

Discussion of:

# The Emergence and Future of Central Counterparties

*by Koepl and Monnet*



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# Overview

- Nice paper
- The role of central counterparties is a hot (and important) topic
  - paper takes a “basic” approach
  - reading it helped me understand the issues involved
- What I will do:
  - review the environment
  - discuss efficient allocations and the role of a CCP
  - offer a few comments

## The basic model

- A two-period GEI model (*an excellent starting point*)
  - two types of agents, farmers and bakers
  - farmers decide how much to produce at  $t = 1$
  - aggregate state  $\theta$  revealed at  $t = 2$

⇒ spot market price at  $t = 2$  is stochastic
- For the moment, ignore default/death (set  $\delta = 0$ )

- In any Pareto optimal allocation, total production/consumption is independent of  $\theta$ 
  - this fact is key to understanding the results
  - depends on the particular assumptions of the model
  - (i) the utility of producing/consuming asset does not depend on  $\theta$
  - (ii) the decision of how much wheat to produce is made at  $t = 1$
  
- With no markets at  $t = 1$ , equilibrium is not Pareto optimal
  - farmers' consumption depends on the spot market price at  $t = 2$
  - inefficient risk sharing

## Asset markets

- Complete markets would require trade in state-contingent claims (or equivalent) at  $t = 1$ 
  - with a continuum of states, this requires a continuum of assets
  - here: study incomplete markets
- Suppose there is one asset at  $t = 1$  : a futures contract
  - exchange one unit of  $t = 2$  wheat for  $p_f$  units of  $t = 2$  asset
  - markets are still “very” incomplete

- In this model, the equilibrium with futures contracts is identical to the complete markets equilibrium
  - somewhat surprising ...
  - but P.O. allocations have a specific structure: production and consumption do not depend on  $\theta$
  - the futures contract spans the “relevant” part of the space of allocations
- Property is useful because it focuses attention on a particular issue
  - what one wants in this environment is (default-free) futures contracts
  - outside of this, the incompleteness of markets does not matter

# Default

- The problem becomes more interesting when default is a possibility
  - a natural issue with dynamic contracts
- Reason for default could be:
  - **insolvency**(i.e., death); done in the paper, **or**
  - **strategic**; done in the appendix
- Farmers are matched with an individual baker; face default risk
  - cannot contract with a diversified set of counterparties
- These frictions generate a role for a centralized trading/settlement institution

## The efficient institution

- What type of institution could achieve the efficient allocation?
- Suppose a centralized institution could contract with
  - all farmers (measure  $\gamma$ )
  - *more* bakers (measure  $\frac{\gamma}{1-\delta} > \gamma$ )
- Then default by a fraction  $\delta$  of bakers would cause no problems
  - anticipates that only  $\gamma$  of the  $\frac{\gamma}{1-\delta}$  contracts will be honored
  - can match each farmer with a surviving baker
  - creates “default free” futures contracts



## A central counterparty

- The paper shows that an institution resembling a real-world CCP can *almost* achieve this ideal allocation

### (i) Novation

- CCP provides insurance against idiosyncratic default risk
- effectively allows farmers to trade with a diversified set of bakers
- however, wheat associated with defaulted contracts still must be sold in the spot market, which exposes farmers to price risk

### (ii) Mutualization of losses

- bakers who do not default are charged a state-contingent fee  $\phi(\theta)$
- fee schedule is chosen so that it exactly offsets the price risk

- The CCP does not quite achieve my “ideal” solution
  - with a CCP, only  $\gamma$  bakers sign forward contracts
  - uncontracted bakers buy in the spot market at price  $p(\theta)$
  - contracted bakers (who do not default) pay the forward price plus a fee  $p_f + \phi(\theta)$
  - in the “ideal” solution, all wheat is sold at price  $p_f$
  
- In this model, the difference does not matter
  - bakers have linear utility in the payment asset
  
- ⇒ The equilibrium allocation with a CCP is welfare equivalent to my ideal allocation

## OTC trading

- Paper then introduces trade in specialized (baker-specific) wheat
  - trades are over-the-counter in the sense that it is no longer a general commodity being traded
- This brings the model closer to the currently policy debate
  - large banks have recently agreed to clear more OTC derivatives trades through CCPs
- A CCP for general wheat makes OTC trade relatively less attractive
- But ... afa CCP for OTC activity increases the volume of trade
  - more work to be done here

## Comments

- The paper addresses an interesting issue
  - there is a lot of talk about CCPs in policy circles
  - we need good models to help frame the discussion
- I like the general (equilibrium) approach
- Some comments/questions:

(1) The model is clearly special in some dimensions

- makes things tractable, but ...
- does the usefulness of an institution that resembles a CCP depend on these features?

## Comments (cont.)

### (2) Mutualization of losses is a key element

- CCP needs to insure farmers as a group against price risk
  - does so by imposing a price-contingent fee on bakers
- What does this fee correspond to in reality?
  - do CCPs impose losses on one side of a market?
  - recall: the losses here are not from an unexpected default
  - how should we interpret  $\phi(\theta)$ ?
- It would be nice to relate this assumption better to what CCPs do

## Comments (cont.)

### (3) Aggregate default risk

- Here there is no aggregate uncertainty about amount of default
- Many of the interesting design issues for CCPs relate to what happens following a “large” default
  - a CCP can prevent a chain reaction of defaults
  - however, it also *concentrates* risk on a single counterparty
  - does a CCP make the market more robust to large shocks?
- Can this model be extended to address these and related issues?