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 (CCP)**. 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!

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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 larges 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?**

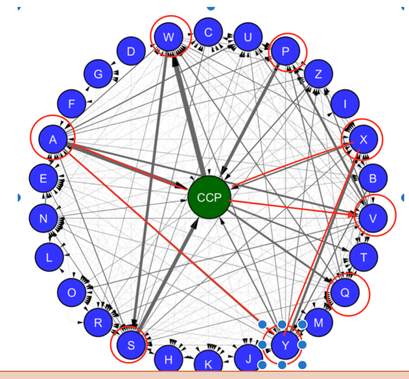
Would predatory dealers *amplify contagion?*

Would a CCP *fail?*

Can CCP microstructure or regulation aid *CCP recovery?*

Image (right): Dealers exchange daily VM margin, creating short-term CDS liabilties. Dealer default triggers *upstream and downstream* distress. Constrained CCP closeout triggers CDS-spread fluctuation.

Variation Margin Exchange



26 Dealer Network in ICE Clearing (Paddrick et al.)

The Theoretical Model

Dealers exchange **daily variation margin (VM)** on CDS notional positions - cleared through CCP. One **exogenous dealer default** leaves the CCP to closeout those positions and meet liabilites. 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.

The Network Simulation

- Star-Shaped Network (above)
- **1** CCP (center)
- **14** Dealers (orbit)
- **100** CDS (entities)
- **1** Dealer Default (initial trigger)
- **3** Periods (Closeout, Buyback, Recovery)
- **2** Guarantee Funds (Pure vs. Hybrid)

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 countparties 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 instransparency**. 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!

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).

Price Impact with CDS & Counterparty Covariance

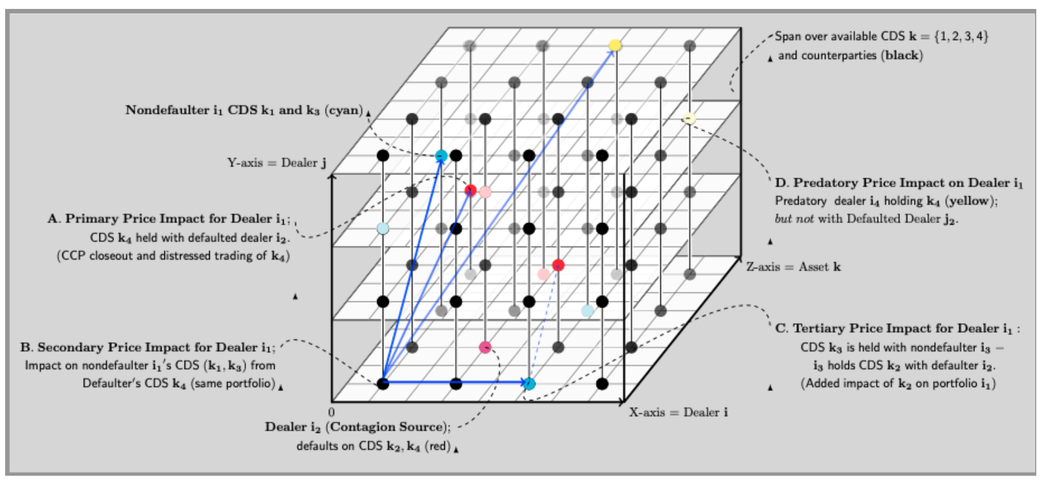


Illustration of dealer (i=4) and counterparty (j=4) CDS (k=4) position nodes and price impact effects on dealer portfolio due to CDS and counterparty covariance.

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

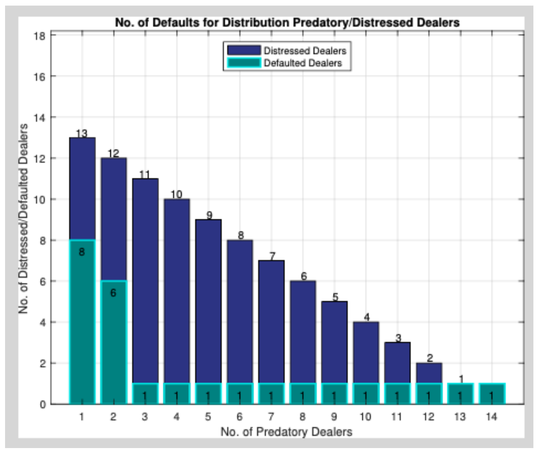
1. Constrained unwinding always **lowers CCP profits**. Price impact and covariance increase variation margin for CDS.
2. Predation by one member induces **predatory herd behavior**.
3. OTC price impact **hides** market info pushing predators to prey on themselves.
4. Risk-sharing guarantee fund (vs.current 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