

The Rise of Nonbanks and the Quality of Financial Services

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Motivation

- Nonbanks have achieved a substantial presence in the residential mortgage market
 - In 2018, they accounted for 47% of the origination market and 35% of the servicing market
- The existing literature examines the consequences of this phenomenon by focusing on the **origination stage** of the mortgages (e.g., Buchak et al. 2018; Jagtiani et al. 2021)
 - Nonbanks increase credit access for riskier and less creditworthy borrowers
 - The evidence on the cost of mortgage financing is mixed

This paper

Research Question

As nonbanks increase their market share in a local residential mortgage market, what happens to the **quality of mortgage service predominantly **after** mortgage origination?**

► Roadmap and preview of results

Main Variables:

- The quality of mortgage services: Consumer Financial Protection Bureau (CFPB)

$$\text{Complaint ratio} = \left(\frac{\# \text{ of complaints}}{\# \text{ of outstanding mortgages}} \right)$$

- The Market share of nonbanks: the Home Mortgage Disclosure Act (HMDA) dataset

▸ Details

▸ Summary statistics

Other data:

- County level income per capita: Bureau of Economic Analysis (BEA)
- County unemployment rate: Bureau of Labor Statistics (BLS)
- County minority population share: 2010 Census files

Complaint data

Issue	Frequency	Percent (%)
Loan modification, collection, foreclosure	67,993	45.54
Loan servicing, payments, escrow account	40,985	27.45
Trouble during payment process	9,230	6.18
Application, originator, mortgage broker	8,486	5.68
Struggling to pay mortgage	8,328	5.58
Other	4,479	3.00
Settlement process and costs	4,044	2.71
Credit decision / Underwriting	2,674	1.79
Applying for a mortgage or refinancing an existing mortgage	1,596	1.07
Closing on a mortgage	974	0.65
Issues related to credit report	502	0.34
Total	149,291	

Table: 1

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Table: 1

About 88% of the complaints are about service after loan origination

Results: Nonbank market share and mortgage service quality

OLS

$$\text{Complaint ratio}_{c,t} = \beta \text{Nonbank}_{c,t-1} + \gamma \text{Controls}_{c,t-1} + \delta_c + \eta_t + \epsilon_{c,t} \quad (1)$$

	All complaints
<i>Nonbank market share</i>	-0.037** (0.017)
Year FE	Yes
County FE	Yes
Observations	7,178
R-squared	0.568

Table: 3

A 1 SD increase in nonbanks market share
→
A 12% reduction from the average
county-level complaint ratio

Results: Nonbank market share and mortgage service quality

OLS

$$\text{Complaint ratio}_{c,t} = \beta \text{Nonbank}_{c,t-1} + \gamma \text{Controls}_{c,t-1} + \delta_c + \eta_t + \epsilon_{c,t} \quad (1)$$

	(1)	(2)	(3)
	All complaints	Service complaints	Origination complaints
<i>Nonbank market share</i>	-0.037** (0.017)	-0.042** (0.016)	0.005 (0.005)
Year FE	Yes	Yes	Yes
County FE	Yes	Yes	Yes
Observations	7,178	7,178	7,178
R-squared	0.568	0.556	0.353

Table: 3

IV analysis using stress tests

Identification challenge

- Contemporaneous changes in a county's economic conditions may be correlated with both the market share of nonbanks in the county and the complaint ratio of the county

First IV strategy

- Stress tests implemented by the Federal Reserve
- Banks subject to stress tests contract lending (Buchak et al. 2018; Cortes et al. 2020)

Stress tests lead to reductions in mortgage loans by banks subject to stress tests, facilitating the rise of nonbanks' market share in the local mortgage market

IV analysis using stress tests

Our IV: Counties' ex ante exposure to stress-tested banks

- Use the IV to instrument for the change in nonbanks' market share in the local market during our sample period

$$Complaint\ ratio_{c,\Delta(2018-2012)} = \beta Nonbank_{c,\Delta(2017-2011)} + \gamma Controls_{c,\Delta(2017-2011)} + \epsilon_c \quad (2)$$

IV analysis using stress tests

Exclusion restriction

Exclusion restriction

- County's exposure to stress-tested banks should affect **the change** in county complaint ratio **only** through its effect on **the change** in county nonbank market share
 - i.e., no direct impact of stress tests on **the change** in mortgage service quality

Concern: Direct effect of stress tests on service quality

- Increased regulatory oversight on stress-tested banks
- Secondary effect on non-tested banks via peer effects/competition

Our IV setup

- Our sample period is 2012-2018, years after the inception of stress tests in 2009
- We use within-county changes
- We conduct two robustness tests

► Robustness

IV analysis using stress tests

Results

$$\text{Complaint ratio}_{c,\Delta(2018-2012)} = \beta \text{Nonbank}_{c,\Delta(2017-2011)} + \gamma \text{Controls}_{c,\Delta(2017-2011)} + \epsilon_c \quad (2)$$

	(1) First stage	(2) Second stage
<i>Stress test exposure</i>	0.228*** (0.028)	
<i>ΔNonbank market share</i>		-0.457*** (0.090)
Observations	710	710
F-stat	63.80	

Table: 4

IV analysis using mortgage industry surety bond requirement

Second IV strategy

- Mortgage industry surety bond requirement
- The bond amount reflects the costs of conducting mortgage business in the state

Nonbanks are likely to expand more aggressively in states with a lower surety bond requirement, facilitating the rise of nonbanks' market share in the local mortgage market

- Our IV: State-level mortgage broker surety bond requirement
 - Use the IV to instrument for the change in nonbanks' market share in the local market during our sample period
- To meet the exclusion restriction:
 - We restrict our sample to states that have not experienced any changes in the amount of bond required since 2010
 - We use within-county changes

IV analysis using mortgage industry surety bond requirement

Results

$$\text{Complaint ratio}_{c,\Delta(2018-2012)} = \beta \text{Nonbank}_{c,\Delta(2017-2011)} + \gamma \text{Controls}_{c,\Delta(2017-2011)} + \epsilon_c \quad (2)$$

	(1) First stage	(2) Second stage
<i>Surety bond requirement</i>	-0.012*** (0.003)	
<i>ΔNonbank market share</i>		-0.528** (0.207)
Observations	536	536
F-stat	14.11	

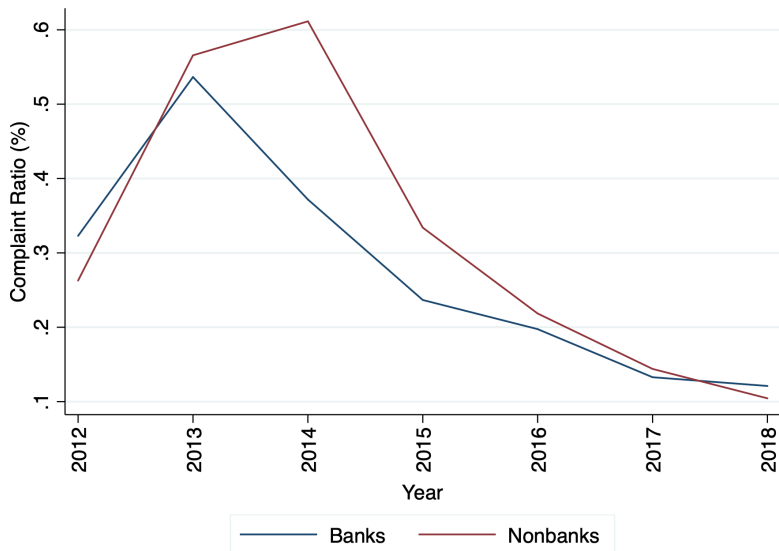
Table: 6

Do nonbanks provide better service quality?

Average complaint ratio	
Nonbanks	0.46%
Traditional banks	0.27%

The cross-sectional difference cannot explain the improved county-level service quality as nonbanks' market share increases

Do nonbanks provide better service quality?



Improvement in service quality of nonbanks?

Nonbank market share and mortgage-related complaints against nonbanks

	(1) OLS	(2) Stress Test IV	(3) Surety Bond IV
<i>Nonbank market share</i>	-0.507** (0.254)		
Δ <i>Nonbank market share</i>		-1.925*** (0.557)	-2.578** (1.173)
Year FE	Yes	No	No
County FE	Yes	No	No
Observations	7,178	725	550

Table: 8

Mechanisms: Lender specialty

Borrower characteristics of nonbanks

$$Outcome_{c,t} = \beta Nonbank_{c,t-1} + \delta_c + \eta_t + \epsilon_{c,t} \quad (3)$$

	(1)	(2)
	Average income	Income dispersion
<i>Nonbank market share</i>	-0.069* (0.041)	-0.070** (0.030)
Year FE	Yes	Yes
County FE	Yes	Yes
Observations	7,185	7,178
R-squared	0.81	0.35

Table: 9

Mechanisms: Lender specialty

Detailed complaint issues against nonbanks

	Payment Difficulty Complaints (1)	Payment Processing Complaints (2)	Escrow Account Complaints (3)	Settlement Related Complaints (4)
<i>Nonbank market share</i>	-0.352* (0.212)	-0.106** (0.046)	-0.040 (0.124)	-0.013 (0.029)
Year FE	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes
Observations	7,178	7,178	7,178	7,178
R-squared	0.398	0.403	0.370	0.301

Table: 10

Mechanisms: Enhanced investment incentives

$$Incentives_{Nonbank,c,t} = \beta_0 Nonbank_{c,t} + \gamma Controls_{c,t} + \delta_c + \eta_t + \epsilon_{c,t} \quad (1^{st} \text{ stage})$$

$$Complaint\ ratio_{c,t} = \beta_1 \widehat{Incentives}_{Nonbank,c,t-1} + \gamma Controls_{c,t-1} + \delta_c + \eta_t + \epsilon_{c,t} \quad (2^{nd} \text{ stage})$$

(4)

	(1)	(2)
	First stage	Second stage
<i>Nonbank market share</i>	0.069*** (0.007)	
<i>National market share</i>		-7.381** (3.718)
Year FE	Yes	Yes
County FE	Yes	Yes
Observations	7,178	7,178
F-stat	84.90	

Table: 11

Mechanisms: Enhanced investment incentives

Nonbanks' demand for technology-related skills

	<i>log(1+number job postings with technology-related skills)</i>
<i>Nonbank market share</i>	0.907** (0.398)
<i>log(Income per capita)</i>	1.284** (0.505)
Year FE	Yes
County FE	Yes
Observations	3,227
R-squared	0.698

A 1 SD increase in nonbanks market share →

A 13% increase in the number of nonbanks' job postings in the county that require technology-related skills

Table: 12

Mechanisms: Enhanced investment incentives

Detailed complaint issues against nonbanks

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Table: 10

Complaints against traditional banks

	<u>OLS</u>	<u>Stress Test IV</u>		<u>Surety Bond IV</u>
	(1)	(2)	(3)	(4)
	All Banks	All Banks	Untested Banks	All Banks
<i>Nonbank market share</i>	-0.269* (0.158)			
Δ <i>Nonbank market share</i>		-1.985*** (0.410)	-0.479** (0.186)	-2.711*** (0.982)
Year FE	Yes	No	No	No
County FE	Yes	No	No	No
Observations	7,178	725	725	550

Table: 13

Borrower characteristics of traditional banks

Borrower income of banks

$$Outcome_{c,t} = \beta Nonbank_{c,t-1} + \delta_c + \eta_t + \epsilon_{c,t} \quad (3)$$

	(1)	(2)
	Average income	Income dispersion
<i>Nonbank market share</i>	0.089*** (0.031)	0.027 (0.026)
Year FE	Yes	Yes
County FE	Yes	Yes
Observations	7,397	7,397
R-squared	0.93	0.40

Table: 14

Nonbank market share and mortgage service quality

Conditional on minority population

$$\text{Complaint ratio}_{c,t} = \beta_0 \text{Nonbank}_{c,t-1} + \beta_1 \text{Nonbank}_{c,t-1} \times \text{Minority population}_c + \gamma \text{Controls}_{c,t-1} + \delta_c + \eta_t + \epsilon_{c,t} \quad (5)$$

	(1)	(2)
<i>Nonbank market share</i> $\times$ <i>Hispanic population</i>	-0.078*** (0.021)	
<i>Nonbank market share</i> $\times$ <i>Non-white population</i>		-0.090*** (0.020)
Year FE	Yes	Yes
County FE	Yes	Yes
Observations	7,178	7,178
R-squared	0.57	0.57

Table: 15

Conclusion

- The growth of the nonbank industry has a positive effect on the service quality received by consumers
- We provide new evidence on the interplay between the quantity and quality of financial services using the nonbank industry as a laboratory
 - Begley and Purnanandam 2021: Regulation-induced quantity increase → service quality declines
 - Our paper: Market force-induced quantity increase → service quality improves
- Mortgage service quality is another dimension to consider in policy discussions on the regulation of nonbanks

Roadmap and preview of results

The impact of increased nonbank presence on service quality

- As nonbanks' market share increases in a county, quality of mortgage services increase
- For identification, we conduct two instrumental variable (IV) analyses by exploiting:
 - The stress tests implemented by the Federal Reserve
 - The state-level variation in mortgage industry surety bond requirements

The channels through which increased nonbank presence affects service quality

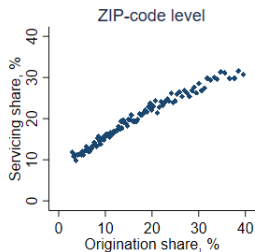
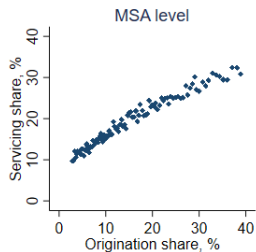
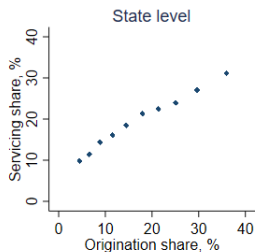
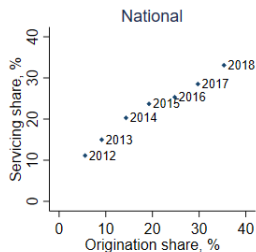
- Nonbanks on average do *not* provide better mortgage services than banks
- Nonbanks' service quality improves as their market share increases
 - Lender specialty
 - Investment in technology
- There is no deterioration of service quality provided by traditional banks

Effects of nonbank market shares conditional on minority population

- The improvements in service quality are more likely to benefit minorities

Nonbanks' market share: Originations vs. Servicing

► Back



Summary statistics

	Mean	SD	25%	Median	75%
Complaint ratio (%)	0.05	0.06	0.02	0.04	0.07
# of complaints	19.47	65.27	1.00	4.00	13.00
# of outstanding mortgages	29,304	57,392	4,550	10,966	29,500
Nonbank market share (%)	32.17	16.38	19.67	30.67	43.39
Obs. (County $\times$ Year)	7,178				

Table: 2

Results: Nonbank market share and mortgage service quality

Robustness tests

- An alternative measure of complaint ratio, where a county's outstanding mortgages are proxied by the total number of mortgages originated in that county during the last five years
- An alternative measure of nonbanks' market share based on the number of mortgages rather than the dollar amount of mortgages
- Exclude Quicken Loans (i.e., the nonbank with the highest amount of loan origination in our sample) and the top 3 nonbanks
- Include all counties with at least one complaint during our sample period
- Drop observations from 2012 to limit the impact of the 2008 financial crisis on the result

IV analysis using stress tests

Robustness tests

$$\text{Complaint ratio}_{c,\Delta(2018-2014)} = \beta \text{Nonbank}_{c,\Delta(2017-2013)} + \gamma \text{Controls}_{c,\Delta(2017-2013)} + \epsilon_c \quad (2)$$

	(1)	(2)	(3)
		Second stage	
	2012-2018	2014-2018	2014-2018 Restricted county sample
$\Delta \text{Nonbank market share}$	-0.457*** (0.090)	-0.457*** (0.205)	-0.379*** (0.135)
Observations	710	770	283

Table: 4,5

IV analysis using mortgage industry surety bond requirement

Robustness tests

$$\text{Complaint ratio}_{c,\Delta(2018-2012)} = \beta \text{Nonbank}_{c,\Delta(2017-2011)} + \gamma \text{Controls}_{c,\Delta(2017-2011)} + \epsilon_c \quad (2)$$

	(1)	(2)	(3)
		Second stage	
	All counties	Excluding top decile population counties	Excluding top quintile population counties
$\Delta \text{Nonbank market share}$	-0.528** (0.207)	-0.522** (0.241)	-0.664* (0.346)
Observations	536	482	406

Table: 6,7