



Alexander David, Alfred Lehar: Optimally Interconnected Banking Systems

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Summary

- Research question: What is the optimal extent and type of interconnections (loans, derivatives) within a banking system?
 - Idea: Under certain assumptions large interconnections through renegotiable interbank loans can increase the likelihood for private sector bailouts → lower need for government bailouts
 - This is an excellent but also provocative idea!
- Method: Sequential bargaining model, simulation study
- Results
 - Connections through interbank loans are the best solution
 - Low liquidation rates but very high correlation of bank liquidation
 - Regulations of interbank lending might have contributed to the growth of OTC derivatives in the past 20 years

General assessment

A very promising paper!

- Novel idea: Type of interconnections → systemic risk?
This aspect has not been studied yet
- Nice application in a simulation study
- Many variations and extensions

- Work in progress
- Rather complete but too many results → more focus!
 - More on ex ante efficiency of interconnections
 - More on the distinct role of renegotiations
- Are the assumptions as innocent as they appear to be?

Comments

1. Assumptions

- A1: “There are N ex ante identical risk neutral banks”
 - Why is there more than one bank in such economy?
 - Possible to study ex ante heterogeneous systems?
- A2-A3: Potential inconsistency?
 - Loans: Circular structure ($A \rightarrow B \rightarrow C \rightarrow A$)
 - OTC derivatives: Matrix structure (any pair of bank i and j)
- A6: “Information is perfect”
 - Is it possible to relax this assumption and consider informational asymmetries in interbank lending (important for the breakdown of markets in fall 2007 and for the current sovereign debt crisis)

Comments

2. The benefits of interbank loan renegotiations

- If a shock occurs and connections are large then ...
 - no interbank loan is paid back in full
 - healthy banks pay back more than distressed banks (note: distressed banks can make healthy banks fail)
 - wealth transfer achieved through bilateral loan renegotiation (“giving and taking”) leads to the private bailout
- How general is this result?
 - Does it survive under ex ante or ex post informational asymmetries (e.g., costly state verification)?
 - It seems that it does not hold in a matrix system (p. 9)
 - Inefficient renegotiation of loan maturity not considered (“evergreening”, “zombie lending”)

Comments

3. Systemic risk (explicitly addressed on p. 32)

- Definition: “... *systemic risk as the large scale breakdown of financial intermediation or, in the context of our model, the occurrence of two or especially three bank defaults.*”
 - Ad hoc
 - Simultaneous or sequential emergence of risk?
 - Can you give a more formal definition?
- A central bank is not considered
 - Can act as a bridge between surplus and deficit banks
 - Coordination function
 - Safe haven for surplus banks

Minor remarks

- OTC derivatives are not only used for hedging!
 - Most of the volume: Arbitrage, speculation & market making
 - Thus, even if the derivatives are redundant as a risk sharing tool they provide profit opportunities and create systemic risk
- Different participants in different markets
 - Interbank lending: banks → within sector risk transfer
 - OTC derivatives markets: banks, insurance firms, hedge funds, mutual funds → between sector risk transfer
- Better motivate parameter choices in the simulation study (e.g., 4-yr horizon, PD = 1.2% (Baa))
- Weak and strong bankruptcy regime is distracting