2014 COLLATERAL SURVEY RESULTS

Sapient® Global Markets

INTRODUCTION

Collateral management is an area of intense focus for all market participants with countless blogs, articles, whitepapers and surveys driving public discussion on this topic. All have the same intent—to assess the impact of changes in legislation, especially in the derivative markets, and the resulting increased use of collateral.

In March of 2014, Sapient Global Markets conducted an in-depth Collateral Survey to understand how firms are managing and processing collateral—and, ultimately, to provide the information they need to do so more efficiently. The survey addressed many different aspects of collateral management, including market view and strategy, collateral and dispute management, IT infrastructure and architecture, as well as processing and efficiency.

The survey covered a wide range of firms across the globe, including: banks, buy-side firms, CCPs and custodians in North America, the U.K. and the GSA area (Germany, Switzerland and Austria). Over 47 percent of the firms we asked to participate completed the survey. The database included responses from 40 participants. Please note that while overall results are regarded as representative, the breakdowns might be biased in some cirumstances due to small-sized peer groups and/or regions. Thus, we recommend viewing these results as more of a recognized trend rather than concluding evidence.

In this report, we present a summary and analysis of the key findings, along with trends and market expectations in the collateral space from a variety of perspectives. We believe the information provided can help firms identify opportunities for additional business, develop more effective strategies for collateral management and explore ways to increase efficiencies.

This report includes an introduction, summary of the results, key findings and a conclusion. The results summary focuses mainly on presenting the overall responses rather than providing specific breakdowns. The key findings section contains our analysis of the results and discusses seven key points that we consider to be relevant for market participants. The report closes with a conclusion highlighting the most relevant aspects of the survey.

RESULTS SUMMARY

The survey covered a wide range of topics around collateral management, including availability, the impact of regulations and market changes, strategies, dispute management and systems.

Collateral Availability

When asked about collateral availability in the future, the majority of survey participants strongly agree that regulatory requirements will have a significant impact on collateral. The majority of the respondents believe that collateral will not become a bottleneck in their institutions; however, many feel it will become an issue for other institutions.

Two thirds of respondents agree that re-hypothecation is important to their firm and nearly all respondents (98 percent) agree the cost of collateral will rise in the future.

Regulatory Impact

With regard to the impact regulations will have on the future of the OTC market, the majority of respondents (95 percent) expect the amount of OTC clients with collateral agreements to increase, as well as the amount of daily collateral calls. Additionally, over half expect disputes to significantly increase as a result of new participants in the collateral space.

Over one quarter of respondents expect to qualify for the proposed BCBS-IOSCO bilateral margin thresholds by the end of December 2015, while another approximately one third expect to qualify sometime after December 2017.

Market Change

Given the changes in the collateral market, less than half (45 percent) of survey participants strongly agree that their institutions have efficient processes for collateral management and are well prepared for future challenges. Almost all respondents believe other institutions are unprepared and need to make significant improvements to their collateral management processes.

Over half (58 percent) of the participants completely agree that changing regulations are the main driver for the transformation in the collateral space, while 43 percent agree that efficiency improvements are their primary focus. In contrast, only 23 percent agree that changes in their business models are the main driver. Additionally, 59 percent of respondents agree that new business models are required to support the new regulatory environment.

How Will Regulations Impact the OTC Market?

95% expect number of OTC clients with collateral agreements will increase

95% believe daily collateral calls will increase

69% expect disputes to significantly increase

RESULTS SUMMARY
continued

Collateral Management Strategy

Currently, 43 percent of participating buy-side firms indicate they are using an external collateral manager, since outsourcing can help firms to become compliant and can reduce the cost of collateral management. Almost half have plans to offer collateral management as a service to their clients, mainly investment and universal banks. More than 70 percent of buy-side firms are considering outsourcing as a collateral management strategy.

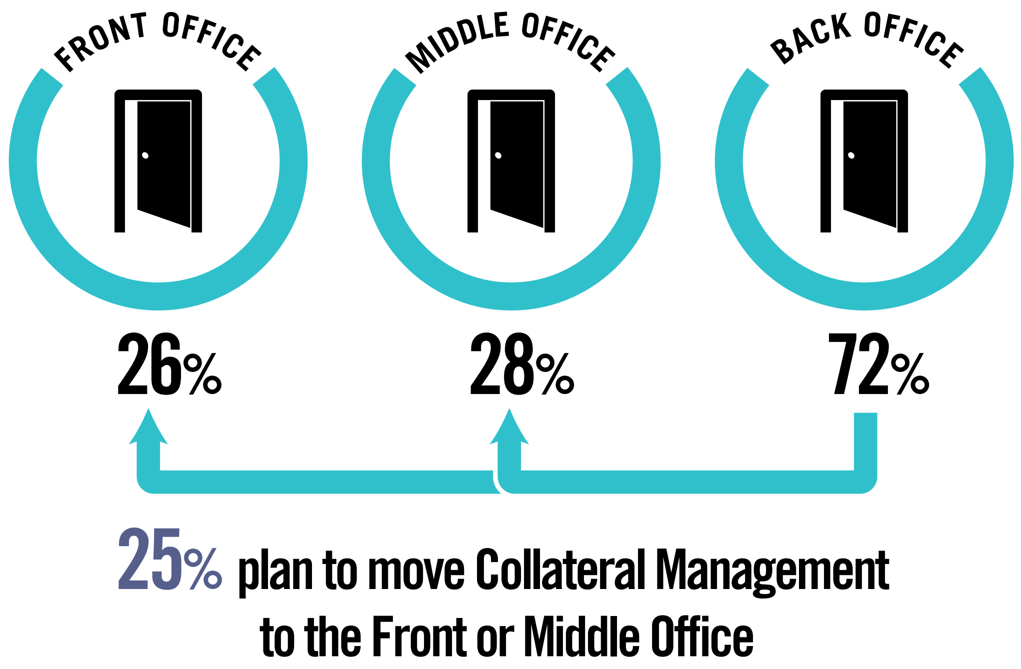
The majority of survey participants indicate that collateral management falls within the back office at their institution, but that its core role is a management function (59 percent), as well as an optimization function (54 percent). Interestingly, one quarter have plans to move collateral management to their front or middle office. A clear trend moving the collateral management from the back to front office is evidenced.

Two thirds of respondents indicate that collateral management is considered a cost center at their institutions; however, over one third are planning to use collateral management to generate increased revenue.

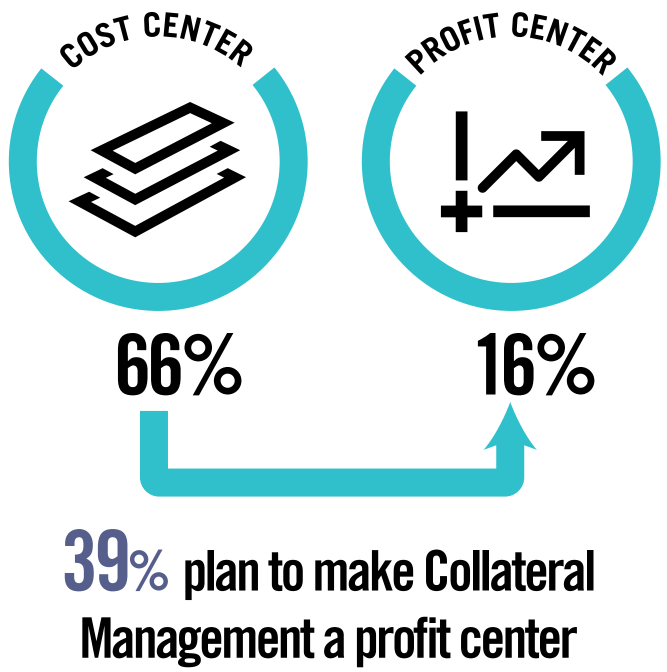
While less than a quarter of survey respondents indicate they use collateral management to generate revenue at their institutions, nearly half of the respondents have processes for the optimization of collateral and another 38 percent have plans to do so in the future. The same holds true for using collateral management to reduce funding costs, with nearly half currently doing so and 27 percent planning to follow suit in the future. While nearly half indicate they optimize collateral through re-use, few have plans to do so in the future.

Regarding the segregation of collateral, over half of respondents indicate they keep their received collateral at CCPs (17 percent), third parties (21 percent) and other (unspecified) locations (23 percent). Less than half of respondents currently offer LSOC segregation (35 percent) for cleared OTC transactions required by the Dodd-Frank Act. Omnibus segregation (46 percent) and individual segregation (40 percent) are currently offered to their clients, which is required under the European Market Infrastructure Regulation (EMIR).

Where Does Collateral Management Fall?



How do Institutions View Collateral Management?



RESULTS SUMMARY

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Dispute Management

While most respondents agree that their institutions have efficient collateral management processes, they are less confident in their institutions' dispute management performance. Only 8 percent completely agree they have a highly efficient dispute management process, while almost half agree their process fails to leverage all the benefits of automated processing.

The majority indicate that dispute management is an area for improvement in the near future, and most agree that other institutions need to improve their dispute management processes, too. Because dispute management is such a crucial task to the business, only 28 percent can imagine it being outsourced. While investment banks and universal banks cannot envision outsourcing dispute management (around 88 percent), buy-side firms could (43 percent).

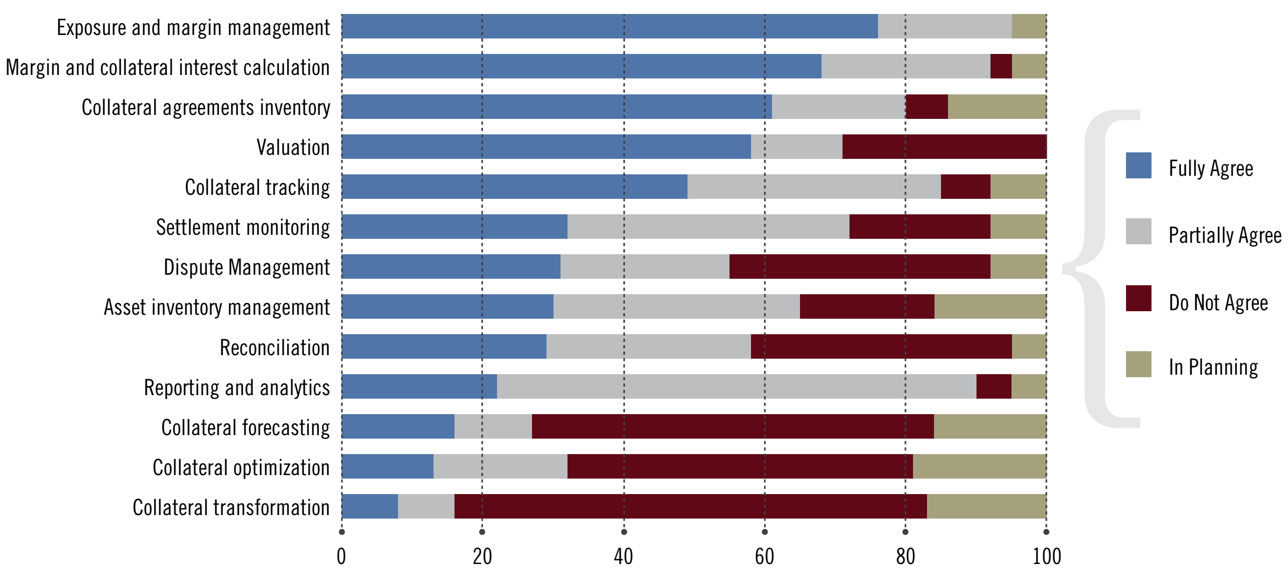
Collateral Management Systems and Capabilities

When asked about the core functions covered in their collateral management system, over half of the respondents indicated that exposure and margin management, margin and collateral interest calculation, collateral agreements inventory and valuation are fully covered. Functions most often not covered include collateral transformation, collateral forecasting and collateral optimization.

More than half of respondents indicate their standard collateral management system is a vendor solution, whereas almost 30 percent have a bespoke solution in place.

When asked about their current or planned use of industry solutions, TriOptimas' triResolve for Portfolio Reconciliation (86 percent) and triReduce for Portfolio Compression (58 percent) were most often cited. In addition, AcadiaSoft's MarginSphere is well used or at least planned to be used by custodians, banks and buy-side firms. Both investment banks and custodians are using collateral settlement systems provided by clearing houses frequently, depending on their primary place of business. In contrast, the usage is less frequent (below 20 percent) within other types of institutions.

Coverage of Collateral Management Core Functions

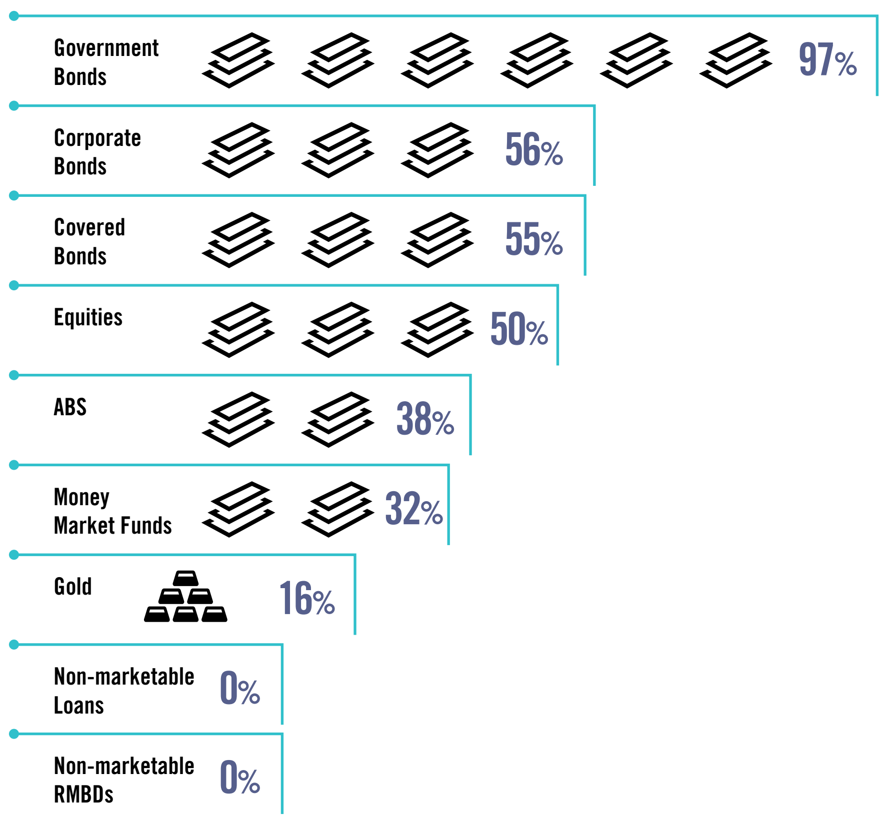


The majority of survey participants have a collateral management system that accepts non-cash collateral from clients and have processes and systems in place to support non-cash collateral posting. But only half indicate they have a complete view of the entire inventory of eligible assets to be posted as collateral across business units.

Among those who can accept non-cash collateral from clients, government bonds, corporate bonds, covered bonds and equities are most often used as collateral. Non-marketable loans and RMBDs are not being used, but some respondents indicate they are planning to use both in the future (13 percent and 10 percent, respectively).

Over half of respondents indicate they can forecast collateral demand and consider it in their liquidity plan at least partially.

Non-cash Collateral



Given that communication needs are expected to further increase, over one third of survey participants do not use or have plans to use an electronic notification platform. When asked about the Clearing Connectivity Standard (CCS), a new industry standard for margin statements from ISDA, only half would consider implementing CCS. In addition, slightly over half of respondents would consider allowing CCPs to provide market and collateral data to their clients, either directly or via an external utility tool. Even 40 percent of the sell-side (investment and universal banks) would do so.

SEVEN FINDINGS ON COLLATERAL MANAGEMENT

In this section, we present seven key findings as a result of our interpretation and analysis of the survey results.

#1 Market participants anticipate that collateral will become a bottleneck with their counterparties.

When discussing collateral management, one question stands out: Will available collateral be sufficient to meet all regulatory requirements? While it's key to understand the availability of eligible collateral, it is also important to consider the management and control of available collateral within an organization and the associated costs of collateralized banking.

Both collateral demand and the restriction on re-hypothecation will cause higher collateral costs. This is especially true as more and more asset classes are subject to collateral or margin requirements and the number of counterparties participating in central clearing or bilateral margining increase under new regulations. The survey shows that new regulations, such as the Dodd-frank Act (DFA), EMIR, Basel III or Solvency II, are all seen as main drivers for change in collateral management. Interestingly, all institutions believe that they will not have any significant issues with meeting their collateral management needs but they do believe that their counterparties may have more serious challenges in this area. The survey results do, however, vary based on participant type. Survey respondents from mortgage banks are less confident that they can easily meet these requirements.

Re-hypothecation, widely used by buy-side firms, investment and universal banks, differs among the various jurisdictions due to the different regulations which tightly restrict the reusing of collateral. Many of the respondents feel that the constraint on re-hypothecation will further increase collateral costs.

Market participants do not anticipate a "collateral crunch" in eligible assets, however they do expect demand to significantly increase. The significant efforts by countries to reduce government debt will lead to a decreased supply of high-quality collateral (government bonds). This, in turn, will lead to rising collateral costs, which will impact liquidity.

In order to avoid internal bottlenecks, firms should consider collateral transformation or optimization strategies to efficiently manage their collateral. Many will have to overcome existing siloed approaches and establish a centralized collateral management platform by changing their target operating model, target architecture and collateral management system. This is also necessary to manage the complexities brought on by G20 regulations and their different definitions of eligibility.

#2 Regulators are pushing for customer protection via collateral segregation; however, the related efforts required by the marketplace are underestimated.

Collateral segregation is a key requirement in basically all G20 OTC derivative regulations. While requirements in the exchange-traded derivatives (ETD) business are well established, margin requirements in the OTC business are quite new and each regulation has its own definition on how customers should be protected. For example, the Dodd-Frank Act allows for legally segregated but operationally commingled (LSOC) whereas EMIR requires providing the customer options between omnibus accounts and individual segregation. These different requirements need to be implemented and these costs need to be accurately transferred to products and/or business units.

The survey states that a lot of non-cash collateral is held at third parties and institutions try to keep as much cash and non-cash collateral as possible in-house. Nevertheless, there are also efforts underway, particularly by mortgage banks and buy-side firms, to use third parties in order to mitigate risk. Investment banks, universal banks, custodians and exchanges have to offer these forms of client segregation to meet binding legal requirements as well as client demands.

However, different clients provide different answers based on their specific needs. Depending on client structure and different regulations, including bankruptcy regimes, processes and organizational processes may need to be changed. Implementing multiple types of available segregation forms based on client types and products, particularly in the OTC space, may become challenging. An efficient management and operational setup would be needed in order to meet client demand and stay competitive. Based on the complexity and lack of complete regulatory harmonization across the globe, institutions should begin the necessary impact analyses immediately. The effects on risk, margin, collateral, settlement, processes and systems can be far reaching. Implementing changes across these critical systems cannot be done without a full understanding of the associated ramifications and cascading effects up and down stream.

For example, one potential side effect of the new regulations is the newly created systemic risk introduced by central counterparties (CCPs). As long as government bailout plans and CCPs' loss distribution is not completely clarified, institutions need to consider using different channels for clearing from a risk management perspective through the use of multiple clearing brokers. This definitely increases trading and clearing costs as positions may be traded away in order to reduce the associated risks.

#3 Collateral management and its associated functions are currently being evaluated for outsourcing.

According to some, outsourcing is always a promising cost-savings avenue that leverages a third party's targeted expertise and economies of scale. In reality, some firms using outsourcing strategies were disappointed by the fact that synergies may have not been as high as expected or the quality of services was poor, while others have seen the benefits. What are the implications with regard to collateral management? Is outsourcing also an issue here and, if so, under what circumstances is it worthwhile?

The survey responses were interesting. Overall, most participants are not using an external collateral manager and are not considering outsourcing as an option for collateral management. At the same time, almost half of the respondents are planning to offer collateral management as a service. How does this fit together? By analyzing different peer groups, it becomes clear that investment banks and custodians are planning to extend their collateral service offering to buy-side firms, who are frequently using outsourcing as a way to reduce costs and meet regulatory requirements. Furthermore, the survey data might be biased since firms who are already outsourcing collateral management functions have not participated in this study and, on the other hand, custodians and CCPs are not candidates for outsourcing. But why are investment and universal banks not considering outsourcing strategies for themselves? They may see collateral management as an individualized solution that can differentiate them with their client base. Or, they may believe that there are no current vendors who can offer the necessary cost savings, expertise and economies of scale across the broad functional spectrum of collateral management.

Outsourcing strategies for collateral management are important for market participants even if they are not readily used by the sell side. Depending on individual business models and organizational setups, some collateral management functions, such as reconciliation, reporting, liquidity management, dispute management or collateral settlement, are worth consideration for outsourcing to service providers or third-parties. A detailed analysis must be undertaken though, as principle rules of outsourcing have to be followed and strategies should align with the overall business model. A concept off-the-shelf is not available. The results also show that the sell side is expecting a significant increase in outsourcing demand and is consequently expanding their offering. Nevertheless, it remains to be seen if demand is as high as anticipated. Without a detailed business case and competitive analysis, it is most likely that future demand for outsourcing is overestimated and will lead to investments not being realized.

SEVEN FINDINGS ON COLLATERAL MANAGEMENT

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#4 Improvements in dispute management and collateral settlement are key areas to increase straight through processing (STP), promote efficiency and realize quick wins.

Cost efficiency is one of the main drivers of change in collateral management. One way to realize quick wins and be highly effective in reorganization, reprocessing and reengineering might be in the areas of client communication, responses to margin calls, dispute management and settlement of non-cash collateral. These tasks are often performed manually and therefore require increased headcount. Increasing STP rates would lead to cost reduction in these functions and enable knowledgeable staff to be re-deployed.

Most survey participants do not consider their dispute management processes to be efficient enough and regard their counterparties' processes as an area for improvement. This is not surprising as dispute management is predominantly performed manually and is time and cost intensive. According to the respondents, collateral booking is performed manually in more than 60 percent of firms. This is due to the fact that collateral settlement solutions and external platforms or providers are not used by half of the respondents surveyed, identifying a lack of standardization and automation in the area of client communication. For collateral settlement solutions, the usage is even lower. This may be due to the fact that the settlement function in collateral management systems is currently only available to 30 percent of the respondents.

An increase in STP rates through automation is a must in order to stay competitive, especially as the volumes of margin calls, transferred collateral, reconciliations and disputes are expected to increase significantly. In addition to collateral settlement, external service providers and vendors currently offer solutions in the market. Industry standards have also emerged to fill the gaps, including the ISDA Client Connectivity Standard (CCS) for client communications of trade, position, margin and collateral data for OTC and exchange-traded derivatives trades. Possible outsourcing solutions should be evaluated with respect to a firms' business model and overall strategy.

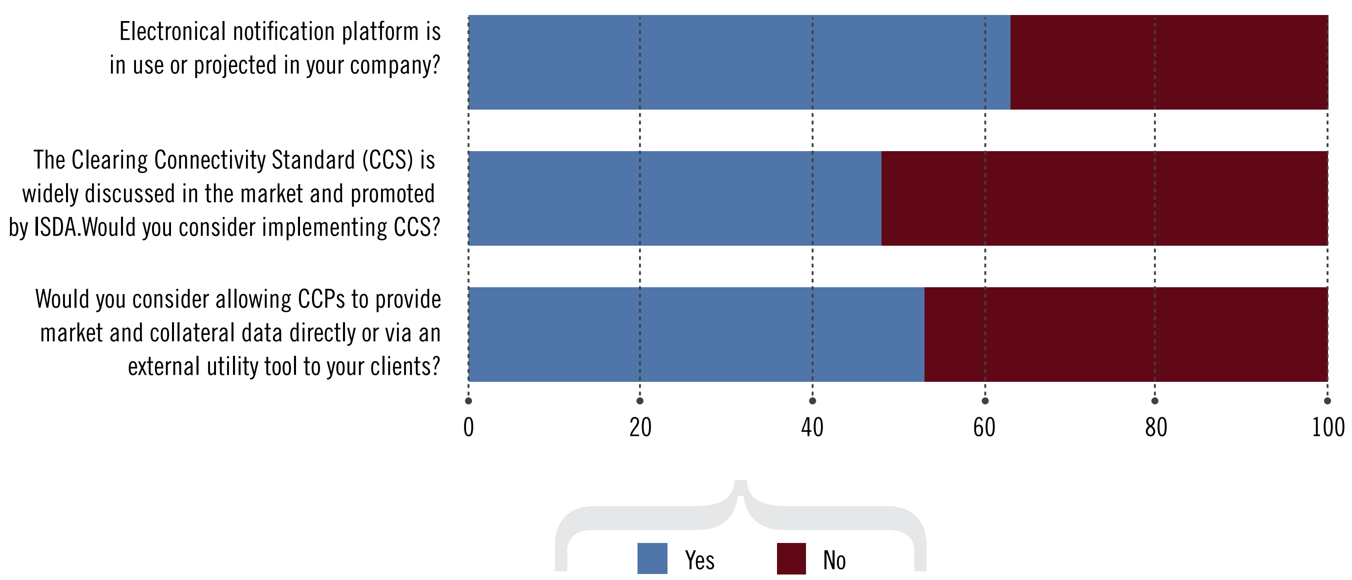
#5 Selected collateral management functions are moving to the front office.

Traditionally, collateral management has been an administrative, back-office function set up as a cost center. However, the business model is changing dramatically, driven by new regulations and cost pressures, leading many managers to view collateral management as a potentially new revenue stream. Not surprisingly, there is an evolution underway which is bringing collateral management from the back office to the front office—at least for some selected functions. As such, the function of collateral manager within many firms is changing from "administrator" to "optimizer."

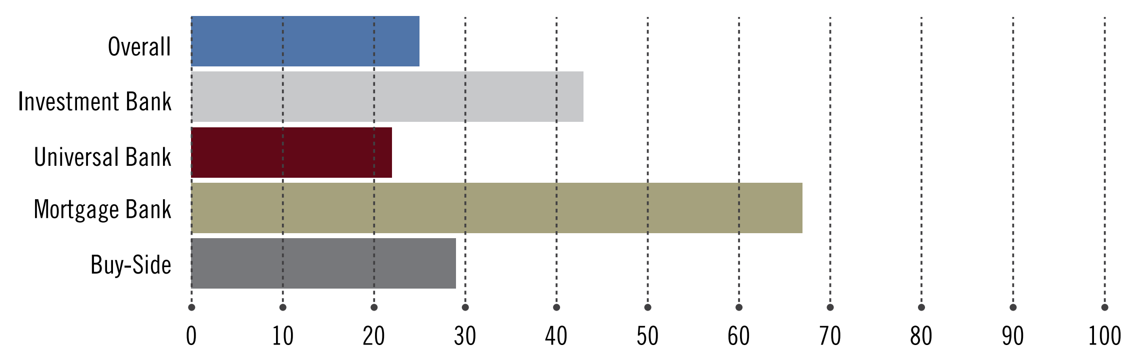
By their very nature, investment and mortgage banks are the pioneers in this migration. Although collateral management holds a dual role as both an administrative and (potentially) optimizing function, it is currently located in the back or middle offices. The increasing focus and importance of collateral as an additional revenue stream or added cost component is prompting a migration to the front office. The functions moving to the front office are primarily optimization capabilities (to minimize costs of carry and reduce transactional costs) and other core offerings that facilitate client relationships. However, settlement, allocation, reconciliation and other functions will remain in the middle or back offices. Today, collateral management is mainly set up as a cost center with considerable efforts in progress to transfer it into a profit center.

The move from cost to profit center, as well as from administration to optimization function, are fundamental shifts requiring major changes to currently established processes and systems. These changes will enable firms to handle the necessary margin and risk calculations within compressed timeframes across all available collateral inventory pools. Fragmented functions—typically established in the back and/or middle office and now in the front office as well—increase complexity and integration costs. Effective collateral management will also require the implementation of collateral transfer pricing which could be similarly structured to comparable fund transfer pricing (FTP) models.

Usage of Comminication Solutions



Plans to move Collateral Management to the Front or Middle Office



SEVEN FINDINGS ON COLLATERAL MANAGEMENT

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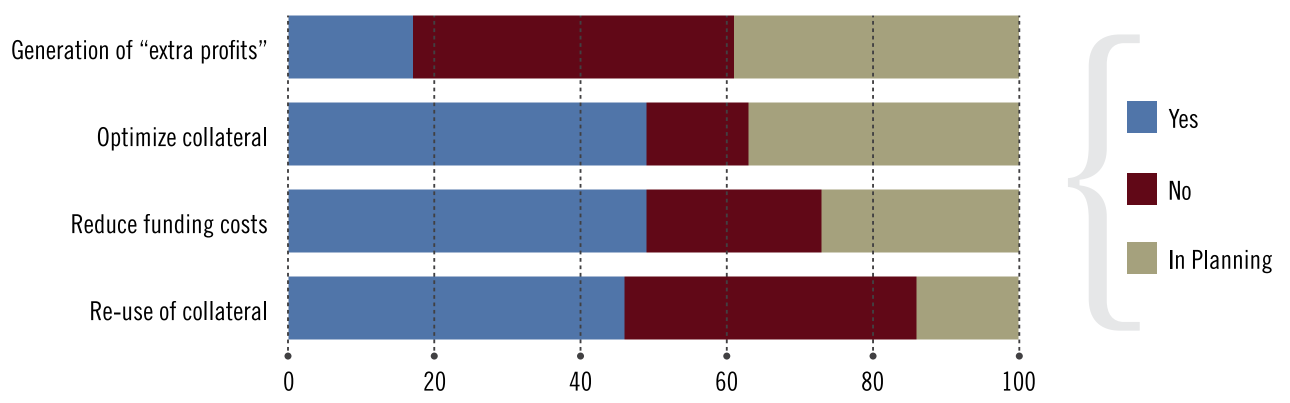
#6 Market participants are not currently realizing a strong return on equity by optimizing their collateral.

When it comes to collateral management, it seems that everyone is striving to achieve optimization. Indeed, optimization strategies using algorithms, compression/ netting or simple prioritization rules can reduce collateral requirements and thus improve liquidity and reduce costs. Optimization can also mean generating increased revenue through collateral transformation, offering collateral management services to clients and reducing costs through collateralized funding. How effective are these strategies and how important are they for the future?

With regulations, the current focus is simply on being compliant. Over time, however, this will change to optimizing the firm's approach to aligning with regulatory mandates. Many institutions are already using strategies to reduce funding costs. However, it is surprising to note that firms are rarely using optimization strategies for generating increased revenue. It appears that there are plans to change this in the near future, possibly due to the fact that collateral management systems are not providing the required or desired functionality.

Different optimization strategies should be investigated in order to understand their effects on the business, return on equity and costs. This will help to determine which ones best align with firms' risk appetites and overall collateral strategy and goals. Specific client demands should also be taken into account. For large firms, the implementation of the overall strategy might be costly at first, but amortizing capital expenditures can ease the pain over time. Based on the survey results, custodians, exchanges and CCPs are prepared to capitalize on the opportunity presented by optimization strategies.

Optimization Strategies Used



#7 Collateral management systems are not ready for future challenges.

When reviewing the need for improved system functionality, institutions typically have to make a decision to buy or build. For collateral management, a hybrid system (combining both vendor (buy) and bespoke (build)) is a viable third option that exists within many firms. Aside from the main drivers for this decision—cost and functionality—other considerations are also important and are quite often underestimated. These include the current system landscape and architecture, necessary process changes, available budgets and sustainability.

The survey shows that most institutions are already accepting bonds as non-cash collateral, whereas assets without observable market prices are not yet covered. Not surprisingly, most participants want to extend the assets that are considered eligible in order to meet the increased demand for collateral. But differing regulatory definitions of assets that qualify as collateral and specific eligibility criteria set by CCPs, clearing brokers and counterparties in the case of non-cleared trades significantly increase both the complexity of non-cash collateral and also the requirements for collateral management systems. There are a variety of different solutions for collateral management systems (bespoke, standard vendor or hybrid). Often, collateral management systems are chosen because of functionality and costs. Basic functions are covered by almost all systems but this is not the case with regard to the newer requirements. These include optimization, transformation, liquidity forecasting, reconciliation, dispute management and analytical functions, such as "what if" analysis or stressed scenarios.

Real-time functionality and higher data volume will become major system requirements in the coming years. Current collateral management systems require enhancements to meet new and more sophisticated requirements. Vendor offerings are the most likely to fill this need for the majority of market participants. Nevertheless, depending on an institution's structure and organization, bespoke solutions are acceptable alternatives and may be seen as the best way to leverage its existing technology infrastructure. Indeed, many global firms have in-house solutions in place and are looking to enhance and build on this capability. A centralized collateral management system is needed in order to overcome current siloed approaches and processes that have developed over time during numerous acquisitions and decades of organic growth. From the survey, we know that companies value a consolidated view of all available collateral. Future budgets will connect to liquidity management solutions as collateral will increasingly become a liquidity consumer in the coming years.

CONCLUSION

The Sapient Global Markets Collateral Management Survey has shown that the collateral space is significantly changing due to regulations and cost pressures. Currently, there is still some ambiguity regarding certain regulatory requirements across the globe. Firms have implemented tactical solutions to meet regulatory mandates in various jurisdictions. As the regulations solidify, firms will begin to adapt these tactical efforts and begin implementing strategic solutions in order to stay competitive. Different segregation models, margin requirements, restrictions on re-hypothecations, bifurcated portfolios with both centrally and non-centrally cleared OTC derivatives, limitations on eligible collateral and increases in liquidity ratios all raise the complexity and costs while also limiting historical revenue streams.

Collateral management as it is currently known will no longer exist within a few years. Firms are beginning to recognize opportunities to reduce costs and increase profitability, making collateral management more important to the front office. Early adopters have even integrated collateral management within their treasury department, thus transforming collateral management into a real profit center, however, this consolidation will drive the need for a collateral transfer pricing system in order to allocate costs accordingly. It is also clear that firms will seek to optimize collateral rather than simply administering or managing this process.

Changes in collateral management will be driven by a number of key factors:

- Increased regulatory demands for higher-quality collateral, from more market participants, places a higher emphasis on the collateral management process
- In order to increase operational efficiency, there is a need to consolidate the collateral management function across all asset types that are subject to collateral or margin
- The potential for increased STP rates, mainly in the area of reconciliation, communication, dispute management and collateral settlement will all be drivers for change
- Improved optimization strategies will require a centralized collateral management system that provides an entity-wide overview of all available and eligible collateral
- The usage and availability of industry solutions and tools (e.g., CCS, TriOptima or AcadiaSoft) will increase and drive the standardization and rationalization that is currently lacking within the market. Not all of these solutions will be "winners" and their usage will vary within firm types and their specific needs
- Outsourcing is a viable option for certain market participants—mainly buy-side firms
- Front-office strategies, operational processes, technology platforms and reduced response timeframes will continue to redefine the functional landscape

The factors described above are clearly evidenced in the survey. Two thirds of respondents plan on increasing their collateral management spend, with budgets increasing by at least 10 percent over the coming years. Overall, the existing IT infrastructure is not ready for these future challenges. Therefore, given the changes brought about by regulatory mandates, future business strategies and impacts to operations and technology are essential so that firms can wisely spend their budgets and make the right investments for the future.

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