

# Interbank Networks in the Shadows of the Federal Reserve Act

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## **What is the effect of public liquidity provision on financial stability?**

- This is a very important question
- Many related papers especially after the global financial crisis
- This paper:
  - Develops an interbank network model
  - Empirically tests the model using historical data from the Federal Reserve Act

## **Question: What can this particular model and data tell us about the world that we would otherwise not have known?**

- I will start by answering this question
- Authors may or may not agree with what I say but...

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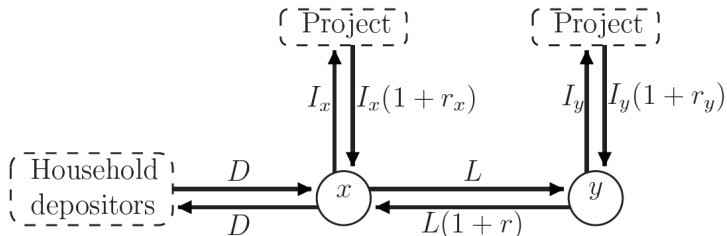
## **Question: What can this particular model and data tell us about the world that we would otherwise not have known?**

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## **Suggestion I: It would be great to make the connections clearer from the onset**

# The Model - Set Up

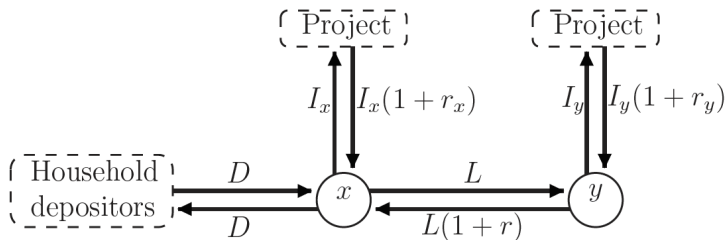
Figure 1: Transactions absent liquidity shocks



- Long term projects with early liquidation penalty versus short term assets
- Bank x: interbank lender; Bank y: interbank borrower
- Interbank loan  $L$ : effective short term asset if bank y has enough cash  $\rightarrow$  liquidity insurance

# The Model - Public Liquidity Provision

Figure 1: Transactions absent liquidity shocks



- Loans from central bank capped at  $m =$  Public liquidity
- Made available to bank  $y$  and not  $x$

# The Model - Application

- Lender  $x$  = shadow bank *that lend to banks*
  - E.g. MMMF, insurance companies
  - Not about shadow banks funded by banks
- Borrower  $y$  = commercial banks
- Public liquidity  $m$  = discount window quota
  - E.g. Increasing the cap on the ECB's LTRO
  - E.g. Increasing the cap on the Fed's discount window facility/TAF
  - Not *\*directly\** about the quantity of reserves or government bond supply

**The question of how the shadow banking system responds and how financial sector interconnectedness changes is novel in this context**

- Large literature focusing on the effect on the banking sector itself e.g. loan supply, risk-taking

## **They are difficult to answer**

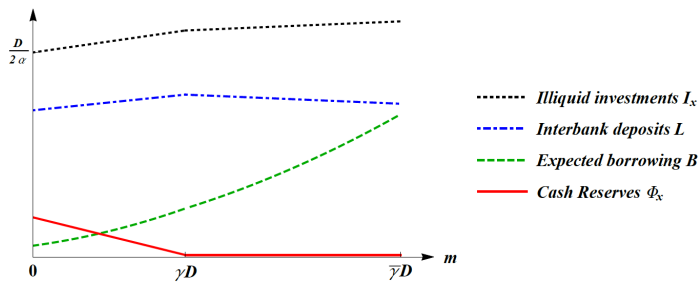
- Potential stigma in accessing the discount window
- Multiple interventions at the height of the crisis
- No good data on shadow banking links to the banking sector

## **The Federal Reserve Act offers a better laboratory**

- Limited number of policy changes
- Relatively less complicated world
- Observable network

# Result

Figure 4: Investments, interbank deposits, short term borrowing, and cash reserves



**Result I: As the quantity of available central bank loans increases, private liquidity holdings decrease (red line).**



## Suggestion II: Broader Definition of Cash

- The short term asset/private liquidity is defined as vault cash
- But more broadly speaking, these can be any asset with negligible fire sale discount
- E.g. government bonds for shadow banks and central bank reserves for regulated banks
- In this sense, the provision of central bank loans affects the demand for public safe assets by the banking sector and the shadow banking sector
  - Two different notions of public liquidity
- Suggest to discuss this interpretation in the paper
  - The results are already there

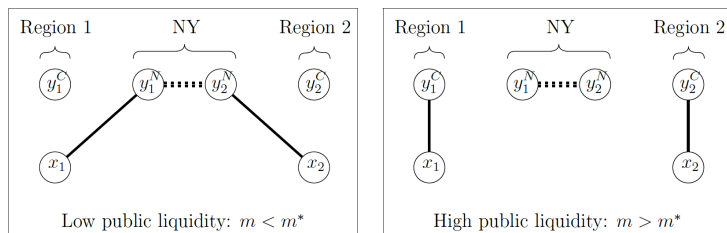
## Suggestion III: Other Dimensions of Public Liquidity

*"To avert panic, central banks should lend early and freely (ie without limit), to solvent firms, against good collateral, and at 'high rates.' "*  
(Bagehot's dictum)

- The quota of central bank loans  $m$  definitely matters
- But the interest rate and the criterion for eligible collateral are also essential parameters
- Suggest to incorporate them in the model:
  - The cost of borrowing from the central bank should affect ex ante portfolio choice and network formation
    - The cost of direct versus indirect access also matters
  - Whether long term assets are accepted as collateral affects the net effect of borrowing from the central bank

## Result II

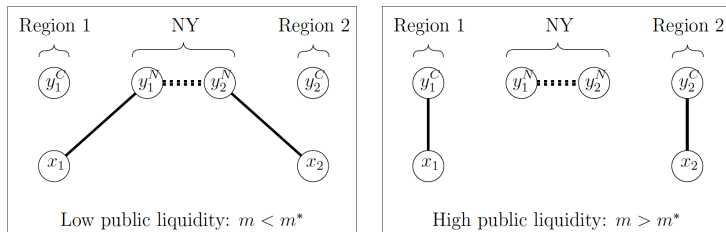
Figure 5: Network reactions to public liquidity provision



- NY banks: smooth regional shocks but are costlier to link to
- Regional banks: cannot smooth regional shocks but are cheaper to access
- Central bank loans reduce private insurance for cross-regional shocks
- Important implications
  - E.g. market fragmentation in the euro area

## Suggestion IV: Network of Regulated Banks

Figure 5: Network reactions to public liquidity provision



- Assumption: idiosyncratic regional shocks can only be smoothed by lending directly to NYC banks
- However, are local reserve city banks connected with each other and/or to NYC banks?

## Suggestion IV: Network of Regulated Banks

- However, are local reserve city banks connected with each other and/or to NYC banks?
- Financial networks are usually not disjoint components
- Das et al (2019):

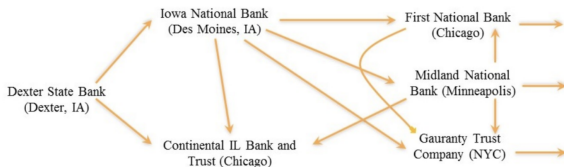


Figure 1: Illustrating correspondent relationships.

## Suggestion V: Nature of Shocks

- The network structure also interacts with the nature of liquidity shocks
- Liquidity shocks are assumed to be idiosyncratic to each region
- What if the systematic component increases? What if the magnitude increases?
- A more connected network smoothes out small shocks but amplifies large shocks (Acemoglu et al, 2015)
- A fully connected network is only first best without aggregate liquidity risk (Allen and Gale, 2000)

## Conclusion

Again, this is a great paper! It applies a novel approach to study the effect of central bank lending to regulated banks on shadow bank liquidity holding and financial sector stability.

# Conclusion

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The authors may further...

- 1 Discuss specific applications of the model and the historical data
- 2 Broaden the definition of cash and link to the demand for public safe assets
- 3 Incorporate price and collateral for central bank loans
- 4 Consider the network structure of regulated banks
- 5 Allow for systematic liquidity shocks