
Demystifying Collateral Optimization:

A Collection of Essays
Focused on Collateral
Optimization in the OTC
Derivatives Market

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WHAT IS COLLATERAL OPTIMIZATION?

ISDA interviewed several of its members in 2021, including representatives from buy- and sell-side firms, vendors, infrastructure providers, administrators and triparty providers. The interviews covered the following preliminary questions:

- How do you define collateral optimization?
- For end users: Do you have a collateral optimization program? If so, what are some of the challenges and benefits? If not, why?
- For vendors, infrastructure providers, administrators and triparty providers: What services do you provide and what goals and objectives are you helping your clients achieve?
- What could the industry do to promote and implement collateral optimization more widely? What could ISDA do?

When asked how they defined collateral optimization, answers from respondents included the following:

- Cheapest to deliver;
- Minimizing haircuts/optimizing collateral value;
- Capital usage, such as meeting the liquidity coverage ratio (LCR) and the comprehensive capital analysis and review (CCAR);
- Balance-sheet usage and managing liquidity guidelines;
- Considering the widest array of businesses, asset classes and geographic locations with collateral obligations;
- Managing collateral efficiencies and resources;
- Achieving the widest possible collateral scope and movement;
- Managing cash as efficiently as possible;
- Collateral management via straight-through processing;
- Reducing performance drag on clients' investments due to collateral transformation costs;
- Coordinating anticipated margin calls and collateral requirements;
- Minimizing cost and maximizing revenue;
- Rebalancing collateral requirements following initial collateral settlement transfer;
- Funding and liquidity management;
- Pre-trade decision making including portfolio risk, broker selection, execution venue and whether the trade is cleared or non-cleared.

Although the answers were broad and diverse, there was a common theme related to efficiency – whether with eligible collateral, resources, or capital and liquidity requirements.

Other themes included the need to have specific metrics or goals within a firm. Without key performance indicators (KPIs), the collateral management process is perceived as an unruly cost center. KPIs could include time spent on margin calls, settlements and substitutions, the level of performance drag due to collateral transformation costs, or the extent to which capital requirements are minimized.

Firms that have already deployed collateral optimization noted they had both dealt with cultural and reporting line challenges and looked at data standardization and transmission. Vendors and service providers highlighted the need to be agile and provide client-specific technology and services, as every firm has different collateral optimization goals and objectives, as well as data and technology limitations.

There was a clear delineation between buy- and sell-side firms. Sell-side institutions have a greater ability to take a holistic view of collateral across products, meaning they are more advanced

with their collateral optimization initiatives. In contrast, buy-side firms often have regulatory restrictions that can limit collateral optimization efforts, although advances in technology and data standardization mean some elements of collateral optimization are likely to become more common in the coming years.

Data standardization and collateral processing automation are widely identified as areas ripe for improvement – both through greater interoperability of legacy systems and innovation in the use of distributed ledger technology and tokenization.

The paper is intended to inspire firms to implement or improve collateral optimization programs and to participate in ISDA working groups to help further develop industry practices. The paper sets out various perspectives, including:

- The holistic view taken by a sell-side institution, which includes data sharing and a collaborative reporting structure;
- How a buy-side firm has evolved its use of collateral optimization, including collateral operations and legal resources;
- The role of triparty providers; and
- The needs of buy-side firms and the challenges they face.

There is currently no way for either a buy- or sell-side firm to compare its level of efficiency in collateral management or its approach to collateral optimization with its peers. ISDA consequently is working with members to develop a cost of collateral calculator that firms can use to assess their collateral operations.

Many firms suggested that industry work on eligible collateral and data standardization to decrease interoperability challenges when onboarding clients and counterparties will bring additional efficiencies. ISDA will continue to work with members and other trade associations to invest resources and develop collateral initiatives using the Common Domain Model (CDM)¹.

As part of its commitment to safe and efficient markets, ISDA will continue to support the phase-six implementation of the margin rules for non-cleared derivatives in September 2022, as well as identify opportunities for operational efficiencies and data standardization.

Amy Caruso

Head of Collateral Initiatives, ISDA

¹www.isda.org/2019/10/14/isda-common-domain-model/

A SELL-SIDE PERSPECTIVE: A HOLISTIC VIEW WITH MULTIPLE OBJECTIVES

Strong communication, collective goals and reporting structures contribute to a holistic view of collateral management, along with multiple measurable objectives

ISDA spoke to a large global bank that has a number of different perspectives on collateral optimization but one overall objective: to manage collateral efficiencies and resources effectively.

“We have one algorithm with a dial that can be adjusted depending on the output we are trying to achieve,” says the head of collateral operations at the bank.

For example, one goal of the bank is focused on its LCR. Another relates to collateral management operations and increasing the speed and automation of margin calls and settlement when posting cash. A further goal is to optimize the movement of non-cash collateral.

So, how does one firm focus on multiple objectives at the same time? With strong communication and collateral mobility.

Strong communication is the result of a team culture that encourages sharing of information and working together and is further supported by a dotted-line reporting structure between collateral operations and the collateral trading desk. The trading desk focuses specifically on collateral optimization in the triparty structure but is also tuned into over-the-counter (OTC) derivatives and exchange-traded derivatives (ETD) margin needs.

“Having one desk with one common purpose with the balance sheet solves the political challenges with inventory management,” says the head of the collateral trading desk.

Collateral mobility is the second key element and is supported by standardized data and interoperability. Not every aspect of the collateral optimization process is running at full efficiency with respect to data and operations, but “by working with triparty and utility providers and implementing innovative technology like distributed ledger and tokenization, the future has potential for vast improvements”, the head of the collateral trading desk says.

“Having one desk with one common purpose with the balance sheet solves the political challenges with inventory management”

“ISDA is ahead with the CDM, and everyone has done a little bit with centralized funding at banks,” he adds. But more can be done within the industry: “Working with triparty agents is a never-ending scheme of work.”

There has been progress made with triparty providers as a result of multiple banks asking for similar interoperability features. “The tool to best fit all financial resources and cover exposures is triparty – for security financing transactions (SFT), central counterparties (CCPs) for ETD and cleared OTC derivatives transactions, and also to meet risk-weighted asset (RWA) and LCR requirements,” the collateral trading desk head says.

Non-cleared Margin Impact

Although there are multiple resources on SFT and CCP collateral management, and on collateral optimization for capital purposes, the impact of the margin rules for non-cleared derivatives can't be ignored.

Many large global banks have been posting initial margin (IM) to each other via the triparty structure since implementation of phase one of the non-cleared margin requirements in September 2016, and the number of legal entities subject to the rules has been growing ever since.

The triparty structure allows the pledgor to fund a longbox and the triparty provider then receives the required value of the margin call, calculates any concentration and wrong-way risk limits and haircuts, and allocates the collateral to the receiver (also known as the secured party). Building on their familiarity with triparty arrangements for securities financing and repo transactions in the past, similar operational efficiencies for OTC derivatives were welcomed by phase-one banks.

Phase five of the margin rules in September 2021 captured many smaller entities that are less experienced with the triparty structure, and phase six in September 2022 will bring hundreds of additional firms into scope. These entities may use triparty providers, or they may use the other segregated custodian structure: third party. Under this framework, the pledgor instructs the third-party custodian which collateral to move to the secured party's account after the pledgor has allocated the collateral and calculated any concentration and/or wrong-way risk limits and haircuts.

For those firms that have never posted IM before and primarily used cash for variation margin (VM), posting collateral for IM can be a resource-intensive process that can increase operational, liquidity and counterparty risks if not efficiently coordinated.

However, by connecting to utilities to communicate margin calls and transfer settlements, and using triparty agents and third-party custodians to carry out the movement of collateral, this labor-intensive process can be streamlined, enabling settlements to be confirmed promptly. This, in turn, provides better data for inventory management, not only for IM for OTC derivatives, but also for other types of collateral movements, which further supports holistic collateral management.

Operations are Key

Optimizing the use of collateral can only be achieved when operations are running at optimal efficiency. For example, the collateral trading team at the large global bank used to pick up the phone and call collateral operations with details of what to post. That part of the process is now automated, reducing time and the chance of manual errors.

The bank looks at collateral operations from a cost perspective and has automated all margin calls when exchanging cash. The goal is to be 'zero touch' with both cash and securities and with initial settlements and substitutions. The bank wants to continue to industrialize the collateral process to create additional efficiencies.

KPIs

For this particular global bank, some KPIs are measured at the firm level, and some are more product- or process-specific. For example, one KPI measures resources spent on managing margin calls and collateral settlement operational issues versus resources available for projects and new initiatives.

What About the Future?

Eligible collateral representation work taking place using the CDM was identified by the bank as potentially further improving efficiency and operational processes.

“Anything with an *-ization* would be helpful, such as standardization, tokenization, digitization” to improve collateral management processing and mobility in the future, says the head of the collateral trading desk. For example, standardization and transparency via tokenization will ease decision making and flow for collateral settlement and substitutions.

Although not specifically part of the collateral mobility process, the head of collateral management operations notes that standardization of legal documentation will help with the initial negotiation process and with digitization. Using the ISDA Legal Agreement Taxonomy and Clause Library² for standardized terms and clauses, ISDA Create for online document negotiation³ and the CDM’s⁴ digital representation of legal documents can provide legal resource benefits and improved counterparty onboarding to multiple operating systems.

Going forward, the bank’s collateral optimization team is working on an operational decision-making process that can feed data and instructions to the collateral operations team, further reducing time-to-settle and counterparty risk.

² www.isda.org/2021/05/25/isda-expands-isda-clause-library-to-cover-collateral-documentation/

³ www.isda.org/2020/09/10/isda-create-infohub/

⁴ www.isda.org/2019/10/14/isda-common-domain-model/

A BUY-SIDE PERSPECTIVE: MANAGING FX AND CURRENCY RISK WHILE IMPROVING OPERATIONAL EFFICIENCIES

Eligible collateral needs and the drive for operational efficiencies influence an asset manager's evolution

An asset management firm based in the UK with funds domiciled around the globe has evolved its VM collateral management process and optimization goals since putting its first credit support annexes (CSAs) in place 14 years ago.

Originally, the CSAs covered a full range of Group-of-20 (G-20) government bonds, but also included G-4 currencies that “resulted in some foreign exchange (FX) mismatches that were not appealing to counterparties”, says the asset manager’s head of collateral operations.

In response, the asset manager opted to move to posting cash and use of the base currency, which allowed it to see all balances in a single currency. As a result, operational efficiencies were improved, and FX risk was reduced. The firm’s CSAs were updated to reflect this simpler approach to collateral, requiring legal and operational resources for the project in the short term, but providing numerous longer-term benefits.

In contrast to using cash VM for OTC derivatives, the asset manager posts bonds and cash in the base currency for cleared transactions. Returns on the cash it posts is dictated by the choice of clearing broker, with some offering higher returns than others. When posting bonds, the firm does not post 100% of its holdings, as it still wants to manage coupons and corporate actions associated with those bonds.

Operational Efficiencies

The firm coordinates collateral management and operations between the FX and collateral management operations teams. A recent improvement was made to collateral management processing by selecting a vendor to automate margin-call and eligible-collateral-affirmation communication, reducing the need for customized email communication for every margin call.

That vendor has connectivity to another vendor used for collateral management, which facilitates calculation of margin calls, preparation of the necessary data for automated margin calls and allocation of eligible collateral for each margin call – all with very little manual intervention. This reduces collateral management resources and operational risks.

KPIs

The asset manager looks at a number of KPIs at the firm-level, including missed margin call deadlines and elapsed time from when a margin call is issued/received to settlement.

What About the Future?

In order to meet the margin rules for non-cleared derivatives, the firm plans to use its holding of bonds and quasi-government bonds where suitable, providing these meet its collateral policy criteria.

For cleared transactions, the firm will expand beyond its base currency to include local currency to better meet the currency requirements of its clients. This will involve working with its in-house FX desk for any necessary trading. This change can be achieved by updating a term sheet and the VM transformation service agreement with its clearing broker.

In addition, the firm may look at improving its ETD collateral management process by posting bonds – not just cash – and using SWIFT to instruct delivery and send messages to its custodian.

TRIPARTY IS THE WORD

Traditionally used primarily for securities financing and repo, triparty providers are increasingly used for OTC derivatives as a result of the margin rules

Triparty providers are the turbo-powered engine of collateral optimization, according to various sell-side firms interviewed by ISDA. Expanding from the securities financing and repo business to IM for OTC derivatives as a result of the margin rules for non-cleared trades, triparty providers can receive data on the required value called by the secured party and then optimize collateral for allocation after eligibility checks, concentration and wrong-way risk calculations, and haircuts.

Triparty providers point out that collateral optimization can mean different things to different clients, and firms have varied collateral optimization goals and objectives. What is more, those goals can change over time. For example, a sell-side firm may be very focused on managing its LCR now, but that may become less of a priority as its inventory of collateral grows or changes.

There are many elements that influence collateral optimization for sell-side institutions, including collateral inventory availability, collateral inventory in the triparty's longbox, upcoming corporate actions, pricing/valuation of collateral and regulatory rules on concentration limits.

Agility is Necessary

As each client has a different scope of collateral optimization, triparty providers need to be agile with their offerings.

Some offer tools for clients to make allocations that the triparty provider then executes, as well as the ability to accept CUSIPS and ISINs and then run allocation technology to determine the best option for clients. "It is not the role of the triparty agent to define optimization, but to offer the tools based on what the client's metrics and goals are, along with meeting regulatory obligations. And it is not our role to control what assets to use and how to use them, but to help our clients identify types of rules they need and connect them with the necessary technology," says one representative of a triparty provider.

“It is not the role of the triparty agent to define optimization, but to offer the tools based on what the client’s metrics and goals are, along with meeting regulatory obligations”

In some cases, clients can use their own algorithms and execute movements of collateral through their triparty provider. This creates communication challenges with trade portfolio data but allows clients to look at all of their trades and triparty relationships from other geographies and have a broader perspective. This process of transmitting data to and from clients is necessary to further optimize collateral when assets need to be moved from one triparty provider to another.

Some triparty providers can receive data from other providers to create a virtual longbox. By using the triparty provider's technology, the client can have a global and holistic view of its collateral. This process requires settlement instructions to be sent back to the other triparty providers that don't provide the virtual longbox.

Pre-check eligibility tools are also available that use hypothetical trades and collateral inventory to help drive pre-trade decisions. This service allows clients to simulate different market scenarios and perform stress testing.

Still More to Develop

Although sell-side respondents identified triparty providers as crucial to executing their diverse collateral optimization objectives, they also highlighted other development opportunities, including:

- Standardizing eligible collateral representation;
- Sharing data from OTC derivatives and repo with futures and clearing teams; and
- Digitizing and tokenizing collateral.

Standardizing eligible collateral representation will improve triparty client onboarding and downstream coordination with collateral management vendor systems.

There is an opportunity for the industry to improve static data, and it would be a “win for the taking because there is no competitive advantage to taking data in [for onboarding] in multiple ways”, says the representative of another triparty provider. “It should be more seamless to mobilize collateral from one triparty provider to another” to allow clients to optimize their collateral overall, not just at each triparty provider, he adds.

“It would be good if our firm and our triparty peers all spoke the same language, such as the CDM, for the eligible collateral schedule. The closer everyone can get to the same way to describe eligible collateral with reference and data points, the better,” says a third triparty representative who focuses on product development.

Triparty providers have concentrated on non-cleared derivatives recently in response to the implementation of margin requirements, but there is also an opportunity to consider ETD and cleared OTC derivatives collateral requirements as well, expanding collateral optimization tools and algorithms to more products. Once focus shifts from compliance with the regulatory IM requirements to collateral efficiency, those firms that have not already embraced centralized collateral management may look to coordinate their collateral functions in an effort to build economies of scale across different collateralized products with their multiple custodians and triparty providers.

“The closer everyone can get to the same way to describe eligible collateral with reference and data points, the better”

To improve mobility among triparty providers for bilateral settlements and substitutions, which would positively impact counterparty risk management, triparty providers could accept and move digitized and/or tokenized collateral. Although there are still regulatory and operational issues that would need to be resolved, there are opportunities to significantly reduce the time and operational risks associated with settlements and substitutions.

Triparty providers are widely used by sell-side firms to support their diverse collateral optimization goals, and there are a variety of triparty tools and services currently available. There may be prospects for technological improvements to more efficiently onboard new accounts, transmit data with and among triparty providers, and extend eligible collateral with digitized and tokenized assets.

CAPITAL AND LIQUIDITY RATIOS, STRESS TESTS AND SURCHARGES

There are a number of ratios, stress tests and surcharges that can affect collateral optimizations objectives

Capital and liquidity ratios, stress tests and surcharges can influence collateral optimization strategies and objectives. Here are a few that are commonly referenced.

Ratios

Common Equity Tier-one Capital Ratio: The lower of:

- (i) The ratio of common equity tier-one capital to standardized total risk-weighted assets (RWAs); and
- (ii) The ratio of common equity tier-one capital to advanced approaches total RWAs.

Tier-one Capital Ratio: The lower of:

- (i) The ratio of tier-one capital to standardized total RWAs; and
- (ii) The ratio of tier-one capital to advanced approaches total RWAs.

Total Capital Ratio: The lower of:

- (i) The ratio of total capital to standardized total RWAs; and
- (ii) The ratio of advanced approaches adjusted total capital to advanced approaches total RWAs.

Leverage Ratio: The ratio of tier-one capital to average total consolidated assets as reported on the bank's regulatory report (eg, FR Y9-C) minus certain deductions from tier-one capital.

Supplementary Leverage Ratio: The simple arithmetic mean of the ratio of tier-one capital to total leverage exposure calculated as of the last day of each month in the reporting quarter.

Liquidity Coverage Ratio: The ratio of high-quality liquid assets (HQLA) as of the calculation date to total net cash outflow.

Net Stable Funding Ratio: The ratio of available stable funding as of the calculation date to required stable funding as of the calculation date.

Stress Tests

Comprehensive Capital Analysis and Review (CCAR): An annual stress test to determine the sufficiency of capital to continue operations during a period of economic and financial stress.

Recovery and Resolution Planning (RRP): Resolution Capital Execution Need: The amount of capital needed to support each material entity after bankruptcy filing in the RRP scenario.

Resolution Liquidity Adequacy and Planning: The standalone liquidity positioning of each material entity in the RRP scenario (ie, the HQLA at the material entity minus net outflows to third parties and affiliates).

Resolution Liquidity Execution Need: The liquidity needed after the parent's bankruptcy filing to stabilize the surviving material entities and to allow those entities to operate post-filing in the RRP scenario.

Surcharges

G-SIB Surcharge: An additional capital buffer applicable to the global systemically important banks (G-SIBs) that is intended to reflect the bank's systemic importance. An individual bank's G-SIB surcharge is calculated using one of two methods and is based on measurements of its size, interconnectedness, cross-jurisdictional activity, substitutability, complexity and use of short-term wholesale funding.

Stress Capital Buffer: An additional capital buffer based on each institution's CCAR stress loss results plus four quarters of dividends to help ensure maintenance of an adequate amount of loss-absorbing capital to stay above minimum regulatory requirements during stress (note: is floored at and replaces the capital conservation buffer agreed internationally).

OPPORTUNITIES FOR THE BUY SIDE

Buy-side firms are starting to focus more on collateral optimization, in part due to the continued rollout of regulatory IM requirements

When speaking to vendors, consultants, infrastructure providers and triparty agents, sell-side institutions were mentioned more than buy-side firms in the context of collateral optimization. There is already a long history of collateral optimization among the sell side.

Buy-side entities have historically managed collateral as simply as possible. Posting VM with cash or using Treasuries on hand was a relatively low-risk, low-performance drag approach to managing collateral.

Long gone are the days where a buy-side portfolio manager sent a list of Treasuries for collateral operations to use on a weekly basis. The onset of clearing regulations has added more collateral requirements to previously bilateral OTC derivatives transactions, while regulatory VM obligations and the expansion of IM rules for non-cleared derivatives have also led to changes. As a result, the demand for collateral, and the operational costs related to managing collateral, have increased for all market participants, which has led to the buy side becoming more operationally efficient and aware of managing collateral inventory.

Triparty providers say that buy-side firms have started to become more collateral-savvy – not just with what to post as collateral, but also how to profit from rehypothecation or by using eligible collateral inventory to lend to others. For example, insurance companies that had large inventories of Treasuries and corporate bonds tended to simply post Treasuries and hold the corporate bonds to maturity. Now, they are looking at ways to generate alpha from those corporate bonds by lending them and collecting a return. This requires resources and expertise, but some insurance firms are outsourcing this to agent lenders.

“The elephant in the room is that asset managers need to manage their non-cash collateral as efficiently as possible, and they need to also optimize the costs and resources to do so”

Cash preservation has been a goal of buy-side firms, and this could be managed fairly simply. The buy side doesn't have the same number of capital ratios and requirements to manage, so cash and Treasuries were the simplest and most popular options in the past. With other liquidity demands on cash, the lower interest rate environment and the segregation requirement for IM, cash is not always the easiest to post from an operational perspective and can be lent for a return when other collateral, such as corporate and quasi-government bonds, can be posted instead.

Managing Costs

“The elephant in the room is that asset managers need to manage their non-cash collateral as efficiently as possible, and they need to also optimize the costs and resources to do so,” says the representative from one triparty provider.

For firms that have not maintained a securities lending and repo desk in the past, it may not be worth starting one to generate alpha and reduce performance drag related to collateral needs.

One top 10 global asset manager (by assets under management (AUM)) based in the US is focused on operations. “Collateral optimization can be influenced by operational efficiencies. With hundreds of portfolios, the overhead and trading costs related to securities financing and repo may not be justified per fund, but, in the future, there could be collateral optimization with a Treasury-like function to serve the firm at large, and other asset managers like ours too,” says a senior specialist in global derivatives and collateral at the global asset manager.

A representative from a global hedge fund described its key objective as reducing the performance drag on the portfolio. “Ultimately, optimization is about reducing costs,” he says. The firm has predominantly posted cash for both VM and independent amount, but expects to use non-cash for IM in the future. There will then be a cost of moving collateral, both when initially settled and as a result of substitutions.

Data Transparency

A US-based pension fund says it plans to improve its collateral optimization capabilities in the future but needs greater real-time data transparency in the collateral management workflow. With an administrator managing the margin call and collateral settlement process, the firm simply uses Treasuries for collateral. However, if it could share real-time data internally and with its collateral management administrator more effectively, then the firm would use other types of securities as well as Treasuries for collateral and use a portion of its Treasury inventory for securities lending to generate revenue and contribute to performance of the fund.

Similarly, a global administrator stresses the importance of data accessibility and normalization from various parts of a client’s firm, such as repo, securities lending and settlements, so the administrator can manage collateral requirements as efficiently as possible. Data is especially important to determine which assets are can generate revenue via securities financing transactions and therefore should not be used as collateral.

“There are many challenges, including systems that are separate for securities lending, repo and OTC derivatives/ETD collateral management,” says one operations leader at a global asset manager. “Those systems need to collate data in one place, and the normalization process can get really complicated very fast.”

Operational Efficiencies

A collateral optimization vendor stresses the importance of collateral management automation. For example, a post-trade optimization algorithm may identify a group of securities to substitute as collateral, but, if the operations process is manual, then the potential benefits may be outweighed by resource costs and operational burdens.

Gathering normalized data from collateral settlements also benefits the collateral optimization process, as stale data will not result in a timely analysis for pre-trade or post-trade optimization exercises.

Nuances of the Buy Side

Unlike sell-side firms, the buy side has to consider many additional structural, operational and regulatory challenges that can influence collateral management decisions. Some examples include:

- The client, rather than the asset manager or collateral management administrator, chooses the custodian structure (see Table A) and the specific custodian.

- A separately managed account client may also have an administrator to manage collateral across multiple asset managers.
- An asset manager must ensure no single fund is benefitting more than another – for example, with allocations of trades or when generating revenue from securities lending and repo.

Table A: Triparty Versus Third-party Structure

	Triparty	Third party
Segregation	✓	✓
Safekeeping	✓	✓
Verification of eligible collateral, concentration limits	✓	
Collateral valuation	✓	
Reporting	✓	✓
Default management	✓	✓
Funded from longbox, requiring additional account	✓	
Funded from current account		✓

Is Now the Time?

Given the continued rollout of margin requirements for non-cleared derivatives and increased demand for collateral, it might seem an ideal time for buy-side firms to implement collateral optimization programs. Not everyone agrees with that, however, “Pension plans, sovereign wealth funds and insurance companies have the biggest problem of collateral optimization because nothing has gone wrong. The [volatility and liquidity] issues in March and April 2020 were manageable. While there are vendors that can help, there hasn’t been a huge need for optimization. More pressure – either regulatory or economic – would move the needle,” says one industry expert.

Influenced by COVID-19 restrictions and working from home, some firms have begun implementing operational efficiencies and margin call and settlement automation, which are important steps to building a data-driven and real-time collateral optimization program.

Having an industry metric that can be used by a buy-side senior manager to compare to internal measures could help drive further action. Although not specific to the buy side, ISDA is working with members to develop a cost of collateral calculator to help benchmark firms against their peers based on cost of collateral by percentage of collateral posted and cost of collateral by percentage of AUM.

INCREASED COLLATERAL DEMANDS: COST OF COLLATERAL

ISDA Margin Survey data shows increased IM and VM being posted to the largest dealers

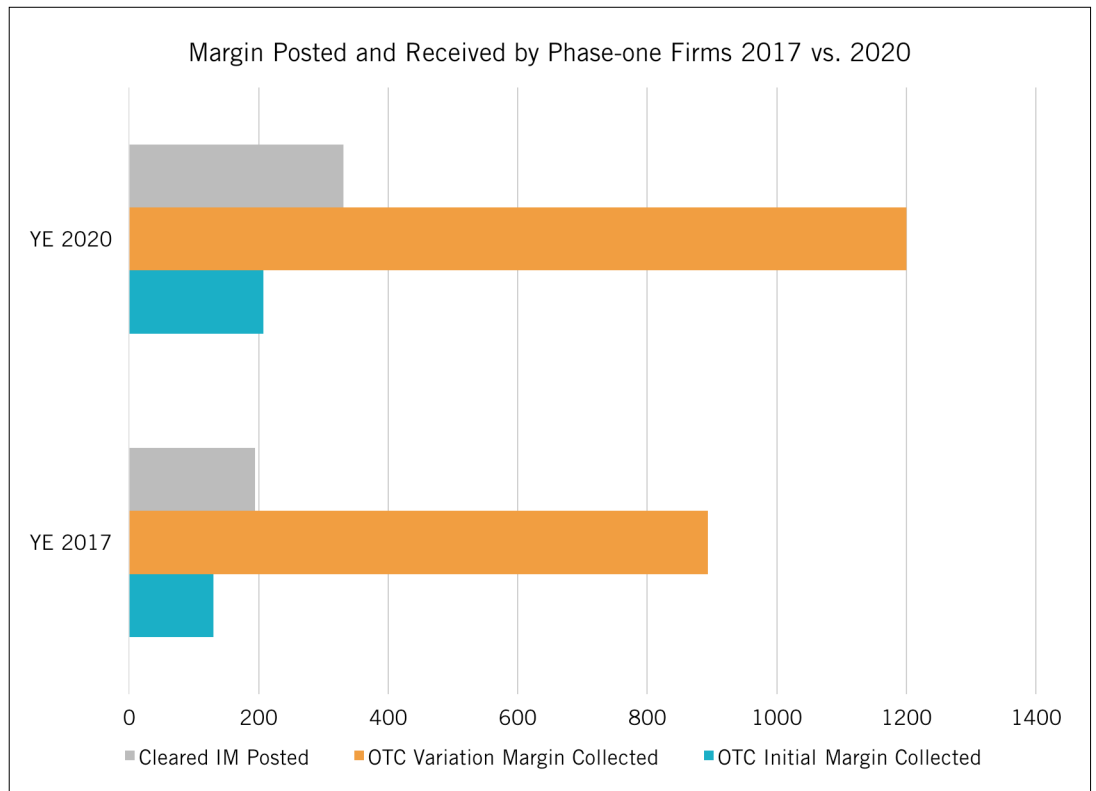
Demand for collateral has increased considerably over the past five years. As a result, the need to be more efficient with eligible collateral and the processing of collateral has become imperative.

At the end of 2017, the 20 largest market participants (phase-one firms under the margin rules for non-cleared derivatives) collected \$130.6 billion of IM for their non-cleared derivatives transactions. At the end of 2020⁵, those firms collected approximately \$207.3 billion of IM (see Chart 1).

At the end of 2017, phase-one firms collected \$893.7 billion of VM compared to \$1.2 trillion of VM collected at the end of 2020.

Margin increases have not just occurred in the non-cleared derivatives space. At the end of 2017, \$194.1 billion in IM was posted by all market participants to major CCPs for their cleared interest rate derivatives and credit default swap transactions. This compares to \$330.6 billion at the end of 2020.

Chart 1: Margin Posted and Received by Phase-one Firms 2017 vs. 2020



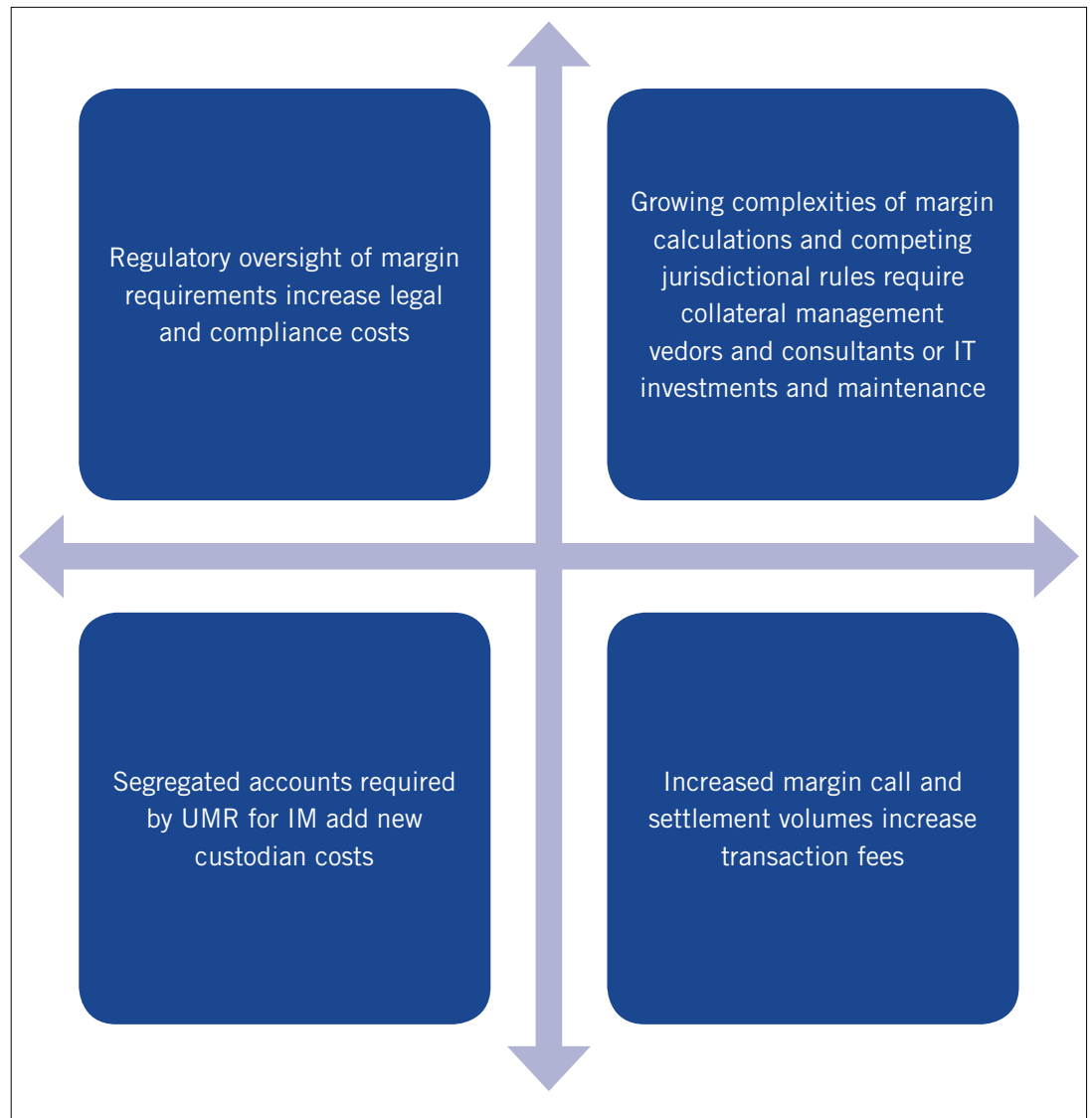
Source: ISDA Margin Survey

⁵ ISDA Margin Survey Year-End 2020

Impact on Operations

With the rising demand for collateral, operational costs and resources have increased as well. Some of the increased or new expenses are set out in Chart 2.

Chart 2: Increased Costs for Collateral Management



ISDA'S DATA AND DIGITAL STRATEGY

ISDA is focused on standardization, digitization of those standards and distribution via multiple platforms

ISDA's data and digital strategy fosters technological innovation that will reduce costs and decrease risk by removing complexity and operational redundancy. Key aspects of the derivatives documentation and trade and post-trade workflow that can be shaped by ISDA solutions include:

- Legal documentation negotiation;
- Smart contracts;
- Post-trade processing;
- Regulatory compliance;
- Regulatory reporting;
- Collateral management; and
- Counterparty risk management.

The ISDA data and digital strategy focuses on three steps:

- Standardize by developing common standards;
- Digitize by integrating standards into digital documentation and representations;
- Distribute by providing standards for the industry to implement automated and interoperable solutions.

The three components of this strategy are illustrated in Chart 3.

Chart 3: ISDA's Data and Digital Strategy



The Legal Agreement Taxonomy and Clause Library work is the precursor for all collateral management and documentation value propositions listed in Table B, providing the necessary foundation for both ISDA Create and the CDM.

Table B: Benefits of ISDA Create and the CDM

Value Proposition	ISDA Create	CDM
Enhances counterparty onboarding experience by reducing negotiation friction	✓	✓
Simplifies legal document negotiation process	✓	
Streamlines counterparty onboarding process and reduces time to trade/hedge	✓	✓
Improves counterparty risk management	✓	✓
Reduces collateral disputes	✓	✓
Informs automated margin and collateral process		✓
Decreases settlement risk and timing		✓
Advances contract amendment processing	✓	✓
Produces auditable data	✓	✓
Standardize margin calculations and product-related outcomes, i.e interest payments		✓
Standardize preparation of data, such as CRIF or capital calculations		✓

ISDA and its members are implementing these three solutions in a variety of use cases, including:

- Collateral documentation and streamlining onboarding;
- Eligible collateral representation;
- Automating operational workflows: Net asset value decline clauses; and
- Automating operational workflows: Margin call and settlement.

To learn more about ISDA's data and digital strategy and how this can help collateral management operations, please contact **Amy Caruso** at acaruso@isda.org.

ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has over 960 member institutions from 78 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In

addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on [Twitter](#), [LinkedIn](#), [Facebook](#) and [YouTube](#).