Government-Sponsored Wholesale Funding and the Industrial Organization of Bank Lending

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Motivation and Research Question

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  • >25% of banks’ total liabilities came from wholesale funding during 2002-2018.
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My contribution: first to examine the effect through changing banks’ market structure.
Empirical Setting: Federal Home Loan Banks (FHLB)

- A government-sponsored funding program: member banks access low-cost wholesale funding (mortgages as collaterals).

- Treatment: access to FHLB funding (advances)

- Key features:
  - FHLB advance rate close to treasury yield with comparable maturity.
  - FHLB gives the same rate to member institutions, regardless of size.

- Membership Lending: banks have to (1) file application (go through a screening process), (2) purchase FHLB shares to join FHLB.
Identification Strategy: Multiple-Target Mergers

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  - A simple comparison between FHLB and non-FHLB banks would suffer from selection bias.
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  - FHLB member targets serve as a natural control group for non-FHLB member targets.
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Multiple-Target Merger Example

Fig 1: Illinois National Bank M&A in Sangamon County (2003)
Bank Effect #1: FHLB Funding Reduces Mortgage Rate by 18 bps
Bank Effect #2: FHLB Funding Increases Mortgage Lending by 16.3%

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Bank Effect #3: FHLB Banks Shift to Fixed Rate Mortgages

[Diagram showing the impact of FICO score and LTV on composition changes.]
Bank Effect #4: Smaller Banks React More Strongly to FHLB Access

Table 3: FHLB Effect on Banks of Different Sizes

<table>
<thead>
<tr>
<th>FHLB</th>
<th>Mortgage Lending</th>
<th>Mortgage Interest Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.76***</td>
<td>-0.181**</td>
</tr>
<tr>
<td>relative to baseline</td>
<td>(2.84)</td>
<td>(0.076)</td>
</tr>
<tr>
<td></td>
<td>16.3%</td>
<td>-3.2%</td>
</tr>
<tr>
<td>FHLB × Regional</td>
<td>9.20**</td>
<td>-0.164**</td>
</tr>
<tr>
<td>relative to baseline</td>
<td>(3.72)</td>
<td>(0.079)</td>
</tr>
<tr>
<td></td>
<td>15.2%</td>
<td>-2.7%</td>
</tr>
<tr>
<td>FHLB × Community</td>
<td>11.78***</td>
<td>-0.292***</td>
</tr>
<tr>
<td>relative to baseline</td>
<td>(4.23)</td>
<td>(0.095)</td>
</tr>
<tr>
<td></td>
<td>20.7%</td>
<td>-4.3%</td>
</tr>
</tbody>
</table>

Event-Year FE  | ✓    | ✓    | ✓    | ✓    | ✓    |
Event-Branch FE | ✓    | ✓    | ✓    | ✓    | ✓    |
County-Year FE  | ✓    | ✓    | ✓    | ✓    | ✓    |

Obs. 62,260   62,260   56,099   56,099
Spillover Effect to Local Market (Census Tract)
Spillover #1-1: Market Competition Improves (HHI decreases by 1.5 ppts)
### Spillover #1-2: Interest Rates Fall (by 8 bps) with More Competition

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Local Market</th>
<th>Treated Bank</th>
<th>Other Lenders</th>
<th>Other Lenders (National Banks)</th>
<th>Other Lenders (Small and Non-Banks)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td><em>FHLB</em></td>
<td>-0.083**</td>
<td>-0.181**</td>
<td>-0.074*</td>
<td>-0.031</td>
<td>-0.093*</td>
</tr>
<tr>
<td></td>
<td>(0.037)</td>
<td>(0.076)</td>
<td>(0.042)</td>
<td>(0.052)</td>
<td>(0.049)</td>
</tr>
<tr>
<td>Event-Year FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Event-Branch FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>County-Year FE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cluster</td>
<td>Event</td>
<td>Event</td>
<td>Event</td>
<td>Event</td>
<td>Event</td>
</tr>
<tr>
<td>Obs.</td>
<td>152,658</td>
<td>56,099</td>
<td>96,329</td>
<td>29,830</td>
<td>66,499</td>
</tr>
</tbody>
</table>
Spillover #1-3: Market Mortgage Lending Increases (by 5%)
Spillover #2-1: Community Banks More Responsive to Local Shocks

![Graph showing the relationship between local default rate and risk-adjusted interest rate for national, community, and regional banks. The graph indicates that community banks are more responsive to local shocks compared to other types of banks.]
Spillover #2-1: Community Banks More Responsive to Local Shocks

- National Banks
- Community Banks
- Regional Banks
Spillover #2-1: Community Banks More Responsive to Local Shocks

![Graph showing the relationship between local default rates and adjusted interest rates for different types of banks. The graph indicates that community banks are more responsive to local shocks compared to national and regional banks.](image)
Spillover #2-1: Community Banks More Responsive to Local Shocks

The diagram shows the relationship between the local default rate in the past 2 years and the risk-adjusted interest rate. It compares national banks, regional banks, and community banks. The trend lines indicate that community banks are more responsive to local shocks compared to the other types of banks.
Spillover #2-2: FHLB Improves Mortgage Pricing Efficiency

- Structural Model Implies:
  - With FHLB, nation-wide mortgage rates are more responsive to local economic conditions.
  - Aggregate default drops by 1bp.
Takeaways

Government-sponsored wholesale funding facility (FHLB)

- passes cheaper funding to the borrowers (↘ 8 bps);
- increases market competition, thus improves the cost reduction pass-through (↘ 3 bps, ↑ $50 Billion).
Thank You!