Liquidity Hoarding and Interbank Market Spreads: The Role of Counterparty Risk

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The views expressed are solely those of the authors.
Interbank market: 3 distinct phases

- 9th Aug. 07
- 28th Sep. 08

Basis points

Volume (bn EUR)
Research questions

- Why has the market been dysfunctional for so long?

- What is the underlying friction?

- How does the friction relate to the roots of the crisis?
  - illiquidity clogging the financial system
  - role of risk and asymmetric information

- How do policy responses hold up against the friction?
What do we do?

- Study interbank market in the presence of counterparty risk
- Parsimonious model to:
  - understand qualitative developments
  - shed light on policy responses
- Environment:
  - maturity transformation, tradeoff between liquidity and return
  - idiosyncratic liquidity risk; no aggregate liquidity shocks
  - counterparty risk caused by banks’ risky illiquid assets
- Introduce asymmetric information about counterparty risk:
  - privately-observed shocks to asset risk after portfolio allocation
What do we get?

- Three possible regimes with different market rates (depending on parameters):
  - I. full participation of borrowers and lenders
  - II. safe borrowers drop out $\rightarrow$ adverse selection
  - III. market breakdown:
    - all lenders drop out $\rightarrow$ liquidity hoarding
    - all borrowers drop out
Banks offer demandable deposits.

Banks invest into a safe liquid and a risky illiquid assets.

Idiosyncratic liquidity shocks and shocks to illiquid asset’s risk realized.

Banks borrow and lend on an interbank market at an interest rate $r$.

Additionally, they can convert part of the illiquid asset holdings into liquidity and/or reinvest in the liquid asset.

A proportion of customers withdraw deposits.

The return of the illiquid long-term asset realizes.

Interbank loans are repaid.

The remaining customers withdraw deposits.
Comparative statics: Level and dispersion of risk
Interbank market: Hoarding of liquidity

- Lehman bankruptcy
- Wash. Mu. seized & sold
- TARP negotiations stall
- Fortis
- Wachovia
- HRE, B&B
- Glitnir
- ECB corridor narrows
- Full allotment by ECB

**Graph:**
- Y-axis: Liquidity outstanding (bn EUR)
- X-axis: Dates from 25.8. to 3.11.
- Bar chart: Net stock of liquidity outstanding
- Line chart: Eonia volume

**Notations:**
- 25.8.
- 1.9.
- 8.9.
- 15.9.
- 22.9.
- 29.9.
- 6.10.
- 13.10.
- 20.10.
- 27.10.
- 3.11.
Further empirical implications

- Market breakdown due to liquidity hoarding:
  - riskier banks insolvent, $p_r R < 1$
  - see “stress testing” exercise

- Raising deposit rate reinforces hoarding
  - ECB reduced corridor on Oct. 9, widened it again on Jan. 21

- Safer banks (with less illiquid assets) leave unsecured market
  - banks were afraid that borrowing at high rates would send “a bad signal”
  - banks with good collateral could borrow more cheaply in Eurepo than from the ECB
Policy responses (in a crisis)

- Liquidity provision by the central bank:
  - at a subsidized interest rate
  - but CB still makes profit ← unit cost of (public) liquidity
  - CB can take on liquidity from lenders → full intermediation

- Interbank loan guarantees:
  - must be sufficiently comprehensive
  - partial guarantee: less cost on principal, more cost on interest

- Asset purchases: CB not exposed to market liquidity risk
  - set $P$ to reflect only average counterparty risk: $P = pR > l_θ$
Thank you!