Lending-of-last-resort is as Lending-of-last-resort does: Liquidity provision and interbank market functioning in the euro area

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Motivation

Interbank markets were severely stressed

- Unprecedented rates and excess reserves at ECB

Source: Heider, Hoerova and Holthausen, “Liquidity hoarding and interbank market rates: The role of counterparty risk” (JFE, forthcoming)
ECB changed its monetary policy implementation

- Prior to Oct. 2008: banks had to bid in auctions for liquidity needed to satisfy reserve requirements
ECB changed its monetary policy implementation

- After Oct. 2008: banks can obtain any amount of liquidity at the Main Refinancing Operation Rate (against eligible collateral)
ECB acted as a de-facto Lender-of-Last-Resort

- Provision of ample liquidity against collateral (and arguably at a penalty rate)
ECB acted as a de-facto Lender-of-Last-Resort

- Two phases: financial crisis, sovereign debt crisis
How does the lending-of-last-resort impact the euro area interbank market?

• Does the ample excess liquidity crowd out demand?

• Can it increase the supply?

• Is the impact uniform across the euro area?

• Is the impact different during the financial crisis than during the sovereign debt crisis?
Interbank transaction occur (mostly) over-the-counter

- We identify overnight unsecured interbank transactions from payments data (TARGET2)
- Considerable investigation of data quality (e.g., using the Spanish MID trading platform)
How to identify demand and supply shifts?

- We examine the changes of prices and quantities as excess liquidity changes.
How to identify demand and supply shifts?

- And exploit heterogeneity across countries
Excess liquidity is endogenous

- We exploit the institutional setting
- ECB open market operations occur at most weekly

![Diagram showing liquidity transfer and trading without new liquidity]

- Banks ask for liquidity in Main Refinancing Operation (MRO)
- Liquidity transferred to banks (in the morning)
- Trading without no new liquidity
Excess liquidity is endogenous

• So, this week’s trading cannot affect this week’s excess liquidity
• But it can affect next week’s excess liquidity

⇒ We use the weekly data in a structural VAR

\[ AZ_t = \Phi Z_{t-1} + \Psi X_{t-1} + \varepsilon_t \]

\[ Z_t = [EL_t, Q_t, P_t] \]
\[ X_t = [EDF_t \text{ or } CDS_t] \]

Standard Cholesky decomposition of the variance-covariance matrix, 1 lag selected – Schwarz criterion
Excess liquidity shock: Reaction of rates/volumes for Euro area borrowers

Mid-Oct. 2008 – mid-July 2011 (excess liquidity shock is +37 bn)

O/N unsecured rate (%)  
O/N unsecured volume (bn)

Mid-July 2011 – mid-June 2014 (excess liquidity shock is +39 bn)

O/N unsecured rate (%)  
O/N unsecured volume (bn)

Financial crisis: Excess liquidity crowds out demand  
Debt crisis: Small, insignificant demand effect

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Excess liquidity shock: Reaction of rates/volumes for German borrowers

Mid-Oct. 2008 – mid-July 2011 (excess liquidity shock is +37 bn)

Mid-July 2011 – mid-June 2014 (excess liquidity shock is +39 bn)

Financial crisis: Excess liquidity crowds out demand
Debt crisis: Small demand effect
Excess liquidity shock: Reaction of rates/volumes for Italian borrowers

Mid-Oct. 2008 – mid-July 2011 (excess liquidity shock is +37 bn)

Mid-July 2011 – mid-June 2014 (excess liquidity shock is +39 bn)

Financial crisis: Excess liquidity crowds out demand
Debt crisis: Supply shifts out, counters inward demand shift
Financial crisis: Excess liquidity crowds out demand
Debt crisis: Supply shifts out, counters inward demand shift
Financial crisis: Excess liquidity crowds out demand
Debt crisis: No significant effect
How does the lending-of-last-resort impact the euro area interbank market?

• Does the ample excess liquidity crowd out demand?
  – Yes, especially during the financial crisis

• Can it increase the supply?
  – Yes, in stressed countries during the sovereign debt crisis

• Is the impact uniform across the euro area?
  – No, there is considerable heterogeneity, especially in the sovereign debt crisis

• Is the impact different during the financial crisis than during the sovereign debt crisis?
  – Yes, by the time of the sovereign debt crisis, the ample liquidity had crowded out interbank markets…
  – …but it nevertheless led to more lending to banks in most affected countries
• The ECB acted as the de-facto lender-of-last-resort to the euro area banking system
• Using a novel data set, we shed light on how the lending-of-last-resort affects the interbank market
• We achieve identification of liquidity shocks through the timing of ECB liquidity operations.
• Papers shows the benefit but also the limit of such intervention