Two Papers on
Stability of Banking Networks

Discussion
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Extend Eisenberg and Noe (2001) to include in bank network
- Direct costs of liquidating assets and interbank borrowings.
- Possibility of bailouts: Government (Gvt) subsidizes banks but public funding (taxation) is costly.
- Possibility of “bail-ins:” Gvt-subsidized, voluntary bank “rescue consortium.”

Nature of the analysis
- Network of banks can be dense (complete) or sparse (ring).
- Assumes 1 bank is “fundamentally” insolvent, but may be contagion (cascades of defaults at other banks).
- Gvt cannot credibly commit to an ex-post suboptimal policy.
- Gvt minimizes welfare losses (liquidation and taxation costs) by choosing
  1. No intervention
  2. Bailout
  3. Bailin
Comparing Network Topologies

- Dense (Complete) or Sparse (Ring)
Result 1: Equilibrium with No Intervention
Result 2: Equilibrium with Public Bailout
Result 3: Equilibrium with Bailout and Bailin
Comment: Modeling Bail-in?

- The bailin contract is better described as a voluntary “rescue consortium.”

- Prime example: Fed-organized bank rescue consortium of LTCM.

- Is Italy’s bank rescue fund “Atlante” another example?

- Bailin-able debt is more likely to be longer-term than interbank claims.

- FSB’s restrictions for bailin debt to count toward TLAC:
  - Remaining maturity of more than 1 year.
  - Debt held by another G-SIB does not qualify.
Comment: Banks’ Incentives to Participate

- Incentives to participate in bailin may be different in a multi-period model.

- The Gvt might have greater leverage over regulated banks than the static model suggests.

- Examples:
  - All large banks were expected to take TARP funds.
  - The two institutions that refused to participate in the LTCM rescue were Bear Stearns and Lehman (nonbanks).

- In a more general model with asymmetric information, banks may participate due to concerns with contagious runs.
Comment: More/Less General Gvt Policies?

- Analysis focuses on simple, symmetric Complete and Ring topologies.
- Might more complicated topologies result in a mix of no-intervention for some banks and intervention for others?
- Example: In a core-periphery structure, might there be bailouts or bailins for core banks and no intervention for fundamentally-insolvent periphery banks?
- Dodd-Frank may restrict Gvt bailouts/subsidies.
Identifying Contagion in a Banking Network by Morrison, Vasios, Wilson, and Zikes

- Examines possible contagion from derivative counterparty risk.
- Analyzes changes in a bank’s default risk when its CDS counterparties experience profits/losses.
- 2009-2013 sample of 41 banks trading UK-entity CDS
  - 28 smaller banks are net protection buyers.
  - Larger dealer banks are net sellers.
- Main result: a bank’s default risk increases when its CDS counterparties experience losses.
  - The CDS spread on the bank’s debt measures its default risk.
  - Counterparties’ losses are only for their CDS positions.
Main Regression

\[ R_{i,t} = \beta \Pi_{i,t} + \gamma K_{i,t} + \delta \sum_{j \neq i} \Pi_{j,t} + \zeta \sum_{j \neq i} NP_{i,j,t}^{Bank} + \text{controls} + \epsilon_{i,t+1} \]

where

- \( R_{i,t} = \ln \left( \frac{CDS_{i,t}}{CDS_{i,t-1}} \right) \) = bank \( i \)'s CDS change (↑ risk)
- \( \Pi_{i,t} = \text{bank } i \text{'s profit on all its CDS positions} \)
- \( \sum_{j \neq i} \Pi_{j,t} = \text{all other banks' CDS profits} \)
- \( NP_{i,j,t}^{Bank} = \text{bank } i \text{'s net CDS exposure to bank } j \).
- \( \sum_{j \neq i} NP_{i,j,t}^{Bank} = \text{bank } i \text{'s net CDS exposure to all banks} \)
- \( K_{i,t} = \sum_{j \neq i} NP_{i,j,t}^{Bank} \Pi_{j,t} = \text{bank } i \text{'s exposures × counterparty banks' CDS profits} \)

- A value of \( \gamma < 0 \) indicates contagion since exposed counterparty profits lowers bank \( i \)'s default risk.
Comment: An Improved Measure of Counterparty Risk?

- The paper’s key measure of counterparty risk is

\[ K_{i,t} = \sum_{j \neq i} N_{i,j,t} \cdot \Pi_{j,t} \]

where \( N_{i,j,t} \) is the exposure to Bank \( j \), and \( \Pi_{j,t} \) is the profits of Bank \( j \).

- How bank \( i \)'s default risk is changed by profits/losses of counterparty bank \( j \) should depend on bank \( j \)'s probability of default, say \( p_j \):

\[ K^*_{i,t} = \sum_{j \neq i} p_{j,t-1} \cdot N_{i,j,t} \cdot \Pi_{j,t} \]

- Bank \( j \)'s probability of default (EDF) can be measured by

\[ p_{j,t} = \frac{CDS_{j,t}}{LGD_{j,t}} \]

where \( CDS_{j,t} \) is Bank \( j \)'s CDS spread and \( LGD_{j,t} \) is the Markit estimate of \( j \)'s LGD.
Comment: Seniority, Central Clearing, and Collateral

- It is not surprising that the paper finds an economically small effect of CDS counterparty contagion.
  - Senior claim: exempted from automatic stay in bankruptcy.
  - Clearing house is counterparty for centrally-cleared CDS.
  - May be collateralized (initial and variation margin).

- Suggestion: Make the paper’s last set of robustness regressions that controls for central clearing the baseline regression.

- Might there be controls for differences in counterparty collateralization based on
  - dealer (less) versus non-dealer (more) bank?
  - a bank’s credit rating (c.f., AIG where none if AAA)?
Conclusions

- This session’s papers provide excellent insights on banking networks.
  - The social welfare cost of potentially contagious crises depends on the network topology and incentive-compatible Gvt and private resolution policies.
  - Evidence that derivative market participants are aware of the potential for contagion.

- Further research on these topics could be fruitful.