Shared Destinies? Small Banks and Small Business Consolidation

Claire Brennecke (CFPB)
Stefan Jacewitz (FDIC)
Jonathan Pogach (FDIC)
Disclaimer

Views and opinions expressed in this presentation reflect those of the authors and do not necessarily reflect those of the FDIC, CFPB, or the United States.
Decline in Small Banks and Small Firms

Source: Quarterly Workforce Indicators (Firm Shares). Summary of Deposits (Deposit Shares).
Small Firms <250 employees
Small Banks < $1 bn assets
Banking Consolidation

- Consolidation of banking system, driven by:
  - Regulatory changes (Riegle Neal 1994, Gramm Leach Bliley 1999, Dodd Frank 2010)
  - Technological changes (ATMs, credit scoring)

- Small banks have comparative advantage in lending to small businesses

- Common narrative: Banking consolidation $\rightarrow$ loss of small businesses
Literature in a Picture

County C

- Small Firm 1
  - Small Bank 1
- Small Firm 2
  - Small Bank 2
- Small Firm 3
  - Small Bank 3
- National Firm
  - National Bank
Literature in a Picture

County C

Small Firm 1 → Small Bank 1
Small Firm 2 → Small Bank 2
Small Firm 3
National Firm → National Bank
Real-Side Consolidation

• Consolidation of real industry (Grullon et al 2019, CEA 2016, Jia 2008)
  • Technological changes (e.g. supply chain management (Holmes 2008), e-commerce
    (Goldmanis et al 2010))
  • Regulatory (e.g. antitrust (Gutierrez & Philippon 2017)
• Small banks have comparative advantage in lending to small business
• Our narrative: Loss of small business $\rightarrow$ changes to viability of small banks
• Not mutually exclusive, but helps us weigh efficacy of policies
• COVID recession and govt response $\rightarrow$ SmBus $\rightarrow$ Small Banks
Paper in a Picture

County C

- Small Firm 1
  - Small Bank 1
- Small Firm 2
  - Small Bank 2
- Small Firm 3
  - Small Bank 3

Capital Markets

- National Firm
- National Bank
Paper in a Picture

County C

- Small Firm 1
  - Small Bank 1
- Small Firm 2
  - Small Bank 2
- National Firm
  - What now?
  - National Bank

Capital Markets
• Estimate effect of small business performance on small bank performance using:
  • Census QWI data on county employment by firm size
  • FDIC Summary of Deposits (SOD) data on bank deposits by bank size
• Use a Bartik instrument to estimate effect of real industry growth patterns by industry and firm size on bank financials by bank size 2002-2017
  • Rely upon 2000 county-industry shares as differential exposures to national trends by industry and firm size
  • Use Goldsmith-Pinkham, Sorkin, Swift (2019) to unpack instrument assumptions
Data: 2002-2017

- QWI – small < 250 employees, large > 500 employees
  - (Endogenous) County-level employment growth by firm size (not establishment size)
  - County-level employment by industry
  - National-level employment by firm size-industry

- SOD – small < $1 billion asset, large > $50 billion
  - Location of bank branches and deposits
  - Create deposit-weighted small-bank county proxy financials (Call Reports)
  - Bank variables such as deposit growth, income, small business lending growth
Bartik Instrument

Jon’s Home County, 2000
- Healthcare: 35
- Transportation: 25
- Retail: 15
- Manufacturing: 25

Stefan’s Home County, 2000
- Healthcare: 25
- Transportation: 15
- Retail: 30
- Manufacturing: 30

National Small Business Employee Trends:
2002-2017
- Healthcare: +31%
- Transportation: +8%
- Retail: -16%
- Manufacturing: -20%

Expected Demand in Small Business Financial Service
Main Findings

• 1% increase in small-firm employment growth → 0.9% increase in small-bank deposit growth
  • Increase small-bank income
  • Increase small-bank small-CI lending, less robust/smaller increase in RE lending
  • Decrease provisions
  • No increase in large-bank deposit growth

• Large-firm employment growth → no increase in small-bank deposit growth
What drives our findings?

• Small firm employment growth associated with small bank deposit growth

• Possible explanations: Small firm employment growth makes small bank business model more profitable
  • Less likely to be acquired?
  • Less likely to look to acquire?
  • Less likely to fail?

• Examine small-bank county deposits and HQs associated with acq, failure
What drives our findings?

- Small firm employment growth associated with small bank deposit growth

- Possible explanations: Small firm employment growth makes small bank business model more profitable
  - Less likely to be acquired? – Share of Deposits Acquired. HQ Acquisitions.
  - Less likely to look to acquire?
  - Less likely to fail?

- Examine small-bank county deposits and HQs associated with acq, failure
Additional Findings

• Effects of small business employment growth on small bank deposit growth higher for more urban areas
  • Extant evidence that small banks are declining faster in urban areas

• Effects of small business employment growth on small bank deposit growth higher for more concentrated banking markets
Conclusions

• The composition of the banking industry depends, at least in part, on the composition of the real economy
• Combined with existing literature, there is a feedback loop between small-banks and small-business consolidation
• Evolution of the organizational structure of banking will depend, in part, on the evolution of the American small business
• Policies affecting small-banks interdependent with policies and trends affecting small-business
Extras - Tables
### Two Stage Least Squares Regressions

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmFirm Gr</td>
<td>0.906***</td>
<td>0.812***</td>
<td>1.137***</td>
<td>0.997***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.178)</td>
<td>(0.183)</td>
<td>(0.401)</td>
<td>(0.363)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LgFirm Gr</td>
<td></td>
<td>0.447***</td>
<td>0.447***</td>
<td>-0.220</td>
<td>-0.177</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0901)</td>
<td>(0.0901)</td>
<td>(0.272)</td>
<td>(0.253)</td>
<td></td>
</tr>
<tr>
<td>Pop Gr</td>
<td>0.00512</td>
<td></td>
<td></td>
<td></td>
<td>0.00358</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0401)</td>
<td></td>
<td></td>
<td></td>
<td>(0.0419)</td>
<td></td>
</tr>
<tr>
<td>Income Gr</td>
<td>-0.182***</td>
<td></td>
<td></td>
<td></td>
<td>-0.187***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0598)</td>
<td></td>
<td></td>
<td></td>
<td>(0.0587)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>36,526</td>
<td>36,069</td>
<td>36,526</td>
<td>36,526</td>
<td>36,526</td>
<td>36,069</td>
</tr>
<tr>
<td>Number of geographic</td>
<td>2,468</td>
<td>2,437</td>
<td>2,468</td>
<td>2,468</td>
<td>2,468</td>
<td>2,437</td>
</tr>
<tr>
<td>REG</td>
<td>2SLS</td>
<td>2SLS</td>
<td>2SLS</td>
<td>2SLS</td>
<td>2SLS</td>
<td>2SLS</td>
</tr>
<tr>
<td>YEAR FE</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>COUNTY FE</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>
## Small Bank Income Variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROA</td>
<td>ROA</td>
<td>ROE</td>
<td>ROE</td>
<td>Provisions</td>
<td>Provisions</td>
</tr>
<tr>
<td>SmFirm Gr</td>
<td>0.0243***</td>
<td>0.00647***</td>
<td>0.296***</td>
<td>0.0794***</td>
<td>-0.0131***</td>
<td>-0.00521***</td>
</tr>
<tr>
<td></td>
<td>(0.00785)</td>
<td>(0.00193)</td>
<td>(0.0909)</td>
<td>(0.0243)</td>
<td>(0.00482)</td>
<td>(0.00117)</td>
</tr>
<tr>
<td>LgFirm Gr</td>
<td>0.000536**</td>
<td>0.00548*</td>
<td>-0.000610***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000259)</td>
<td>(0.00277)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.0152***</td>
<td>0.0151***</td>
<td>0.153***</td>
<td>0.152***</td>
<td>0.00347***</td>
<td>0.00349***</td>
</tr>
<tr>
<td></td>
<td>(0.000226)</td>
<td>(0.000644)</td>
<td>(0.00211)</td>
<td>(0.00764)</td>
<td>(9.26e-05)</td>
<td>(0.000328)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.560*</td>
<td>0.460*</td>
<td>0.412*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REG</td>
<td>2SLS</td>
<td>OLS</td>
<td>2SLS</td>
<td>OLS</td>
<td>2SLS</td>
<td>OLS</td>
</tr>
<tr>
<td>YEAR FE</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>COUNTY FE</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>
## Small Bank Balance Sheet Variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmFirm Gr</td>
<td>0.830***</td>
<td>0.0721**</td>
<td>0.834***</td>
<td>0.136***</td>
<td>0.689***</td>
<td>0.0426</td>
</tr>
<tr>
<td></td>
<td>(0.300)</td>
<td>(0.0267)</td>
<td>(0.281)</td>
<td>(0.0264)</td>
<td>(0.208)</td>
<td>(0.0303)</td>
</tr>
<tr>
<td>LgFirm Gr</td>
<td>0.00104</td>
<td>-0.00534</td>
<td>-0.000826</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0123)</td>
<td>(0.00948)</td>
<td>(0.00591)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.00607</td>
<td>0.00395</td>
<td>0.0331***</td>
<td>0.0310**</td>
<td>0.0153***</td>
<td>0.0135</td>
</tr>
<tr>
<td></td>
<td>(0.00614)</td>
<td>(0.0121)</td>
<td>(0.00653)</td>
<td>(0.0140)</td>
<td>(0.00579)</td>
<td>(0.00853)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observations</th>
<th>35,204</th>
<th>35,204</th>
<th>35,204</th>
<th>35,204</th>
<th>35,204</th>
<th>35,204</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-squared</td>
<td>0.065</td>
<td>0.065</td>
<td>0.065</td>
<td>0.065</td>
<td>0.067</td>
<td></td>
</tr>
<tr>
<td>REG</td>
<td>2SLS</td>
<td>OLS</td>
<td>2SLS</td>
<td>OLS</td>
<td>2SLS</td>
<td>OLS</td>
</tr>
<tr>
<td>YEAR FE</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>COUNTY FE</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>