OLIVER WYMAN

THE EVOLVING COLLATERAL CHALLENGE

WHERE WILL IT END?

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MARSH & McLENNAN COMPANIES

EXECUTIVE SUMMARY

Collateral continues to be a focus for market stakeholders as a means to drive cost and revenue opportunities, as well as regulators to regulate market behaviours. Collateral is now a top agenda item for the C-suite. As concerns over a "collateral crunch" subside, market responses and positioning continue to evolve, with stakeholders vying for position both as leaders and as participators across a broad range of collateral propositions and services. The end state continues to be somewhat opaque, but is becoming clearer. This report explores current industry views across a broad range of stakeholders and the future state of collateral in capital markets.

The most significant changes in collateral since the crisis have occurred within firms supplying collateral and collateral services, and the pace of change has yet to normalise. To date, the industry has focused on ensuring collateral services are in place and meet regulatory requirements, however, the market is entering a transitional phase with firms supplying collateral services turning their attention to collateral efficiency, security, and distribution, as well as seeing a step change in the sophistication of distribution analytics. Leading collateral service firms are now realising how collateral can be positioned so as to realise additional revenue opportunities using new client collateral products and services.

On the demand side, end clients have witnessed the rapid development and deployment of services to meet their essential collateral needs: collateral movement; account segregation; margin call management and reconciliation. End clients are now comfortable they will likely have access to sufficient high quality liquid assets (HQLAs) and robust collateral servicing from a range of vendors. As the collateral industry continues to evolve, end clients are becoming more conscious of the importance of collateral as a financial resource, and in response will demand increasingly sophisticated tools and analytics. The most advanced capabilities to date have focused on optimising client inventories and tools to lower collateral requirements, such as over-the-counter (OTC) exposure netting.

Looking ahead the collateral industry is set for further, dramatic changes. A key driver of this change is regulatory treatment of repo transactions, the primary tool in collateral distribution at present. As capital and financing costs for these transactions increases, access to collateral will tighten. The market will be forced to respond by delivering innovative distribution solutions, increasing access to collateral, and developing new analytical tools. In addition, collateral security will become increasingly important to ensure risk is correctly understood and managed.

Organisations without existing capabilities or expertise in collateral will find it increasingly difficult to participate to partnerships and consortia who have invested heavily in developing new capabilities for the market. Custodians, central counterparties (CCPs) and central securities depositories (CSDs) look well placed to deliver many of these solutions, with support from software and business process outsourcing (BPO) providers. Collaboration between participants and regulators will be critical in supporting change and ensuring collateral is used correctly to combat risk in capital markets.

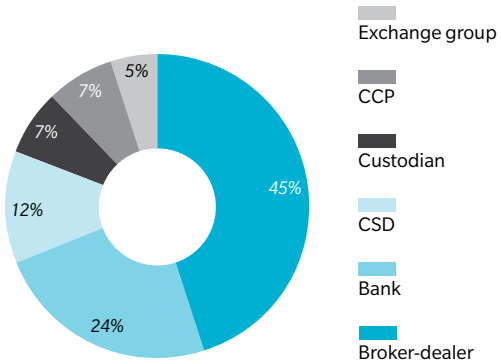
SURVEY OVERVIEW

This report is based on responses to the 2014 Oliver Wyman Collateral Survey and Oliver Wyman proprietary research and benchmarks. A summary of the survey was originally presented at SIBOS 2014.

This global 2014 survey was sent to over 140 individuals in senior collateral roles across the full spectrum of firms engaged in collateral. Of the 140 individuals contacted, over 100 responses were received, covering over 50 individual organisations, from broker-dealers to exchanges and CSDs, and covering firms from across the globe. These responses represented a fair cross section of the collateral industry, both in terms of service offered and level of sophistication.

The survey was designed to test several aspects of the collateral evolution including: recent changes and drivers; current pressures and issues; and the likely end state of the collateral landscape.

Exhibit 1: Survey respondents by type



EVOLUTION OF COLLATERAL

Collateral has undergone a significant shift from a back office operational task, to a strategic market differentiator.

Since the financial crisis, collateral has become a key lever applied by regulators to manage and reduce risk in the financial system. Global regulators have attempted to introduce a range of new regulations to ensure collateral mitigates risk between counterparties, with a strong focus on efficient, transparent, and often centralised processing of that collateral. Each sector in the financial ecosystem has been affected, from broker-dealers through to CCPs and other Market Infrastructures.

This intense focus on collateral has driven significant change in the collateral space, with two-thirds of survey respondents indicating the rate of change over the last five years as "significant" or "very significant".

A key change has been the increasing shift of collateral from a back office operational task, to a strategic market/client differentiator, with collateral services now positioned as a genuine revenue opportunity. This monetisation has largely been a consequence of regulatory change, with derivative users having to minimise risk through the use of collateral, increasing demand for both collateral and collateral management services (Exhibit 3).

The larger banks, broker-dealers and market infrastructure players have helped support this monetisation through significant investment in enhanced capabilities, in order to industrialise the operational side of collateral (for example, margin calls and reconciliations, and collateral movements).

There has been much talk over the last five years of an impending "collateral crunch", as demand was expected to out

Exhibit 2: Overall degree of change in the last five years

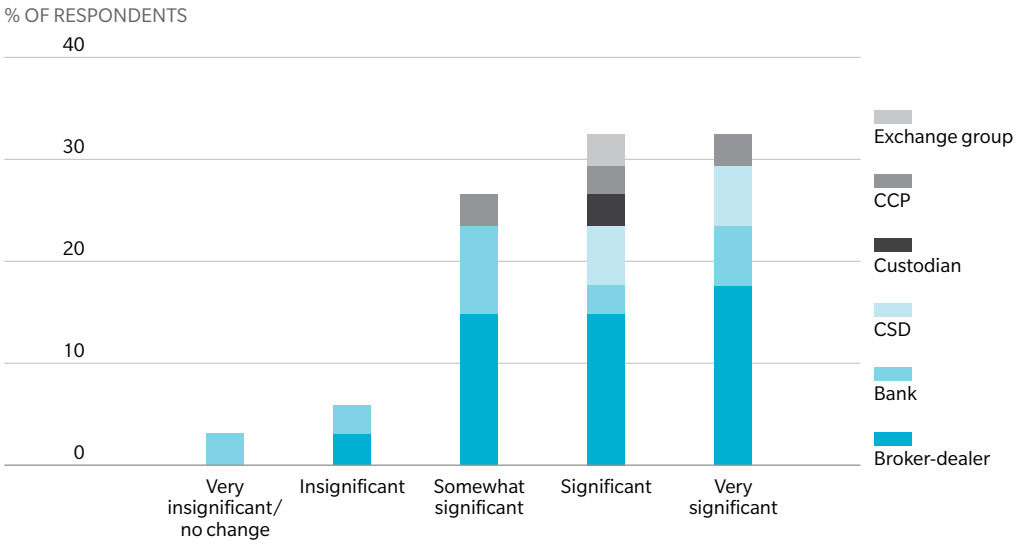
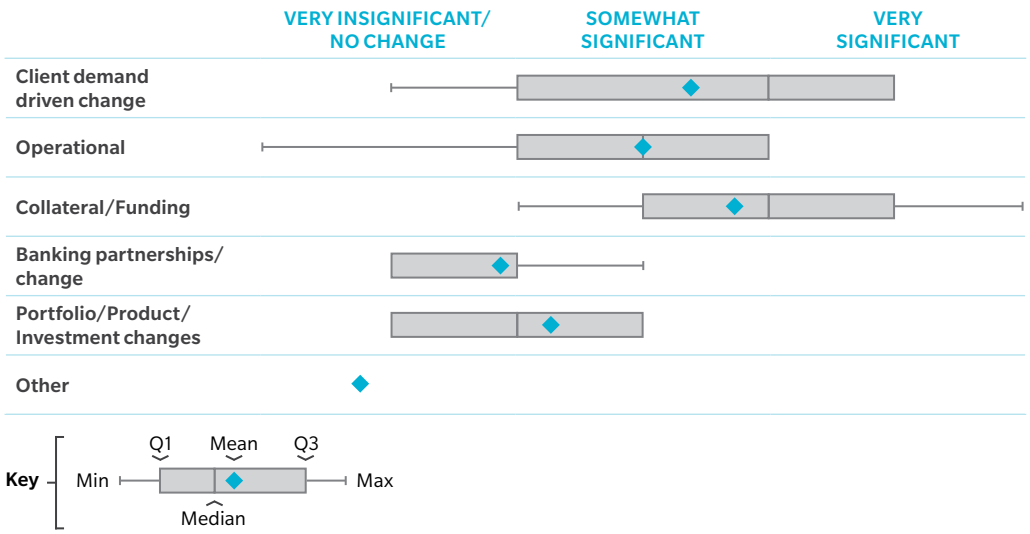


Exhibit 3: Degree of change in the last five years by type



strip supply. However, this has as yet failed to materialise, with most now predicting a less severe "collateral squeeze". We see several causes for this; finalisation of regulations has taken longer than expected; timelines for implementation have been longer than originally expected; and the magnitude of regulation has been less than many had feared. To a lesser extent the subdued global recovery has supressed collateral demand (at least in the short-term) which has also helped avoid any immediate "collateral crunch". In short the supply of high quality collateral (for example, G10 bonds and cash reserves) has remained sufficient, and activities have focused on efficiently moving collateral, from those with surplus to those in need.

Despite the significant changes in the collateral industry over the last five years, we believe that only a mid-point has been reached in the evolution, with more significant changes yet to come. The operational focus will shift from robust processing, to ever more sophisticated optimisation and value-added services. Firms will actively manage collateral as a key financial resource, demanding high efficiency and new tools/analytics to manage and optimise their resources, including collateral.

Exhibit 4: Collateral evolution path

	PAST	TODAY	FUTURE
Business perception	• Back office/ post-trade activity • Not topical with clients	• Front office activity • Topical with clients	• Front office activity • Differentiating with clients
Use of collateral	• Pure risk mitigation • Control measure • "Free" funding	• Risk mitigation • Source of revenue • Source of funding • Client funding source	• Risk mitigation • Source of revenue • Key financial resource to be optimised
Key focus	• Efficient recognition and processing of collateral • Limited focus beyond operational efficiency "in the line"	• Efficient recognition and processing of collateral • Enterprise collateral functions and platforms • Collateral optimisation • A "go to market" client proposition and story	• Maximum process efficiency • Optimisation analytics • Collateral optimisation and transformation • Full digitisation • Global connectivity with collateral venues • Participation in collateral utilities • Non-cash VM solutions
Level of collateral sophistication			

WHERE NEXT FOR COLLATERAL?

Optimising finance resources, will depend on an organisations ability to identify, transfer price and manage global inventory across asset classes on a real-time basis.

Not only is there significant change to come in the collateral industry, but we have observed the degree of change to be greater than over the last few years. Survey respondents echoed this view, with ~85% indicating "significant" or "very significant" change by 2020, and almost half of these indicating "very significant".

Both current and future repo markets will play a central role in transferring collateral between those in need of collateral, and those supplying collateral and associated services. Because of this key role, any changes in the nature of the repo market could have major consequences for the collateral industry, and so this became an important focus for the survey. We echo the general sentiment of the survey respondents, expecting a withdrawal of capacity from repo markets in the immediate future. This is as a result of both external and internal pressures; externally regulation will increase the capital and funding requirements placed on these transactions, whilst internally banks are seeking to enhance their funds transfer pricing (FTP) methodology which is likely to result in more expensive internal servicing of repo transactions.

A reduction in repo market activity will have a knock-on effect to the efficient supply of collateral between participants. This tightening of collateral supply is likely to affect smaller participants, who maintain only shallow pools of collateral assets and so rely heavily upon repo transactions to meet

Exhibit 5: Overall expected degree of change by 2020

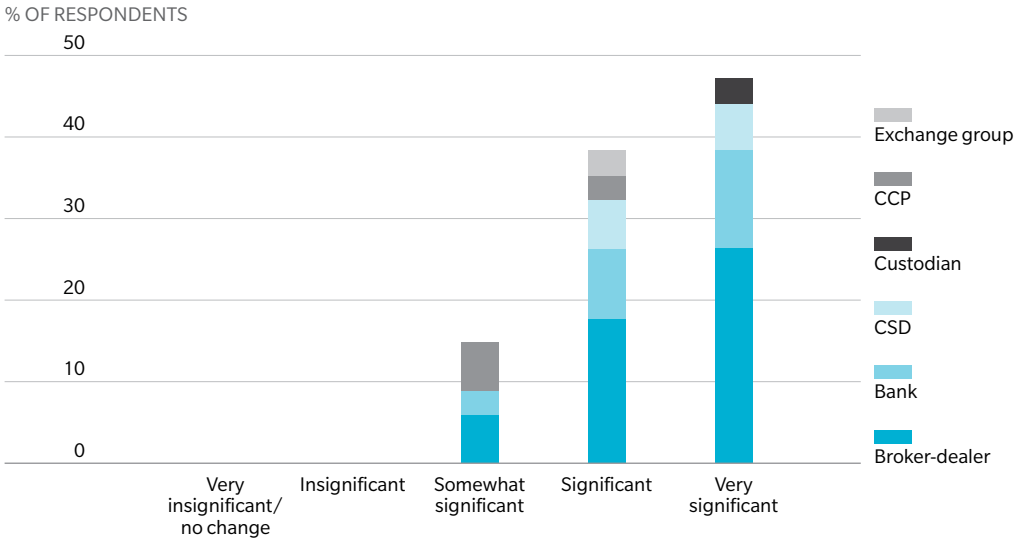


Exhibit 6: Expected withdrawal of repo market capacity

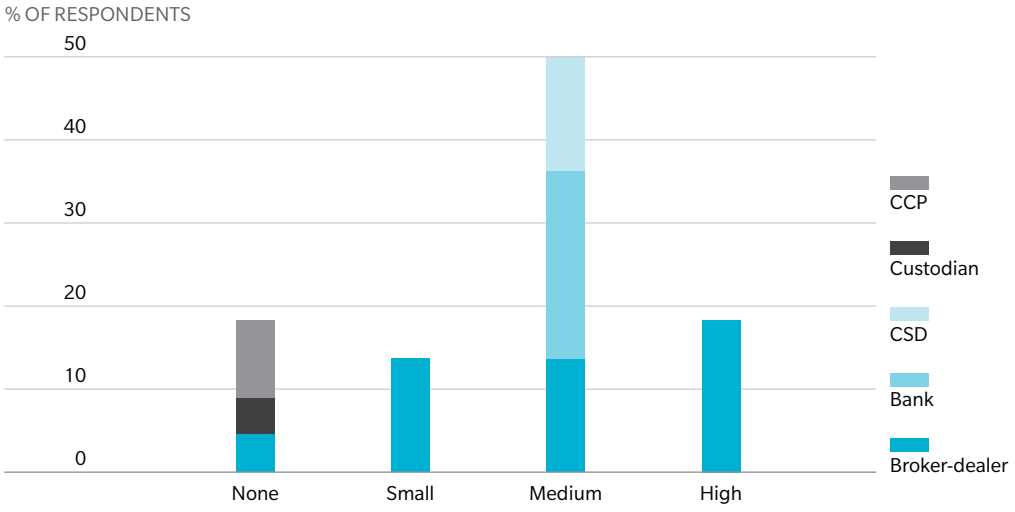
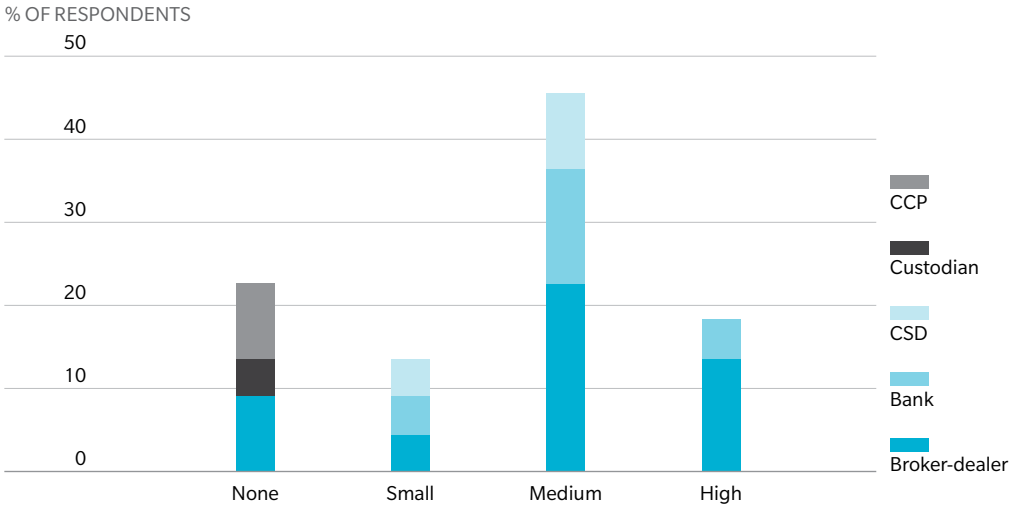


Exhibit 7: Extent to which this will inhibit market participants' ability to access eligible collateral?

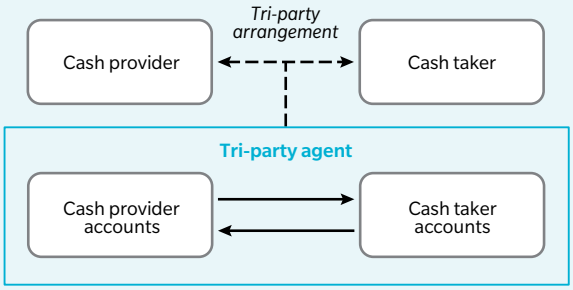


collateral demands. This could be especially acute for those with a high percentage of "low grade" collateral (for example, peripheral Eurozone bonds). Larger participants, especially those with large diversified pools, will continue to provide the market with capacity to fund their own collateral positions, yet will become far less likely to offer surplus collateral to the open market.

Addressing the tightening of supply in the repo markets is not a futile task, although it is unlikely a single "silver bullet" solution exists. Instead we envisage participants utilising a range of solutions, including tri-party repo, dealer-to-dealer repo clearing (Exhibit 8), and peer-to-peer collateral lending.

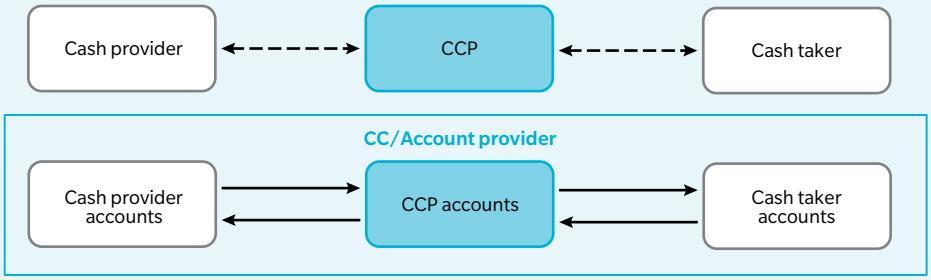
Exhibit 8: Possible collateral supply solutions

TRI-PARTY REPO



- In tri-party repo transactions, management of the collateral is delegated to an independent intermediary, the tri-party agent who manages the collateral on behalf of the contracting parties, acting as a custodian for the collateral and shouldering the administrative burden.
- The agent takes responsibility for the administration of the transaction including collateral allocation, marking-to-market and substitution of collateral. As the tri-party agent typically monitors the value of the collateral throughout the transaction, ensuring that the value remains sufficient, counterparty risks can be reduced compared to bilateral repo transactions.
- Tri-party repo transactions offer the following advantages:
  - **Outsourced administration:** the main benefit of a tri-party arrangement is the outsourcing of the administration of the repo transaction (e.g. mark-to-market, margining) to the tri-party agent
  - **Increased efficiency:** based on the professionalised agent structure for trade execution, tri-party transactions offer standardised contracts which can be used with a variety of counterparties connected to the tri-party agent. Agreements may also be flexible, though agent conditions provide some boundaries
  - **Additional services:** services offered by tri-party agents range from basic deal administration (mark-to-market, margining for collateral accounts) to more sophisticated services such as automated optimised allocation of collateral and automated substitution of repo collateral
- The agent charges fees for these services, which for non-banks needs to be evaluated against internal costs of monitoring and administrating bilateral repo transactions. This makes tri-party services particularly attractive for participants with limited scale in the repo market.
- If the counterparty defaults, the participant may still need to go through the legal claims process to obtain the full outstanding obligation. The participant also faces the risk in a default that the sale of the collateral, especially in a stressed environment, does not recover the full outstanding obligation.

DEALER TO DEALER REPO CLEARING



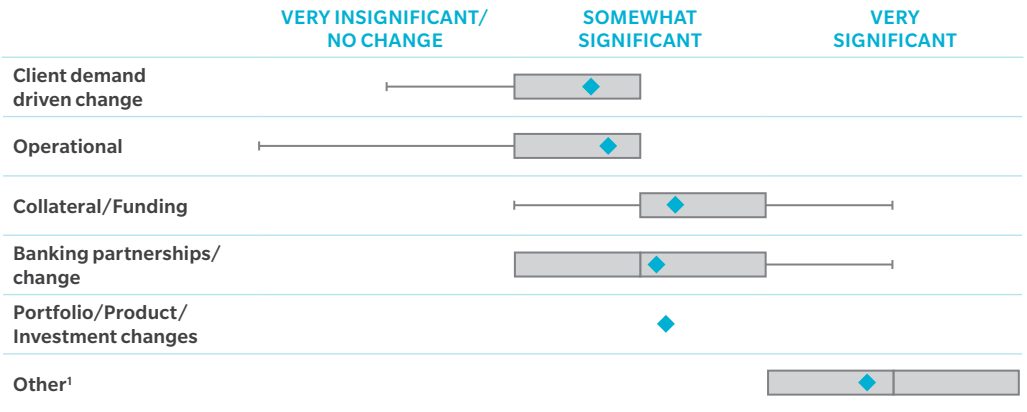
- In dealer to dealer repo clearing, a central counterparty (CCP) steps in between the two contracting parties. The original arrangement between the cash provider and taker is replaced by two contracts ("novation"), one between the CCP and the cash provider and the other between the CCP and the cash taker. As a result, the CCP manages the collateral (similarly to a tri-party agent) but also the counterparty credit and liquidation risk (as a principal to the transaction).
- On top of all the advantages of tri-party repo transactions over their bilateral counterparts, cleared repo transactions would offer the following additional advantages for non-banks:
  - **Counterparty credit risk reduction:** counterparty credit risk to the bank is further reduced through the novation process. As soon as the trade is settled, the CCP guarantees all obligations against both counterparties
  - **Liquidity risk reduction:** liquidation risk is shared between CCP and members since the CCP takes responsibility for liquidating the collateral in case of the default of the cash taking bank. This is a key differentiating factor between cleared and tri-party repo transactions
  - **Return:** improved repo rates as banks pass on part of the capital cost savings from a reduction in risk weighted assets to non-banks in the form of higher repo rates. However, additional clearing fees need to be taken into account
- Traditionally, cleared repo transactions have only been used in the interbank market through offerings from CCPs such as LCH.Clearnet and Eurex Clearing. Non-banks can now access clearing, and are already beginning to utilise these service.

In addition to the expected withdrawal of repo market capacity, firms are realising holistic management of their financial resources is essential as they attempt to optimise between multiple constraints: capital; leverage; and liquidity. Collateral will remain a key part of this optimisation puzzle (Exhibit 9).

As a result of these drivers, the focus of market participants will start to shift. Moving away from a robust execution toward enhanced analytics; ensuring access to collateral, distributing collateral between participants, and making sure collateral is not only processed but held securely (Exhibit 10).

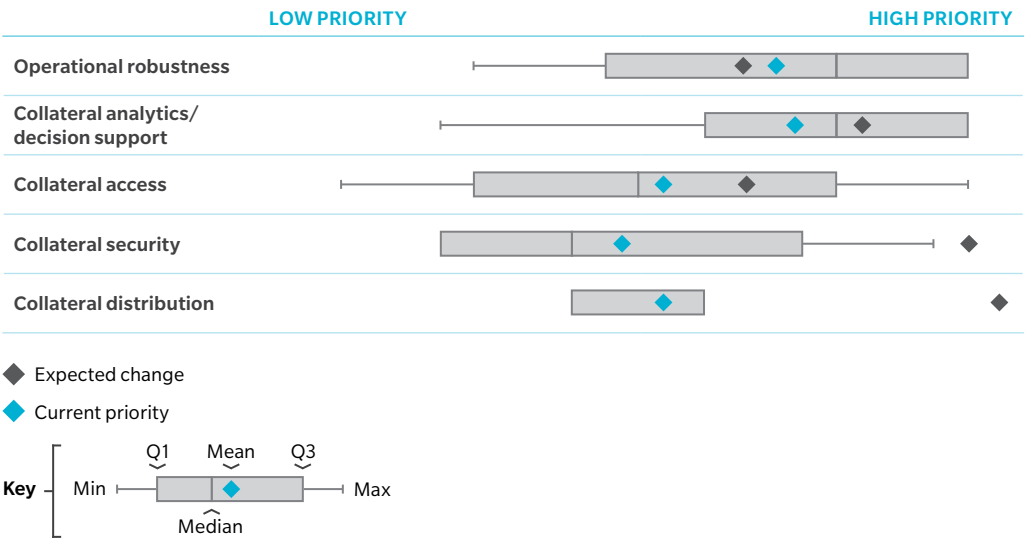
Collateral robustness has remained a constant theme over the past five years, with most firms now able to offer or take advantage of quality collateral management services. This has focused on "getting collateral done" and is expected to become less of a focus as the collateral market further matures.

Exhibit 9: Expected source of change by 2020



1 Responses for "Other" included: regulatory change, scarcity of collateral and dynamics of repo markets

Exhibit 10: Expect change in respondent priorities



Now that participants can access the essential level of service from a range of providers, clients are beginning to demand enhanced collateral analytics and decision support (for example, automated collateral optimisation, collateral exposure and inventory management tools, and efficiency reporting). These services will act as differentiators in the future, far more so than cost, as the true value of efficient collateral management in the context of broader financial resource management becomes clearer to the market.

Changes to the market will be required to ensure participants have access to the required amount of collateral. Some change has already begun, with many firms accepting a broader range of securities as collateral (for example, high quality corporate bonds). However, more can be done (for example, moving away from cash only variation margin requirements would have huge benefits for participants). This change could be achieved through a variety of non-cash variation margin services or variation margin transformation services. Other innovations could help increase collateral availability, such as collateral pooling, tradable collateral baskets, repo clearing and exchange platforms.

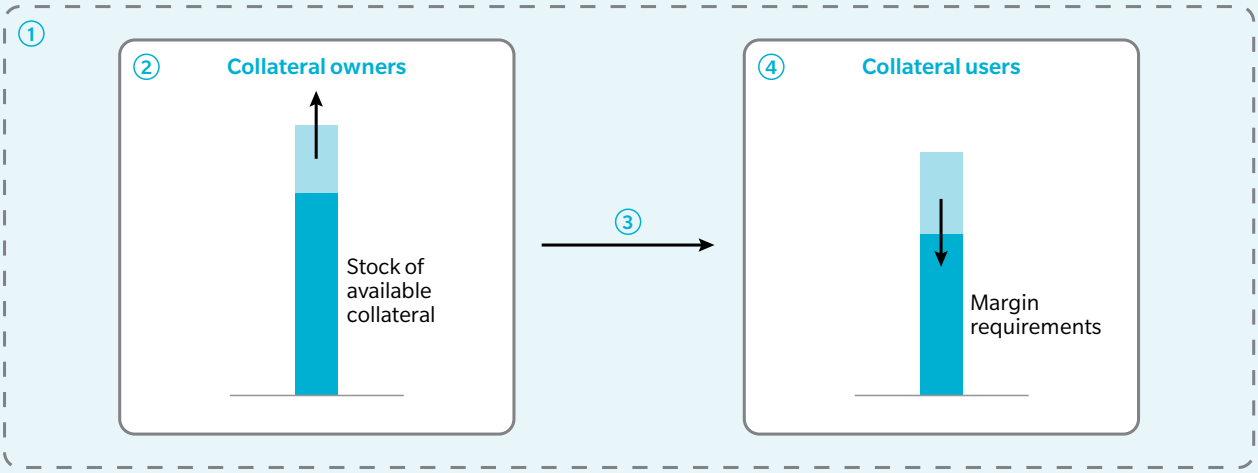
Ensuring sufficient access to collateral is only half the solution, the distribution of collateral between those with excesses to those in need is also key. This is a high priority area for the market as a whole, with significant investment required to deliver innovative solutions such as peer-to-peer collateral lending platforms and collateral "hubbing" services. Distribution is likely to be an area where collaboration between participants is essential.

Looking from the other side of collateral access, more could be done to reduce collateral obligations, and so ease concerns regarding access to sufficient collateral pools. Reducing obligations needs to be carried out in such a way that risk mitigation is not compromised. This could include broadening the scope of portfolio margining to cross-region for example, or even across cleared and OTC transactions. Other solutions might include margin compression and optimisation tools, and netting services.

The third area of future development is collateral security. Regulation has driven risk from the execution layer of capital markets to the post-trade layer. As collateral is used as a risk mitigant, the market must ensure participants have sufficient confidence and transparency in the use of collateral, so as to understand the risks now in the post-trade layer. This could be achieved through greater standardisation of margin calculations, or even centralisation of these calculations. Trade repositories capturing data from repo transactions will provide tractability and accountability to collateral services. Combining swap execution facilities (SEFs) (or other OTC execution venues) with CCPs could also improve collateral security.

At present, we see collateral security and distribution receiving the least investment. This is a concern, as these areas are expected to witness the greatest change over the next five years, as well as being areas which require collaboration, some degree of centralisation, or a coordinated approach from regulators and participants.

Exhibit 11: Expected areas of collateral innovation



	KEY LEVELS	SPECIFIC INNOVATIONS
1 **Collateral security**	• Providing transparency into collateral positions • Ensuring the security of collateral through out the lifetime of the obligation • Common requirements and calculation methodologies	• Centralised margin calculation/valuation service • Data services for repo rates and corresponding haircuts • Repo trade repository • Secure account structures • CCP/SEF integration via partnership
2 **Collateral access and availability**	• Expanding the set of accepted collateral • Transformation of collateral	• More asset classes and contracts types accepted as collateral • General collateral (GC) pooling • Trade-able collateral baskets • Non-cash variation margin solution • Transformation service for variation margin • Repo clearing (D2D and/or D2C) • Repo exchange platforms • Tri-party solution support
3 **Collateral distribution**	• Maximise mobility of collateral across obligations • Optimising the allocation of collateral	• Collateral "hubbing" services • Collateral allocation tools • Flexible investment facilities
4 **Collateral obligations**	• Maximising abilities to do portfolio margining • Providing tools to maximise netting benefits • Supporting shift to futures	• Broader scope of portfolio margining (e.g. cross-region, across cleared and OTC) • Structures to support holding of assets/excess collateral at CCP level • Margin requirement optimisation tools • Structures to support holding of assets/excess collateral at CCP level • Compression/Coupon-blending • Multilateral netting service • Initial amount calculation and arbitrage service

WINNERS AND LOSERS

Our survey participants referenced diversified choice, economies of cost and resources, strategic partnerships, delivery of robust and scaleable solutions to the market, as attributes that will contribute to an organisations success – or lack of.

As the collateral industry evolves there will inevitably be winners and losers. To some extent this has been predetermined, with those firms who invested heavily early on finding themselves with sufficient capabilities and scale to secure their respective areas. Market participants will either monetise collateral through scaling their cost base to improve margins, or through new associated revenue services (e.g. transformation). Typical areas of early investment have focused on the following:

- Robust collateral operations
- A group approach towards collateral: clearly defined internal management and governance of collateral across the organisation
- Simplified, well integrated solution and data architecture
- Clear collateral "go to market" proposition
- Integrated collateral, clearing and collateral proposition
- Proactive relationships/joint ventures with other market constituents to collaborate on solutions

New entrants, or those lacking core collateral capabilities, will find it increasingly difficult to exploit new opportunities in the collateral space.

Custodians and CSDs with existing capabilities look set to be well positioned to take advantage of these future trends. Their position as established post-trade processors, makes them ideal candidates to continue innovation regarding collateral robustness. In addition, custodians can leverage their expertise to develop new solutions in collateral security, such as segregation, independent valuation, and optimisation services. CSDs look better placed to enhance the distribution of collateral utilising their connectivity within the market place.

Exchange groups look relatively poorly positioned in comparison, especially those without integrated CSD/collateral capabilities. Too many exchange groups have been slow to react to changes in the collateral space, as partnerships have emerged and solidified between other participants. There are obviously exceptions; Deutsche Bourse for example, retains collateral expertise through Clearstream and looks set to continue to compete with Euroclear's Collateral Highway offering.

Software and BPO providers remain best placed to help develop high quality analytics for the collateral industry. Success in penetrating the market for these players will come from partnerships with other market participants.

Banking consortia could lead the market in innovative collateral distribution services, leveraging their combined collateral pools and market connectivity. The two key success factors for banking consortia will be the level of investment and the chosen governance model. Fractured inefficient governance models which are overly reliant on decision making by consensus, could easily find themselves failing to make decisions in time and falling behind competitors.

One thing has become increasingly clear in the collateral industry over the last five years; the value of collaboration is paramount. Time and time again survey respondents indicated that more "collaboration" was needed between the connecting market infrastructures, and on defining standards, to aid distribution and transparency of collateral: transparency was rated as high as security of the collateral itself.

From an operational and efficiency standpoint clients are moving toward a single consolidated point of access. Any number of participants could fulfil this role, partnerships between global banks and international central securities depositories (ICSDs) appear ideal candidates. However, many participants and regulators have flagged concerns around risk concentrations in this scenario, and some believed expertise means roles will remain delineated between clearing broker, clearer, and custodian.

The role of the sell side in the future collateral landscape remains contentious. While overall respondents indicated the role of the sell side would be diminished, the vast majority of respondents expect them to retain a direct interest in collateral management given the magnitude of revenue opportunities available. Many sell-side firms have already invested heavily in collateral capabilities, although this will provide an early foot hold in the collateral landscape. However, in the long-term sell-side firms will need to decide if they wish to offer capital intensive collateral services (e.g. repo activities) or more functional services (e.g. analytics). Firms trying to master the former will need to balance these capital intense activities with effective financial resource management. Firms that can master these two areas should be able to generate significant returns.

Exhibit 12: Overview of market participant positioning relative to emerging trends

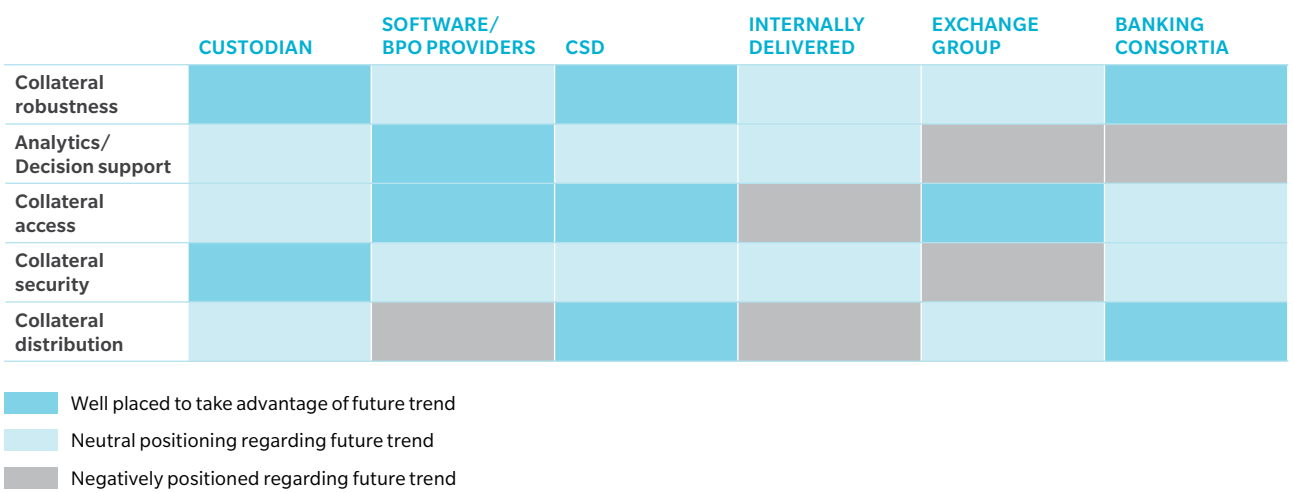


Exhibit 13: Which type of collateral service providers will dominate the collateral space in 2020?

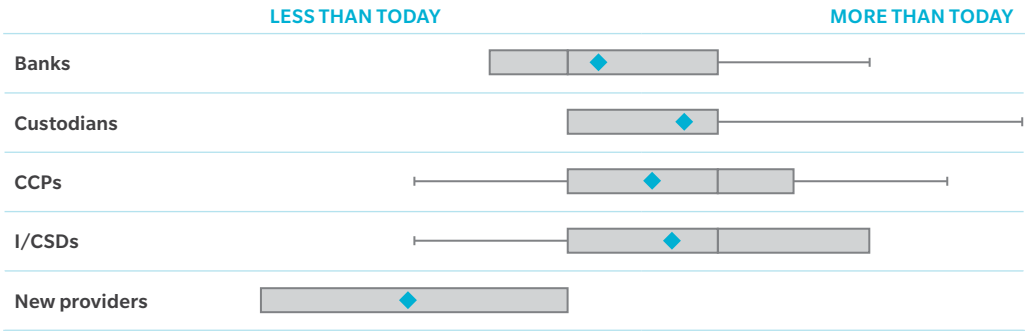
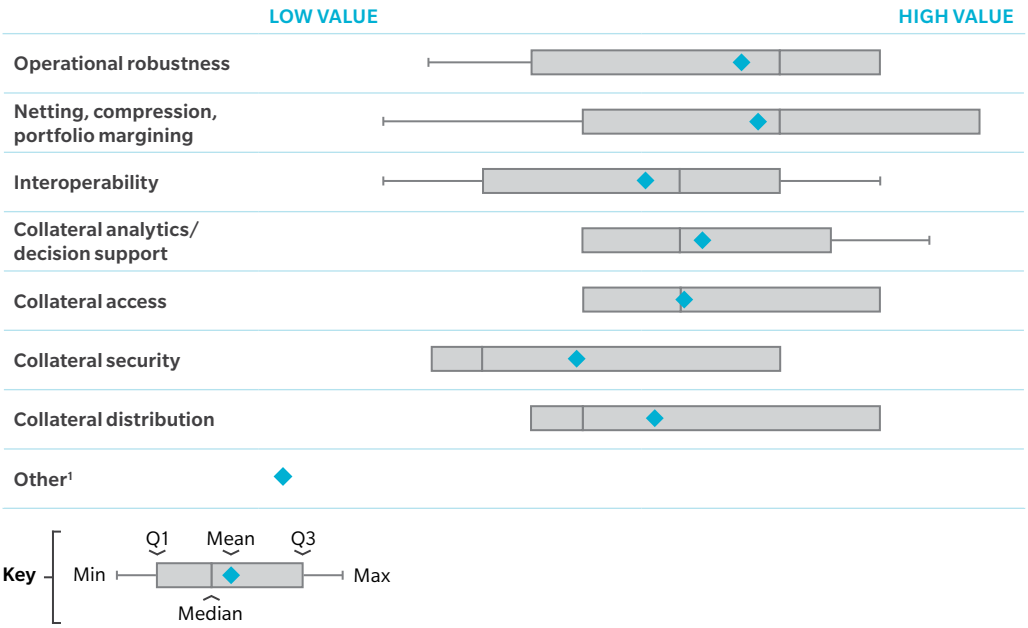


Exhibit 14: Where can collateral and service providers deliver the biggest "value add" to address your collateral priorities?



1 Responses for "Other" included rehypothecation

CONCLUSIONS

A lot has already been achieved in the collateral industry with advances in standards, robustness and collaboration. However, more change is coming with the industry beginning to focus on analytics, collateral access, distribution and security.

To improve access to collateral we expect to see a broadening of accepted collateral types, collateral pooling, tradable collateral baskets, as well as moves to support non-cash variation margin. Improving the distribution of collateral will require hubbing services and allocation tools. Collateral security will become an increasingly important topic for the industry, and will drive the standardisation of methodologies and centralisation of calculations, as well as greater repo trade data capture and market transparency. Investment in the key areas of security and distribution remains low, and will need to increase in order to meet the needs of market participants.

Firms who have previously developed collateral capabilities are best placed to deliver these changes. However, for many of these solutions collaboration and/or partnerships will be key.

Of critical importance is the continued engagement between the industry and regulators, to ensure collateral and its role in managing risk is fully understood and effective.

Providers in the collateral space are at varying stages of defining their long-term collateral strategy and client proposition, with a range of approaches given mixed sentiment and views on the end state. What is true is that the collateral space will continue to change and participants need to act in order to:

- Understand implications on them, and their clients
- Where they have a role; for the market, as well as their end clients
- Be involved in industry discussions, with many of the future models being collaboratively debated now

Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialised expertise in strategy, operations, risk management, and organisation transformation.

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