

The Interbank Market Puzzle

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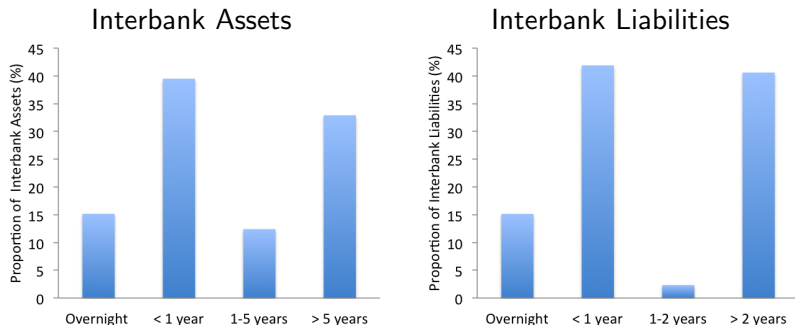
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There is a gap in the literature

- There is a long empirical literature on interbank markets
- Because most papers use data from a single country, qualitative and quantitative interpretations often differ
- For example,
 - In the U.S., interbank lending data is recovered from payments data in Fedwire using the Furfine algorithm, which can recover overnight loans only
 - In Europe, credit registries report the stock of bilateral interbank exposures

There is a gap in the literature

Figure: Distribution of Interbank Loans by Maturity in the German Credit Registry



Source: Craig and Ma (2018)

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This paper can provide answers!

- 1 Constructing a panel dataset of balance sheet level interbank exposures across countries
- 2 Documenting significant differences in interbank lending and borrowing across countries
- 3 Rationalize the existing differences through trust of market participants

This is an important paper

Overall, the execution is very careful. I only have a few suggestions along three dimensions

- 1 Definition of trust
- 2 Network considerations
- 3 Interbank market size

Definition of Trust

- In the paper, trust is defined as *“the trust of market participants in the stability of the country’s banking sector and counterparties.”*
- It is measured as

Variable	Definitions	Source
<i>Measures of trust in the banking system</i>		
Bank z-score	Ratio of return on assets plus capital-asset-ratio to the standard deviation of return on assets (<i>bank-level</i>)	BankScope
Crisis length	The number of banking crises occurred in the country from 1970-2015.	Laeven and Valencia (2012) and own computation
Bank failure	Logarithm of the sum of bank failures in the country in which the bank is licensed	BankScope

- While other variables are “controlled” for e.g. bank equity, bank ROA

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- For example, if borrowers' default probability increases, the lenders "trusts" them less because they have a lower chance of repaying the loan
 - → the lender demands a higher interest rate but the expected return on the loan stays the same
- Alternatively, maybe the lenders "trust" the borrowers less as they become less certain about their credit risk
 - → lender needs spend more time and effort to understand the counterparty, and the net cost cuts into welfare, and the loan volume extended

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I believe that the authors have the latter in mind, where the lack of trust corresponds to frictions arising from asymmetric information and adverse selection. No matter the channel, specifying it is important for interpreting the result accurately

One microfoundation: Costly state verification (Townsend, 1979)

- Asymmetric information about the borrower's project payoff
- Whenever borrower's reported return is below the face value, lender will verify the borrower at a cost (contract is IC)
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- Total cost = probability of default * per state verification cost
- This is largely consistent with the current specification:
 - Probability of default: X variable e.g. bank z-score
 - Per state verification cost: regression coefficient β (as long as higher total cost relates to lower interbank loan volumes)
 - Can be further parametrized using variables that effect the verification efficiency e.g. enforcement efficiency in bankruptcy

One microfoundation: Costly state verification (Townsend, 1979)

- But it also raises some issues
 - Bank z-score and financial crisis history play different roles in the measurement of trust
 - May consider to interact them
 - Bank equity is probably not suited as a control variable

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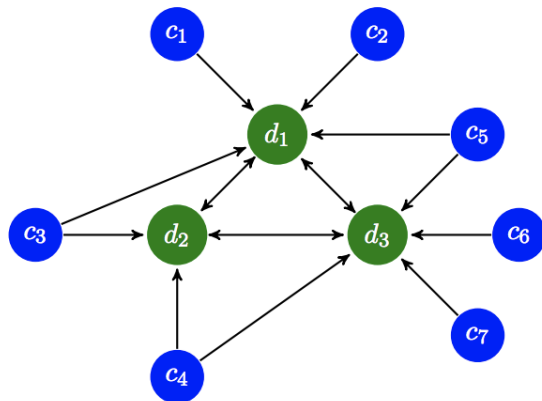
May not be the only or the most suitable microfoundation of trust, but it is important to have one and stick to it throughout.

Network Considerations

- Main analysis is run on a county-bank-time panel
- This is fine, especially given the importance and nature of the question at hand
- But in the background, all interbank markets are over-the-counter markets
- Although the precise network structure cannot be directly observed in the main dataset, a few things can be done

Network Considerations

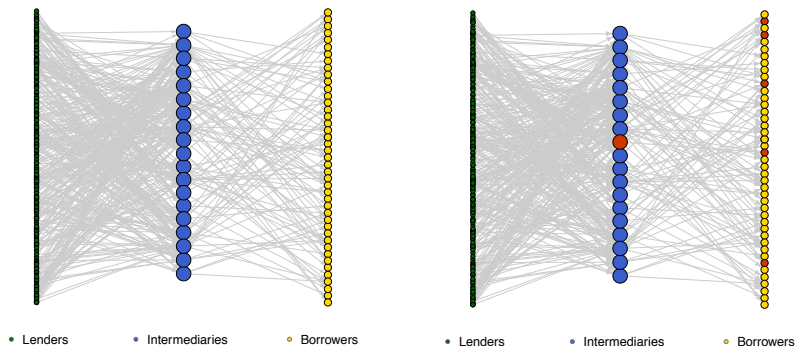
- The literature has identified core-periphery structures in many different interbank networks



Source: Duffie and Wang (2017)

Network Considerations

Whether trust in core banks or periphery banks is affected has very different implications for how much the overall network declines because core banks act as interbank intermediaries

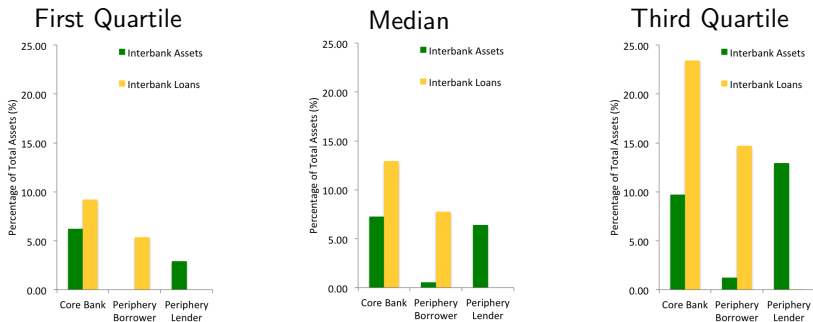


Lack of trust in intermediary banks can spill over to affect their borrowers' access to interbank funding (Craig and Ma, 2018)

Network Considerations

Overlap in balance sheet interbank assets and liabilities proxies for interbank intermediation and being in the core

Figure: Interbank Asset and Liabilities for Core and Periphery Banks



Suggest to analyze whether loss of trust in banks with higher interbank intermediation volume has a compounding effect in the determination of interbank lending volume

The network structure and the degree of interbank intermediation affects the interpretation of interbank lending volume and market size

- Case 1: Bank A lends \$1 to Bank B directly ($A \rightarrow B$)
 - Interbank borrowing = \$1
 - Total market size = Interbank assets + interbank liabilities = \$2
- Case 2: Bank A lends \$1 to Bank B through Bank C ($A \rightarrow C \rightarrow B$)
 - Interbank borrowing = \$2
 - Total market size = Interbank assets + interbank liabilities = \$4

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In both cases, only \$1 is transferred but the measured size of the interbank market doubles in the presence of interbank intermediation. Is this really what we are trying to measure?

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- Case 2: Bank A lends \$1 to Bank B through Bank C ($A \rightarrow C \rightarrow B$)
 - Interbank borrowing = \$2
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- Case 3: Bank A lends \$2 to Bank B directly ($A \rightarrow B$)
 - Interbank borrowing = \$2
 - Total market size = Interbank assets + interbank liabilities = \$4

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- Case 3: Bank A lends \$2 to Bank B directly ($A \rightarrow B$)
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Interbank borrowing and interbank market size are measured to be the same in both cases. Are they economically really the same thing? Note that \$1 is transferred from lender to borrower in the first case and \$2 are transferred from lender to borrower in the second case.

Suggest to differentiate between gross versus net borrowing and lending to maintain consistency in the economic interpretation.

- Net lending = gross lending - $\min(\text{borrowing}, \text{lending})$
- Net borrowing = gross borrowing - $\min(\text{borrowing}, \text{lending})$
- May construct both at the bank-level and at the market-level

This paper identifies and rationalizes the differences in interbank lending volume across countries - a very important contribution to the literature!

Three suggestions

- 1 Formalize the definition of trust
 - E.g. CSV cost (Townsend,1979) to overcome asymmetric information
- 2 Consider interaction of trust with network structure
 - E.g. check amplification effect for the loss of trust in interbank intermediaries
- 3 Differentiate between gross and net interbank market size
 - E.g. use the overlap of interbank assets and liabilities as a measure of interbank intermediation