CDS CCPs & Dealer Default: toward Predation or Recovery?

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Introduction

Following the 2008 Subprime Crisis, new legislation (Dodd-Frank) standardised the enormous over-the-counter (OTC) 11.8 Trillion USD bespoke Credit Default Swap (CDS) Market and compressing it into Central Clearing Counterparties (CCPs). To date, multilateral netting, trade compression, proper collateralisation has largely decreased counterparty risk. However, it has also centralised risk into one main entity – ICE clears 80% of CDS market – creating a Global Systemically Important Institution (GSII) whose possible failure is a unique threat to the stability of the global financial network!

Motivation

When Lehman failed only a fraction of its sizeable derivatives holdings were cleared. Though they were quickly closed out by the CCP, this was done at a loss by accepting the predatorily low bids of Barclays Bank – who became a big player as a result.

With 14 top dealers (all GSII’s) owning 80% of notional global CDS market, all members of large CCPs, and 75% of trades dealer-to-dealer.

If a Lehman-sized Dealer failed today?

Would CCP Closeout of defaulter’s positions trigger a default cascade?

Would distressed counterparties liquidate positions?

Would predatory dealers amplify contagion?

Would a CCP fail?

Can CCP microstructure or regulation aid CCP recovery?


The Theoretical Model

Dealers exchange daily variation margin (VM) on CDS notional positions - cleared through CCP. One exogenous dealer default leaves the CCP to close out those positions and meet liabilities. Unmet VM liabilities with the price impact of closeout triggers contagion. Distressed dealer liquidation and unconstrained dealer predation amplifies price impact and contagion effects. Predators make profit by buying back positions at depressed prices. Two guarantee fund structures are analysed for CCP recovery - the current (Pure) fund and a risk-sharing (Hybrid) fund. CCP and dealer resiliency is analysed.

CDS-Spread & Variation Margin

The daily CDS-spread determines variation margin payments. The CCP Closeout of a defaulter’s CDS and subsequent dealer price impact/predation, moves spreads. Fundamentals of underlying cause covariance between CDS. Dealer mutual portfolio holdings cause covariance between counterparties. Covariance between CDS and counterparties arises from dealers’ mutual counterparty chains (web) and VM exchange (delay/default). Price impact moves spreads and VM (change in spread) fluctuates. Rough Example: Negative spread changes make CDS cheaper than the initial contract price; seller must pay buyer the difference.

Trading Price & Trading Rate are affected by Price intransparency. In OTC market means dealers have only partial view of market trading. They misestimate their own optimal trading rates and cause price impact. This moves CDS-spread from its fundamental value. As a result, predators cannot see the effect of their trading, or predatory competition. Therefore, predators can cause their own distress and default!

Price Impact with CDS & Counterparty Covariance

Illustration of dealer (i=4) and counterparty (j=4) CDS (k=4) position nodes and price impact effects on dealer portfolio due to CDS and counterparty covariance.

CCP Closeout

Set at a 5 to 10 day window. Used to set dealer initial margin requirement for Guarantee Fund. Membership requires initial margin - time-window is common knowledge. The predatory dealers buy-back positions after closeout at a profit. Competition results in earlier buy-back (less profit).

Risk-Sharing Guarantee Fund & Margin Refill

Predators’ initial margin used to meet distressed dealer shortfalls. CCP margin call on predators to refill margin account. A punitive mechanism for predation!

Theoretical Results

1. Constrained unwinding always lowers CCP profits. Price impact and covariance increase variation margin for CDS.
2. Predation by one member induces predatory herd behavior.
3. OTC price impact hides market info pushing predators to prey on themselves.
4. Risk-sharing guarantee fund (vs current proprietary) serves as a punitive mechanism. Predatory profits garnished to refill margin - used for distressed dealers’ shortfall.
5. Hybrid fund is CCP-incentive compatible for large dealer default. Protects equity.

Empirical Results & Regulation

Calibrated to OTC data, used to set key market primitives. Dynamic trading mechanism and variation margin exchange produces endogenous default contagion.
1. Defaults and losses are driven by level of distressed banks, not by predator level.
2. Hybrid fund produces conflict between low predatory competition (low profits) and profiting from prey (distressed banks prey). Results in insufficient profits to offset the margin loss.
3. Recommendation for a Lender of Last Resort to target liquidity injection at maintaining low distress level.
4. Hybrid fund is more profitable, especially low crisis liquidity.

Defaults in Normal Liquidity

Defaults in Crisis Liquidity