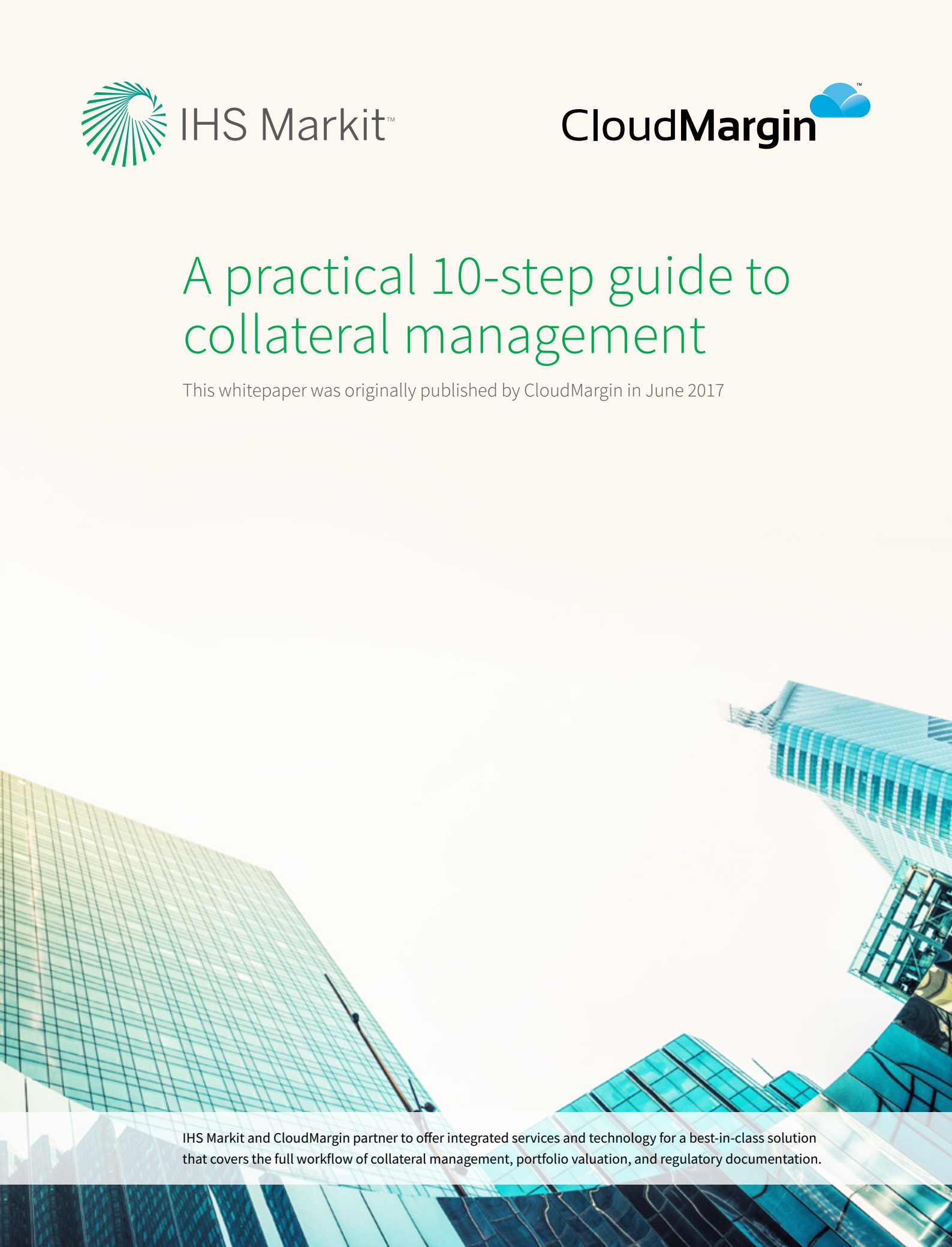




A practical 10-step guide to collateral management

This whitepaper was originally published by CloudMargin in June 2017

A low-angle, upward-looking photograph of several modern skyscrapers with glass facades, rendered in a teal and blue color palette. The buildings are partially obscured by a white semi-transparent banner at the bottom.

IHS Markit and CloudMargin partner to offer integrated services and technology for a best-in-class solution that covers the full workflow of collateral management, portfolio valuation, and regulatory documentation.

Introduction

Traditionally, financial institutions viewed collateral management not as a necessity but as something that had to be performed with little concern, a reactive function positioned at the culmination of the trading cycle that didn't require too much attention or thought. For many years, collateral's 'risk exchange' function has been, conceptually at least, well understood in the financial markets - albeit a process that was not a priority for firms pre-2008.

The 2008 financial crisis and the years following have had an unprecedented and drastic impact on the perception of collateral management and the importance of its operations. Unsurprisingly, regulatory changes have come hand in hand with the credit crisis to prevent a similar scenario developing again - mandating the use of collateral for virtually all market participants and penalizing anyone unable to comply.



The most recent regulatory change to rock the industry was the March 1 variation margin deadline for uncleared derivatives. From March 1st 2017, almost everyone trading uncleared over-the-counter (OTC) derivatives now has to calculate variation margin, determine if a collateral movement is required and send or receive a collateral payment. What's more, this process is now required every day.

This applies to all OTC derivatives and therefore captures those FX non-deliverable forwards (NDFs) that have not traditionally been collateralized. If you also consider that eligible OTC derivatives are now mandated for central clearing, it is a safe estimate that the number of margin calls you will have to calculate and make will increase by approximately 500%.

This is just one example of regulatory upheaval within the industry. Other observations include use of trade repositories, Basel III capital charges and a change of internal counterparty credit risk management practices, to name but a few.

Clearly, the level of visibility and scrutiny that collateral management is now facing means that firms need to know that the data they are receiving is without doubt correct and that they are indeed covered from any

exposure that may occur. By no means last, it is also imperative that firms understand the regulations that are impacting their business and then act appropriately to ensure the proper process is in place to execute those obligations efficiently.

As the role of collateral grows in your organization in terms of relevance, time and cost, it is increasingly important to take full control of your collateral management program, irrespective of company size or traded instrument. With this in mind, CloudMargin has produced this white paper outlining the basics of collateral management in a complete, easy-to-digest, practical 10-Step Guide.

This Practical Guide to Collateral Management white paper will cover all fundamental aspects concerning the management of collateral, the associated risks and opportunities, as well as the key topics involved in establishing and running a collateral management function.





1. What is Collateral Management?

Collateral management is the process of two parties exchanging assets in order to reduce credit risk associated with any unsecured financial transactions between them. Such counterparties include banks, broker-dealers, insurance companies, hedge funds, pension funds, asset managers and large corporations. The fundamental idea of collateral management is very simple: cash, securities or other instruments such as bonds and equities are passed from one counterparty to another as security for a credit exposure.

Any two parties trading financial instruments that give rise to future cash flows, such as OTC derivatives, run the risk that one of the parties to the trade may default on a future payment, leaving the non-defaulting party with a financial loss. On any given day, the party required to post collateral to the other is determined by calculating the net present value (NPV) of all future cash flows for each open trade or transaction.

We typically discuss collateral in terms of variation margin (VM) and initial margin (IM). Whilst both are collateral, they serve different purposes.

Variation Margin

The mark-to-market value (unrealized profit/loss) of a portfolio. Upon default these securities are used by the solvent entity to avoid immediate loss

Initial Margin

The sum of money that could conceivably be lost over a defined period, post a default. The period is defined by regulation and differ by instrument from 1 day to 20 days or more

Below is a standard OTC derivative collateral transaction between two parties.

1

The two parties negotiate and execute a Credit Support Annex (CSA). This contains the terms and conditions under which collateralization will take place and is an annex to the ISDA (International Swaps and Derivatives Association) Master Agreement.

4

As prices move and new deals are added, the valuation of the trade portfolio will change.

2

The trades subject to the collateral agreement are regularly marked-to-market (MTM). Their net valuation is then agreed.

5

Depending on what is agreed, the valuation is repeated at frequent intervals - typically daily under the new regulations.

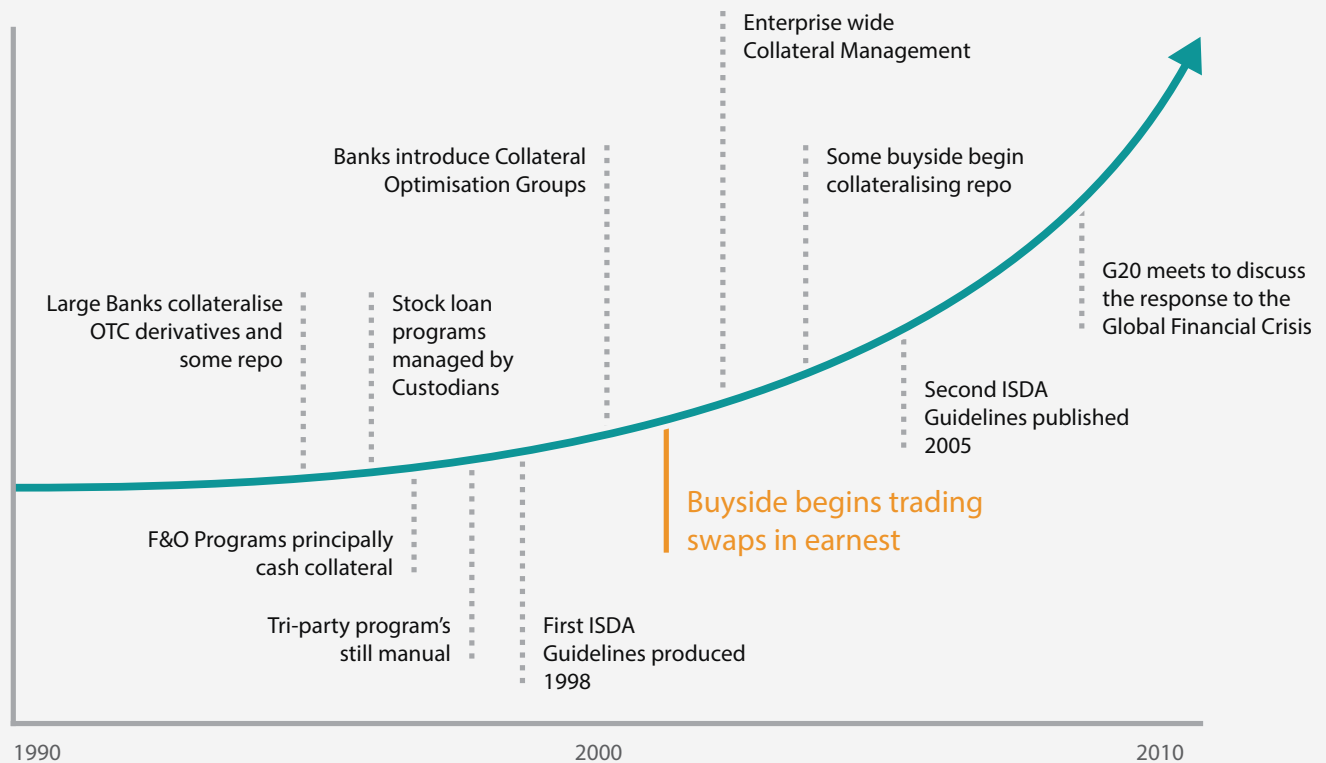
3

The party with the negative MTM on the trade portfolio delivers collateral to the party with the positive MTM.

6

The collateral position is then adjusted to reflect the new valuation. The process continues unless one of the parties defaults.

When collateral management was first introduced in the 1980s, operational and treasury departments within various institutions carried out this risk management function unobtrusively in the background.



This business function was thrown into the limelight with the shattering financial market crash of 2008. The crisis caused treasury and operational departments to be hauled to the front end of businesses, coming under scrutiny and evaluation like never before. It is no secret that market participants now need to face up to the harsh reality of onerous changes and restrictive, time-consuming regulations, seeing the way in which they operate impacted greatly. For example, firms now need to provide in-depth reports to meet the requirement for transparency set upon them by a number of regulatory constraints, such as the March 1 Variation Margin rules for uncleared OTC derivatives, which prompted the largest repapering exercise of legal documents the industry has ever witnessed.

The financial industry has evolved dramatically in just the last 10 years, and as a result, collateral management can become a seemingly complex process with interrelated functions involving multiple parties.

The multitude of functions include repos, tri-party, collateral outsourcing, collateral arbitrage, collateral tax treatment, cross-border collateralization, credit risk, counterparty credit limits and enhanced legal protections using ISDA collateral agreements.

2. Collateral Management Glossary

The terms and acronyms used within the collateral management world are vast, and can often confuse the most experienced collateral 'guru'. Listed below are the most essential terms that will allow you to better understand collateral management, and the processes it involves.

Credit Support Annex (CSA): A legal agreement which sets forth the terms and conditions of the credit arrangements between the counterparties.

Over-the-Counter (OTC): The over-the-counter derivatives market refers to a marketplace that is conducted off-exchange. These derivatives are privately negotiated between two parties, compared to listed derivatives traded through an established exchange or other intermediary. (Listed derivatives would include futures and options.)

Base Currency: The currency set out within the CSA that will be used in all collateral transactions between the counterparties, unless otherwise stated.

Initial Margin (IM): The sum of money that could conceivably be lost over a defined period, post a default. The period is defined by regulation and differs by instrument from 1 day to 20 days or more.

Variation Margin (VM): The mark-to-market value (unrealized profit/loss) of a portfolio. Upon default these securities are used by the solvent entity to avoid immediate loss.

Margin Call: A request made by the party with a net positive gain to their counterparty to post additional collateral to offset credit risk prior to the expiration of the terms of the contract.

Mark to Market (MTM): Currency valuation of a trade, security or portfolio based on available comparative trade prices in the open market within a stated time frame. MTM does not take into account any price slippage or liquidity effect that might occur from exiting the deal in the open market, but uses the same or similar transaction prices as indicators of value.

Independent Amount: An additional amount, which is paid above the mark-to-market value of the trade or portfolio. The Independent Amount is required to offset the potential future exposure or credit risk between margin call calculation periods.

Threshold Amount: The amount of unsecured credit risk that two counterparties are willing to accept before a collateral demand will be made. The counterparties typically agree to a Threshold Amount prior to dealing, and it will be set out within the CSA.

Minimum Transfer Amount (MTA): The smallest amount of currency value that is allowable for transfer as collateral.

Haircut: A percentage applied to the mark-to-market value of collateral, which reduces its value for collateralization purposes. The haircut, also known as the Valuation Percentage, protects the collateral taker from drops in the collateral's value between margin call periods.

3. What type of firms need to have a function in place to collateralize trading?

Virtually all firms that have access to the financial markets either directly or indirectly, and are trading a financial instrument with a counterparty, will need to have a system in place to facilitate managing their collateral obligations.

Whilst the sellside and buy-side all now manage collateral, they view the associated challenges very differently; up until the early 2000s, the buy-side did not materially manage collateral at all whilst the larger banks have always been at the forefront of collateral developments and have better understood the reasons to carry out this risk function.

However, the new regulations coming into play are explicitly designed to expand the use of collateral, increasing the frequency of assessment and maximizing the values of collateral exchanged, and will have an especially large impact on the buy-side and its operations – most notably the inclusion of foreign exchange (FX) (non-deliverable 1st March 2017/ deliverable 1st January 2018).

Clearly, the catalogue of financial firms needing to effectively manage their collateral is vast, but below is a sampling of the types of firms that have a need for such a function within their operations:

- Asset Managers
- Hedge Funds
- Pension Funds
- Insurers
- Corporates
- Buy-side Banks
- Sell-side Institutions

Within these firms, markets that are widely collateralized include:

- Repo Markets
- TBA Trading
- Exchange-Traded Futures and Options
- Swaps
- OTC Derivatives – both cleared and bilateral
- Securities Lending
- FX Margining

It is fitting to point out that it is not just hedge funds and other sophisticated investors that are involved within the collateral management world. Any multinational company, small or large, that trades in a variety of currencies may want to hedge its currency exposures, giving rise to the need for collateral management.

4. Why do firms need to collateralize their trading activities?



The overwhelming drive for the use of collateral is to provide security against the possibility of payment default by the opposing party in a trade. An ISDA 2015 report states, “Credit risk exists whenever a firm has a relationship in which a counterparty has an obligation to make payments or deliveries in the future. There are a number of ways of addressing the credit risk arising from a derivatives transaction, but the use of collateral has long been established as an effective means of mitigation”. It is now customary that firms do not trade with counterparties without collateral agreements.

Prior to the demise of Lehman Brothers in 2008, large banks often required collateral only for smaller or riskier customers (such as hedge funds or niche brokers), under the assumption that other large banks would rarely default on their obligations. The financial world now knows this not to be the case, and with the dramatic increased leverage built into the financial system through derivatives and securitized pools, collateralization is now mandatory between almost all counterparties.

A series of crises has tested collateral programs over the years and saved many institutions from major losses. Below is a list of the insolvencies and crises which have tested collateral programs over the last 30 years alone.

1990s

- Bank of Credit and Commerce International (BCCI)
- Drexel Burnham Lambert
- Baring Securities
- Orange County, California
- Long-Term Capital Management (LTCM)

- Russian Sovereign Debt Default (the first one)
- Asian Financial Crisis

2000s

- Argentinian Debt Default (the first one)
- Enron
- WorldCom
- Global Financial Crisis

There are also other motivations as to why parties would collateralize their trading activities with their counterparties:

- Reduction of exposure in order to do more business with each other when credit limits are under pressure.
- Possibility to achieve regulatory capital savings by transferring or pledging eligible assets.
- Ability to trade with firms whose credit rating would prohibit uncollateralized trading.

More and more firms are collateralizing their trades due to the new regulatory landscape in which they now operate. It is not a case of wanting to collateralize their trades; they are now mandated to do so.

These regulatory constraints have elicited a rise in central clearing for OTC derivatives, use of trade repositories, tightening eligibility criteria, Basel III capital charges and a change of internal counterparty credit risk management practices. All types of firms conducting these important transactions must now ensure they are meeting their new regulatory obligations in regard to collateral management.

5. What types of assets are eligible to be pledged as collateral?

There are a variety of assets eligible to be pledged as collateral, however within OTC derivatives, the primary asset pledged as collateral is Cash or government bonds. In its annual Margin Survey, ISDA stated that cash accounted for approximately three quarters of all collateral pledged and received in 2014. The remaining quarter consisted of securities, a vast majority of which were government bonds (also known as sovereign debt).

Cash as collateral has a number of attractive traits. It is easy to value, easy to transfer and very easy to hold. Cash is also exceptionally easy to 'rehypothecate'. Rehypothecation is the process whereby collateral received by one party is re-used by them where they have a collateral obligation with another counterparty. This is especially common for OTC derivative transactions.

Theoretically, anything can be used as collateral as long as it is contractually agreed within your collateral legal documentation. However, cash and government bonds are usually favorable to use as collateral. Their low volatility and high security is the primary reason these assets are favored as collateral against OTC derivatives.



6. What are the advantages of collateral management?

In tandem with the use of OTC derivatives, collateral management has grown in importance over time. In the 1990s it was limited to only the very largest institutions with large thresholds, ensuring a limited number of collateral movements.

Between 2000 and 2008, as asset managers began to use swaps in far greater numbers, the use of collateral 'percolated' through to the buy-side. In addition, market conventions and utilities were developed to facilitate the process of exchanging margin in the OTC markets.

The 2008 financial crisis and the years following have served to both further enhance the importance of collateral as a risk mitigation tool and highlight the risks associated with managing collateral poorly.

The primary (and most obvious) advantage to firms with a collateral management function in place is the **mitigation of credit risk**. In this regard, collateral held protects against the negative impact of counterparty defaults where it acts as a buffer against incurring a loss at the point of insolvency.

Another advantage to firms collateralizing their trades is providing them **access to markets or counterparties that would otherwise be unreachable**. In certain instances, the introduction of collateral enables counterparties to execute transactions in markets or illiquid instruments which otherwise would not be possible.

Lastly, the process of exchanging margin with counterparties often provides a method by which firms can **validate their portfolios**. The very act of collateralizing, and the resulting disputes that may potentially arise, can often shed light on errors or differences between portfolios of transactions as they are recorded in the books of each institution.



7. Challenges impacting collateral management

The 2008 recession and the intervening years have significantly altered the perception of the importance of collateral management (although most collateral experts would contend that the actual importance of the discipline has remained unchanged!). This change in perspective is, in part, a function of the increased use of margining as new regulations prompt institutions of all sizes to use more collateral as a means of reducing counterparty credit risk and, by doing so, contributing to the overall stability of the financial markets.

Maintaining compliance with **new regulations** is the key challenge impacting collateral management today. Efforts to maintain compliance place increased pressure on the day-to-day workflow of asset managers. Errors can be costly both in terms of fines as well as the lasting reputational damage that non-compliance may create.

This shifting landscape creates challenges for those asset managers who have never before had a structured collateral operation, often employing a more ad hoc approach to margin call processes. For all but the smallest institutions, any response needs also to take into account the variance in regulation over multiple jurisdictions, where even the smallest differences can prompt vastly distinct requirements in the longer term.

Unsurprisingly, the implementation of new regulations – most recently the uncleared margin regulation in March 2017 – has affected the business model of virtually every financial institution globally. Where the pre-crisis period is often defined in terms of the investment made in front-office systems, the post-crisis period is increasingly defined in terms of changes to operations processes and platforms due to a very significant **increase in workload**. This response can be attributed to a demand for increased automation to both reduce risk and, critically, return profitability to somewhere near pre-crisis levels where possible.

This leads inevitably to the third challenge facing market participants: **An increase in cost**. Increased regulation

and increased cost have become virtually synonymous. Many firms, however, are obliged to prioritize their systems development response based on the limited resources they have available.

Specific to collateral management, the starting point for many institutions is a very low base. Where spreadsheets are employed as the primary means of managing collateral, any attempts to collate, validate and automate data often require a very significant systems build to create the necessary infrastructure.

In summary, the evolving regulations have created a new operating paradigm, altering the manner in which collateral is managed in a number of different ways, as outlined below:

- **Value** – The monetary values of collateral in circulation will materially grow over the next one to three years.
- **Complexity** – The number of counterparties with whom firms interact will increase, and there will be a broader range of securities used as collateral, all whilst using different collateral models and operating in different jurisdictions.
- **Risk** – Collateral management as an exercise will become riskier:
 - Operational – Increased frequency and value of movements
 - Operational – Increase in number of locations where collateral is held/managed
 - Liquidity – Market volatility may materially alter the value of IM required
 - Legal – New legal agreements required for cleared OTC derivatives and non-cleared IM
- **Cost** – All of the above considerations will materially alter the cost (and opportunity!) of managing collateral

8. The future of collateral management?

Looking ahead to the not too distant future, the industry is certainly set for a further wave of challenges and change. We already know that collateral movements have increased significantly in terms of frequency and value. The impact of this increase in usage will be felt beyond the immediate users of these instruments to include also end users (all of us as pensioners!) as capital and financing costs for these transactions increase.

In common with all that we do in financial markets, collateral management clearly needs to evolve to keep up with the continuous stream of regulatory change. Many believe we will see a gradual shift, as we have already witnessed over the last five years, rather than any material industry-wide change achieved in a short period of time. This said, prominent themes are already starting to appear from this gradual industry shift.

Collateral-related themes developing within the buy-side include the below:

- Collateral is becoming “a front-office discipline” with the demand for pre-trade analytics and stress testing of IM increasing as new regulations are implemented.
- Possible migration to use of more exchange-traded derivatives (ETDs): The ‘futurization’ of swaps
- Reduction in hedging – Where swap costs are too great
- Demand for greater protection of margin – central counterparty clearing (CCP) direct delivery models
- Acknowledgement that there are real benefits from closely managing collateral – Series of themes all captured under the ‘Optimization’ banner
- Exempt but not immune – Understanding that simply because an institution is not captured by a regulation does not mean it is immune from its impact

With higher risks associated with collateral, firms are now seeking to manage the flow of collateral and its balance sheet utilization in a more efficient way. This means collateral optimization is becoming more prevalent, although still in its early stages, within the industry.

Fleming Europe defines the objective of collateral optimization as, “At its heart...to achieve the ‘optimal’ allocation of assets against requirements whilst satisfying a set of constraints. These constraints may

be hard rules (for example eligibility, re-hypothecation rules or concentration limits) or other soft factors such as operational limits on the number of movements you can physically process.”

Although collateral optimization is still in its infancy, we have already seen an operational focus shift, from simple prioritization ‘waterfalls’ to an emphasis on sophisticated optimization algorithms. Given this altered emphasis, many firms are starting to actively manage collateral as a financial resource, demanding technology that allows them to effectively manage and optimize their assets as their collateral balances (and liabilities) grow.

A demand for greater automation is another key topic within the industry. Many firms are searching for a solution that offers them a collated, visualized view of their collateral pools whilst replacing the slow error-prone and inefficient exchange of emails and copying and pasting of data into spreadsheets. In these instances, greater automation could simply mean migrating from managing their collateral on a spreadsheet to outsourcing to a functionally rich, highly automated software-as-a-service (SaaS) solution that has out-of-the-box connectivity to market infrastructure.

For the larger institutions, such as sellside banks, this demand for automation is predicated upon their historical technical investments in various industry utilities to maximize straight-through processing (STP). Where their counterparties have similar functionality, these investments can reduce both cost and operational risk across their global client base.

Irrespective of the underlying institution, **the demand for an effective, yet affordable collateral management platform** remains for many a high priority. The landscape is somewhat ‘confused,’ however, as competing agendas (typically from different providers) serve to complicate what is fundamentally a very simple dynamic with a relatively straightforward solution. We urge ALL users of collateral to review ALL options when considering how to tackle their collateral management headaches as certain solutions were designed as responses to pre-crisis, collateral related problem statements, not those issues we are facing today.

9. Collateral Management 'Checklist'

A complete, efficient collateral management function within any organization involves a variety of business processes and departments.

Every single business process involved within the management of collateral needs to have the correct business plan, technology, skills and processes in place to manage their workload effectively and efficiently. Below is a collateral management checklist for all departments involved in the process:

1. The right technology

The demands of regulatory changes needn't be a hindrance on operational departments if they equip themselves with the right technology to tackle the challenges head on. To follow, it is important to have a solution in place that is not only fit for purpose, but agile, flexible and able to easily navigate the changes prompted by new regulations.

Therefore, the right technology should include:

- Links into market infrastructure
- Frequent, low-touch updates of the system with zero client impact
- Rapid deployment
- An intuitive UI (User interface) that meets the needs of the various individuals involved across departments as well as operational and risk management processes.

2. A knowledgeable workforce

Nothing can be achieved without people! Clearly, though, it is also important to have a workforce with the right skills in place for any business process, especially one as critical as the management of collateral.

The disciplines/roles that comprise end-to-end collateral management processes include:

- A Collateral Manager: Operations, relationship management, regulatory/ legal skills
- A Credit Manager: Credit analysis skills
- A Valuation Specialist: Valuation, simulation tools, research, mathematics or financial engineering skills
- Accounting Manager

3. Legal agreements

Legal agreements are clearly integral to most business functions including collateral management. However, certain legal documents need to be in place before collateral is exchanged between any given entities.

Below is a list of considerations/legal agreements that should be considered and/or need to be in place before collateral can be pledged or received:

- Key Factors: Correct form, accurate, comprehensive, enforceable Collateral Agreements (See ISDA, UK, Europe, Asia authorities)
- Credit Support Annex (CSA)
 - New York Law (pledge) = used by 54%
 - English Law (transfer) = used by 22%
 - English Law (deed) = used by < 1%
 - 2003 ISDA Collateral Asset Definitions
- Margin Agreement
- Tri-party Agreements
- Document management processes and systems

4. Reliable processes

Having reliable processes with a collateral management function comes down to having the right resources and solutions in place that are fit for purpose. An effective collateral management team will have a process in place that allows them to achieve a variety of objectives:

- Drastically reduce the need for manual intervention
- Replace email
- Replace fax
- Replace copying and pasting of data into spreadsheets
- A collated, visualized view of collateral pools
- A solution that includes an intuitive workflow design
- Highly automated
- A solution that includes process oversight / control: fully documented, approval processes

10. CloudMargin and IHS Markit

CloudMargin and IHS Markit offer functionally rich, highly automated, web-based collateral and margin management solutions that address inefficiencies within collateral management that the industry is currently facing. We offer a comprehensive, end-to-end workflow solution for collateral and trade life cycle management, which addresses documentation, valuations, trade processing and margin requirements.

The CloudMargin solution is simple to implement but embodies an enhanced workflow management tool that facilitates the centralization of all collateral activity, irrespective of instrument or asset class, in a highly automated, highly scalable, robust and risk managed environment.

IHS Markit enables better integration with the full asset trade lifecycle through additional tools for documentation, trade processing and valuation. Support for tax and regulatory documentation, post-trade affirmations via MarkitSERV and valuations for OTC derivatives and other assets through Portfolio Valuations feed directly into IHS Markit's Collateral Manager solution. CloudMargin provides technology and customer services to support the collateral management features of the product.



About IHS Markit

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