Discussion of *A Quantitative Model of Banking Industry Dynamics*

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What Do Banks Produce?

- Maturity transformation
- Application Screening
- Monitoring borrower performance
- Transaction/Payment Services
- Interbank services

Facts from the United States

- Very small, small, large, and very large banks coexist.
- Public policy supported very small and small banks until the 1980's and early 1990's.
- Consolidation has dramatically reduced the number of small banks and increased loan concentration at the largest banks. (Figures 7 & 8)
- Real estate lending accounts for more-and-more of bank lending. (Figure 12)
- Small banks earn substantially higher returns on loans than do large banks. (Table 4)
- Substantial ongoing entry and exit (both through merger and failure) of small banks.

The objective of this paper is to formulate a simple quantitative structural model of the banking industry consistent with data in order to understand the relation between market structure and risk taking by financial intermediaries.

Model Summary

- Two regions, *e*ast and *w*est.
- Borrowers operate risky projects.
  - Aggregate risk
  - Region-specific risk
  - Idiosyncratic risk.
  - Unobservable project risk choice (moral hazard).
- *National* banks operate in both regions. (e.g. B of A)
- *Regional* banks operate in one specific region (e.g. Comerica)
- Heterogeneous *Fringe* banks create increasing loan supply.
- Deposit market is perfectly competitive.
- "Dominant" banks compete in quantities in the two regions.
- Fringe banks are price takers in loan markets.
- Entry of national and regional banks requires sunk costs.
- *Insolvent banks exit and thereby destroy any franchise value.*

Equilibrium Outcome

- Higher interest rates induce more borrower risk-taking.
- The currently good (high downside risk) region is served by a regional bank, a national bank, and fringe banks.
- The currently bad (high upside risk) region is served by only the national bank and fringe banks.
- The national bank distorts its lending towards the currently bad region.
- When the regional shock hits during a recession:
  - The currently operating regional bank fails.
  - A new regional bank opens in the previously bad (now good) region.
  - The national bank shifts its lending to the previously good (now bad) region.
- The national bank's franchise value comes from *flexibility*, not diversification.

Policy Experiments

- No Regional Banks/Less Competition
  - Interest rates rise.
  - Borrower risk-taking falls.
  - GDP and loan supply contract.
- Too Big To Fail (Government guarantees national bank solvency)
  - National Bank chooses a more regionally balanced loan portfolio.
  - Interest rates in the currently good region fall.
  - GDP and loan supply grow
  - *Welfare rises?*
- Branching Restrictions (No National Banks)
  - One regional bank serves each region.
  - Interest rates and margins rise.
  - The competitive fringe expands.
  - GDP and loan supply contract.

Hopefully Constructive Suggestions

- Interpret "regions" more flexibly.
- Reduce deadweight loss of bank failure.
- Consider "reach for yield" more seriously.
- Focus on relationship lending (C & I and Subprime Consumer)
- For the (indefinite) future, consider imperfect competition in local markets (Bresnahan & Reiss (1991), Campbell & Hopenhayn (2005), Yang (2011))