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

Achim Hauck
Heinrich-Heine-University Duesseldorf

Ulrike Neyer
Heinrich-Heine-University Duesseldorf

September 30, 2010
Conference: The Future of Monetary Policy
Einaudi Institute for Economics and Finance, Rome

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

Increased borrowing from the central bank

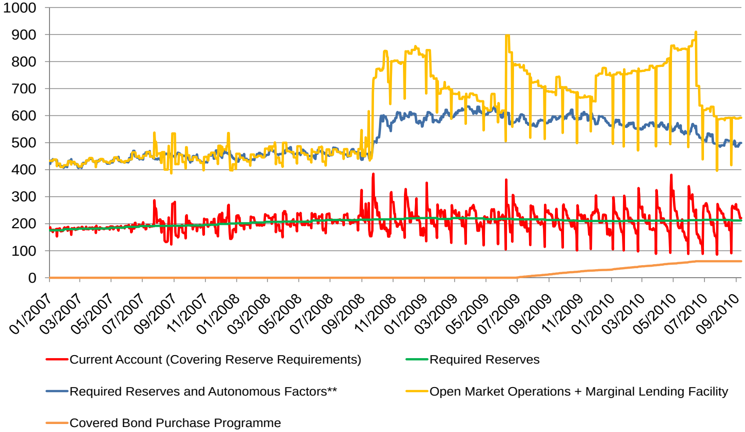

Fig. 1: Reserves: Banking Sector's Needs and Provision by the Eurosystem, EUR Billions, Data: ECB

Systematic and massive use of the deposit facility

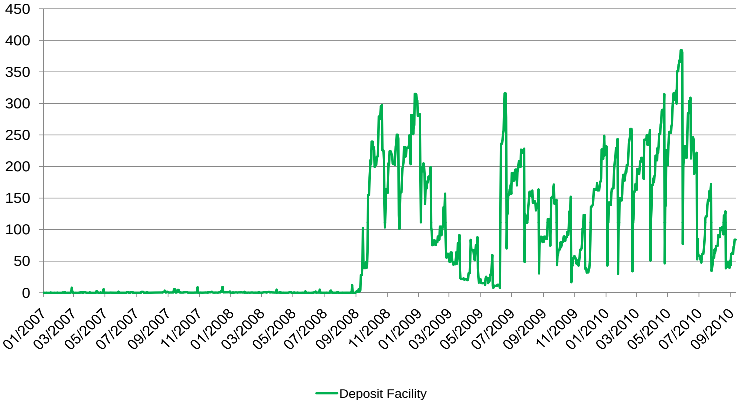

Fig. 2: Use of the Deposit Facility, EUR Billions, Data: ECB

Systematic but not massive use of the credit facility

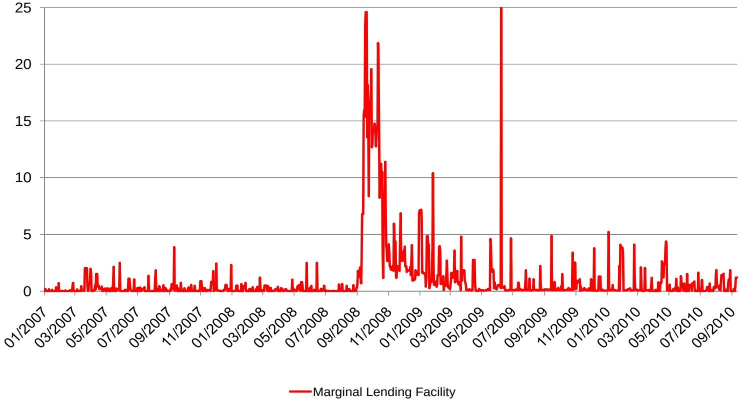

Fig. 3: Use of the Credit Facility, EUR Billions, Data: ECB

EONIA below the MRO-rate

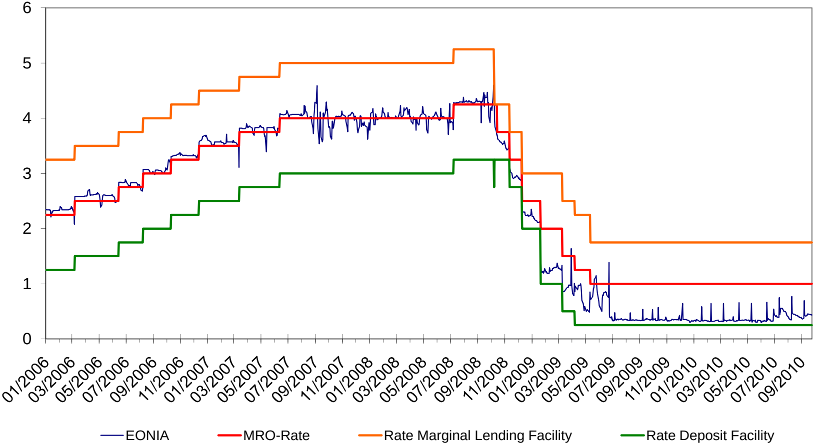

Fig. 4: EONIA and Key ECB Interest Rates,

Percentage, Data: Deutsche Bundesbank

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

Result:

- Explanation of the stylized facts:
  - Combination:
    - high IBM participation costs:
      Financial crisis:
      high bank asset losses, high degree of uncertainty
      $\Rightarrow$ more intensive checking/signalling of creditworthiness
      $\Rightarrow$ credit lines were cut: search costs $\uparrow$
      $\Rightarrow$ 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 $\downarrow$
    - 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)
  - Ayuso und Repullo (2003)
  - Nautz und Oechssler (2003)
- 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.

	Deficit-bank *a*	Surplus-bank *b*	Total Deficit
State 1	80	-60	D=20
State 2	100	-80	D=20

- 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

Results

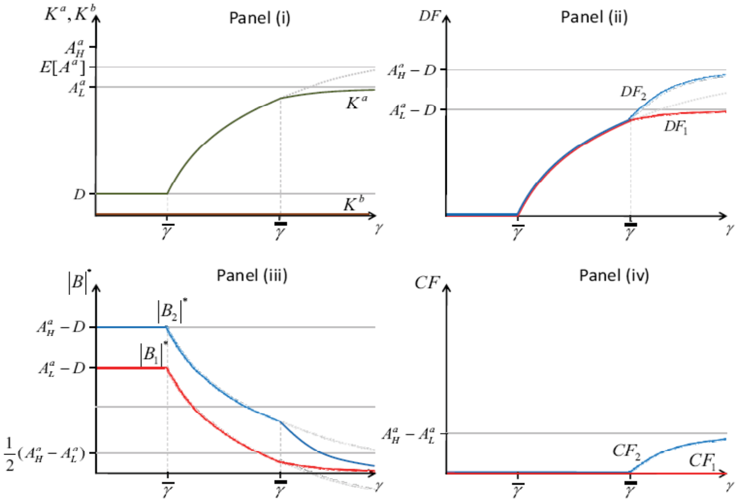

Fig. 5: Equilibrium Borrowing and Lending

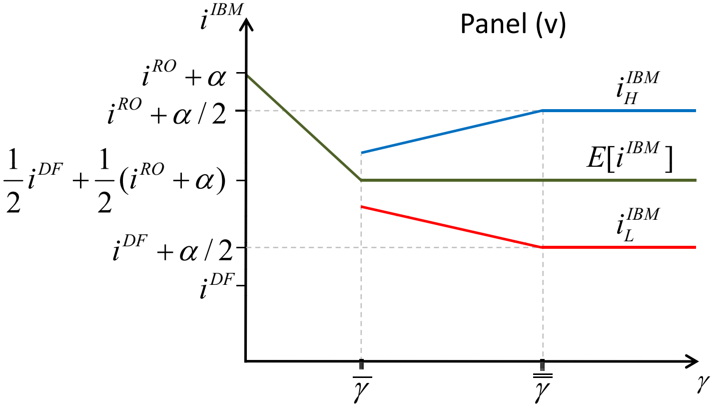

Fig. 5: Equilibrium Interbank Market Rate

3 Discussion

Crucial for explaining stylized facts: **high participation costs**

1. interbank market transactions $\downarrow$
2. banking sector's borrowing from the ECB $\uparrow$:
   deficit banks prefer/are forced to borrow from the ECB
3. use of the deposit facility $\uparrow$:
   surplus banks use the deposit facility**
4. use of the credit facility $\uparrow$:
   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: partcipation costs $\uparrow$

  $\rightarrow$ malfunctioning interbank market for reserves

  - $\rightarrow$ impediment of transmission mechanism
  - $\rightarrow$ destabilization banking sector

  $\Rightarrow$ Eurosystem replaced IBM, intermediary function

- Intermediary function: temporary solution
  aim: reactivating IBM

- Possibilities:
  - participation costs $\downarrow$;
    cannot be done by the ECB
  - Borrowing from and placing liquidity at Eurosystem less attractive;
    Problem: costs of the banking sector increase
    $\longrightarrow$ trade-off
  - Possibility: undertaking these measures gradually over time

4 Summary

- Stylized Facts:
  - interbank market transactions $\downarrow$
  - borrowing from the ECB $\uparrow$
  - use of the deposit facility $\uparrow$
  - 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!