The Euro Area Interbank Market and the Liquidity Management of the Eurosystem in the Financial Crisis

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1 Introduction

• Current Financial Crisis:
  severe turbulence in the euro area money markets

• Stylized Facts:
  1. Increased borrowing from the central bank
  2. Systematic and massive use of the deposit facility
  3. Systematic but not massive use of the credit facility
  4. EONIA below the MRO-rate
  5. Decreased interbank market transactions

• Aim:
  - Explanation of these stylized facts, theoretical model
  - Discussion of some policy implications
1 Introduction

Increased borrowing from the central bank

Fig. 1: Reserves: Banking Sector’s Needs and Provision by the Eurosystem, EUR Billions, Data: ECB

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Systematic and massive use of the deposit facility

Fig. 2: Use of the Deposit Facility, EUR Billions, Data: ECB
Systematic but not massive use of the credit facility

Fig. 3: Use of the Credit Facility, EUR Billions, Data: ECB
EONIA below the MRO-rate

Fig. 4: EONIA and Key ECB Interest Rates, Percentage, Data: Deutsche Bundesbank

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Result:

- **Explanation of the stylized facts:**
  - **Combination:**
    - high IBM participation costs:
      - Financial crisis:
        - high bank asset losses, high degree of uncertainty
        - more intensive checking/signalling of creditworthiness
        - credit lines were cut: search costs ↑
        - no credit risk: for some banks participation costs prohibitive
    - "unlimited" availability of relatively cheap ECB-liquidity
  - Deficit banks prefer/are forced to borrow from the ECB
  - Excess liquidity banking sector:
    - interest rate ↓
    - surplus banks: deposit facility (no precautionary motives)
  - ECB: intermediary function, replaces the IBM

- **Policy Implications:**
  - Aim: Reactivating IBM
  - there are possibilities, but may be not at present, gradually
Literature:

- **US Interbank Market:**
  - Furfine (2000)
  - Bartolini, Bertola und Prati (2001)

- **Euro Area Interbank Market**
  - Bindseil (2000)

- **Interbank Market and the Financial Crisis**
  - Allen, Carletti und Gale (2009)
  - Ashcraft, McAndrews und Skeie (2009)
  - Bruche und Suarez (2010)
  - several ECB working papers by Eisenschmidt, Heider, Hirsch, Holthausen, Linzert, Tapking
Structure:

1 Introduction

2 Model: Framework and Results

3 Discussion (Stylized Facts, Policy Implications)

4 Summary
2 Model: Framework, Results

Framework

• Commercial Banks:
  - each bank: an uncertain, autonomous liquidity surplus or deficit*
  - borrowing liquidity: central bank (RO, credit facility), IBM
  - placing excess liquidity: central bank (deposit facility), IBM
  - Objective: minimizing expected liquidity costs

• Central Bank:
  - RO: collateral, fully satisfied, rate: $i^{RO}$
  - credit facility: collateral, rate: $i^{CF} > i^{RO}$
  - deposit facility: rate $i^{DF} < i^{RO}$
  - rates on facilities form a symmetric corridor:
    $(i^{DF} + i^{CF})/2 = i^{RO}$

• Interbank Market:
  - borrowing and lending liquidity, rate: $i^{IBM}$
  - participation costs
*Uncertain, autonomous liquidity needs:

- Two types of commercial banks.
  - Bank $a$: uncertain deficit
  - Bank $b$: uncertain surplus

- On aggregate: deficit which is always the same.

<table>
<thead>
<tr>
<th></th>
<th>Deficit-bank $a$</th>
<th>Surplus-bank $b$</th>
<th>Total Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 1</td>
<td>80</td>
<td>-60</td>
<td>$D=20$</td>
</tr>
<tr>
<td>State 2</td>
<td>100</td>
<td>-80</td>
<td>$D=20$</td>
</tr>
</tbody>
</table>
Objective of each bank:
Minimizing expected liquidity costs by choosing optimal
- central bank borrowing RO
- interbank market transactions
- use of the facilities

Sequence of moves:
1. each bank decides under uncertainty on RO
2. each bank learns its actual autonomous liquidity needs
3. each bank decides on its use of the interbank market and the facilities

Solving the model:
backward induction
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Fig. 5: Equilibrium Borrowing and Lending
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Fig. 5: Equilibrium Interbank Market Rate
3 Discussion

Crucial for explaining stylized facts: high participation costs

1. interbank market transactions ↓

2. banking sector’s borrowing from the ECB ↑:
   deficit banks prefer/are forced to borrow from the ECB

3. use of the deposit facility ↑:
   surplus banks use the deposit facility**

4. use of the credit facility ↑:
   deficit banks in case of high liquidity needs

5. EONIA below the MRO-rate:
   full allotment, excess liquidity in the banking sector
Policy Implications:

- **Financial crisis: extraordinary challenges to the Eurosystem:**
  - Monetary policy
    - Primary objective: price stability
    - Support general economic policy
  - Liquidity management
    - Properly working transmission mechanism
    - Stabilizing banking sector

- **Financial crisis: participation costs ↑**
  → malfunctioning interbank market for reserves
  → impediment of transmission mechanism
  → destabilization banking sector

⇒ Eurosystem replaced IBM, intermediary function
• Intermediary function: temporary solution
  aim: reactivating IBM

• Possibilities:
  - participation costs ↓;
    cannot be done by the ECB
  - Borrowing from and placing liquidity at Eurosystem less attractive;
    Problem: costs of the banking sector increase
    → trade-off
  - Possibility: undertaking these measures gradually over time
4 Summary

• Stylized Facts:
  - interbank market transactions ↓
  - borrowing from the ECB ↑
  - use of the deposit facility ↑
  - EONIA below policy rate

• Model:
  - banks facing a liquidity deficit/surplus
  - central bank: RO, lending facility, deposit facility
  - Banks: minimizing liquidity costs, IBM and/or central bank

• Explanation stylized facts:
  - increased participation costs
  - Eurosystem: intermediary
  - excess liquidity banking sector

• Policy Implications:
  - Aim: reactivating IBM
  - possible measures central bank: trade-off, therefore, gradually
Thank you very much for your attention!