Central Counterparties

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Questions

1. Why do CCPs exist?

2. Why is their governance structure important?

3. When do certain governance structure arise?
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   - collateral facility
   - novation and redistribution of default risk (Bernanke (1990) and Ripatti (2001))

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3. When do certain governance structure arise?
   - degree of heterogeneity (trading benefits vs. default costs)
   - risk of the instrument traded or general market risk
   - competition
Model

► t=0: People are identical
  ▶ random trading needs
  ▶ limited amount of cash

► t=1: People can be in three situations
  ▶ no trading needs (prob. \(1 - \pi\))
  ▶ risk-averse and risky security (prob. \(\frac{\pi}{2}\))
  ▶ risk-neutral and riskless future endowment (prob. \(\frac{\pi}{2}\))

► t=2: Security’s pay-off realized

► Limited commitment
  ▶ strategic default
  ▶ people need incentives to honour their promises
No trade

Model captures rationale for futures trading

- sellers want to hedge against risk in the future
- buyers want to take on this risk
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Result: No trading is possible.
CCP enables trade

Collateral facility

- default fund $f$ at $t = 0$
- margin call $m$ at $t = 1$
- cost: $\alpha$ per cent of collateral posted

CCP

- covers default by requiring collateral (novation)
- can redistribute default costs among people (anonymity)
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Result: Trade at $t = 1$ is then possible

- futures contract at $t = 1$
- net settlement in cash at $t = 2$
- incentives to honour the contract
User- vs. Profit-oriented CCPs

Allocation of control rights matters (Hart and Moore (1990, 1995))

- commitment problems for institutions
- governance structure fills in contractual “voids”

User-oriented CCP

- maximizes utility of the majority of users (median user)

Profit-oriented CCP

- maximizes revenue/profit (marginal user)

We abstract from default of the CCP.
No unsecured default risk

When collateral is enough to secure *all* default exposure...

User-oriented CCP

▶ minimizes collateral costs for users
▶ uses default fund only when margin calls too costly to support trade

Profit-oriented CCP

▶ maximizes profits from collateral posted
▶ prefers the default fund to extract more rents
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Result: There are two inefficiencies from profit-orientation.

1. Overcollateralization
2. Higher default fund contributions
Unsecured default risk

When collateral is not enough to cover all exposure if default risk increases...

⇒ CCP has to redistribute residual cost from default among non-defaulting users

⇒ Heterogeneity leads to conflict of interest

▶ some users have small gains from trade, but bear residual costs of default

▶ other users have large gains from trading, but increase default risk
Optimality of For-Profit

User-oriented CCP shuts down trading when risk increases.

▶ majority of users prefers no trade (hold-up problem)
▶ avoids default, but no gains from trading

Profit-oriented CCP still enables trade.

▶ does not bear default costs
▶ considers the marginal user that gains from trade
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Result: Profit-orientation if

Expected net benefits from trading when risk increases

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Costs of inefficient collateral policy + Expected hold-up costs
Example

\( \eta \) - likelihood of risk increase
\( \pi_{\text{hat}} \) - degree of heterogeneity
\( \Delta U \) - net gain from profit-orientation
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$\eta$ - likelihood of risk increase

$\pi_{\text{hat}}$ - degree of heterogeneity

$\Delta U$ - net gain from profit-orientation

![Critical value of $\eta$ ($\sigma=2$)](image-url)
Example

$\eta$ - likelihood of risk increase

$\pi_{hat}$ - degree of heterogeneity
Summary

CCPs enable trade:

- collateral facility
- redistribution of default risk

Governance structures matter:

- heterogeneity and redistribution of default costs
- conflict of interest (volume of trade vs. associated default risk)
Implications

1. For-profit CCPs rely relatively more on default funds than on margin calls.

2. For-profit CCPs operate in more competitive markets.

3. Markets with large heterogeneity and high risk favour profit-orientation. (e.g. OTC, see Kroszner (1995))

4. Controling for these characteristics: no difference in volume of trade and default.