P1.T3. Financial Markets & Products

John Gregory, Central Counterparties: Mandatory Clearing and Bilateral Margin Requirements for OTC Derivatives

Bionic Turtle FRM Study Notes

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Gregory, Chapter 1: Introduction

Explain the characteristics of bilateral OTC derivatives trading and the role they may have played in the recent financial crisis.

Identify the regulatory changes implemented after the financial crisis.

Describe the basic characteristics of central clearing and central counterparties (CCP), identifying potential benefits as well as drawbacks.

**Explain the characteristics of bilateral OTC derivatives trading and the role they may have played in the recent financial crisis.**

The global financial crisis (GFC) highlighted the importance of controlling risk in over-the-counter (OTC) derivatives in order to maintain global financial stability. Although OTC derivatives did not cause the GFC, they contributed to amplifying various problems and provided channels for systemic risk to propagate.

A derivative trade is a contractual relationship in force from days to several decades

- During the life of the contract, the two counterparties have claims against each other; e.g., cash flows that evolve as a function of underlying assets and market conditions.
- Derivatives transactions create counterparty credit risk (aka, counterparty risk) due to the risk of insolvency of either party. This counterparty risk creates systemic risk due to derivatives trading volume dominated by a small number of large counterparties who are key nodes in the system.
  - Counterparty risk is the possibility that a counterparty may not meet its contractual requirements under the contract when they become due.
  - Counterparty risk is managed over time through clearing: this can be performed bilaterally, where each counterparty manages the risk of the other, or centrally through a central counterparty (CCP).

A key concern about the global OTC derivatives market is systemic risk: financial system instability exacerbated by the distress of financial institutions. During the GFC, systemic risk arose due to the failure of large institutions and the resulting domino effects.

Bilateral OTC derivatives were at the center of the GFC:

- The large web of OTC derivatives positions between banks and other financial institutions suddenly became a major issue as the creditworthiness of such institutions worsened.
- For example, American International Group (AIG) exploited its strong credit rating to sell protection via credit default swaps (CDS). When AIG could not post additional collateral and was required to provide funds to counterparties in the face of deteriorating reference obligations in the CDS, the US government bailed them out. Politicians and regulators were concerned that default of AIG would ripple through the counterparty chains and create a systemic crisis.
One particular problem in relation to counterparty risk in OTC derivatives is the close out process. When a party to a contract defaults, their counterparties typically need to terminate and replace the underlying trades. In the aftermath of a large default, the OTC derivative replacement process can be associated with market illiquidity and large volatility of prices during a scramble to replace trades. Such problems were illustrated in the Lehman bankruptcy and are a key reason behind some financial institutions being ‘too big to fail’.

In contrast to OTC derivatives, the derivatives market that was cleared via central counterparties (CCPs) or ‘clearinghouses’ was much more stable during the GFC.

- CCPs such as LCH.Clearnet coped well with the Lehman bankruptcy when virtually every other element of the OTC derivative market was creaking or failing. One of the reasons for this is that they had actually prepared for such a situation.
- While CCPs did experienced problems, they were able to transfer or close out a large volume of Lehman derivatives positions without major issues. Within a week of Lehman’s bankruptcy most outstanding OTC-cleared positions were hedged, and within another week most of their client accounts had been transferred. Centrally cleared OTC derivatives were seemingly much safer than their bilateral equivalents.

Identify regulatory changes implemented after the financial crisis

In the aftermath of the GFC, policymakers issued regulatory changes aimed at moving risk away from global banks and the bilateral OTC derivatives market. These changes included:

- Greater bank capital requirements for OTC derivatives
- Mandatory central clearing for certain products, with CCPs emerging as a seeming panacea for financial markets’ stability
- The 2008 G20 meeting defined a goal: “Strengthening the resilience and transparency of credit derivatives markets and reducing their systemic risks, including by improving the infrastructure of over-the-counter markets.”
- Less than a year later the focus on credit derivatives had expanded greatly to cover potentially all OTC derivatives: “All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements. We ask the FSB [Financial Stability Board] and its relevant members to assess regularly implementation and whether it is sufficient to improve transparency in the derivatives markets, mitigate systemic risk, and protect against market abuse.”
- In September 2009, G20 leaders agreed that all standardized OTC derivatives would, in the future, need to be cleared through CCPs. They believe that a CCP can reduce systemic risk, operational risks, market manipulation and fraud, and contribute to overall market stability.
- The Dodd–Frank Wall Street Reform and Consumer Protection Act enacted in July 2010, and the European Market Infrastructure Regulation (EMIR) proposed in September 2010 were legislative responses to this call for new regulation of OTC derivatives. Key parts of Dodd–Frank and EMIR were formal legislative proposals that all standardized OTC derivatives should be cleared through CCPs.
Describe the basic characteristics of central clearing and central counterparties (CCP), identifying potential benefits as well as drawbacks.

An exchange is an organized market where buyers and sellers can interact to trade. Central clearing developed to control the counterparty risk in exchange-traded products and limit problems created by insolvency of an exchange member. **Clearing is a process that occurs after the execution of a trade in which a CCP may step in between counterparties to guarantee performance.**

- The main function of a central counterparty (CCP) is to interpose itself directly or indirectly between counterparties to assume their rights and obligations by acting as buyer to every seller and vice versa. In legal terms, this is called novation.
- After this novation, the original counterparty to a trade no longer represents a direct risk, as the CCP becomes the new counterparty. CCPs essentially reallocate default losses via a variety of methods including netting, margining, and loss mutualisation. The intention is that the overall process will reduce counterparty and systemic risks.

The general role and mechanics of a CCP are:

- A CCP sets specific standards for its clearing members.
- The CCP is responsible for closing out all positions of a defaulting clearing member.
- The CCP maintains financial resources to cover losses in the event of a clearing member default:
  - **Variation margin** to closely track market movements.
  - **Initial margin** to cover worst-case liquidation or close out costs above the variation margin.
  - A **default fund** to mutualize losses in the event of a severe default.
- The CCP also has a documented plan for the very extreme situation when all their financial resources (initial margin and the default fund) are depleted. For example:
  - Additional calls to the default fund.
  - Variation margin gains haircuttering.
  - Selective tear-up of positions.

Due to the membership, operational and liquidity requirements associated with being a clearing member, many end users of OTC derivatives will instead access CCPs through a clearing member and will not become members themselves.
CCPs provide several benefits:

- **CCPs allow netting of all trades** executed through them. In a bilateral market, an institution who is long a contract with counterparty A and short the same contract with counterparty B has counterparty risk. However, if both contracts are centrally cleared then the netted position has no risk.

- **CCPs manage margin requirements** from their members to reduce the risk associated with the movement in the value of their underlying portfolios.

- **CCPs allow loss mutualization**; one counterparty’s losses are dispersed throughout the market rather than being transmitted directly to a small number of counterparties with potential adverse consequences.

- **CCPs can facilitate orderly close out by auctioning off the defaulter’s contractual obligations** with netting reducing the total positions that need to be replaced, which reduces price impact. A well-managed centralized auction mechanism can be liquid, and result in smaller price disruptions than uncoordinated replacement of bilateral positions during periods of pronounced uncertainty.

- **CCPs can facilitate the orderly transfer of client positions** from financially troubled intermediaries. The margins and other financial resources they hold protects against losses arising from this auction process.

But CCPs offer potential drawbacks:

- **Systemically important**: The first obvious problem with mandatory clearing is that CCPs are likely to become “systemically important” which creates a potential moral hazard if it is clear that government financial support (for example, a taxpayer-funded bail out) will be forthcoming in the event of a CCP risk management failure.

- **System-wide liquidity drain**: A second concern is the costs and instabilities that CCPs will introduce by requiring a significant amount of liquid margin to be posted by members and their clients (various estimates put this increase in the trillions of US dollars). A subtle problem is that margining can transmit systemic disturbances as changes in requirements can induce destabilizing trading. For example, firms that must meet large margin calls may respond by selling assets and reducing positions, which in turn puts downward pressure on prices, which in turns triggers further margin calls.

- **Homogenized credit risk enables adverse selection**: A third potential problem is due to the loss mutualization that CCPs use whereby any losses in excess of a member’s own financial resources (mainly initial margin) are generally mutualized across all the surviving members. The impact this mechanism is to homogenize the underlying credit risk such that all CCP members are more or less equal. The most creditworthy market participants may see less advantage of their stronger credit quality with CCP clearing. As with any form of insurance, adverse selection is a problem and can make risk sharing costly. Adverse selection occurs when the insured know more about risks than the insurer. In a clearing context, to the extent where firms that trade OTC derivatives know more about the risks of particular cleared products than the CCP, these firms will tend to over-trade the product for which the CCP underestimates risk, and under-trade the products for which the CCP overestimates risk. CCPs could encourage excessive risk-taking compared to bilateral trading since an institution knows that their potential losses are mutualized among other members. Many firms trading derivatives (e.g. large banks and hedge funds) specialize precisely in understanding risks and pricing, and hence are likely to have better information than CCPs especially for more complex derivatives.