Credit Union Expansions: A Fork in the Road for Local Banks?

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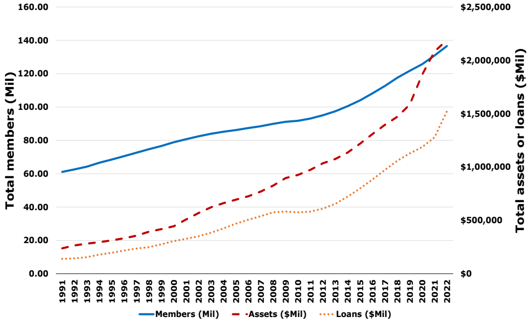
Motivation

- Fast-growing trend of the CU system in the U.S. (1991 - 2023)



  - Membership base has more than doubled
  - Aggregate size of CU assets has grown 9x whereas that of commercial banks has grown 7x (Data source: NCUA, Flow of Funds)

CUs are becoming more systematically important

- Serves about 147 million people \$2.26 trillion in assets (2023 Q4)
- Originates roughly 30% of all new car loans and 25% of US mortgages
  - The largest CU - Navy FCU - has about \$171 billion in assets and 13.5 million members

CREDIT UNIONS

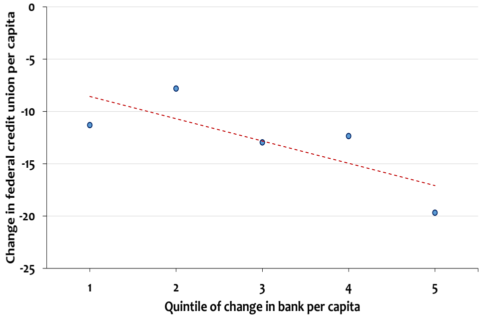
The biggest credit union gets even larger

By Ken McCarthy July 25, 2023, 5:05 p.m. EDT 3 Min Read

Navy Federal added 1.2 million members during the past year – more than the total membership of all but five credit unions in the U.S. Adobe stock

Overall Patterns

- Bank-CU substitution patterns
  - x-axis: equal-sized quintile bins of counties sorted on changes in bank per million population (from 2012 to 2020)
  - y-axis: the averages of the change in FCU per million population for these quintile bins



Research question

- **Our questions**
  - **How do banks react to the deregulation of (federal) credit unions?**
  - **How does credit union deregulation affect the competitive landscape in consumer credit markets?**
  - **More generally: How do banks compete with <u>informed</u> entrants?**
- In our setting
  - CUs and small commercial banks focus on local markets (informed lenders)
  - Commercial banks' (large vs. small) responses to the deregulation of CUs

Road map

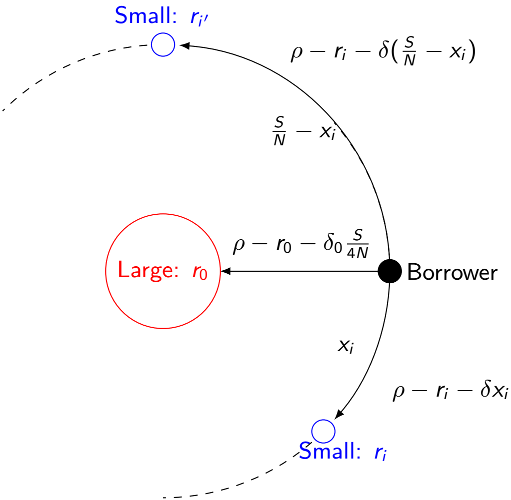
- *Conceptual framework*
- Identification strategy
- Empirical results
- Implications: consumer welfare
- Conclusion

Spatial model of incomplete competition *à la* Salop (1979)

- Consider a local consumer credit market with 1 unit mass of borrowers, each needs 1 unit of credit to start a project with payoff $1 + \rho$
  - CUs subject to FOM regulations that limit their sizes to serve only $1 - S$ mass of borrowers
- The rest S mass of borrowers to N small local banks on the circle and one large national bank at the center
  - Large banks' profit $\pi_0 = s_0(r_0 - \kappa_0)$, under its loan rate r_0, funding cost κ_0, and market share s_0;
  - Small banks' profit $\pi_i = s_i(r_i - \kappa)$ for $i \in \{1, \cdots, N\}$, under loan rate r_i, funding cost κ, and market share s_i;
  - $\Sigma_i s_i + s_0 = S$
- CU deregulation $\rightarrow S \downarrow$

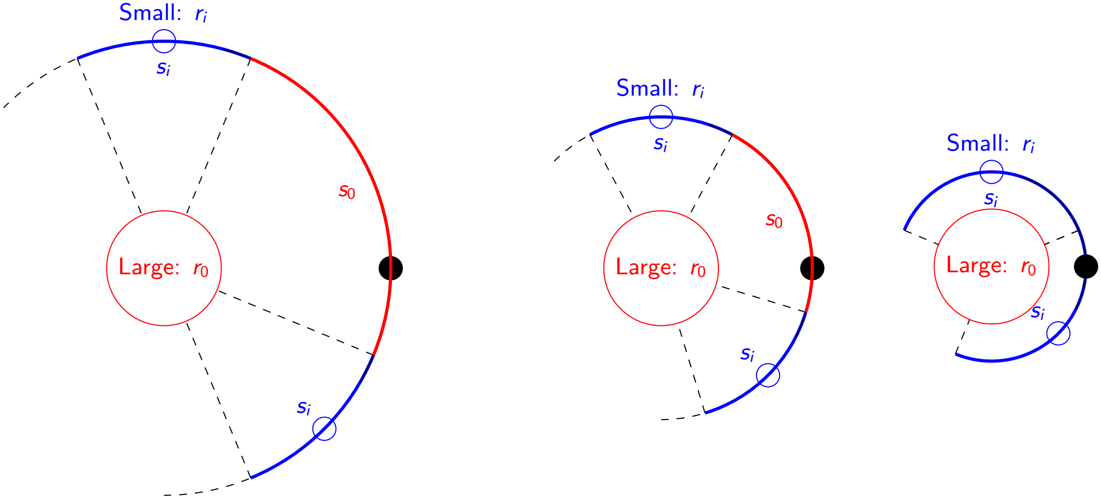
Borrowers' value function:

- $\rho - r_i - \delta x_i$, if choose to borrow from small bank i with distance x_i, or
- $\rho - r_0 - \delta_0 \frac{S}{4N}$, if choose to borrow from the large bank.



Equilibrium and comparative statics (when $S \downarrow$)

- $\frac{\partial s_0}{\partial S} > \frac{1}{2} > \frac{\partial N s_i}{\partial S} > 0$: Large bank losses market share faster until it quits
- $0 < \frac{\partial r_0}{\partial S} < \frac{\partial r_i}{\partial S}$: Large bank lowers loan rate slower than small banks do



Identification challenges

- Key challenges in identifying the causal effect of changes in competition in consumer credit market
  - Entry/exits of lenders are endogenous
  - Disentangling credit supply and demand
    - The economic conditions driving consumer defaults, and thus lender losses, can also reduce loan demand
  - Monetary policy shocks usually affect all lenders (banks and CUs) at once

Our solution

- FCU expansion under 2017 NCUA deregulation
  - Expanded the definition of local community: within MSA $\rightarrow$ CSA with $\leq$ 2.5 million population
  - Offer more flexibility and convenience in expanding membership in an FCU
  - and more...
- Timeline
  - **Oct 27, 2016** – NCUA Board approves comprehensive changes to FOM regulations (allowing more individuals to become CU members)
  - **Feb 6, 2017** – Became effective
  - The most significant and comprehensive change in CU regulation since 2010

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Identification strategy

- Cross-sectional variation in FCU exposure in 2015Q4, $\textit{FCU fraction}_{t-5}$
  - HMDA mortgage application share in a local lending market (county)
- Exclusion restriction: Plausibly exogenous to loan demand and other local economic characteristics changes driven by the rule change
  - FCU exposure is extremely sticky

Identification strategy

- Continuous difference-in-differences (DID) approach

$$FCU\ fraction_{t-5} \times Post$$

- Treatment variable is measured by a continuous quantity rather than as an indicator
  - Estimate effects of aggregate economic shocks by exploiting regional variations (Bartik 1991, Card 1992, Blanchard, Katz, Hall, and Eichengreen 1992, Goldsmith-Pinkham, Sorkin, and Swift 2020)

Road map

- Conceptual framework
- Identification strategy
- *Empirical results*
  - Data
  - Banks' competitive responses (Large vs. Small)
  - Information-based competition
- Implications: consumer welfare
- Conclusion

Data sources

- CU balance sheet & branch data: Credit Union Call Reports
- Bank balance sheet data: Call Reports
- Bank branch data: National Information Center (NIC)
- Bank branch deposits: FDIC Summary of Deposits (SOD) data
- Branch- and product-level deposit and loan rates: Ratewatch
- Small business lending data: SBA 7(a) loans
- Mortgage data: HMDA, Fannie, Freddie
- County characteristics: BEA, FHFA
- Baseline sample period: 2014-2019

Banks' competitive responses (Large vs. Small): Balance Sheets

Dep. Var.	(1) Log Assets	(2) Capital /Assets	(3) Loans /Assets	(4) Small loans ¡=$250k /Assets	(5) Small loans ¡=$1mil /Assets	(6) Savings deposits /Assets	(7) Time deposits /Assets	(8) NPL /Loans	(9) Mortgage NPL /Loans	(10) Mortgage charge-offs /Loans
Panel A. Small banks										
FCU fraction × Post	0.089*	-0.003	-0.019	-0.005***	-0.017***	0.007	-0.019*	0.007***	0.006***	0.002**
	(0.052)	(0.004)	(0.015)	(0.002)	(0.005)	(0.016)	(0.012)	(0.003)	(0.002)	(0.001)
Observations	63,114	63,066	63,114	56,946	56,946	63,102	63,102	63,101	63,063	63,063
Adj. R2	0.992	0.899	0.939	0.936	0.939	0.936	0.946	0.745	0.758	0.216
Panel B. Large banks										
FCU fraction × Post	-1.562	0.128	-0.098	-0.011*	-0.037*	0.053	-0.298	-0.086	-0.080	0.044
	(1.212)	(0.116)	(0.552)	(0.005)	(0.021)	(0.390)	(0.275)	(0.086)	(0.125)	(0.049)
Observations	508	508	508	494	494	508	508	508	508	508
Adj. R2	0.994	0.908	0.920	0.949	0.968	0.985	0.952	0.675	0.778	0.366
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

- (Col 1 - 3) Small bank total assets increase, whereas the leverage structure remain stable
- (Col 8 - 10) Small banks loan origination quality deteriorated
- Not much of significant change among large banks

Banks' competitive responses (Large vs. Small): Spreads

Panel A. Deposits	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.	Deposit rate spread (=deposit rate - FF rate)					
Product	CD $10k (12-month)			CD $10k (36-month)		
Lenders	Banks			Banks		
	All	Small $< \$100b$	Large $>= \$100b$	All	Small $< \$100b$	Large $>= \$100b$
FCU fraction × Post	0.241***	0.433***	0.079*	0.160**	0.385**	-0.024
	(0.073)	(0.159)	(0.045)	(0.078)	(0.172)	(0.043)
Observations	56,190	38,584	17,562	53,935	36,361	17,530
Adj. R2	0.973	0.959	0.987	0.969	0.955	0.979
Lender × Year-quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Lender × County FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Loans	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.	Loan rate spread (=loan rate - FF rate)					
Product	HELOC			Mortgage (15-year)		
Lenders	Banks			Banks		
	All	Small $< \$100b$	Large $>= \$100b$	All	Small $< \$100b$	Large $>= \$100b$
FCU fraction × Post	-0.614*	-2.362**	-0.327	-0.319*	-1.345*	-0.138
	(0.361)	(0.938)	(0.391)	(0.176)	(0.784)	(0.146)
Observations	8,189	3,225	4,945	3,508	1,410	2,089
Adj. R2	0.952	0.861	0.957	0.885	0.861	0.894
Lender × Year-quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Lender × County FE	Yes	Yes	Yes	Yes	Yes	Yes

- Small banks aggressively adjust deposit and loan prices to defend market share CU Deposit Rates CU Loan Rates

Information-based competition

- GSE mortgage origination by small and large banks after FCU expansion
- GSE-eligible loans are less information intense (Loutskina and Strahan 2009, 2011)

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.			GSE indicator			
Loan sample	Purchase	Refinance	Purchase		Refinance	
Region			HQ county		HQ county	
			Yes	No	Yes	No
Small bank × Post × High FCU%	0.010	0.009	-0.022	0.006	-0.029*	0.015**
	(0.007)	(0.008)	(0.018)	(0.006)	(0.017)	(0.007)
Large bank × Post × High FCU%	0.030***	0.019**	-0.020	0.024***	-0.045	0.021***
	(0.008)	(0.007)	(0.035)	(0.007)	(0.074)	(0.007)
Observations	10,488,412	15,205,164	1,465,911	9,022,476	1,841,383	13,363,755
Adj. R2	0.416	0.399	0.431	0.409	0.444	0.384
Loan size decile FE	Yes	Yes	Yes	Yes	Yes	Yes
Income decile FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Lender × County FE	Yes	Yes	Yes	Yes	Yes	Yes

- Large banks are more likely to issue GSE-eligible loans, shifting away from information-based lending.

Consumer welfare

- Overtime, bank-CU substitution leads to market segmentation
- Long-term effects: as CUs push out large banks and gain market power, what are the consumer welfare effects?
- Credit redistribution have implications of credit provision and the cost of access to financial services (Philippon 2015)

Low-income borrowers

- Loan-level HMDA application

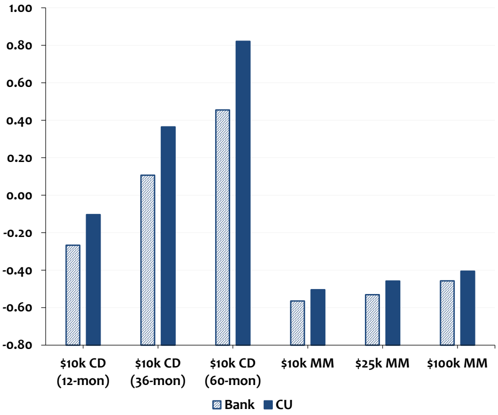
	(3)	(4)	(5)	(6)
Dep. Var.	Denied			
Loan sample	Purchase	Refinance	Purchase	Refinance
FCU × Post × Income quartile 1			-0.013**	-0.024***
			(0.006)	(0.005)
FCU × Post × Income quartile 2			-0.004	-0.014***
			(0.006)	(0.005)
FCU × Post × Income quartile 3			-0.009	-0.014***
			(0.005)	(0.005)
FCU fraction × Post × Income quartile 1	-0.044**	-0.029*		
	(0.017)	(0.017)		
FCU fraction × Post × Income quartile 2	-0.010	-0.006		
	(0.013)	(0.012)		
FCU fraction × Post × Income quartile 3	-0.004	-0.002		
	(0.011)	(0.011)		
Observations	2,675,553	2,675,315	2,727,758	2,727,529
Adj. R2	0.0360	0.0704	0.0507	0.102
Borrower controls	Yes	Yes	Yes	Yes
Loan amount quintile FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes
Lender FE		Yes		Yes

- Mortgage credit availability to low-income borrowers improved

Conclusion

- Facing an increase in the FCU exposure, small banks and large banks behaved differently
  - **Small banks** – (↑) deposit rates (↓) loan rates to defend market share, and default risk (↑)
  - **Large banks** shift away from CU competition – (↓) costly lending, do not adjust deposit rates so (time) deposits (↓), withdraw from CU-heavy markets
- CUs fill the void left by large banks' withdrawal, and they lend more to underserved communities
- Our information channel is different from the bank regulation literature

Fact 1: CUs offer higher deposit rates



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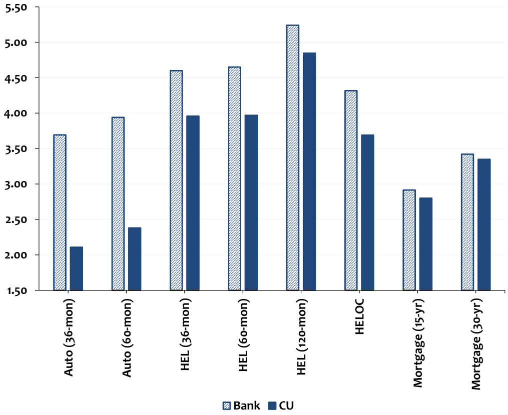
Fact 2: CUs offer lower loan rates



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