Transmission of monetary policy

- With financial frictions in credit market
- Credit channel
  - Balance sheet channel
    - MP affects the cost of borrowing through its effect on borrowers’ net worth
  - Bank lending channel (affecting supply of credit)
    - costly to substitute deposit funding
    - increase in M / relaxe reserve req. → more deposits → more bank loans
    - impact moderated by bank capital
This paper: deposit rate channel

- Assumes
  - important competition in deposit markets among different banks
  - competition from cash (good substitute when rates are low) and bonds (bad substitute)

- MP influences degree of competition

- Mechanism:
  - increase in FFR increases banks’ market power (supply shock)
  - deposit spread (FFR−deposit rate) widens
  - reduction in deposits as households substitute towards relatively less liquid deposits/bonds
  - bank lending channel effects after fall in deposits
Empirical Findings

- Data (1994/8-2008)
  - commercial banks: branches & consolidated
  - branch level deposit rates from Rate-watch

- Findings
  - FFR increases passed-through less in concentrated deposit markets (Neumark and Sharpe, QJE 1992)
  - higher deposit spreads & higher outflows
  - Nature of data allows them to rule out many alternative (e.g. demand, news driven) stories
  - 100 bp increase in the FFR (relative to competitive counties)
    - 1.5% larger outflow in total deposits
    - dep spread go up by 5-12 bp
    - reduces assets by 100bp & mortgages by 70 bp
Discussion

- Imperfect competition in deposit provision plausible
- Relevance for monetary policy depends
  - loan share of banks most affected by policy
  - funding alternatives to deposits
  - alternatives to banks
- Bank-level regressions
FDIC commercial bank level sample from March 1997 to June 2008. Bank-level Herfindahl calculated using county-level Herfindahl indices weighted by lagged branch-level deposits. Main effects are included in the regression. Standard errors are clustered at the bank level.
Concentrated banking sector

- Small banks (in the bottom 75 percentile) hold
  - 8.5% of assets
  - 8% of loans
  - 10% of deposits
  - 2% average asset growth

- Large banks (in the top 25 percentile) hold
  - 91.5% of assets
  - 92% of loans
  - 90% of deposits
  - 3% average asset growth
## Bank size matters

<table>
<thead>
<tr>
<th>Log Growth</th>
<th>Deposits</th>
<th>Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>ΔFF × Hfd</td>
<td>−1.48</td>
<td>−.81</td>
</tr>
<tr>
<td></td>
<td>(.19)</td>
<td>(.84)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.015</td>
<td>0.01</td>
</tr>
<tr>
<td>bank &amp; qrt f.e.</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Obs</td>
<td>269,027</td>
<td>89,642</td>
</tr>
</tbody>
</table>

FDIC commercial bank level sample from March 1997 to June 2008. Bank-level Herfindahl calculated using county-level Herfindahl indices weighted by lagged branch-level deposits. Main effects and bank characteristics are included in the regression. Standard errors in brackets are clustered at the bank level. Note: Small banks hold assets in the bottom 75 pctlile- Large banks are in the top 25 pctlile.
Effect of MP & Market Concentration

- Small banks: strong effects but small lending share
- Large banks: small effects but high lending share
  - Caveat: Herfindahl index using deposit shares perhaps imprecise measure of market power for large banks?
Alternatives to Deposit Funding

<table>
<thead>
<tr>
<th>Log Growth</th>
<th>Repo</th>
<th>Other borrowed M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>∆FF × Hfd</td>
<td>2.86</td>
<td>10.78</td>
</tr>
<tr>
<td></td>
<td>(1.72)</td>
<td>(8.54)</td>
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<td></td>
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</tr>
<tr>
<td>$R^2$</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td>bank &amp; qrt f.e.</td>
<td>Y</td>
<td>Y</td>
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<tr>
<td>bank charact.</td>
<td>Y</td>
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</tr>
</tbody>
</table>

- Alternatives to deposits used
- Would be interesting:
  - explore large banks’ access to other sources of funds
  - fund. cost still exposed to changes in FFR
Effect on Net Interest Income

Increase in FFR rel. to competitive counties:
- larger outflow of assets & deposits
- increase in spread (as authors show)

<table>
<thead>
<tr>
<th>Log Growth</th>
<th>Net Interest Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>$\Delta FF \times Hfd$</td>
<td>4.96</td>
</tr>
<tr>
<td></td>
<td>(.67)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.92</td>
</tr>
<tr>
<td>bank &amp; qrt f.e.</td>
<td>Y</td>
</tr>
<tr>
<td>bank char.</td>
<td>Y</td>
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<td>Obs</td>
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</tbody>
</table>
Alternative to banks: Fin assets by sector

![Graph showing the comparison between Shadow Banks and Depository Institutions from June 1998 to June 2014, with data points in trillions of dollars. The graph highlights significant increases and decreases in both sectors over time.](image-url)
Conclusion

- Very nice paper with interesting implications
- Insightful exploration of MP effects on the supply of deposits when banks have market power
- Convincing story for small banks
  - increase in profits, outflow of deposits, balance sheet reduction
- Suggest further exploration of channel’s importance for large banks