The Effects of Banking Competition on Growth and Financial Stability: Evidence from the National Banking Era

Mark Carlson, Sergio Correia, and Stephan Luck

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Views do not necessarily represent views of the Federal Reserve

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1Federal Reserve Board
How does competition in banking affect

1. Credit provision?

2. Financial stability?

3. Real economic outcomes?
What do we know? (Theory)

→ Competition may lead to more (less) lending and more (less) risky lending

• Credit supply
  * Standard IO argument: competition increases credit
    (Klein, 1971)
  * Relationships matter: competition decreases credit
    (Petersen and Rajan, 1995)

• Risk taking
  * Monopolist decreases risk to protect charter value
    (Keeley, 1990)
  * Monopolist increases rates and lending becomes more risky
    (Boyd and DeNicolo, 2005)
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• Synthesis
  • Depends on stage of development of economy
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What do we know? (Empirical evidence)

- **Identification challenge**: competition and concentration are not exogenous
  - Most evidence based on lifting of branching restrictions (Jayaratne and Strahan, 1996, 1998, Black and Strahan, 2002; Cetorelli and Strahan, 2006; Dick and Lehnert, 2010; Jiang et al., 2016)

  - Confounding factors:
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Strategy: Exploit discontinuity in capital requirements during National Banking Era

- Minimum capital (equity) required **to open a bank**
  - Based on the legal population of town/city at time of founding
  - "Legal population" based on the last decennial census
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- Exploit publication of 1880 decennial census, which shifted the population of some towns above the 6,000 threshold
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Findings

1. Competition increases credit provision
   • Banks increase credit provision to deter potential entrants

2. Competition increases risk taking
   → Trade-off between credit provision and financial stability
   • Higher leverage
   • Seize more collateral
   • More likely to fail during major financial crisis (Panic of 1893)
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3. Increased credit provision correlates with **economic growth**
Data: OCC Annual Report to the Congress (1867–1904)

REPORT OF THE COMPTROLLER OF THE CURRENCY.  737

NEW YORK.

Chase National Bank, New York.


<table>
<thead>
<tr>
<th>Resources</th>
<th>Liabilities</th>
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<tbody>
<tr>
<td>Loans and discounts</td>
<td>Capital stock paid in</td>
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<td>Overdrafts</td>
<td>Surplus fund</td>
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<td>U. S. bonds to secure circulation</td>
<td>Undivided profits, less current</td>
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<td>expenses and taxes paid</td>
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<td>U. S. bonds to secure deposits</td>
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<td>U. S. bonds on hand</td>
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<td>Premiums on U. S. bonds</td>
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<td>Stocks, securities, etc</td>
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<td>Bank's house, furniture, and fixtures</td>
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<td>Other real estate and mortg's owned</td>
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<td>Due from other national banks</td>
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<td>Due from approved reserve agents</td>
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<td>Checks and other cash items</td>
<td>Dividends unpaid</td>
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<td>Exchanges for clearing house</td>
<td>Individual deposits</td>
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<td>Bills of other national banks</td>
<td>Certified checks</td>
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<td>Fractional currency, nickels, cents.</td>
<td>United States deposits</td>
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<td>Specie</td>
<td>Deposits of U. S. disbursing officers</td>
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<td>Legal-tender notes</td>
<td>Notes and bills rediscounted</td>
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<td>U. S. certificates of deposit</td>
<td>Bills payable</td>
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<td>Redemption fund with Treas. U. S.</td>
<td>Liabilities other than those above</td>
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<td>Due from Treasurer U. S.</td>
<td>stated</td>
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<tr>
<td>Total</td>
<td>Total</td>
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</tbody>
</table>

(111,097 balance sheets for 7,115 banks in 38 years)
The national banking system in 1870
The national banking system in 1880
The national banking system in 1890
The national banking system in 1900
Data

- OCC’s annual “Call Reports”
  - Data for all national banks from 1867 to 1904
- Population from Schmidt (2017)
- Manufacturing outcomes from Haines (2004)
- Railroad connections from Atack (2013)
- State chartered banks from Jaremski and Fishback (2018)
• Study the publication of the 1880 population census (March 3, 1882)
  • Exclude towns that when the 1880 census was published
    • Had no national banks
    • Were already above the 6,000 threshold
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- Treated cities (blue) are either larger to begin with or grow faster
- Similar in railroad access and manufacturing
Bank entry: Fewer national banks on towns above the threshold by 1891

- After 10 years, about 0.2 fewer banks in towns that cross the threshold
- Similar results when including state-chartered banks
Credit supply I: Ten-year growth of loan portfolio

- 22% lower loan growth over the ten-year period
Incumbents contract lending when the census is published, not gradually through the next ten years.
Risk taking I: Leverage in 1891

- Incumbents in towns that cross the threshold have 27% lower leverage
Risk taking II: Ex-post measures of risk

• Leverage does not necessarily reflect risk taking
• To corroborate finding we show that competitive banks
  • seize more collateral
  • twice as likely to fail during financial crisis (Panic of 1893)
Real effects: Manufacturing capital in 1890

- Banks that cross the threshold have a 17% slower growth in manufacturing capital
Summary

• Identifying **causal effects of banking competition** is extremely challenging
  • National Banking Era is a close to ideal laboratory

• **Findings:**
  • Banks in towns with higher barriers to entry are more sound, but at the cost of a slower loan growth
  • Real effects: increasing barriers to entry reduces local manufacturing capital

• **Implications:**
  • Trade-off between credit growth and financial stability
  • Regulations increasing charter values could depress credit but increase stability
  • Especially relevant in lightly regulated parts of financial sector