Interbank Tiering and Money Center Banks

Ben Craig and Goetz von Peter

Iman van Lelyveld[1]

[1] DNB Supervisory Policy

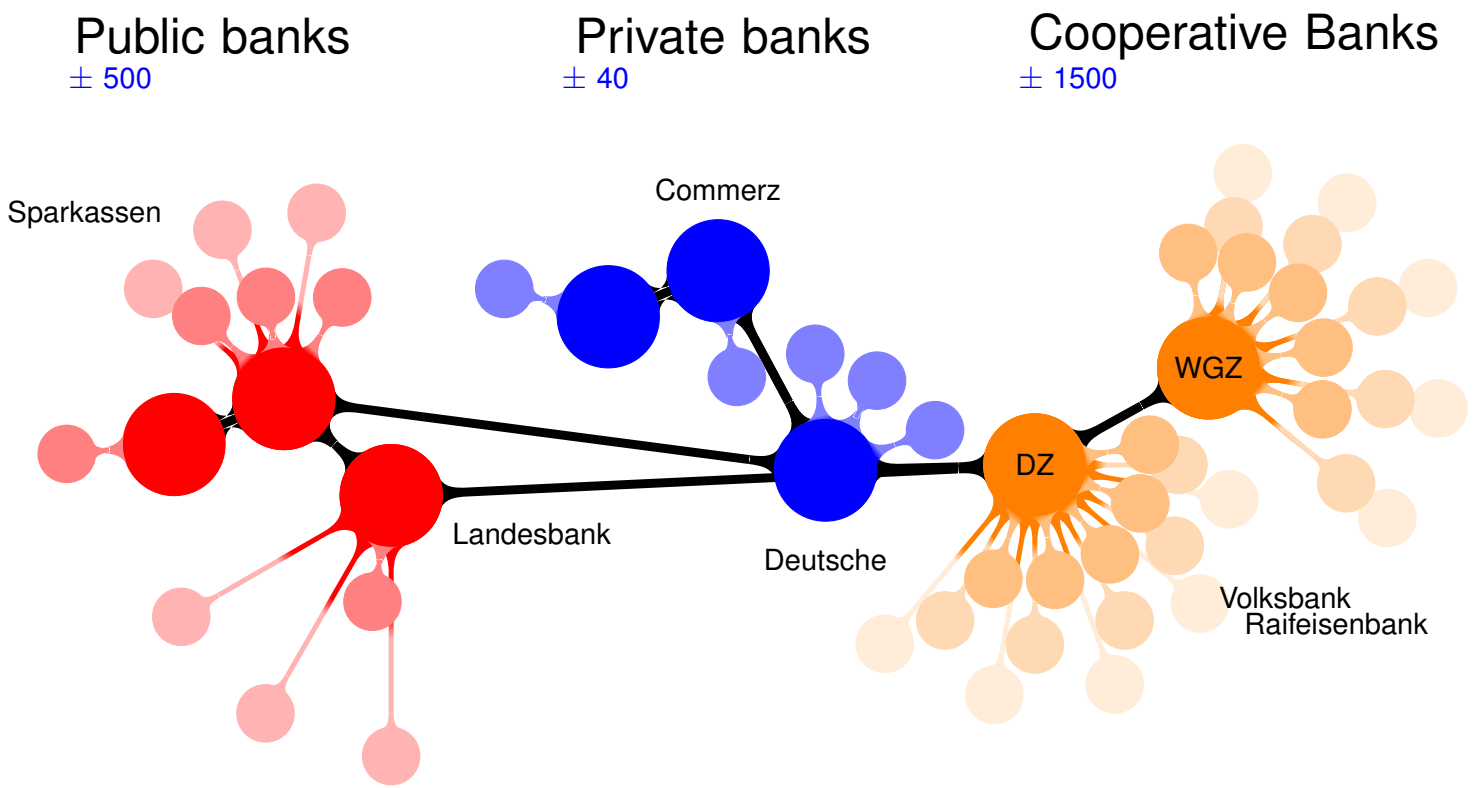
DNB Research Conference

3-4 November 2011

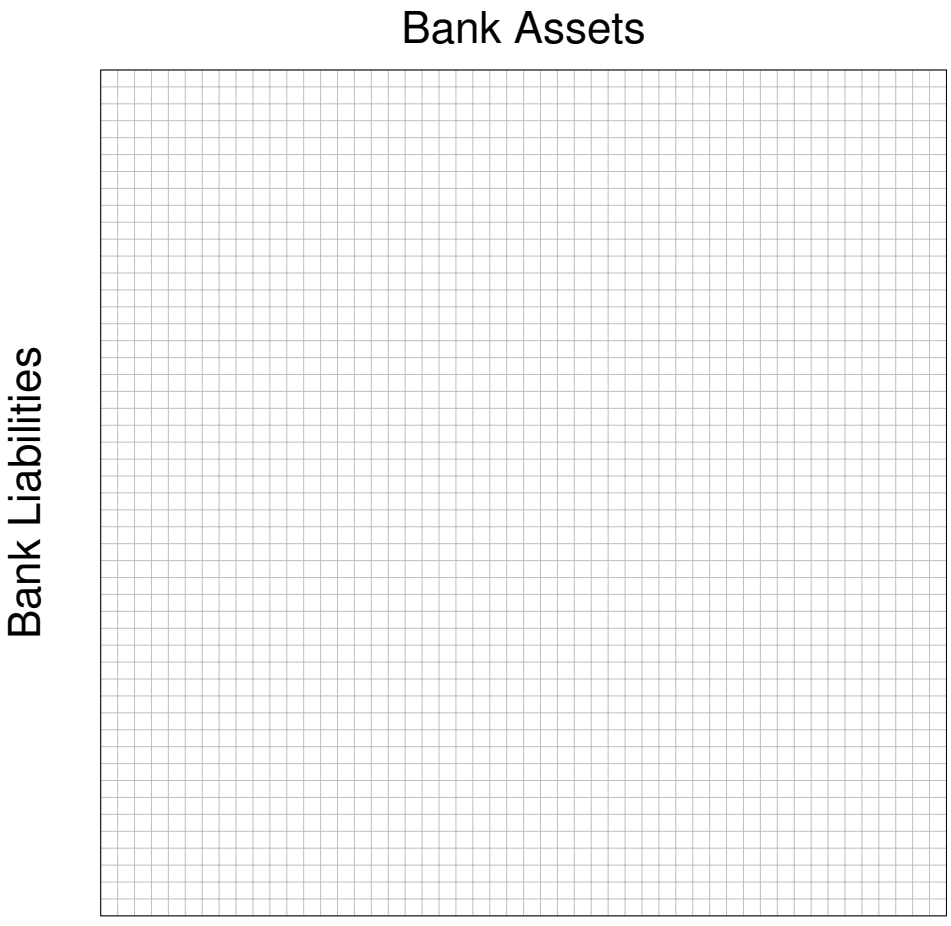
Outline

1. Summary of the paper
2. Findings:
   - Banking market is not centralised exchange
   - Tiering (in Germany)
3. Dutch replication
   - aka plugging joint work with Daan in ’t Veld (CeNDEF) and Clément Levallois (Erasmus)
4. Comparison Dutch - German results
5. Where to go from here?

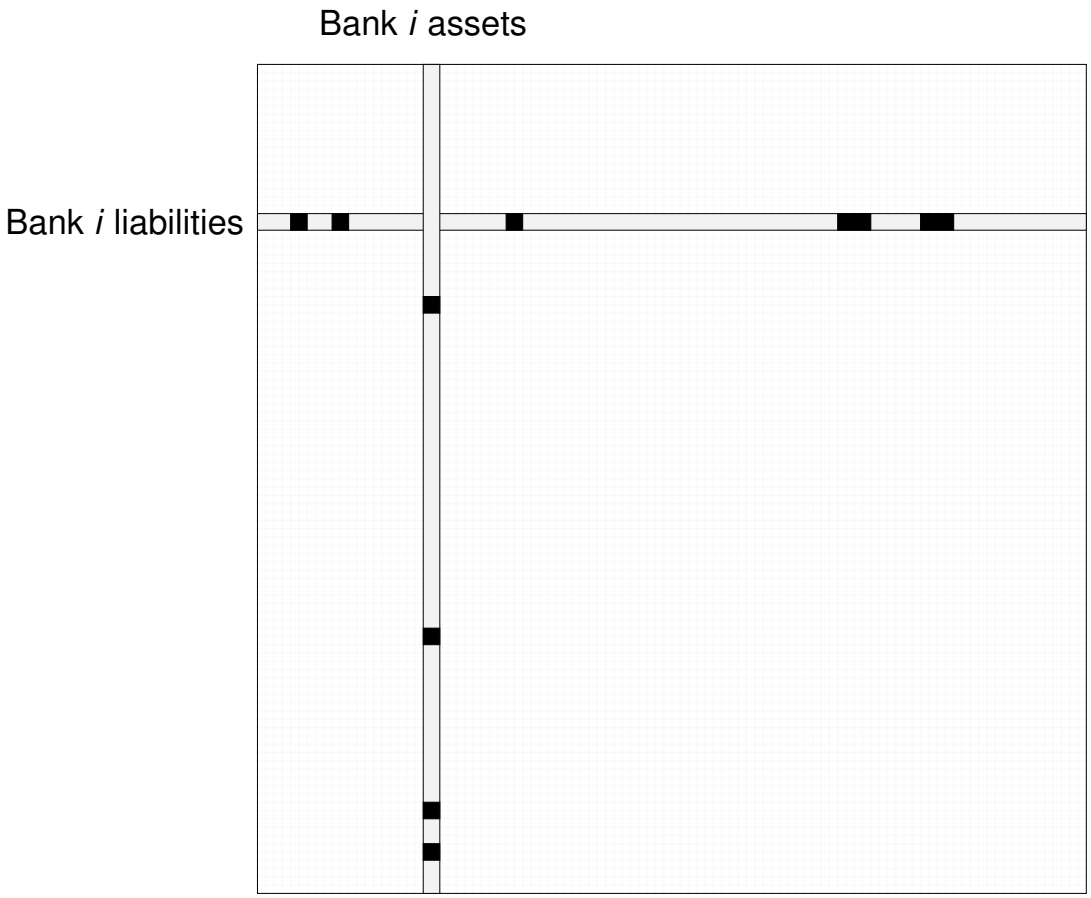
German Banking Sector



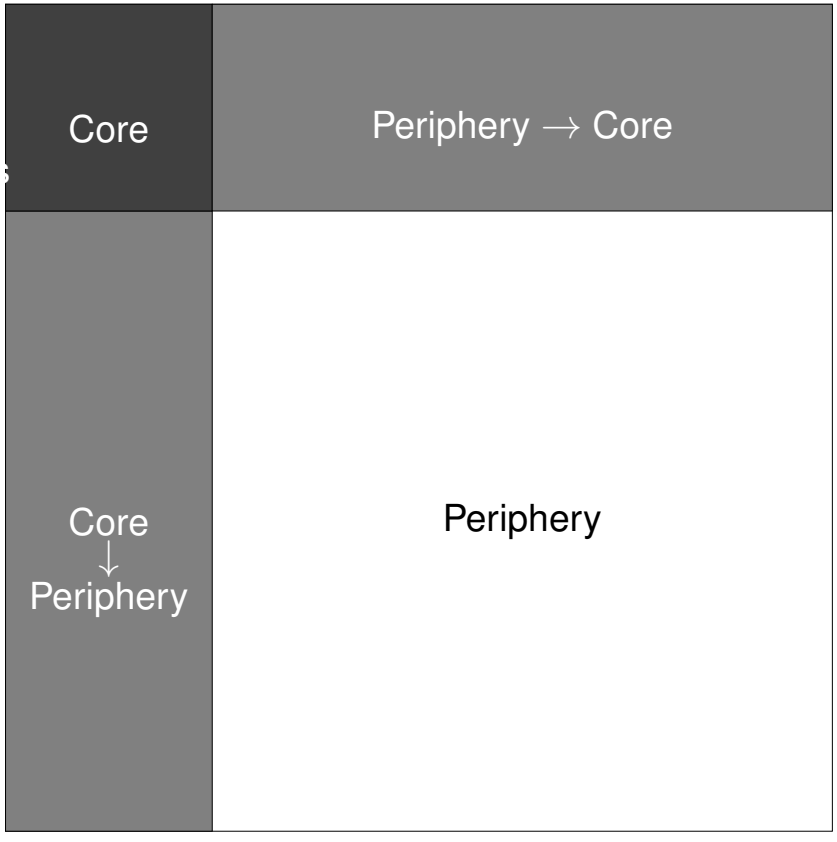
Finding the core



Finding the core



Finding the core



Finding the core

1. So the core is:
   - Small
   - Stable
2. Caveats:
   - Reporting threshold $\rightarrow$ not really an issue
   - Institutional structure $\rightarrow$ not really an issue

A Dutch replication[1]

Animation available on request

[1] Data taken from Liedorp *et al.* 2010.

A Dutch replication

1. Threshold significant exposure €1.5 mio ($\equiv$ Germany)
2. Sparse matrix: 8% of total # links ...
3. ... but stable
4. Core of 10-19 banks
5. Between 164-335 mistakes $\rightarrow$ Average error score 29%

Germany vs Netherlands

		Germany	Netherlands
Descriptives	Total number of banks	1800	100
	Average number of core banks	$\pm$ 45	$\pm$ 15
	Average core size	$\pm$ 2.5%	$\pm$ 15%
Fit	Error frequency, as % of links	12%	29%
	Transition probability core$\rightarrow$core	94%	83%
	Erdös-Rényi Random graph	✓	✓
	Scale free	✓	✗

Increasing the threshold improves the fit, reduces the core

What determines membership?

Probit: $\Pr(\text{Core} \mid X)$

Variable	Definition	Causality	
Size	Ln TA	$\rightarrow$	✓
Intrinsic Size	Ln TA - IB claims	$\rightarrow$	✓
Interbank (IB) Liabilities	Ln IB Liab.	$\rightarrow$	✓
Intermediation	ln(min(IB assets, IB liab.))	$\rightarrow$	✓
Connectedness	Betweenness	$\leftarrow$	X
Sys. importance	LGD for $\geq$ 25% default of system	$\leftarrow$	X

Are these really the causal paths?

Minor suggestions and questions

1. Financial centers
   - Reference work by Glaeser and Kindleberger
     (or Van Lelyveld and Donker 2003)
2. What determines FS?
   - Probit: $\Pr(\text{Systemic Importance} \mid \text{Core, X})$
3. K-cores
   - Is this a useful concept?

Conclusions

1. Choice determines attachment: Tiering (in Germany)
2. Block modeling defines core in quantitative terms
3. Dutch-German comparison:
    - German core better defined