Tri-party Circular

J.P. Morgan Tri-party Program Update

January 2023

J.P.Morgan

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Introduction

Welcome to the first Tri-party circular of 2023, which follows a challenging but ultimately rewarding 2022. Markets and geo-political events shaped much of the previous year, which heightened volatility across all asset classes and regions. Naturally this had many direct and indirect impacts on financing and margining flows, demonstrating the interconnectedness of the collateral ecosystem and how important it has been to have invested in collateral mobilization capabilities.

BENJAMIN CHALLICE
Managing Director

Global Head of Trading Services, J.P. Morgan

In this issue, we highlight some key areas of innovation within J.P. Morgan. Sagar Patel explains how we have adapted to recent changes in regulatory approach for fully paid lending in the United States, Michele Filippini updates us on further optimization integration with technology vendors and Mike Calandra details the exciting expansion plans we have for the CCP Margining product.

While distributed ledger technology is proving itself a solution for a number of problems associated with collateral mobilization, one of the critical questions, in particular for digital assets, involves how and when we will see wholesale adoption. Paul Pirie provides an insightful thought on where we are and how our comfort with different levels of trust may help unlock the huge potential we see in each proof of concept.

Other focus areas in this publication include the announcement of Poland becoming an available tri-party collateral market and an analysis of the changing collateral mix in our tri-party activity post implementation of the final phase of the Segregated Initial Margin Rules.

Let me take this opportunity to wish you a happy and healthy new year. The team and I look forward to meeting as many of you as possible in 2023 and in particular for those able to attend our annual conference in London on March 23.

Best wishes,
Ben Challice

Save the Date
23.03.23

The J.P. Morgan annual Financing and Collateral Conference will be held in London on Thursday March 23rd 2023. The annual event draws upon industry experts and keynote speakers to provide an informative and interactive thought leadership event.

Full agenda and invitations will be available soon.

Fully Paid Lending

Operators of fully paid lending programs have been reviewing the scalability and compliance of their collateral operating models

SAGAR PATEL
Executive Director
Product Manager

ARTICLE ONE

What is a Fully Paid Lending (FPL) program?

FPL programs involve clients of U.S. brokerages lending their fully-owned securities to the broker in return for financial compensation. The lent securities are fully collateralized with cash or US Treasuries. The customers are passive in the management of the program and are only compensated when the securities they own are actually utilized.

In 2020, the U.S. Securities and Exchange Commission (SEC), division of Trading and Markets sent a letter to FINRA regarding utilizing fully-paid and excess margin securities from customers. In short, the SEC believes that some FPL programs may not meet the collateral requirements dictating that the FPL collateral be appropriately safeguarded and available to the underling customers. For example, holding the FPL collateral with an independent third party custodian would address key compliance requirements. Compliance with this rule clarification was required by April 2021. The letter prompted U.S. brokerages to reassess the collateral arrangements they had for their existing FPL programs and for those developing new FPL programs to think about how they would design a model that both complies and is scalable. A high number of customers or accounts can make the daily collateralization operationally burdensome if there isn't the right level of automation and integrated customer-level books and records.

J.P. Morgan's FPL collateral solution

J.P. Morgan's solution is structured as a collateral control account overlaid with a third-party trustee performing responsibilities for the underlying customer that is lending its securities.

The control account is governed by an account control agreement where the broker-dealer would be the pledgor of collateral. The trustee takes the role of the secured party acting on behalf of the underlying customers, and J.P. Morgan is the collateral custodian. A separate trustee agreement outlines the respective responsibilities.

Operating Model

In a nutshell, margin and collateral on the underlying securities loans are being calculated, transferred, verified and recorded daily at the underlying customer level. Data files are shared among the three parties, which provides the appropriate level of transparency for each party to conduct its part efficiently. A significant portion of the calculation and collateral processing can only take place towards the close of business when trading is done for the day. It's important that processes throughout the operating flow are streamlined to make close-of-business deadlines for collateralization while leaving a buffer for any troubleshooting.

> Firms could have thousands of retail customers signed up to their FPL program, and margin needs to be calculated, verified and reconciled daily at the underlying customer level.

J.P. Morgan

- Collateral is held with an independent custodian with a strong credit rating
- Control is maintained over the collateral account which is appropriately titled
- Flexibility to hold collateral in a standard third-party control account or in a traditional tri-party model
- Default: Collateral to be delivered promptly to the trustee for disbursement, if the broker-dealer defaults

Third-party Trustee

- Daily reconciliation and verification of collateral values for underlying customers
- Tracking of collateral at the underlying customer level
- Instruction of collateral movements in and out of the J.P. Morgan account
- Default: Distribution of collateral to underlying customers, if the broker-dealer defaults

As you can imagine, FPL collateral models have been a hot topic since the SEC issued the letter in 2020. The impact has reached various brokerages and agents that currently operate or plan to operate fully paid lending programs for underlying retail and institutional customers. The lion's share of interest has been coming from broker-dealers that operate programs for retail customers, which is not surprising. Firms could have thousands of retail customers signed up to their FPL program, and margin needs to be calculated, verified and reconciled daily at the underlying customer level. Additionally, in a broker-dealer default scenario, collateral needs to be safeguarded and available for disbursement to the underlying customers. That said, it's important to have a robust model not only for daily collateral margining but also for any remediation in a worst-case scenario. For many broker-dealers operating these programs, a key consideration is to have the collateral held and managed by third-parties where collateral management is their core competency.

We've seen success with the described solution in terms of feedback on the specific structure being bolted with a third-party trustee and regarding the operational ease of managing the collateral day to day.

To discuss this topic and solution in more detail, please contact your J.P. Morgan client representative.

Global Adoption of Digital Assets: Where are we? Will it ever happen?

It's all about trust... or is it? Well, recent high profile crypto collapses proved that trust alone is not a sound basis for any financial service. But it did tell us that transparency and regulation are critical when investors are asked to put any level of trust in a service provider.

PAUL PIRIE
Executive Director
Product Manager

There are two potential choices when it comes to engaging with digital assets in the future:

1. Self-custody all your digital assets and trust no one. "Own the keys, own the coin." Rely on transparency and decentralization of the underlying technology, with limited (or no) regulation

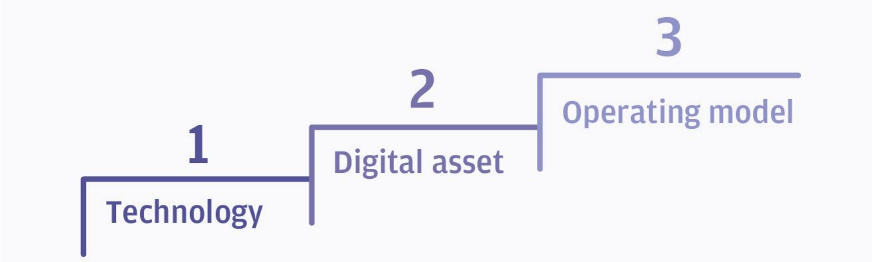
2. Trust an interconnected network of centralized digital custodians that are regulated financial institutions

Which one will foster adoption in the institutional sector? Option 1 points towards decentralized finance (DeFi)–permissionless, trustless self-custody. Option 2 points towards centralized finance (CeFi)–how the traditional banking world functions today. Logic would tell us we should all move toward Option 1 so that we remove the reliance and trust elements, but DeFi cannot scale without CeFi, so it is not a stand-alone option for institutional adoption.

Neither option questions trust in the underlying technology, which has been the blocking point for adoption in the past. Centralized private permissioned blockchains, such as J.P. Morgan's own Onyx platform, have accelerated the level of trust in the technology for all industry stakeholders from clients to regulators by focusing on the core blockchain technology and mitigating the distracting risks of cybersecurity, key management and data protection.

I see three levels of trust here—in the blockchain technology, in the digital asset itself and in the operating model.

Figure 1: Digital assets—Three layers of trust



ARTICLE TWO

There is a foundational level of trust in blockchain technology and the benefits it can bring to the financial services industry. This is clearly evidenced by the integration of blockchain into global payments systems and the fact that almost every central bank, global custodian and broker-dealer has digital business units.

The next question is – do we trust the digital asset itself? Looking back to the days of complex and opaque structured products that sparked the credit crisis. Wary investors need to know the inherent risk in the assets they are dealing with, and this is why digital asset taxonomy is so vital for adoption. At one end there is a very challenged institutional trust in the cryptocurrency space. At the other end there is the tokenization of traditional assets, which doesn't create a new digital asset but leverages tokenization to improve utility and mobility of the asset itself. To climb to trust layer three, our regulators and clients need to have full trust in the digital asset, and this is where tokenization is key. This is an approach that J.P. Morgan has already implemented successfully in the form of DLT repo and our Tokenization Collateral Network.

Tokenization was a way to introduce DLT into institutional financial services by representing ownership rights in a traditional asset on a blockchain, enabling transfer of those rights via smart contracts, while relying on the established legal and regulatory framework governing the underlying traditional asset. The market could trust in the digital asset, and we cleared trust layer two. However, what J.P. Morgan and other pioneers have experienced is that this is sometimes like trying to fit a square peg into a round hole. The benefits of the DLT layer are undeniable but aligning the legal/regulatory elements has proved highly complex.

This is trust layer three, and it currently represents the main barrier to mainstream adoption of digital assets. The type of digital asset risk assessed in layer two will continue to evolve, and we will see more mature digital assets issued in the market as investors become comfortable with the transparency in the asset attributes. Global regulation is progressing apace. It will enable service providers to build digital asset operating models that are aligned to a standardized legal framework, regulated and approved by our local and global regulators. Europe is leading this supportive digital asset framework and will facilitate the clarity and structure needed for our clients to climb over trust layer three.

As we continue to trust, quantifying the risk that this trust conveys depends largely on factors such as transparency and regulation. Without a clear digital asset taxonomy and effective global regulatory framework, this "trust risk" will not reach an acceptable level for mainstream institutional adoption. We will be stuck at trust layer two. J.P. Morgan is actively involved with regulators and industry bodies and is well placed to guide our clients in the digital asset space. We welcome any questions or ideas you may have, so please reach out to us.

Tokenization was a way to introduce DLT into institutional financial services by representing ownership rights in a traditional asset on a blockchain, enabling transfer of those rights via smart contracts'

ARTICLE THREE

CCP Margin Exchange

The Securities Finance Times "Collateral Solution of the Year 2022" is set for rapid product expansion in the year ahead.

MIKE CALANDRA
Vice President
Product Manager

2022 securitiesfinancetimes INDUSTRY EXCELLENCE AWARDS WINNER Collateral Solution of the Year

What is CCP Margin Exchange (CCPMx)?

Traditionally, Central Clearing Counterparties (CCP) prefer to receive collateral bilaterally. In the past, tri-party agents have tried to guide CCPs towards the tri-party model by asking them to accept collateral via tri-party, which some do to a limited degree. The CCPMx model goes to the mountain, as opposed to trying to bring the mountain to it, by making the delivery to and from the CCP bilaterally. Through a combination of tri-party's optimization and eligibility engines with bilateral market movements, J.P. Morgan has established a model that provides the benefits of robust optimization, automation and the eligibility tests that tri-party offers which have been known to challenge CCP members.

The key theme that came out in our conversations with market participants active in margining CCPs was the need for automation and, if possible, standardization. CCPMx simplifies the delivery and return of CCP related collateral, including intra-day recalls and substitutions, delivering substantial operational efficiencies and at the same time, providing economic benefits to the clearing members by replacing the cash margin auto-debited by CCPs with more optimal (cheapest-to-deliver) securities.

What has changed?

What sprang from an idea in 2020, and went live in its earliest form in 2021, is now reaching maturity. In 2020, the J.P. Morgan team recognized a problem across the industry. Margin requirements at CCPs were on the rise and were (are still) highly manual with less-than-optimal outcomes. There continues to be increased attention on collateral mobility and optimization which is driving focus on creating cost efficiencies and directing the industry towards standardization, interoperability and digital transformation. At the time of our initial analysis, clearing members had options in the market to address aspects of this problem statement but never a holistic solution.

Enter CCPMx, a solution that can not only eliminate the daily task of selecting the optimal collateral but also the operational and often cumbersome task of moving it back and forth across multiple CCPs, while eliminating the need for the clearing member to manage differing connectivity protocols per CCP.

As this article is being distributed, we have hit a new and important milestone. The focus of 2022 was to engage in targeted conversations across clearing members and CCPs, with the goal of expanding the model across CCPs and regions. In doing so we found a firm to collaborate with to help us carry the proverbial baton (excuse the pun)—Baton Systems (Collateral Connect), a leading fintech in the collateral and FX space. Our newly established integration with Baton allows J.P. Morgan Collateral Services' clients to address their margin obligations at 10+ CCPs globally, all already integrated with Core-Collateral.

How can CCPMx help you?

Efficiencies are created when clearing members standardize their daily margin interaction with the CCP through J.P. Morgan, with the CCP

sending margin requirements, via the Baton integration, on behalf of the clearing members to J.P. Morgan Collateral Services. When the appropriate pool of collateral is available, J.P. Morgan manages that collateral against margin obligations, continuously adhering to the CCP's eligibility requirements, the clearing member's optimization parameters and the CCP's specific messaging protocols.

Ultimately, by providing visibility into repo, securities lending, pledge, UMR and CCP collateral activity, broker-dealer clients will have a consolidated view of their global collateral obligations across various financing markets and trade types.

What should you do next?

Contact your J.P. Morgan representatives to learn more and be part of the innovation. Through these interactions, J.P. Morgan will be taking direction in terms of priority CCPs from our clients and prospects.

> The union of Baton's extensive CCP connectivity with CCPMx will bring significant benefits to margin processing, helping to transform J.P. Morgan's tri-party collateral management offering. Clients of J.P. Morgan will be able to achieve greater transparency, more efficiencies and dynamic risk reduction in their collateral management processes through the rapid mobilization of assets and the enhanced optimization of margin collateralization, enabled by the integration of CCPMx with Baton's Core-Collateral solution.
>
> **Jerome Kemp**
> *President at Baton Systems*

Optimization and Vendor Connectivity

MICHELE FILIPPINI
Executive Director
Product Manager

ARTICLE FOUR

To realize the full benefits of J.P. Morgan optimization capabilities, it is critical to consider how the workflow should operate efficiently in practice. Building out the workflow should look at what data is required for the optimizer, the frequency that data should be consumed and the transmission mechanism for the output.

The data required to input into an optimizer may include all or a subset of the inventory available, the eligibility rules of the collateral taker, the exposure value of the collateral obligations, as well as pricing and instrument reference data. This data may be further supplemented with information on the ownership profile of the inventory, the trade type and the client categorization to form a fuller view on what an optimal allocation may look like.

The frequency of data consumption may depend on the sophistication of the client optimization framework and whether it needs to be genuinely real-time. With many clients' tri-party portfolios experiencing significant intra-day churn, some data attributes are intrinsically more dynamic than others. For example, while eligibility schedules may be fairly static, exposure values can change frequently as new loans are booked same day across the three regions. This leads to the required value being adjusted regularly throughout the day. However, instrument reference data such as pricing or ratings will usually be received as part of a daily feed and therefore, is less variable.

The transmission mechanisms for aggregating and transmitting data could be a combination of SWIFT exchange, sFTP or API. J.P. Morgan has invested in making data more open source so it can transmit data either directly to clients or to vendors through flexible connectivity options. This approach allows clients or vendors to benefit from either J.P. Morgan optimization tools directly or add further customization to their optimization approach using in-house or third-party data.

Bringing together connectivity between J.P. Morgan, its clients and vendors simplifies a complicated aggregation process for the data consumption and the efficient delivery of the optimization output directly into the J.P. Morgan calculation—subsequently allowing the client to achieve their objectives.

Transcend Integration

As part of our ongoing partnerships with key vendors in the marketplace, we completed a successful integration with Transcend in Q4.

Transcend provides a scenario-based optimization solution that allows mutual clients to determine granular allocations of their collateral held with J.P. Morgan tri-party. J.P. Morgan provides access to timely tri-party activity including eligibility rules, collateral allocation details, recalls and exposures to integrate into Transcend's optimization solution.

Transcend uses the tri-party data along with additional data sets from the client to produce suggested allocations of collateral driven by a variety of client goals including liquidity or capital measures.

Transcend will submit the preferred allocations via an API connector to J.P. Morgan. J.P. Morgan will test the results using its own algorithm, reference data and pricing to ensure continued collateralization on the obligations.

The process can be run multiple times through the business day across the Collateral Central global platform.

Benefits

- Available through both simulation and production environments for scenario testing
- Helps achieve high level of granular optimization
- Facilitates partial optimization if exceptions arise
- Scalable with high STP rates
- Open source and available to other vendors subject to successful testing

> Bringing together connectivity between J.P. Morgan, its clients and vendors simplifies a complicated aggregation process for the data consumption and the efficient delivery of optimization

ARTICLE FIVE

Introducing Poland, Our Newest Tri-party Market

VICKI FULLING
Vice President
Product Manager

We are pleased to announce the introduction of Poland to our list of 30 collateral markets supported by J.P. Morgan Tri-party. In 2022, we conducted extensive due diligence of the market and can advise that the new market includes:

- Coverage for bonds and equities
- Eligibility criteria against four indices: WIG20, WIG MID 40, WIG 80, WIG Composite
- Competitive market deadlines for settlement by our local Polish sub-custodian
- Full range of J.P. Morgan tri-party eligibility, optimization and trade settlement functionality

Clients can use Polish collateral to finance repo, securities lending or derivatives activity, leveraging existing transfer of title or pledge legal structures as assets to collateralize financing activity under a tri-party structure.

If you have Polish assets you would like to use in tri-party, please contact your Client Service Manager, and we will guide you through the account opening process.

This is the first of many new global markets where we are investigating the feasibility to extend tri-party services. If you have interest in any particular markets, we would be keen to hear from you.

ARTICLE SIX

AGUSTINA CAMPOMAR
Analyst
Collateral Operations

IGNACIO GOMEZ
Associate
Collateral Operations

Did You Know?

Agustina and Ignacio from our Americas Operations team takes us through some little known features of J.P. Morgan Tri-party

The Collateral Central Tri-party platform enables clients to do the following:

- Simulation Allocation: To support the addition of hypothetical assets into the long box pool as well as amendments to Required Values (RQV) to project account coverage.
- Simulation Optimization: To identify the impact of changes to how collateral is allocated when different Asset Allocation Orders (AAO) are attributed to collateral accounts.

Workflow:

1	All collateral providers are entitled to use this functionality, which can be found on the Allocation activity tab of Collateral Central
2	The simulation is triggered via a file upload template downloaded from the Allocation activity tab. The file template is prepopulated with the latest live exposures (RQVs) but can also be amended to run hypothetical exposures. A second tab supports the inclusion of hypothetical positions, if required
3	The process is triggered by uploading the file and selecting the simulations button. Prior to submitting the file, there is the option to assume settlement on pending receipts of collateral
4	Upon completion of the simulation, users receive reporting and analytics on movements and positions unallocated report

The process runs in its own dedicated environment and so liquidity planning and projections can be done in parallel to the completion of business-critical processes.

ARTICLE SEVEN

MATI FINKELSTEIN
Associate
Product Manager

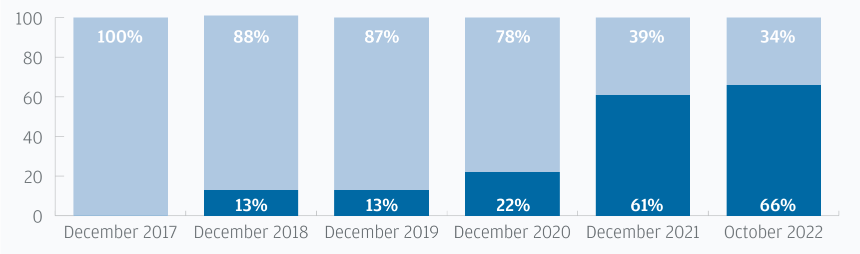
Tri-party Program Stats

With Phase 6 of SEG IM UMR now implemented, this article looks back at the entire uncleared margin rules adoption of J.P. Morgan's Tri-party solution since inception and the different dynamics seen in this space. In this review, we analyze the client types, balances and regional collateral type usage to provide a broad picture of our program.

Overall client types

With the go-live of the last two phases of SEG IM UMR in 2021 and 2022, we've seen a spike in buy-side clients using the tri-party collateral management services, tilting the balance in terms of the number of collateral providers by client type in our platform, in the SEG IM space.

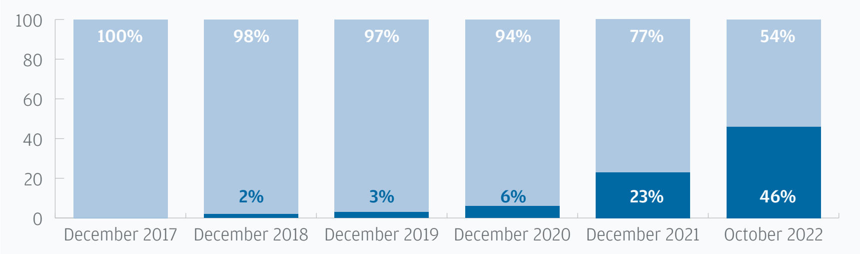
Fig. 1: Percent of distinct SEG IM Collateral Providers by segment



Source: J.P. Morgan Tri-party

Although buy-side clients outnumber sell-side collateral providers, the latter account for almost 55 percent of SEG IM balances, which is a consequence, in an earlier phase, of sell side firms having more seasoned in-scope activity and by their nature transacting much higher notional amounts that require margining.

Fig. 2: Balances of SEG IM Collateral Providers by segment

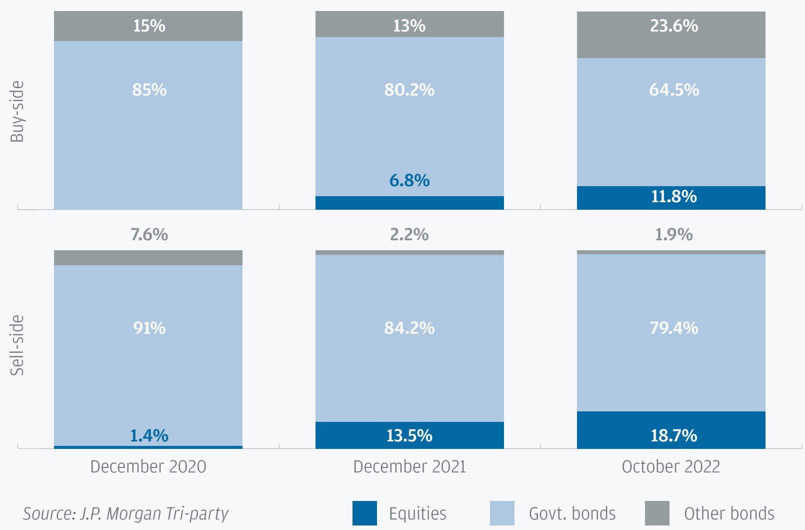


Source: J.P. Morgan Tri-party

Collateral composition

New participants have come into scope for regulatory segregated initial margin with different collateral available to satisfy margin calls and processes have become more established for the earlier phase entities. As a result, we have seen an increasing diversification in the composition of collateral posted, with equities and Non-Government bonds now accounting for a growing proportion.

Fig. 3: Composition of SEG IM Collateral Balances



Source: J.P. Morgan Tri-party

ARTICLE SEVEN

Recent Product Enhancements and Future Releases

Collateral optimization, mobilization and global availability are core to recent and future releases on Collateral Central℠.

PHIL ROSS
Vice President
Product Development

Recent Product Enhancements

Deal Processing Enhancements 2H 2022	
Description	Instruction Management System has been enhanced to provide clients with visibility of cash balances for repo transactions and to automatically recognize clients' cash payments
Users	Collateral providers and receivers
Benefits	▸ Gives clients a view into the cash balances and subsequent repo status of any in-flight deals ▸ Reduces turnaround times and automated end-to-end repo process ▸ Improved system stability and performance

Collateral Eligibility Service 2H 2022	
Description	J.P. Morgan Tri-party introduced the ability to test eligibility against the Bloomberg Security Type data point, added the Topix 1000 to our list of supported indices and made further enhancements to the export functionality and sign-off cover sheets
Users	▸ Collateral providers and receivers
Benefits	▸ Enhanced risk mitigation with support of a new data point/test and additional indices ▸ Improved client experience and usability with the export enhancements

Recent Product Enhancements *(continued)*

Optimization Reporting Enhancements 2H 2022	
Description	J.P. Morgan Tri-party enhanced the reporting available for the optimization and target state strategies based on client feedback
Users	▸ Collateral providers
Benefits	▸ Increased transparency and details of unallocated positions

Client Demand 2H 2022	
Description	Multiple enhancements made to functionality, most at the request of clients, to improve or facilitate certain processes, including: ▸ Inter-operability with the J.P. Morgan Money Market Funds (MMF) platform, allowing providers to purchase units of an MMF and make them instantly available in their long box ▸ Added client instruction reference to MT569 tri-party collateral and exposure statement ▸ Ability to differentiate between HK trades and HK Stock Connect trades
Users	▸ Collateral providers and receivers
Benefits	▸ Improved client experience

Client Reporting Enhancements 2H 2022	
Description	Multiple enhancements to improve or support certain report requirements including: ▸ Differentiation of assets held under pledge from those under transfer of title ▸ Regulatory changes to reports for Taiwanese and Korean positions ▸ Client instruction reference to complex valuation reports
Users	▸ Collateral providers and receivers
Benefits	▸ Improved client experience

Looking Ahead – Key upcoming product enhancements

Algorithm enhancements

- Core algorithm to amalgamate multiple processes and functionality into single strategy to meet all recall and account collateralization needs, with self-service components to improve the operational workflow for clients. Expanded functionality will include the ability to support multiple long boxes within a profile, mingling of internal and external allocation movements and adherence to market cut-off times
- Simulation strategy to be enhanced to mirror the new optimization and core algorithms and provide increased variables for hypothesis

Collateral eligibility service

- Additional reference data points to be added to expand eligibility testing capabilities
- Delivery of workflow improvements to further automate eligibility rule changes and improve the experience of creating schedules/rules, with a view to offering bulk capabilities

CCP Margin Exchange

- Expansion of eligible collateral beyond Euroclear and U.S.
- Establish connectivity with an external vendor that provides access to additional CCPs
- Leverage connectivity with Baton to provide access to additional CCPs

We would welcome the chance to answer any questions or discuss the topics covered with you in greater detail. Please contact your client service representative.

J.P. Morgan Tri-party Team

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