"Liquidity Regulation and Credit Booms: Theory and Evidence from China"

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MIT and NBER

6th Annual JRCPPF Conference

Tightening of reserve requirements $\Rightarrow$ credit boom.

- Regulatory arbitrage + bank competition through the interbank lending market.

- Evidence: Big banks' withdrawal of liquidity led to spikes in interbank rates.

- Calibrated model shows a third of the credit boom in China is accounted for by this channel.

Model

- Off-balance sheet DLPs not subject to reserve requirement.

$$R \geq \alpha(X_j - W_j)$$

- Shadow cost of reserves: Bank lending to non-financials offers higher returns.

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$\Rightarrow$ regulatory arbitrage

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- $\alpha \Uparrow$. What follows?
  - Small banks expand on DLP by raising rates:

    $$\xi_j \Uparrow \rightarrow \text{DLP, funding share} \Uparrow \rightarrow \text{small bank lending} \Uparrow$$

  - Big bank reacts through direct competition on DLP + withdrawal of interbank liquidity

    $$\xi_k \Uparrow, i_L \Uparrow \rightarrow \text{big bank lending} \Uparrow$$

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- What does DLP transaction cost ω represent?
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    - Example: Households diversify between deposit and DLP due to potential risks $\Rightarrow$ Is the regulator raising α because of rising risks? $\Rightarrow cov(\alpha, \omega)$

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- Equilibrium response of credit boom
  - i_A is fixed in the model.
  - Credit boom $\rightarrow$ "cheap credit" $\rightarrow$ partially offsetting effects.

A WISH LIST FOR EMPIRICS

- Evidence of large elasticity of small bank DLP rates & funding share to interbank rates?
  - High interbank rates on average vs. sudden spikes of interbank rates?
  - Did small banks increase reserve holdings after the 06/2013 shock? (a small vs. big bank diff-in-diff)
- Evidence of big bank market power (and collusion)?
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- Differences from the U.S. interbank market (Afonso, Kovner, Schoar 2010, 2014)
  - Small banks are net lenders.
  - Stable borrowing relationships as a hedge.

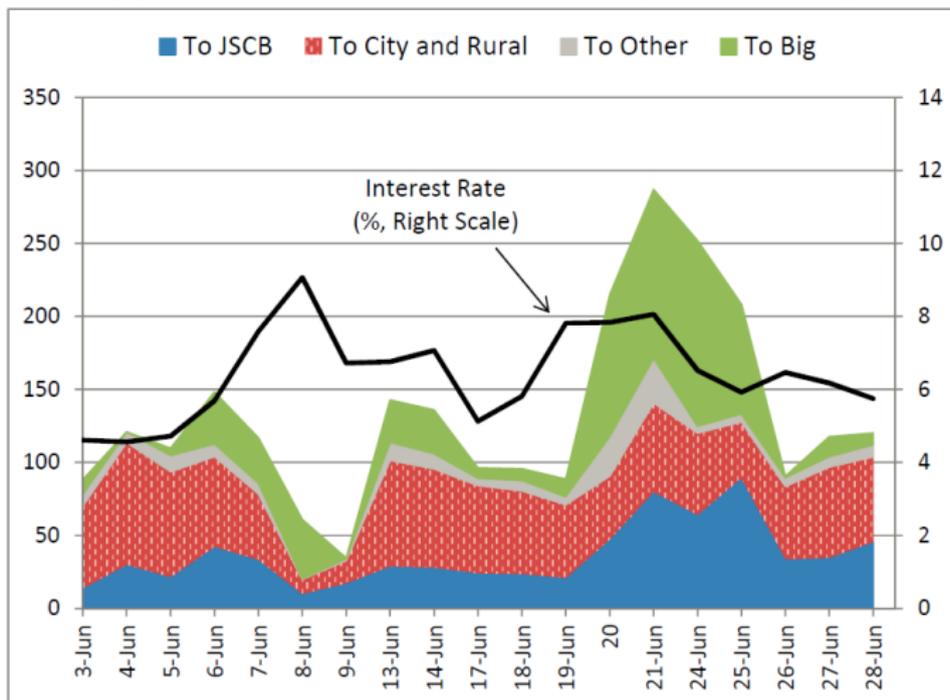# BANK LIQUIDITY CRISIS OF 06/2013

Figure 5

(a) Repo Lending by Big Banks (RMB Billions)
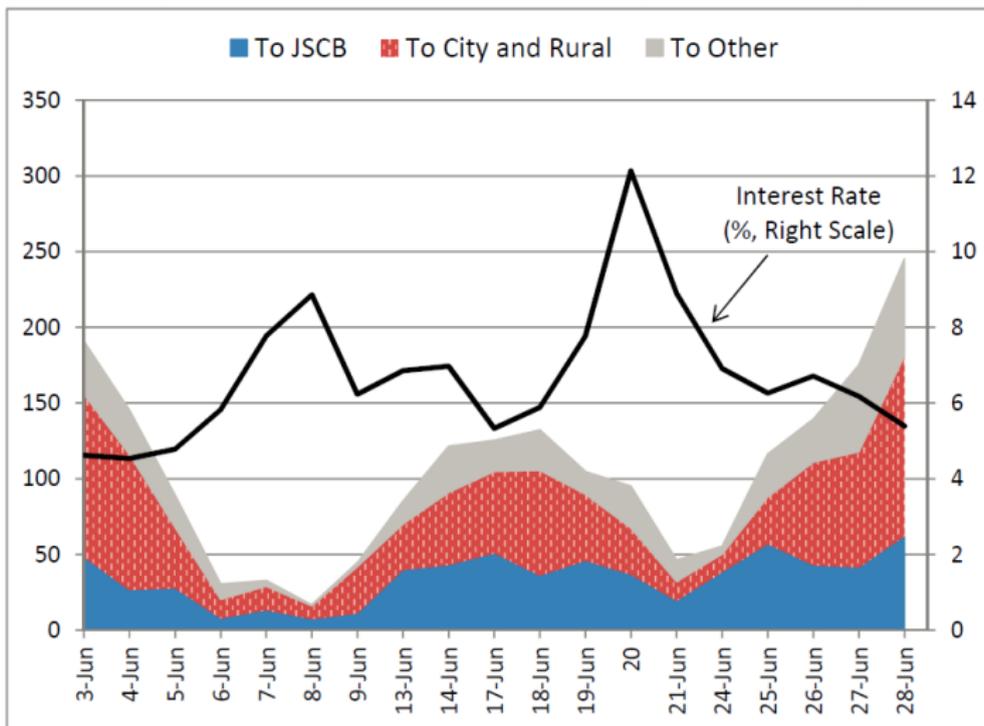
BANK LIQUIDITY CRISIS OF 06/2013

(b) Repo Lending by Policy Banks (RMB Billions)

Note: Interest rate is the weighted average lending rate charged by policy banks.

Bank Liquidity Crisis of 06/2013

- Should the policy banks have been as restrictive as the Big Four if the government wants to discipline the market?

- If the Big Four were liquidity constrained, why were they still lending to small banks at all?

- Why were Big Four borrowing overnight but lending at longer maturities?

- Did the pricing of Big Four become more uniform than usual?

Regulator

- Government might be using interbank market to discipline off-balance sheet activities.
    - ψ shock
    - How sensitive are the results of the quantitative analysis to this consideration?

- With RA + interbank channel in mind, how should regulator respond with a richer set of policy tools? $\alpha, \alpha_{DLP}, \psi$

Conclusion

- "Unintended" consequences of banking regulation through a novel channel, the interbank market.

- Collaboration with the empirical evidence will further strengthen the argument.