



# Using network analysis to assess the centrality of 2nd-tier banks in CHAPS

## Discussion

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## Paper

- ▶ Creates CHAPS payments network, to measure centrality of banks in the UK high-value payments system.
- ▶ Two types of banks in CHAPS:
  1. Direct members, called settlement banks or correspondent banks
  2. Second-tier banks, which settle high-value payments through direct members as intermediaries
- ▶ The evidence suggests that some second-tier banks are more central to the payments system than settlement banks, which increases financial stability risks of using intermediaries.



## Policy

- ▶ The UK has an unusually low ratio of settlement banks to total credit institutions. Mid-2011: Public request by BoE to add direct members.
- ▶ Previous work: Some second-tier banks have similar payment flows to settlement banks.
- ▶ But settlement bank status also makes sense if banks are more central, less peripheral to the network.
- ▶ Direct access means less counterparty contagion effects, but more liquidity needs.



## Adding new settlement banks

- ▶ Changing up to 15 nodes from second-tier to settlement banks does not significantly reduce the connectivity of the network, compared to adding the whole sample of 34 extra banks.
- ▶ This is surprising.
- ▶ From network topology, we know that the number of connections must grow roughly quadratically with the number of nodes to maintain almost-complete connectivity.



## Adding new settlement banks

- ▶ Likely implication: no topological differences between settlement banks and (marginal) second-tier banks.
- ▶ Some second-tier banks are really in the core.
- ▶ High connectivity of the new network makes it hard to justify second-tier status for the marginal bank.
- ▶ Second-tier banks claim high costs of direct membership, but one bank's membership benefits the financial system as a whole.  
⇒ Positive externality.



## International comparisons

- ▶ USA: Fedwire has many banks, low connectivity, but high compactness (some banks are at the core).
- ▶ Model for larger payments system seems to be TARGET2, but comparison to the UK is difficult.
- ▶ Many more banks in TARGET2, especially small banks, and much lower connectivity.
- ▶ Tradition of national banking systems in the euro area would suggest regional structure of connections, including “regionally central” banks.
- ▶ UK banking history is more characterised by mergers across regions (e.g. NatWest + Royal Bank of Scotland + Ulster Bank).