DEUTSCHE BUNDESBANK
EUROSYSTEM

Workshop on

# “The Costs and Benefits of International Banking”

Eltville, 18 October 2010

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Discussion of

**“Global banking network and cross-border capital flows“**

# Global Banking Network and Cross-Border Flows Discussion

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Bundesbank Fall Conference Workshop

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# Standard Slide #1

To the extent that they care about my comments, the Federal Reserve Bank of Cleveland and the Board of Governors of The Federal Reserve System's views are not represented by this discussion.  Only my own.

# Standard Slide #2

I am grateful to be here at this great conference full of so many great people with such great ideas.

# The paper is

- Work in progress.
- Because it shows a lot of careful work.
- Is genuinely about networks!
  - Not just in and out links.
- Shows some careful programming of a big problem.
- Is an effort to get at bank bilateral positions, even for US banks.

Hurrah.

# Idea of the Paper

- Two data sets-
  - Syndicated Loans
  - International Capital Flows
- Match data and use network variables to explain a classic trade equation
- Main result: network variables matter for trade flows
  - are economically and statistically significant
  - add to $R^2$

Note that network theory has been applied to trade flows in a rich literature

# Choices made in this paper

- Use Syndicated loans to define a financial network
- Network variables are first calculated and then averaged, rather than vice versa
- Network variables are assumed to have economic and behavior significance

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# Syndicated loans are not only a sparse network but also an incomplete network

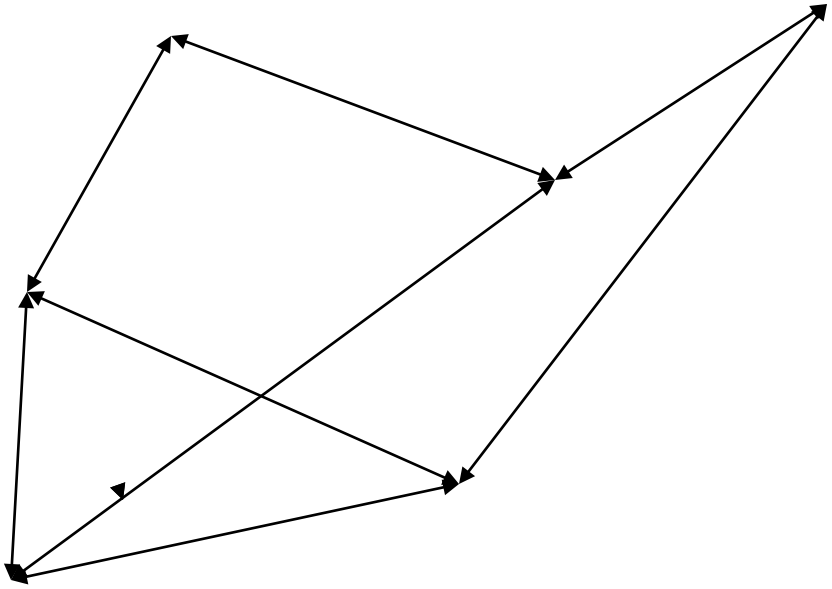
- Not just a big bank phenomenon
- Very long term loans of a specific type
  - Example: suppose international sovereign debt only included debt of 20 year or more maturity
    - Interesting picture but incomplete in significant ways
    - Where is Greece?
  - In crises, syndicated loans can behave in surprising ways
    - Other aspects of time series can surprise as well

# Evidence of incompleteness

- This network is very sparse
- Network diameters are extremely large-
  - Many world financial networks are 6 or 5 depending on whether Papua New Guinea receives a loan
  - These range from 15 to 22

# Diameter: 2

Diameter: 4



Network variables can be very delicate to loss of edges

# Time series properties of network variables can be very delicate to a random loss of edges

Perhaps a simulation would help to determine if fluctuations in the loss of edges cause surprising distributional changes with these data

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# This Paper

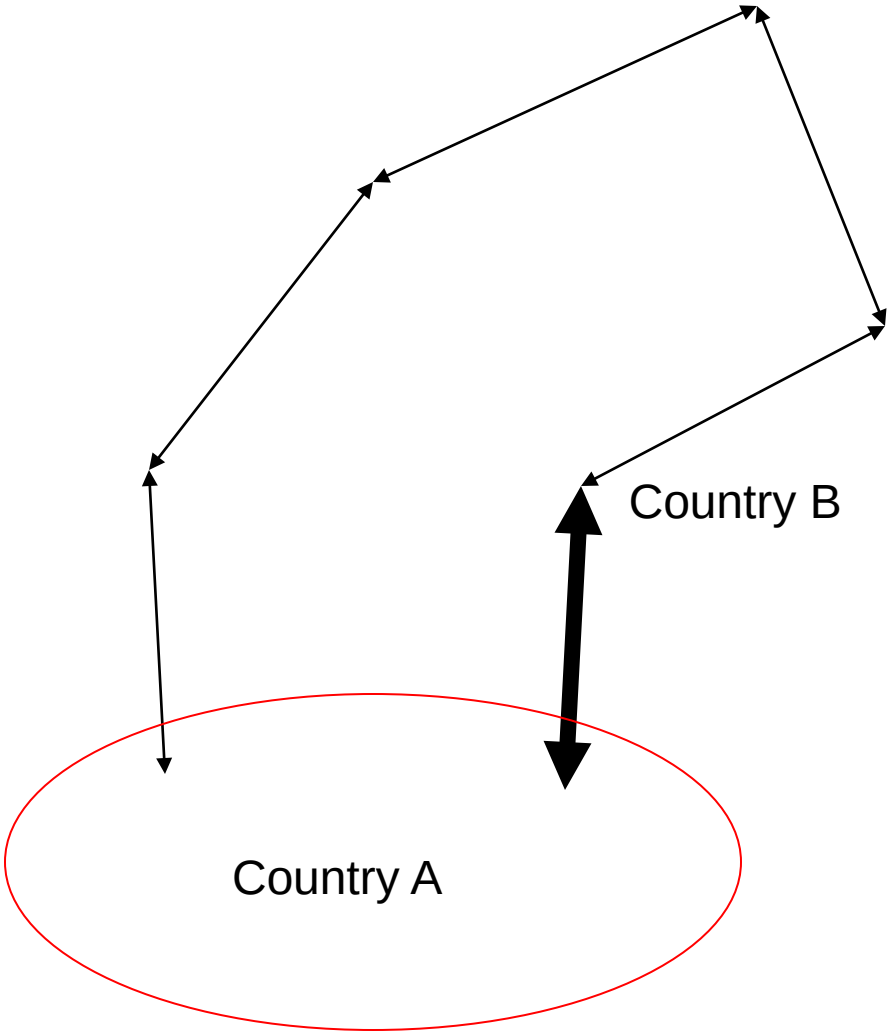
- First establishes the networks of individual banks and calculates the network variables for these banks
  - These are then aggregated to form country to country aggregate network figures

Past papers use aggregate data of banks by country and then calculates the network variables

Network variables can behave in terribly unintuitive ways when aggregated

# But (usually) network variables are not linear functionals!

They can behave in terribly unintuitive ways when aggregated.


Country B
Country A

It would be nice to have an explanation for why the aggregation steps in this paper are a better way to represent financial flows than the default way.

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Somewhat of a cheap shot given the “gravity equation”

- In physics I know what geographic distance means
  - I also know that there is a wealth of theory surrounding what distance means
- With fluid flows, I know what a geodesic is
  - I also know what this form of distance means in terms of cost

But what do we take from an equation that explains international capital flows in terms of inverse geodesics?

All three questions about this paper’s approach come into some focus with the panel data results

# Dynamics are driven partly by the definition of the network variables:

- Networks are assumed to always get richer in this model-1980 is year 0.
- Additional edges enrich the networks through the end of the panel sample.
  - So how do I interpret this result?
  - Perhaps a rolling sample? What would the size of the window be and how would the filtering change things?

# If I squint…

- Network betweeness affects Equity in, in developed countries
- Network betweeness affects Equity out, FDI in, Debt in in developed countries

- What is driving what?

# Interesting Paper!

Thank you.