

Antitrust Regulation, Bank Competition and Risky Lending

C. Jack Liebersohn

Motivation

- US bank competition decreased since Riegle-Neal Act (1994). As of 2015:
 - ▶ From 10,000 to 5,000 commercial banks
 - ▶ Average Herfindahl Index by Fed banking market: 1200 to 1900
- Question: How does lower competition affect risky lending?
 - ▶ Important in wake of financial crisis
 - ▶ Theoretical predictions ambiguous
 - “Charter value hypothesis” vs “Borrower Risk Shifting”
 - ▶ Empirics also ambiguous

This Paper

- Estimates effect of competition on loan properties and risks
- New source of empirical variation:
 - ▶ Difference in differences using antitrust law cutoff
 - ▶ Advantages vs previous research:
 - Equilibrium effects of competition, not effects of bank size
 - Avoids concerns about endogeneity of mergers
- Loan- and bank-level data to see effect on loan and mkt equilibrium

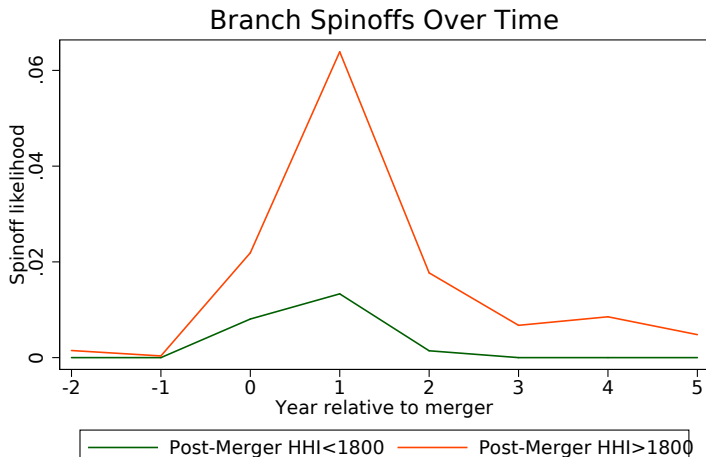
Preview of Findings

- Antitrust laws have a large effect
- In those qualifying for antitrust intervention:
 - ▶ 4% branches spun off; HHI 147 points lower
 - ▶ CD rates up 0.12 pcnt pts, commercial mtgs down 0.14 pcnt pts
 - ▶ NPL ratio falls by 0.26, Loan loss reserve ratio falls by 0.19
- Overall: Greater competition leads to better rates and lower loan risks

Empirical Variation

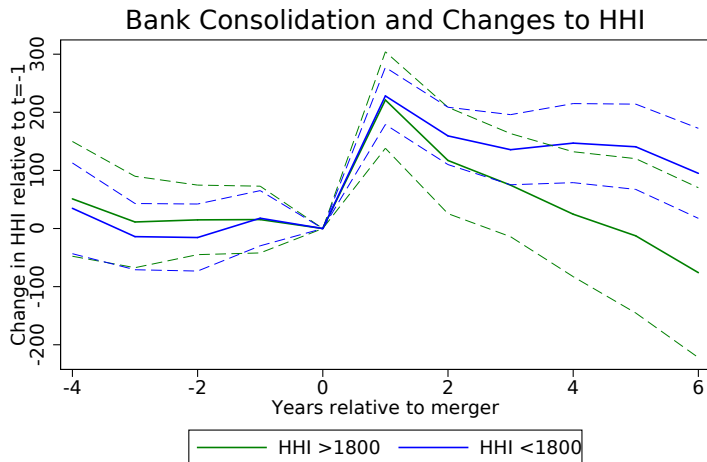
- Part of US bank merger approval process is an antitrust review
 - ▶ Intervene when HHI rises at least 200 points to above 1800
 - ▶ Cutoff is fuzzy and gives regulators leeway
- I replicate approval process - look at branch networks to predict HHI
- Study mergers where $\Delta HHI > 200$
- Use 500-point range of HHI=1800 cutoff
 - ▶ HHI between 1800 and 2300, regulators intervene
 - ▶ Between 1300 and 1800, no intervention

Spinoff Likelihoods



Source: FDIC Summary of deposits. Conditions on branch existing and owned by merging in $t=-1$.

HHI Around Merger



Each observation is a market in a particular year. SE's clustered by market. Limited to $\Delta HHI > 200$. Source: FDIC SOD, 1994-2006 and 2009-2015.

Main Specification

- Differences in differences specification:

$$Y_{it} = POST_t + TREAT_i \times POST_t + MergerMkt_i + Year_t + \varepsilon_{it}$$

- $TREAT = 0$ for mergers leading to $HHI \in [1300, 1800]$
- $TREAT = 1$ for mergers leading to $HHI \in [1800, 2400]$
- $POST = 1$ for $t > 0$ following merger
- $MergerMkt_i$ dummy for particular merger and particular market
- $Year_t$ year fixed effects
- SE's clustered by banking market
- Key assumption:
 - ▶ ε_{it} independent of $TREAT_i \times POST_t$ conditional on fe's

Data

- Deposit rates (Ratewatch)
 - ▶ Calculate spreads, rates, for \$10k CDs
- CMBS Originations (Trepp)
 - ▶ Mtgs are biggest single source of small biz finance
 - ▶ Loan-level data to retailers and offices
- Bank balance sheets (Call reports)
 - ▶ Local banks, >50% deposits in one mkt
 - ▶ Assets >\$20mn

Robustness Checks

- Placebo cutoffs - 1300 and 2300 instead of 1800
- Drop BHCs
- Multi-market mergers
- Event study graphs show parallel trends
- Controls for bank vars, heterogeneous effects, mkt structure vars
- See paper for these and more!

Deposit Rates

| VARIABLES | (1) Avg Rate | (2) Avg Spread | (3) Spread 3M | (4) Spread 5Y |
|--------------------|-----------------------|-----------------------|----------------------|-----------------------|
| POST | -0.0539** (0.0237) | -0.0536** (0.0225) | -0.0379* (0.0220) | -0.118*** (0.0304) |
| POST X TREAT | 0.115*** (0.0361) | 0.113*** (0.0355) | 0.100*** (0.0361) | 0.180*** (0.0490) |
| Market X Merger FE | X | X | X | X |
| Year FE | X | X | X | X |
| Observations | 6,568 | 6,568 | 6,564 | 6,382 |
| R-squared | 0.986 | 0.878 | 0.898 | 0.738 |

Standard errors clustered by banking market

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

CMBS

| VARIABLES | (1) # Loans | (2) Log Amount/Ln | (3) Interest Rate | (4) LTV |
|--------------------|--------------------|----------------------|----------------------|-------------------|
| POST | 0.122* (0.0691) | 0.0806 (0.0964) | 0.0518 (0.0486) | 0.296 (0.789) |
| POST X TREAT | 0.0969 (0.0822) | 0.304** (0.122) | -0.143** (0.0705) | -0.984 (1.031) |
| Market X Merger FE | X | X | X | X |
| Year FE | X | X | X | X |
| Observations | 3,494 | 3,330 | 3,337 | 3,371 |
| R-squared | 0.799 | 0.713 | 0.883 | 0.267 |

Standard errors clustered by banking market

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Bank Balance Sheets

| VARIABLES | (1) Log(Assets) | (2) Log(Loans) | (3) NPL Ratio | (4) LLR Ratio |
|--------------------|----------------------|----------------------|---------------------|--------------------|
| POST | 0.119*** (0.0330) | 0.119*** (0.0345) | 0.0833 (0.0760) | 0.0389 (0.0851) |
| POST X TREAT | -0.0901* (0.0515) | -0.0890 (0.0566) | -0.256** (0.106) | -0.189* (0.101) |
| Market X Merger FE | X | X | X | X |
| Year FE | X | X | X | X |
| Observations | 64,656 | 64,656 | 60,903 | 64,654 |
| R-squared | 0.965 | 0.962 | 0.515 | 0.610 |

Standard errors clustered by banking market

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Conclusion

- New source of empirical variation to study effects of competition on lending risks
- Main finding:
- Lower competition is associated with higher risks and higher prices