

Chicago Fed Letter

Taking a deep dive into margins for cleared derivatives

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Central counterparties (CCPs) are institutions that become the buyer to every seller and seller to every buyer in cleared markets. By design, CCPs have a matched book of positions. As a result, their liabilities to clearing members with winning positions are exactly matched by incoming payments from those on the losing side of positions.

CCPs have extensive risk-management systems in order to ensure that they remain able to meet their financial obligations, even in the event of a clearing member's default. CCPs manage risk through the maintenance of a "default waterfall" composed of resources from the CCP and its members. The first line of defense in the waterfall is the initial margin posted by clearing members for their open positions. CCPs also mark positions to market at least daily and collect payments, known as variation margin, from clearing members with losing positions that they then pay out to members with winning positions. The collection and payment of variation prevents the buildup of large unpaid losses or gains on a position.

The Federal Reserve Bank of Chicago held its third annual Conference on Central Counterparty Risk Management on October 18, 2016. Industry experts gathered to take "A Deep Dive into Margins for Cleared Derivatives." This *Chicago Fed Letter* provides an overview of the conference discussions.

About 90% of required margin is still driven by volatility, while concentration risks, liquidity buffers, and other considerations determine the remaining 10%.

There were four main topics of the day: the history of CCP margining practices, the effects of current regulatory efforts, antiprocyclicality, and challenges surrounding margin modeling. While not strictly related to margin, the ongoing effects of Brexit on financial markets were also discussed.

History of CCP margining practices

The conference opened with a historical overview of margin-setting practices at CCPs led by two former industry participants. In the past, CCPs relied almost exclusively on volatility to calculate the appropriate initial margin for an open position. The former industry participants recently interviewed several CCPs about their margining practices and found that about 90% of a margin requirement is still driven by volatility, while concentration risks, liquidity buffers, and other considerations determine the remaining 10%. Historically, in the majority of clearing member defaults, the initial margin and default fund contribution of the defaulting clearing member were enough to cover losses associated with the default. They did note that during the 1987 crash, the price volatility in some cleared products greatly exceeded the initial margin held at the International Commodities Clearing House Hong Kong Ltd., demonstrating the importance of maintaining a prefunded default waterfall to cover potential losses that exceed the initial margin of a defaulting clearing member.

One of the former industry participants discussed a notable clearing member default: that of MF Global. During its collapse, MF Global allegedly misappropriated the initial margin held on behalf of its customers for short-term liquidity use. This episode highlights the risks created by the fact that clearing members acting as intermediaries between customers and CCPs are custodians of customer margin.

At the end of the discussion, one of the former industry participants suggested that in the past, the commercial viability of many clearing members depended upon the survival of their CCP, making them more likely to favor conservative risk-management approaches and even occasionally suggest that a CCP raise margin levels. In contrast, this individual argued that now, many clearing members

Read the full text of Swinburne's speech here, <https://www.kayswinburne.wales/news/speech-chicago-federal-reserves-third-annual-conference>.

are large banks whose continued existence does not depend exclusively upon the CCPs at which they clear since the large banks have many non-

trading lines of business. As a result, there appears to be a more remote relationship between CCP management and clearing members. An industry participant in the audience challenged this assertion, arguing that large banks do need their CCPs and therefore seek to cooperate as much as possible.

Current regulatory efforts

In response to the 2007–08 financial crisis, central clearing of standardized over-the-counter (OTC) derivatives was made mandatory. Conference keynote speaker Kay Swinburne noted that the heightened systemic importance of CCPs means that the core functions of CCPs are now subject to additional public scrutiny. Along with greater scrutiny has come more regulation. Swinburne acknowledged the desire of regulators to make CCPs as safe as possible, but cautioned that a balance must be struck so that liquidity and high-quality collateral are not trapped in a CCP in order to “mitigate a once in a million year scenario.”

With regard to general regulatory philosophies, participants discussed the merits of proscriptive versus principles-based regulation. One regulator argued that the Principles for Financial Market Infrastructures (PFMI) and the European Market Infrastructure Regulation (EMIR) are and should be proscriptive. In contrast, Swinburne argued that current European rules suggest outcomes and leave room for CCPs to determine how to achieve them, allowing for a wide variety of approaches and experimentation. This is a benefit, she argued, since “the answer to the question may differ in different circumstances.”

One of the main regulatory issues discussed was the effect of the inclusion of customer margin in leverage ratio calculations. Several participants argued that the current rules undermine clearing members' business models and reduce profitability. Two observed that there are fewer CCPs than there were before the financial crisis in 2007–08 and suggested that the reduction in industry capacity might be an effect of the more stringent regulation now in place.

Swinburne stated that the Basel Committee should consider changing the leverage ratio formula, but only if the issue has been well studied and the evidence supports making a change. Industry participants were broadly in favor of changes to the leverage ratio formula. Several suggested direct clearing as another solution to the problem. **Direct clearing would allow customers to deal directly with CCPs for margin payments while still maintaining a trade-processing relationship with specific clearing members. This would enable clearing members to avoid putting customer margin on their books and thus having to include it in their leverage ratio calculations.** Though not opposed to direct clearing, one industry participant wondered if it was simply “rearranging deck chairs” and suggested that the only long-term solution would be a reform of the leverage ratio formula.

One area in which industry participants suggested regulators could help CCPs was cash management. Currently, European regulations require CCPs to invest large portions of their cash so that it is secured. This can create liquidity problems when a CCP needs quick access to cash but has mainly securities on hand. An industry participant argued that one solution to this problem would be to allow CCPs central bank accounts where they could leave uninvested cash without exposing themselves to counterparty risk.

Antiprocyclical

In the wake of the clearing mandate, the systemic importance of CCPs has increased. As a result, regulators have focused on mitigating procyclicality—actions taken by CCPs or other financial institutions in times of stress that exacerbate negative conditions and strain available liquidity. The increased open interest that CCPs handle due to the clearing mandate makes such efforts especially important since larger positions create larger liquidity demands when margins change in times of heightened market volatility.

There is a tension between the desire of regulators to ensure that in deteriorating market conditions, actions by systemically important institutions like CCPs do not make the situation worse and the desire of individual CCPs to prudently manage their risk exposures, a point noted by Swinburne. As a regulator pointed out, this tension will always exist; since initial margin is not set with a 100% confidence interval, variation margin calls will always play an important role in volatile market conditions.

Some industry participants suggested that the antiprocyclical debate has been too focused on initial margin. They argued that variation margin calls place far greater demands on liquidity than changes in initial margin since the size of variation margin calls dwarfs the amount of initial margin CCPs hold. Others pointed out that while at most CCPs variation margin is a flow from one clearing member to another, and so does not drain liquidity from the overall system, increases in initial margin trap liquidity at the CCP. One industry participant argued that the focus of antiprocyclical efforts must be on initial margin since initial margin requirements are set at the discretion of the CCP. In contrast, this individual argued, variation margin is calculated based upon changes in a position's market price and is not subject to adjustment by a CCP.

Over the course of the discussion, several strategies for reducing the procyclical effects of margin calls emerged. One industry participant on the buy side argued that allowing clearing members to temporarily post securities as variation margin instead of cash would ease liquidity constraints. While this could improve liquidity conditions for clearing members, it could also lead to a liquidity shortfall at CCPs which, though receiving securities from members with losing positions, would still have to pay out variation margin in cash to members with winning positions. Another industry participant argued that in the approach to events that are likely to lead to heightened volatility, CCPs should consider raising initial margin requirements in order to avoid sudden margin calls when the event occurs. Even given these strategies, there will be times when ad hoc margin calls are required in order for a CCP to appropriately manage risk. Several industry participants emphasized the importance of transparency when ad hoc margin calls do occur. They stated that CCPs must make clear what conditions will trigger a margin call and must remain in communication with their clearing members during times of market stress. An industry participant on the buy side stated that such transparency does not currently exist.

Margin modeling and risk management

A key line of defense against procyclical margin changes is an appropriately calibrated margin model. As one regulator argued, a procyclical change in margin levels does not raise margin levels too high, but rather signals that margin levels the previous day were too low. The issue of how to calibrate margin models was discussed in detail at the conference.

One regulator demonstrated that given current back-testing standards, models that embody very different assumptions can still pass the tests. This individual showed how to achieve a more discriminating margining model using the model's ability to predict volatility as a measure of its appropriateness. Another regulator discussed the evaluation of margin models from the perspective of this individual's regulatory agency. Key elements the agency sought to identify were model assumptions, risk factors, and data and econometric challenges. The regulator emphasized that margin models must be applicable to any portfolio the CCP might clear because, unlike banks, CCPs are not able to choose their portfolios. The regulator also argued that regulators and regulatory standards play a role in ongoing risk mitigation by forcing CCPs to better understand their models in order to explain and justify them to their regulators. The need for greater understanding of margin models was confirmed by the head of a CCP, who argued that before the crisis, many industry participants did not understand how the models worked or the way in which model inputs and outputs were related.

In her keynote speech, Swinburne addressed margin model innovation. She suggested several benefits to be gained from greater innovation but argued that it presents challenges as well. She noted that "EMIR explicitly prohibits CCPs [from] competing on risk" and argued that it can be difficult to determine whether changes to margin models are driven by innovation or by greater tolerance for risk.

Margin model innovation is one way in which CCPs differentiate themselves from one another. Others are in the products cleared and CCP ownership structures. Diversity of CCP ownership structures and risk-management practices, as Swinburne noted, might be beneficial in a crisis, as such differences could prevent all CCPs from responding in the same way to an unexpected negative shock. One risk-management practice that some CCPs have embraced is the creation of product silos, each with its own default fund, so that failure in one product category does not lead to a CCP-wide failure.

The transparency of margin models received a great deal of attention throughout the day. As Swinburne pointed out, many CCPs see their margin models as key elements of their business and so do not want to give away information that might be valuable to competitors. She acknowledged that there also might be fears that too much transparency would allow clearing members to game the system. However, Swinburne argued that there must be sufficient transparency to allow clearing members to evaluate the quality of risk management of the CCPs at which they clear. A regulator seconded these concerns about transparency, explaining that the information on many CCPs' websites about their margining models fails to include the parameters necessary to calculate the margins that various positions would require. The leader of one CCP argued for greater transparency, stating that the institution this individual runs allows clearing members and customers complete transparency with respect to their margining model.

An industry participant argued that an important benefit of transparency is that it allows CCPs to use margin requirements to charge clearing members for taking risk and to reward them for hedging risk. Transparency is required to achieve such behavior, as it can only occur if members understand how margin models take risk into account. Transparency can also help clearing members understand and appropriately anticipate potential future initial margin changes. This, in turn, will aid in antiprocyclical efforts.

Implications of Brexit

The focus of the conference was margin at CCPs. However, throughout the day, participants also discussed the potential effects of Brexit on clearinghouses and the financial sector more broadly. Swinburne argued that while the issues to be determined during the Brexit negotiations are complicated, there is a path forward in which London remains a global financial clearing center. She argued that London's financial markets are a regional asset with a global impact and that European politicians

and policymakers should recognize that they benefit from London's strength in finance. In response to concerns that euro clearing would leave London, Swinburne pointed out that most clearing is not geographically tied to the country or region with the greatest interest in the product cleared and that attempts to keep euro clearing within the eurozone would set a damaging precedent. On the subject of equivalence between the UK and the European Union (EU), Swinburne argued that the UK would clearly have equivalence on "Day 1" of Brexit, since UK laws currently comply with EU standards. The greater challenge, she suggested, will be ensuring that as UK and EU laws develop separately, equivalence is maintained. She argued in favor of a formal equivalence regime rather than an ad hoc system subject to political whim.

During the procyclicality discussion, several participants cited the market reaction to the Brexit vote as an example of an event during which heightened volatility led to large variation margin calls. This also represented an example of an event, as one industry participant noted, that market participants knew had the potential to substantially increase volatility. Given the expectations that volatility might increase, CCPs could have raised initial margin in the weeks preceding the vote in order to avoid procyclical margin calls after the referendum. Some CCPs did just that. One leader of a CCP stated that this individual's institution found its initial margin calibrations to be appropriate, even during the market swings caused by Brexit, while variation margin calls were issued and met without any problems.

Conclusion

At the Chicago Fed's third annual Conference on Central Counterparty Risk Management: A Deep Dive into Margins for Cleared Derivatives, participants focused on margining practices at CCPs. Key topics discussed included a historical overview of CCP margining, current regulatory efforts, antiprocyclicality, and margin models. Though points of disagreement and debate emerged, all participants agreed on the systemic importance of CCPs and the need for regulators and industry members to work together to ensure the ability of CCPs to reduce risk throughout the broader financial system.

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