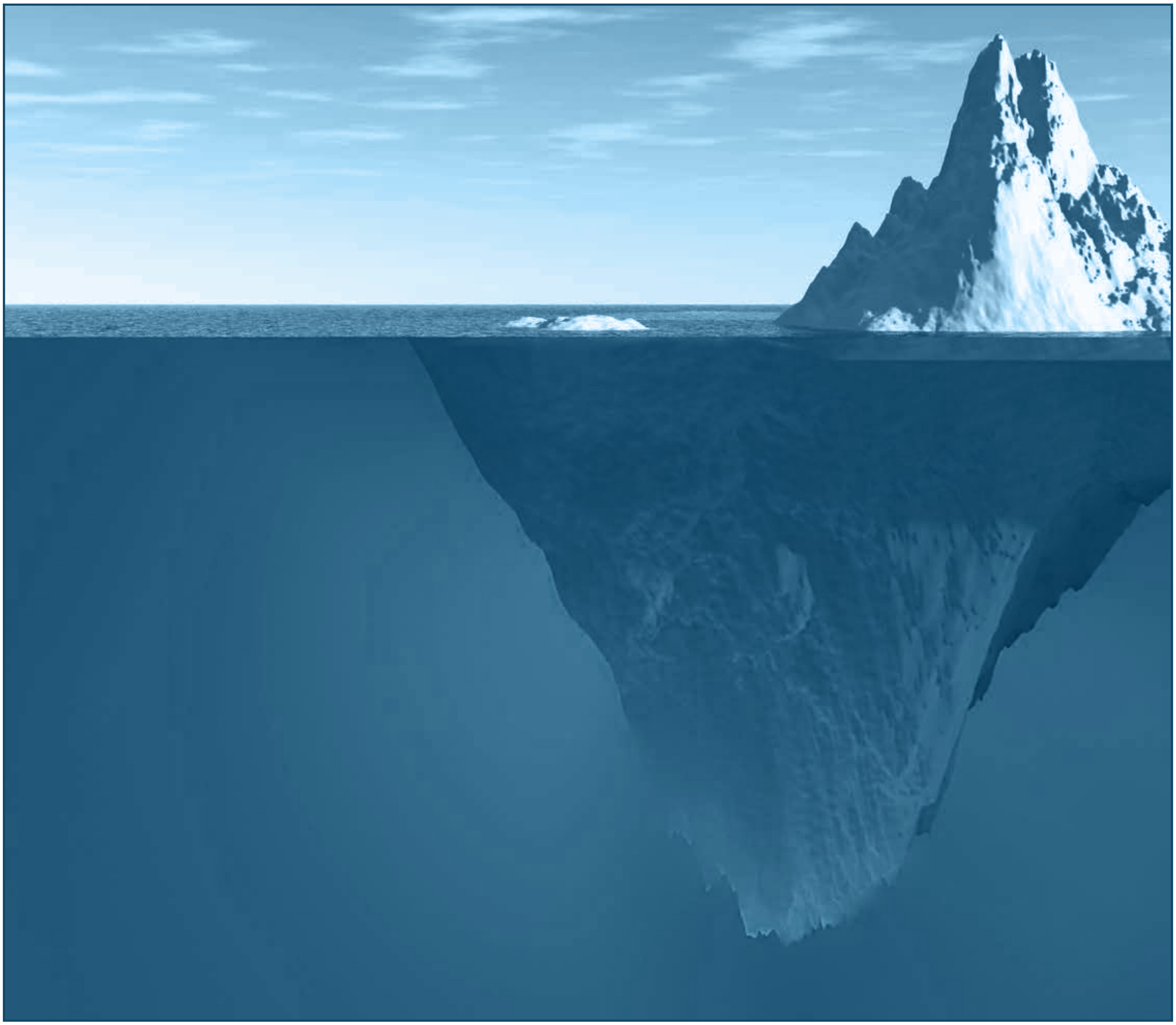
Systemic Risk and the Impacts of Central Clearing



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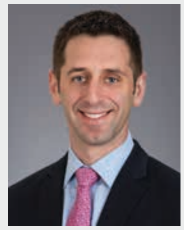

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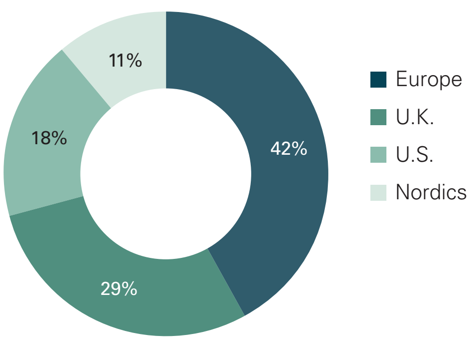
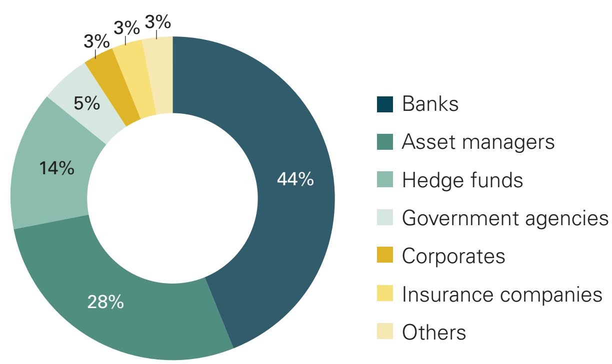
DEMOGRAPHICS AND RESEARCH METHODOLOGY

Throughout 2014 Greenwich Associates interviewed 4,036 global fixed-income investors about their dealer relationships and use of various fixed-income products including interest-rate derivatives. In the fourth quarter of 2014, Greenwich Associates conducted an additional 72 interviews with key research participants to more deeply understand their views on systemic risk, the impacts of central clearing and their expectations for the interest-rate derivatives market going forward.

Research Participants



By Location



By Firm Type

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INTRODUCTION

The credit crisis introduced the world to systemic risk. Systemic risk is not a new concept, but it wasn't until 2009 that it became a frequent topic of conversation among financial market participants, regulators and observers. Global lawmakers and regulators centered their subsequent financial reform efforts on reducing systemic risk, with a particular focus on over-the-counter derivatives markets.

Fast forward six years and considerable progress has been made. Derivatives markets have evolved due to both new regulations and the self-imposed behavior changes of market participants. And while systemic risk is difficult to quantify, 80% of institutional investors believe that systemic risk has, in fact, been reduced with increased adoption of central clearing as the primary catalyst.

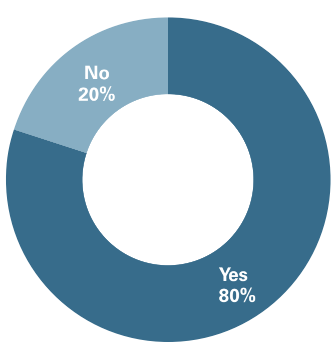
More stringent capital and margin requirements for major banks and investors, not to mention an increase in reporting obligations, have also played a part in the reduction in systemic risk. The former has created a more substantial buffer for market participants should a trade go wrong, while the latter has added much needed transparency. But it is mandatory central clearing that hit at the heart of one of the biggest contributors to systemic risk—the interconnectedness of the largest financial firms.

As opposed to market participants who make money by taking risk, clearinghouses focus on reducing risk. By acting as the buyer to every seller and seller to every buyer, clearinghouses turn a web of counterparty interactions into a multi-spoke wheel. As a result, counterparty risk is severely mitigated with the remaining risk, including default management should a counterparty default, entrusted to the clearinghouse. Investors must then shift their focus toward the risk management practices of their clearinghouse of choice. A deep understanding of margin methodologies, eligible collateral, membership requirements, and the default waterfall must all receive the attention once reserved primarily for bilateral trading counterparties.

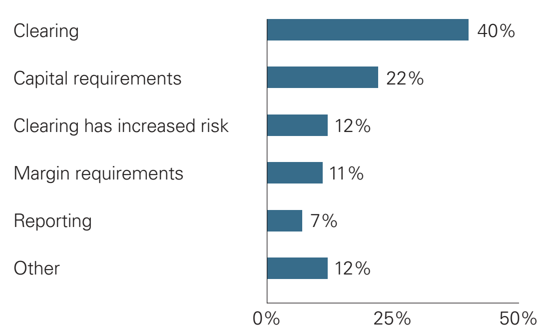
Yet while central clearing has been successfully used in derivative markets for years, global swaps-clearing mandates are in the process of expanding adoption well beyond levels the market has ever seen. As such, determining whether or not that ultimately benefits the market as intended, or conversely creates new risks as some believe, requires a deeper analysis of both market perceptions and the realities of clearinghouse operating models.

Cause of Reduction in Systemic Risk

Has Systemic Risk in the Derivatives Market Reduced Since the Financial Crisis?



Primary Cause



Note: Based on 72 respondents in 2014.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

The Benefits of Clearing

Reducing systemic risk in a counterparty default scenario via protecting your position and assets posted as collateral is arguably the top benefit that clearinghouses provide to the market. This is why swaps clearing was universally accepted as a good thing by market participants despite the additional costs it brings. The fact that many asset managers began to voluntarily clear trades before mandates were implemented speaks to the market's positive perception of clearing's impact on counterparty risk.

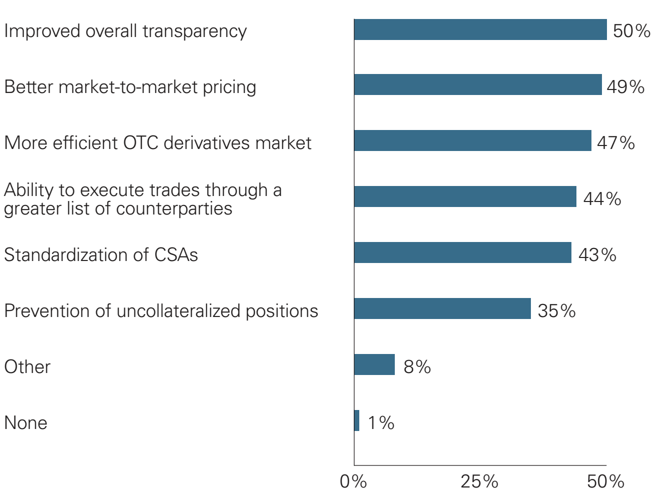
However, the benefits of clearing go beyond more efficient handling of market shocks. In fact, our universe of research participants—which included asset managers, hedge funds, buy-side banks, and insurance companies—broadly agreed on the benefits of clearing outside of a default scenario despite their diverse investment objectives.

Overall market transparency, a more definitive source of mark-to-market pricing and a broadly more efficient swaps market topped the list of benefits brought on by clearing. While currently available swaps-market transaction and order-level data still leaves room for improvement, the level of transparency now as compared to less than a decade ago is staggering. In 2006, a trade-booking error could go unnoticed for months, not caught until the first coupon payments were exchanged. Under the current market structure a similar error would be caught almost instantly, if it ever happened at all, given the real-time, straight-through nature of the cleared market.

Hedge funds were more focused on the market efficiencies created by clearing than the other investors in our study. Always looking for new investment opportunities, the ability to more easily get in and out of swap positions without having to sign bilateral documentation with every counterparty is quite appealing. In fact, it was this benefit coupled with the CCP's role as arbiter of collateral disputes that drove many hedge funds to join the asset management community in adopting clearing ahead of regulatory mandates.

On a related note, asset managers saw the expanded list of potential trading counterparties as a huge benefit. With execution and clearing decoupled, and clearing ultimately removing most exposure one has to their initial trading counterparty, asset managers are now able to trade with a broader range of counterparties in an effort to obtain the best execution possible while still keeping within self- and client-imposed credit-risk bounds. This newfound counterparty freedom however, is again a reminder that client understanding of CCP risk practices is crucial, as the CCP is exposed to all clearing members and their clients.

Benefits of Clearing Beyond Counterparty Risk Reduction



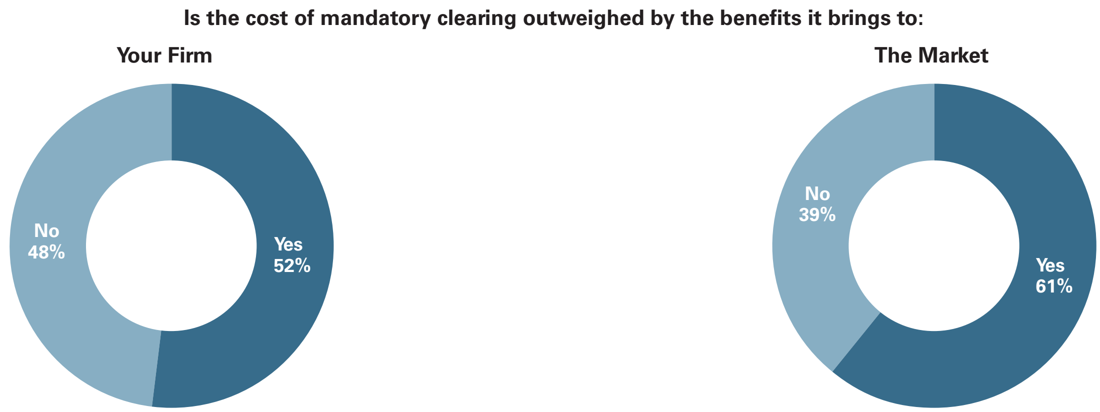
Note: Based on 72 respondents in 2014.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

Lingering Concerns

The benefits of central clearing do not come without cost. Simply put, clearing is an insurance policy that regulators have told market participants they must buy. This is akin to auto insurance: while the annual premium bill can sting, the guarantee that both drivers are covered leaves you feeling more secure.

The majority of investors believe the benefits of mandatory clearing are worth the costs for the market as a whole. This reiterates the value most market participants see in making the entire system safer. When asked if the benefits of clearing are worth the costs to their particular firm, positive responses drop from 61% of investors to 52%—clearly a polarizing issue. And with Futures Commission Merchant (FCM) fees only expected to rise due to Basel III capital rules, the debate is likely to continue.

Cost of Mandatory Clearing vs. Benefits

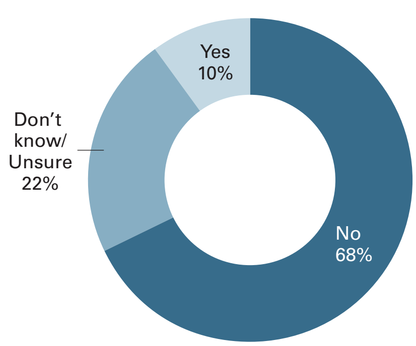


Note: Based on 72 respondents in 2014.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

Despite these differences of opinion, few plan to reduce their use of derivatives going forward. Based on interviews with 213 interest-rate derivatives investors in Europe, Greenwich Associates found that 69% expect no change in their use of derivatives due to the cost of clearing and related margin requirements, with only 11% expecting to reduce their use of interest-rate derivatives. And while our volume data collected from just shy of 3,000 investors globally shows client interest-rate swap trading volumes dropped slightly in 2014, volumes in Europe and the U.K. actually increased.

Concern also exists that the safety net provided by central clearing will create a moral hazard dilemma, encouraging investors to take risks they may have otherwise shied away from. As self-reported by our research participants, this is not the case, with only 10% taking additional risk since ramping up their use of central clearing. This tells us that decisions related to counterparty risk and market risk are treated separately. While counterparty risk reduction lessens the anxiety of the risk department and limits counterparty restrictions for the trading desk, a fund's view on interest rates or the direction of the credit market remains a separate and distinct decision. However, if we assume that the risk is more tightly managed in a cleared environment than it was previously, it is reasonable to assume that investors will take proportionately more risk in the future.

Has the "Insurance" Provided by Clearing Allowed More Risk-Taking?



Note: Based on 73 respondents in 2014.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

Nevertheless, these investor concerns further illustrate the importance of understanding clearinghouse risk practices. With credit risk related to swap exposure now entrusted to the CCP, understanding how that risk is managed should be a top priority for all involved market participants and regulators.

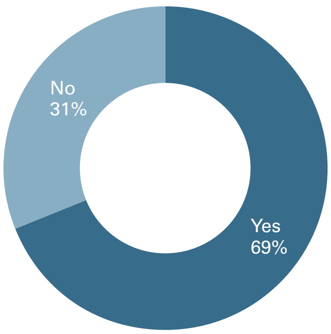
The Risk of Central Counterparty Clearinghouse (CCP) Failure

To this point we've focused on systemic risk reduction and the merits and concerns related to clearing in general. To fully understand the impact clearing has had and will have on systemic risk going forward, we must also examine the risk management practices of the clearinghouses themselves.

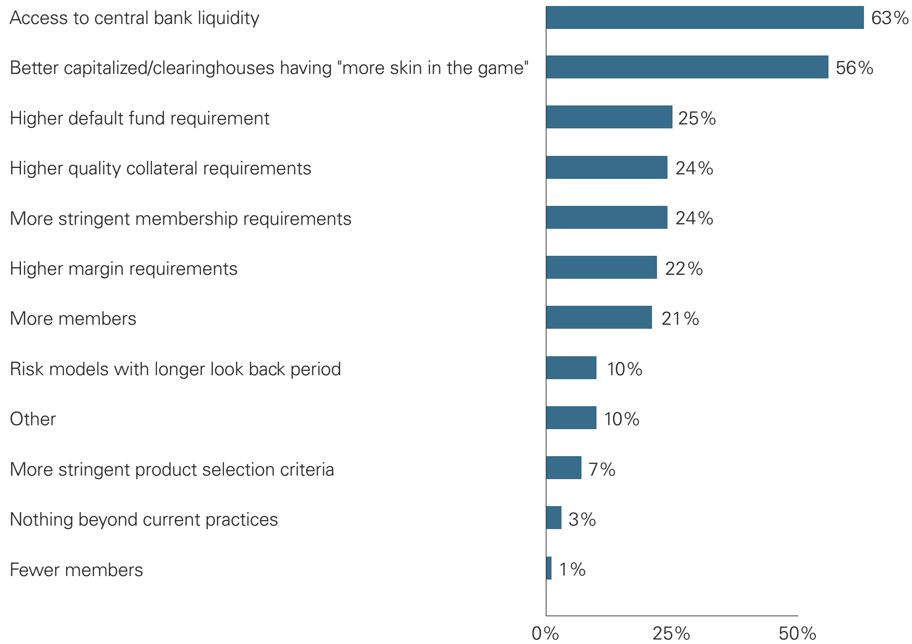
Nearly 70% of investors surveyed believe the major clearinghouses currently have adequate financial

Financial Resources

Does the major clearinghouse currently have adequate financial resources to deal with a major multiple bank default?[1]



What can be done to limit the likelihood that a clearinghouse will fail[2]



Note: [1]Based on 62 respondents in 2014. [2]Based on 72 respondents in 2014.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

resources to deal with a major multiple-bank default. That is a strong vote of confidence in both the risk frameworks of clearing and the firms operating them. Each major clearinghouse has been transparent over the past few years regarding their stress testing, which includes simulating the simultaneous default of their top two clearing members.

Unfortunately, clearinghouse stress-test transparency doesn't guarantee that its users take the time to fully understand what those results show. The deeper the analysis undertaken by investor risk departments, the greater the overall reduction in systemic risk—something we unsurprisingly encourage.

Nevertheless, when asked how clearinghouses can further limit the possibility that they could fail, investors most frequently offered up two hot-button suggestions: providing clearinghouses with access to central bank liquidity and requiring them to have more "skin in the game."

Central Bank Access

While the clearinghouses themselves do not rely on government intervention for risk management, access to central bank liquidity seems obvious. Given the increased importance of clearinghouses to the overall financial system, it should be assumed that the central bank in the jurisdiction of the clearinghouse should be willing to provide liquidity in a crisis situation.

It is important to point out, however, that none of the major clearinghouses look to this guarantee as a part of their risk-management framework. In fact, a red flag should be raised if central bank liquidity is included as a part of the default waterfall, even if that inclusion is implicit. Government support should only come into play in extreme situations of recovery or resolution to limit broad market impact. If bond and repo markets freeze up in a crisis, for instance, then it should be assumed central banks will step in and provide this temporary liquidity until markets normalize.

With that in mind, the Bank of England has provided registered CCPs with access to its Sterling Monetary Framework—a good move. In the U.S., the major clearinghouses have been designated Systemically Important Financial Market Utilities (SIFMU), which while burdening them with additional regulatory oversight and capital requirements, also allows the U.S. Federal Reserve to provide them with liquidity during a crisis. This was not the case prior to the passing of the Dodd-Frank Act. While not explicit discretionary access to the Fed window, the Fed's ability to lend to a CCP does act as a liquidity source of last resort.

But with any government support comes concern over moral hazard and creating a new "too big to fail" entity. Clearinghouses are certainly critical to the financial markets. It is hard to argue that an entity managing trillions of dollars of derivatives contracts isn't systemically important. But as stated earlier, clearinghouses are in the business of minimizing risk while most market participants are in the business of taking risk. Comparing a risk-mitigating institution with a risk-taking institution in this context is not apples to apples, and so calling clearinghouses too-big-to-fail isn't accurate. As such, despite their systemic importance, the likelihood of failure is so remote that denying insurance to the insurer does not create moral hazard and could only be justified via politics, not hard data.

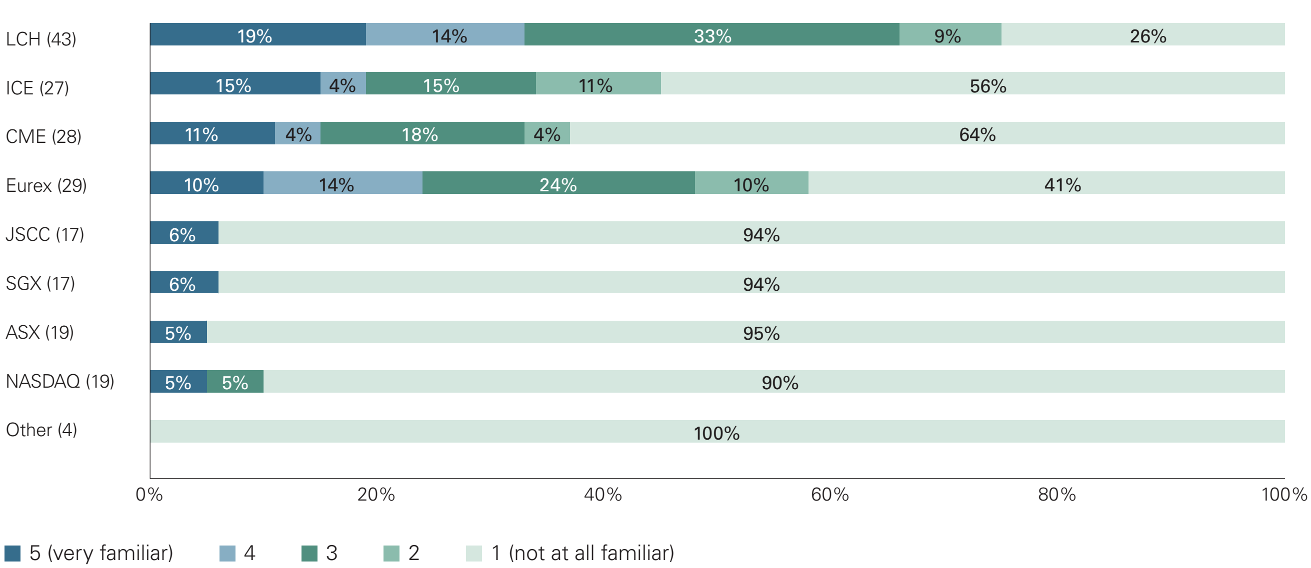
Skin in the Game

Assuming appropriately stringent yet consistent membership requirements, the first line of defense for a clearinghouse is margin. Assuming that margin models are accurate, well tested and properly calibrated, the initial margin collected from clearing members and their clients should be enough to handle a clearing member default with no one losing money but the defaulting member (also referred to as "defaulter pays"). This was the case in the Lehman Brothers default, among several others. Yet clearinghouse "skin in the game" (SIG) has become a hot-button issue as it relates to the systemic importance of CCPs.

Simply put, market participants want to feel as if the clearinghouses have not only their reputation but also their capital on the line to incentivize only the most prudent risk-management practices. European regulators (ESMA) agreed and included a SIG component within their swaps-clearing regulations (EMIR), while U.S. regulators have left the decision up to the competing clearinghouses. Nevertheless, the major clearinghouses globally have their own capital as the second stop in the default waterfall, next in line behind the resources (margin and guarantee fund contribution) of the defaulting member.

Surprisingly there still exists a huge lack of understanding by institutional investors of individual clearinghouse default-management waterfalls. While understanding is expectedly higher for those clearinghouses more heavily used by our research participants, fewer than 1 in 5 investors felt they had a strong

Familiarity With Clearinghouse Default Waterfalls

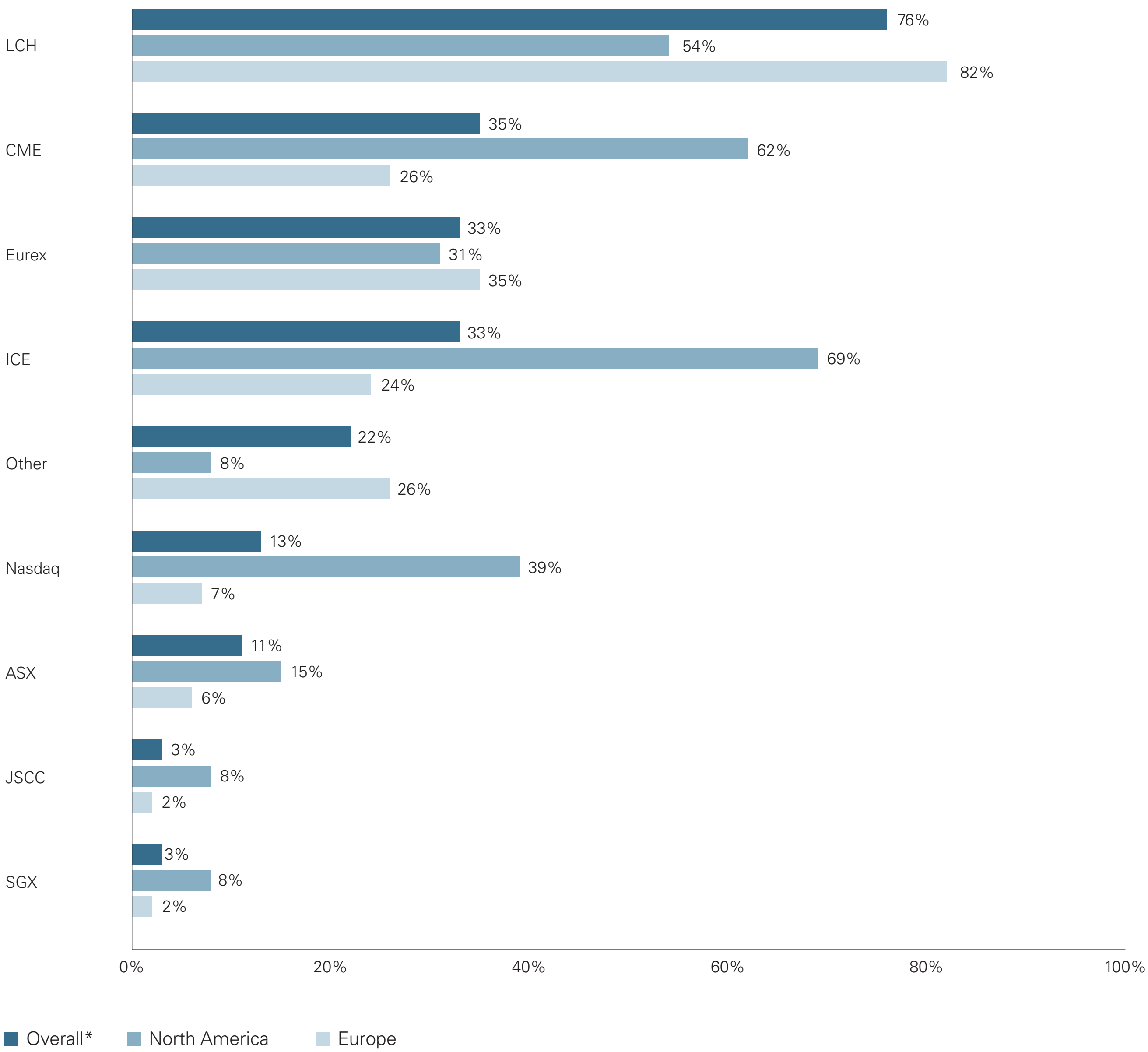


Note: Numbers in parentheses represent respondent counts. Ranked on a scale of 1 (not at all familiar) to 5 (very familiar).
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

understanding of the default waterfall of the CCP(s) at which they currently clear. This limited understanding could play a part in the perception that more skin in the game is needed across the board.

Few debate the importance of SIG. Even the clearinghouses agree that aligning their incentives with those of their members make sense. It is important to remember however that SIG is primarily about aligning incentives and less so about loss absorption, which is managed via margin and guarantee fund contributions. To give a parallel example, hedge fund investors often look to insure the principals of the fund have some of their own money on the line alongside their own. This, of course, does not limit the market risk being taken by the investors, but it does leave them confident that the interests of the fund's managers are properly aligned.

Clearinghouse(s) Currently Used



Note: Based on 72 respondents in 2014, 13 in the U.S. and 56 in Europe. *Overall includes 3 respondents for Australia.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

How Much is Enough?

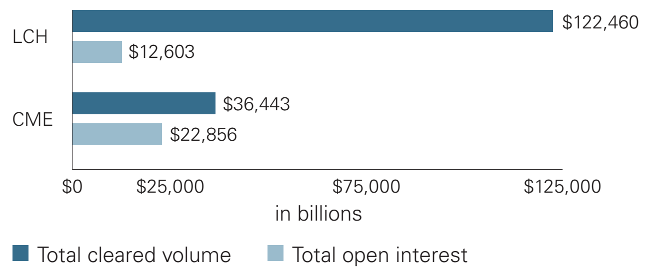
While the need for SIG isn't disputed, how much clearinghouses should put on the line is still very much up for debate. European regulators have taken the lead on this, requiring 25% of the clearinghouse's minimum capital requirements. This is down from an initial proposal of 50%. U.S. regulators have not set a specific number.

Accurately comparing the skin in the game of each major clearinghouse is no small feat. Absolute numbers don't tell all that much as it is also important to understand the default waterfall, the initial margin requirements, guarantee fund contributions, and total risk managed by the clearinghouse as measured by member and client positions. And while SIG is important to understand, examining a single factor provides limited insight to their overall approach to risk reduction.

That said, the SIG approach of European regulators raises the question of CCP capital requirements. In the U.S. the number is based on total operating expenses, assuming that this capital cushion could keep the clearinghouse up and running should its other sources of operating capital disappear. While sensible on the surface, this means that if CCPs decide to spend additional resources on improving their risk management capabilities, they will simultaneously be forced to raise additional capital. This is a case of misaligned incentives.

Market Share—Total Volume Cleared vs. Total Open Interest

(in billions)



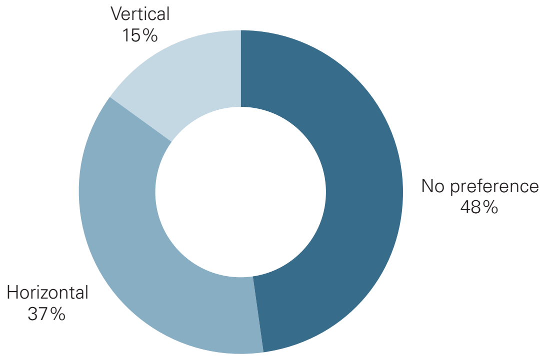
Note: Data reflects self-reported volumes and open interest for cleared interest-rate swaps (USD equivalent) in 2014. CME Group numbers reflect total volume cleared; LCH.Clearnet numbers reflect client-only volumes.
Source: CME Group and LCH.Clearnet

In Europe, capital requirements are based primarily on revenue and operating expenses. While clearinghouses in large part act as industry utilities, they are ultimately for-profit entities that will cease to operate if the increase in capital costs that accompanies revenue growth becomes too much of a burden.

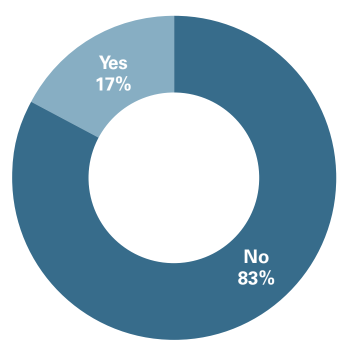
Clearinghouses do, of course, have mechanisms at their disposal to raise capital, but none of them are particularly ideal. They could raise fees—obviously not something the clearing members would support. They could also tap the debt market to raise money, especially today with interest rates so low. However, a clearinghouse with leverage is not something the market should promote.

Clearing Model Preference and Impact on Clearinghouse Selection

Do you prefer a vertical or horizontal trading/clearing model?

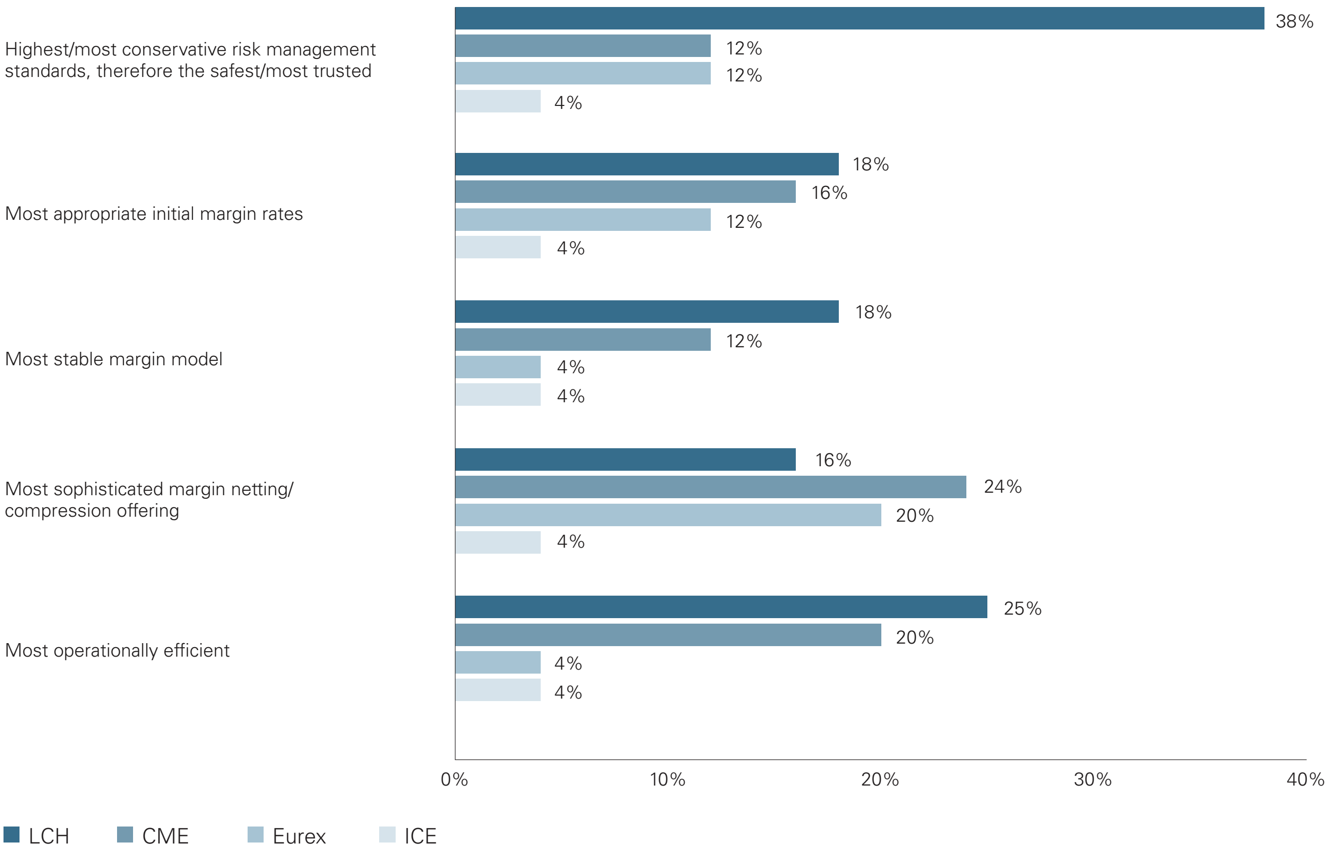


Does your preference impact your clearinghouse selection?



Note: Based on 68 respondents in 2014.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

Investor Perception of Clearinghouses Used



Note: Based on 56 LCH clearinghouse users, 25 CME users, 25 Eurex users and 24 ICE users in 2014. Additional mentions included ASX, JSCC, Nasdaq, SGX, and other.
Source: Greenwich Associates 2014 Systemic Risk and the Impacts of Central Clearing Study

Clearinghouse capital and SIG requirements, therefore, must walk a fine line. While on the surface a larger loss-absorbing cushion seems the best approach to reducing systemic risk, the cost of holding this extra capital on the books must ultimately be passed down to clearing members (and ultimately their clients) via increased fees or higher initial margin requirements. Examining the risk calculations needed to determine the most effective level of SIG and clearinghouse capital is beyond the scope of this research, however. With the cost of clearing already a sore spot for institutional investors, a structural change that adds to the total cost of clearing must be examined carefully.

Market Perceptions of the Largest CCPs

The universe of viable global swaps clearinghouses is relatively limited. The business is heavily regulated and requires a tremendous amount of capital to operate. Yet the combination of market utility status and competition is enough to keep prices and profit margins relatively low. Our study participants as a whole utilize nearly all of these global competitors.

It is important to note that the clearinghouse usage reported here reflects the research base, which is heavily European, and not necessarily market share which is more easily measured using total volume and open interest data. Even open interest data is becoming a less reliable measure of market share as clearinghouses and their members are making a strong push to reduce line items, and hence open interest, through trade compression. In the future, clearinghouse market share analysis will need to include new trade volume, notional outstanding, as well as total notional removed via compression. Nevertheless, we found it important to include study participant usage, volume and open interest data as they collectively provide insight into the data we've reviewed thus far.

As such, the first round of CCP selection is largely behind us. In the U.S. mandatory clearing has been with us for two years, and in Europe, despite perpetually moving timelines, many market participants have already chosen their course of action. Interestingly, although half of study participants have an opinion as to whether the horizontal or vertical clearing model is best, very few stated that their opinion had any impact on the clearinghouse they ultimately chose. So while the flexibility of the horizontal model and the tight integration of the vertical both have appeal to different audiences, it was ultimately product choice and track record that continues to drive buy-side clearing choices.

While the risk management processes that allow clearinghouses to operate effectively are highly quantitative, institutional investor views on which clearinghouses excel in various areas are decidedly qualitative. This may sound like a superficial observation, but keep in mind that trust and relationships remain king in financial markets—and swaps clearing is no exception.

Among clearinghouse users, LCH.Clearnet and CME Group walked away with the highest marks across a number of attributes. Investors tend to have more opinions on those firms with which they do business, so we'd expect the two largest swaps clearinghouses to show well. LCH.Clearnet's SwapClear service was in particular noted as the most trusted, while CME received high marks for its margin netting capabilities.

Conclusion

Greenwich Associates believes that the financial markets are in a safer place today than they were before the financial crisis, and our research participants agree. It cannot be ignored that the "unknown unknowns" are often what create the biggest future risks. However, systemic risk as it relates to those risks that we do understand has certainly been reduced at the hands of financial reform.

Central clearing of derivatives is leading the charge towards systemic risk reduction. Clearing has served to mitigate risk in the derivatives market for decades, and with new global regulations, CCPs are even more heavily regulated and are therefore safer than they've ever been.

We recommend that institutional investors spend more time to fully understand how central clearing reduces systemic risk broadly and credit risk day-to-day. With that knowledge in-hand, we also encourage a deep comparison of key factors between global clearinghouses. Like buying a new car, leather interior and shiny wheels draw you in, but it is the engine, breaks and tires that ultimately keep you safe. As such, understanding membership criteria, margin models, the default waterfall, and the many other factors discussed in this research is crucial. The limited knowledge of individual default waterfalls possessed by our study participants could result in a push for market structure changes that over the long term prove detrimental to the derivatives market as a whole.

The new rules are not perfect, and in some cases create unintended incentives and consequences. Thankfully, we are entering a phase of more thoughtful rule making that will hopefully smooth the bumpier aspects of rules over time. To do this, regulators and market participants must work to fully understand the interconnected nature of the markets, incentivize the proper level of risk management for both risk reducers and risk takers, and avoid injecting insurance costs that do more to cripple the flow of capital than protect it.

Methodology

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The data reported in this document reflect solely the views reported to Greenwich Associates by the research participants. Interviewees may be asked about their use of and demand for financial products and services and about investment practices in relevant financial markets. Greenwich Associates compiles the data received, conducts statistical analysis and reviews for presentation purposes in order to produce the final results. Unless otherwise indicated, any opinions or market observations made are strictly our own.

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