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RISK MANAGEMENT

# CENTRAL CLEARING: A NEW HEADACHE FOR CREDIT RISK MANAGERS

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## Central clearing: a new headache for credit risk managers

The central counterparty (CCP) clearing of OTC derivatives is one of the most prominent current policy and regulatory initiatives in wholesale financial markets. This new reality is being mandated by the G-20, and is being enshrined in various pieces of legislation such as the U.S. Dodd-Frank Act and the EU Regulation on OTC derivatives, central counterparties and trade repositories. In this context, the discipline of counterparty credit risk management will be fundamentally challenged by the introduction of central clearing. Banks will need to review their credit policies and operational processes to cope with the new central clearing paradigm.

With the regulatory push to have most OTC derivatives centrally cleared, banks will see large portions of their counterparty credit risk portfolio transferred to Central Counterparties (CCPs). It is important that credit risk managers understand the implications of such a shift.

Initially one may think that central clearing should make life easier for the credit risk manager. After all, the main idea of central clearing is to “eliminate” counterparty risk, in a similar way to exchange-traded derivatives such as futures. Until recently, few credit risk managers would have worried about any exposure to clearing houses resulting from their positions in exchange-traded options or futures.

However the prevalent view is that the process of central clearing will actually **shift systemic risk** from banks and non-bank financial institutions to CCPs. Far from eliminating credit exposure, this introduces concerns over a new type of concentration risk.

In this paper we will examine the implications of central clearing in terms of:

- The credit analysis of a CCP
- The monitoring of CCP exposures
- The calculation of CCP exposure

## The creditworthiness of a CCP

CCPs are private-sector, profit-making entities, operating in a competitive environment. Whilst the default of clearing house is a rare event, such entities should by no means be considered risk-free or bankruptcy-proof<sup>1</sup>. A diligent credit risk manager should consider the following factors when analysing the creditworthiness of a CCP:

- The financial protection structure of the CCP, in the form of:
  - Initial and Variation Margin policies. CCPs will calculate margins using VaR or proprietary models; different CCPs may use different safety standards, data series and calibration methodologies. If possible, the credit manager should assess the robustness and adequacy of the CCP’s margin requirements.
  - The level of default fund contributions by Clearing Members (funded and unfunded).
  - The level of equity capital in the CCP.
  - Any capital call mechanisms resulting from a resolution plan.
  - Central Bank support. It is likely that CCPs will have access to liquidity support from Central Banks. Which means the Central Bank will be taking credit/solvency risk on the CCP. However, such implicit or explicit support raises the spectre of moral hazard, and could be seen as derivatives risk being picked up (again) by taxpayers.
- Crisis resolution policies. In a similar way to too-big-to-fail banks, governments and regulators are mandating that CCPs be subject to rules enabling them to be wound up in an orderly fashion without imposing losses on the state. Some commentators<sup>2</sup> have likened the assessment of CCP solvency to a Collateralised Debt Obligation (CDO) problem, in that:
  - The CCP has a variety of assets, namely derivatives receivables from its counterparties.
  - It can suffer losses due to default.
  - It has a number of tranches of protection, namely the above-mentioned CCP default ‘waterfall’ structure (where margin is akin to the junior tranche of the CDO, the default fund is the mezzanine tranche, and so on).

One key consideration when assessing the quality of a CDO is the effect of default correlation. If default correlation is low, then senior tranches are relatively safe even if defaults are more frequent than expected. However if default correlation is high, then losses large enough to damage senior tranches are much more probable. In the CCP context this means that one needs to understand what the default correlation of the clearing members is likely to be in markets stressed enough to cause their default. A scenario of volatile and illiquid markets may cause initial margins to be insufficient to cover close-out costs; all clearing members are likely to suffer in these conditions, hence their default correlation will be heightened.

This means that unless a CCP is safe against the default of a significant number of clearing members in volatile markets, it could itself become distressed, possibly causing stress to other institutions.

Operational risk should also be considered when analysing the creditworthiness of a CCP. For example, a flaw in its margin models may cause a collateral shortfall in a severe market disruption; its netting or collateral documentation may be found to be non-enforceable in certain major jurisdictions; procedural or system deficiencies may be fraudulently exploited. Such operational events may cause many clearing members to lose confidence in the CCP, and could even cause the CCP to become insolvent.

### Monitoring of CCP exposures

Once the creditworthiness of a CCP has been assessed, and an internal rating assigned to reflect its probability of default, the bank should establish a 'credit appetite' limit representing the maximum exposure the firm is willing to take on that CCP. Like any other counterparty limits, such CCP limits should be monitored in real-time under a global limits framework.

We believe regulators will expect banks to monitor their exposures to CCPs. Firstly this should be viewed as 'best practice' under a concentration risk framework, as CCPs would certainly be viewed as 'systemically important'. Secondly CCP exposures will be subject to regulatory capital requirements<sup>3</sup>, hence financial institutions will need to be able to calculate, understand, control and report their CCP exposures. Like for any other counterparty risk, exposure to CCPs should also be subjected to a regime of sensitivity analysis and stress testing.

Finally, we believe such monitoring of CCP exposures should extend not only to the clearing of OTC derivatives, but also to Clearing House exposures under listed derivative contracts (futures and exchange-traded options).

### Exposure to the original counterparty?

The clearing of OTC derivatives involves a 'novation' process. The transaction is initially concluded as a bilateral trade between party A and party B, and then communicated electronically to the CCP. If the deal is deemed to be eligible for clearing, a novation will occur where the original trade is replaced by two separate trades: one trade between party A and the CCP and another opposite trade between party B and the CCP. Whilst this novation process is meant to happen reasonably quickly after the conclusion of the bilateral trade, it will by no means be instantaneous.

From a counterparty risk perspective, the exposure initially exists against the bilateral counterparty, and is then transferred to the CCP upon novation. We should however consider the possibility that a transaction may be rejected for clearing by the CCP, in which case the transaction will remain bilateral despite the initial intention to clear it. We therefore recommend that the normal pre-deal checking process should ensure that any bilateral trade comply with the credit limits of the original counterparty, notwithstanding any intention to clear the trade. The subsequent novation process will then transfer the exposure from the original counterparty to the CCP. One may ask whether the novation should be subject to a pre-deal limits check against the CCP limits, but that would not appear to be practical: indeed it would not seem to be legally possible to pull out of a transaction, or a CCP novation, just because a participant has exceeded its credit appetite towards the CCP. We would therefore expect CCP limits to be monitored after the fact rather than pre-deal. The conundrum between checking original counterparty limits and/or checking CCP limits may however introduce some conflict with the Front Office.

### Measurement of CCP exposure

A financial institution's exposure to a CCP will consist of:

1. Any net positive market value of open positions, including future changes with a certain confidence level, that is, 'potential future exposure' (PFE).
2. Initial and variation margins posted to the CCP.
3. Default Fund Contributions (funded and unfunded).
4. Any equity contributions (including future contributions due under capital call mechanisms).

It should be noted that (4) is not strictly speaking 'credit' exposure, but should in our view still be included in a consolidated view of exposure, or 'credit appetite' limits, with a given CCP<sup>4</sup>.

Contributions to the Default Fund, sometimes referred to as the Guarantee Fund, act as a form of mutualised insurance scheme for uncollateralised losses. In the credit system, funded contributions should be represented as a type of loan to the CCP, whereas unfunded contributions should be reflected as contingent exposure similar to a guarantee.

Potential Future Exposure (PFE) should be calculated via a Monte Carlo simulation of potential changes in the market value of positions. The simulation of potential future variation margin is in our view not necessary, as this should track the changes in MTM of the positions.

Initial margins represent a buffer that is meant to cover the CCP's potential change in exposure to the participant after default. We note that this is a one-sided/unilateral type of collateralisation: it is the CCP that is over-collateralised, not the participant. Hence, by virtue of this over-collateralisation, the participant will generally have 'current' exposure to the CCP and not vice-versa.

However, before including margin amounts into the exposure calculation, one should examine the legal and operational aspects of the collateralisation process. We address this issue in the following section.

### Margin segregation

It is important that banks examine how margin collateral is legally provided to the CCP. In a 'title transfer' model, the ownership of the collateral is passed to the CCP, who may use it as it wishes, provided there are no other restrictions. This presents a risk that the recipient may 'co-mingle' the collateral with its own assets, a la MF Global. The margin poster has a senior claim on the CCP for the return of its margin.

In a 'security interest' model, the CCP has a claim over the margin, but it does not legally own it. A trustee or custodian is often used in this situation to ensure the proper segregation of the collateral whilst protecting the interests of both parties. We would expect banks to reflect collateral posted under the 'title transfer' model as credit exposure to the CCP, whereas legally segregated collateral should in our view not contribute to the credit exposure on the CCP.

As an aside, the 'title transfer' model also poses the risk that the CCP is no longer just a clearer: it is an investor of large amounts of margin. Returns on these investments accrue to the CCP, and thus it has an incentive to manage them aggressively. This raises the risk that the CCP could suffer investment losses that may threaten its solvency.

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## Conclusion

Mandatory central clearing of OTC derivatives will have a profound effect on the management of counterparty risk within financial institutions. In this paper, we have raised a number of important credit policy implications, which credit risk management departments need to consider when reviewing their preparedness for central clearing. Some risks, like interdealer counterparty risk, may be reduced. On the other hand, we believe that heightened operational risk and potentially systemic risk may arise from this initiative. Hence banks should be assessing their CCP exposures under a welldefined global credit appetite framework.

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## Appendix

1. Since 1970, three clearing houses have actually failed (Caisse de Liquidation des Affaires en Marchandises, France, 1974 ; Kuala Lumpur Commodity Clearing House , Malaysia, 1983; Hong Kong Futures Exchange, Hong Kong, 1987), and another three narrowly escaped default (CME, United States, 1987; OCC, United States, 1987; BM&F, Brazil, 1999). In all cases this was due to unmet margin calls after an unexpected change in prices.
2. David Murphy 'The systemic risks of OT C derivatives central clearing', Journal of Risk Management in Financial Institutions, April-June 2012.
3. Albeit with a low risk weight of 2 percent, and an exemption relating to CVA capital.
4. Similarly, equity positions should in our view be included under a total exposure appetite limit that includes issuer risk.

### About FIS' Solutions for Risk Management

FIS' Apex Collateral solution helps collateral traders, heads of trading desks, risk professionals, operations staff and senior management manage and optimize their collateral on an enterprise-wide basis. Apex Collateral offers a single platform for trading directly from a real-time, consolidated global inventory as well as supporting operational requirements for underlying securities lending, repo and derivative transactions. It uses numerical algorithms to automatically allocate collateral in the optimal way, helping firms minimize costs and maximize return on assets.

### About FIS

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