – Americas
jwforsythe@statestreet.com

www.statestreet.com

Effective Collateral Management has never been more pivotal to the success of firms across the financial sector. Whether it be asset owners, asset managers, funds or banks, when it comes to managing capital, operational risk, regulatory compliance and return on investments collateral is front of mind. It is with this mindset to solutioning that we approach our Collateral+ suite, in order to provide comprehensive capabilities for optimization of exposures, inventory utilization and financing.

We understand your objectives and draw on our innovative product suite to provide the optimal solution to help minimize costs and maximise returns. With more than 40 years of industry experience, we have extensive industry knowledge and a strong commitment to serving our clients.

Market shocks stress collateral sufficiency and process resilience. As buy-side investors contend with the volatility of the markets, the support of a trusted partner, with access to advanced technology solutions, has never been more important. We know that you have specific collateral management, liquidity sourcing and financing needs that can change rapidly in order to meet these challenges. Our team can help you capitalize on opportunities and better manage risk through our flexible and risk-based approach.

VERMEG

Wassel DAMMAK
Head of Product Strategy
+33 67455 0290
wadammak@vermeg.com

www.vermeg.com

VERMEG is a leading provider specialized in software and digital solutions for collateral management, regulatory and compliance, and insurance industries. As a leader in the collateral market, its technology targets key challenges driving operational efficiency, cost savings, optimization and risk mitigation. Encapsulating more than 25 years of experience in the financial sector, VERMEG has a deep understanding of the current challenges facing the industry. Through our digital solutions developed with low-code no-code technology, Veggo platform by VERMEG offers ready-to-use apps, perfectly tailored to our clients' needs. This guarantees for clients achieve increased efficiency, improved user experience and the ability to grow their business and reduce costs.

Notes

Maximize efficiency in securities finance

Unlock the potential of your securities finance trading capabilities with Broadridge's innovative solutions. Streamline the trade life cycle, optimize capital, and minimize risk with a seamless, automated platform for borrowing, lending, and collateral management.

Transform your trade life cycle with Broadridge