

# **Imperfect Competition in the Inter-Bank Market for Liquidity as a Rationale for Central Banking**

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Discussion by

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# Comments

- Mechanism of the Model
- Intuition
- Comment 1: Model
- Comment 2: Loan commitments
- Comment 3: Policy implications
- Additional comments

# Mechanism of the Model

- Two banks
  - Distressed bank ( $A$ ) needs liquidity (funds)
  - Well-capitalized bank ( $B$ ) has plenty of liquidity
- **Limited pledgeability** (as in Holmström and Tirole (1998)):
  - Distressed bank cannot pledge more than

$$p_H(R - R_b) = p_H \left( R - \frac{b}{\Delta p} \right)$$

since otherwise not enough at stake to have incentive to monitor.

- **Specificity:** Assets more valuable in hands of distressed bank

$$p_H R > p_B(\theta) R, \quad \forall \theta$$

and the higher  $\theta$ , the less specific/more liquid assets

- **Trade-off:** Asset sales raise more funds but are inefficient

$$p_B(\theta) R > p_H(R - R_b), \quad \forall \theta$$

## Mechanism of the Model (Cont'd)

- Well-capitalized bank has **market power** ex post
  - Model has 3 rounds of offers: (i) distressed bank makes offer, then (ii) well-capitalized bank, then (iii) distressed bank (offer to outsiders or central bank).
  - Can first round be dropped?
  - Well-capitalized bank makes offer to distressed bank given distressed bank's outside option  $X_A$  determined by payoff in negotiation with outsiders/central bank.
- Least cost way of delivering payoff  $X_A$  to distressed bank
  - Let them keep least liquid assets (up to  $\hat{\theta}_B$ ) and get rent  $\frac{b}{\Delta p}$  from these

$$\int_0^{\hat{\theta}_B} p_H R_b dF(\theta) = X_A$$

- Higher  $X_A \Rightarrow$  higher  $\hat{\theta}_B \Rightarrow$  less socially inefficient liquidation.

# Mechanism of the Model (Cont'd)

- **Outsiders**

- Less efficient still  $p_H > p_B(\theta) > p_o(\theta)$ ,  $\forall \theta$ , and (weakly) worse monitoring ( $b_o \geq b$ ).
- Distressed bank again retains least liquid assets ( $\theta \leq \hat{\theta}_o$ ).
- Better monitoring by outsiders improves distressed bank's outside option.

- **Central bank** (alternative to outsiders)

- Without monitoring advantage or willingness to make loss, no role!
- With willingness to make loss (out of equilibrium), improves distressed bank's outside option.
- With monitoring advantage ("supervision"  $b_o \geq b^{CB} \geq b$ ), again improvement.

# Intuition: “Price gouging rationale for central banking”

- Argument:
  - Market power of well-capitalized bank leads to inefficient liquidation to extract funds from distressed bank.
  - Central bank can improve outside option and hence reduce market power and liquidation.
- “Price gouging”
  - ... distressed bank keeps to few of its assets.
  - ... by offering an outside option central bank reduces price gouging

## Comment 1: Model

- Very nice model of trade-off between reallocation of funds and reallocation of assets
  - Many models have reallocation of funds: e.g., Holmström and Tirole (1997).
  - Few models with reallocation of assets: Shleifer and Vishny (1992), Gorton and Huang (2004), Eisfeldt and Rampini (2006).
- Link between supervisory role and lender of last resort role.

## Comment 2: Loan Commitments

- Why not line up financing for liquidity needs **ex ante**?
  - Without market power ex ante, this would solve the problem here (since there is no aggregate liquidity shortage) (see Holmström and Tirole (1997)).
  - In practice, such credit facilities exist.
- Other limitations
  - Exogenous liquidity need
  - Exogenous distribution of liquidity (particularly important for policy implications)
  - Total transfer of liquid funds  $T = \int_0^{\hat{\theta}_B} \rho dF(\theta)$  determined, but split between price of assets and loan indeterminate.
    - Different from Brunnermeier and Pedersen (2005) and Carlin, Lobo, and Viswanathan (2007).



## Comment 3: Policy Implications

- Model's policy implication:
  - Central bank strengthens distressed banks bargaining position by providing attractive outside option.
- **Bans on “price gouging” lead to stock-outs!**
  - Ex ante effect on liquidity provision.
  - High returns on liquid funds ex post are reward for the prudent who keep funds available (presumably at lower returns).
  - Citadel, Virgin Capital, Dubai International Capital, others ... provide capital to E-Trade, Northern Rock, Citigroup, UBS ...
- Even ex post, outsiders might be crowded out by the central bank.
  - Suppose cost of joining bargaining; more efficient outsiders might not join negotiations if they expect central bank to out-bid them (due to willingness to take loss).
  - Northern Rock?
  - Could be addressed by considering case with both outsiders and central bank.

## Additional Comments

- Comment 4: When is there imperfect competition in inter-bank market?
  - “public provision of liquidity ... even when ... no aggregate shortage of liquidity.”
  - Does this imply that the central bank should always intervene in inter-bank market?
- Comment 5: Historical evidence
  - Interesting; how do we know that rates exceed competitive level during these episodes?
- Comment 6: Correlation of loan payoffs
  - Holmström and Tirole (1998) need to assume all loans are perfectly correlated; is there similar implicit assumption here?

# Conclusion

- Interesting model of trade off between lending and asset sales.
- Is market power the most important issue determining liquidity provision in inter-bank market?
- Caution with policy implications
  - Ex ante effects might dominate!