Bank Aggregator Exit, Nonbank Entry, and Credit Supply in the Mortgage Industry*

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Federal Reserve Board

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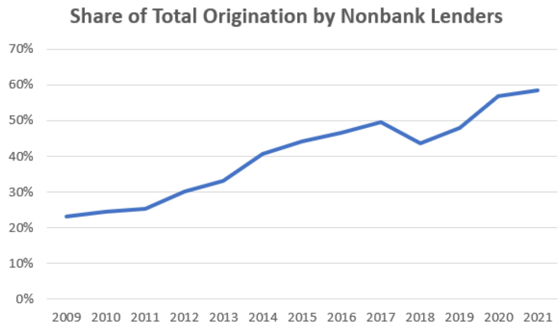
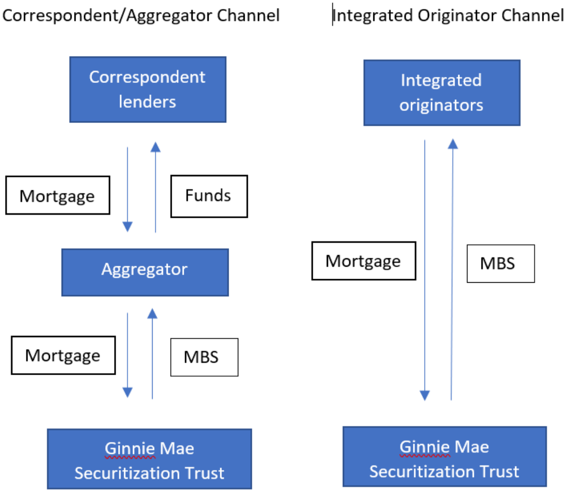
*The analysis and conclusions set forth are those of the authors and do not indicate concurrence by the Board of Governors or other members of the staff.

Nonbank share of mortgage originations has soared



- Literature has focused on the shift to nonbank *originators*: Buchak et al. (2018 & 2020); Fuster et al. (2018); Gete and Leher (2018)
- Understudied role of nonbanks as *aggregators*
- Understudied role of vertically integrated *issuers*

FHA Mortgage Origination Channels



Aggregators

- Purchase loans from "correspondent" lenders, pool and issue MBS
- More than half of GNMA MBS issuance

Issuer-Originators

- Originate loans and issue MBS within 1 firm
- Disintermediates aggregator

This Paper

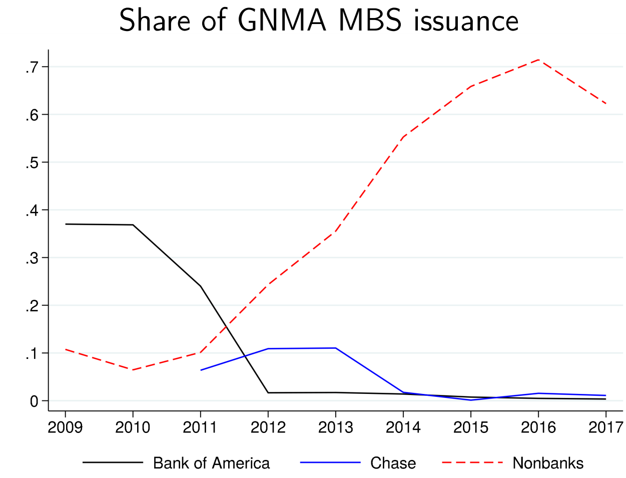
Effects of nonbank aggregators and integrated issuer-originators on credit supply?

- Documents dramatic shift to nonbanks in the aggregator space and rise in vertically integrated issuer-originators in Federal Housing Administration (FHA) mortgage lending

- Market structure $\rightarrow$ cost and information

- Estimates effects of market structure on credit supply in the FHA market

Empirical Strategy: Exit of Bank Aggregators



<u>BOA and Chase</u>

- Over 90% of FHA loans they securitized were originated by third-party

<u>What led to the exit?</u>

- False Claims Act lawsuits targeted big banks
- Post-crisis bank regs (stress testing, Basel III)

Research Design

Effects of the exits on market structure and credit supply in FHA lending?

Home purchase loan data

- HMDA
- Mortgage Call Report (CSBS): NB's warehouse funding relationship
- FHA administrative microdata

Difference-in-differences design

- Cross-county variation in market shares of BOA and Chase prior to exits
- Cross-originator variation in pre-exit share of loans sold to the two banks

Summary of DID Results

FHA Market Structure

- Nonbanks replaced 40-60% of BOA and Chase's share as MBS issuers
- Shift to integrated channel: more originations by nonbank lenders, who also securitize them (BOA)
- Shift in bank's role: nonbanks cannot fund originations themselves $\Rightarrow$ exiting banks supply short-term funds

Credit Supply and Loan Performance

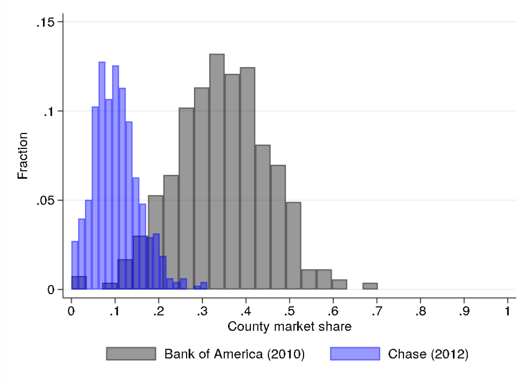
- More lending to low-score borrowers $\uparrow\uparrow$, but ex-post default $\downarrow$ 75% (BOA)
  - integrated originators $\Rightarrow$ "soft" information
- Mortgage rates $\uparrow$ 2 bps (Chase); mixed (BOA)
  - Vertical (dis)integration in underwriting and funding

Contribution

- Empirical evidence on function of aggregators (Stanton et al. 2014; 2018)
- Roles of banks and nonbanks in mortgage industry (Buchak et al. 2018; Gete and Reher 2018; Buchak et al. 2020; Jiang 2023)
- Asymmetric information and vertical relationships (Agarwal et al. 2012, 2017; Stroebel 2015; Jiang et al. 2014; Keys et al. 2010; Bubb and Kaufman, 2014)

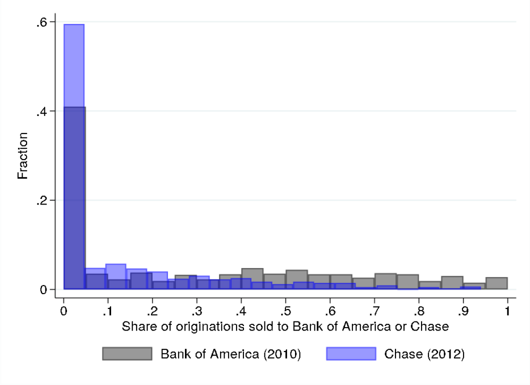
Identification Strategy: Variation in Exposure to Bank Exit

Cross-County



$$y_{ct} = \sum_\tau \alpha_\tau S_c 1[\tau = t] + X_{ct}\gamma + \xi_c + \epsilon_{ct}$$

Cross-Originator



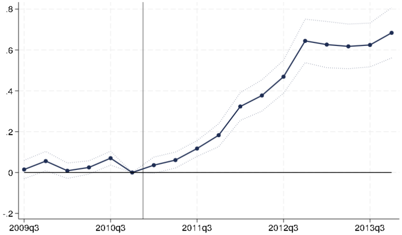
$$y_{jt} = \sum_\tau \beta_\tau S_j 1[\tau = t] + X_{jt}\zeta + \delta_j + \omega_{jt}$$

More on BOA and Chase's Exits from FHA Lending

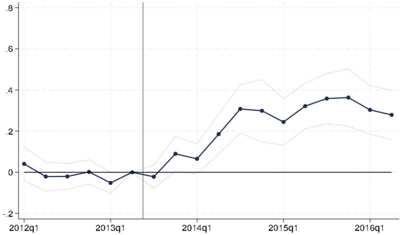
- Identification requires the two exits were driven by supply-side factors
- FCA lawsuits seems to be an important factor. Targeted big banks (with big pocket and reputation to lose)
- FCA lawsuits were costly financially ($>$ \$500 mil) and reputationally
- Chase CEO in a July 2014 conference call with investors: *"Until they come up with a safe harbor or something, we are going to be very, very cautious in that line of business... The real question for me is should we be in the FHA business at all."*

Nonbanks replaced banks as Ginnie Mae MBS issuers

Outcome: county-level share of loans that nonbanks securitize into Ginnie MBS



BOA Exit



Chase Exit

- Nonbanks replaced 40-60% of BOA and Chase's share as Ginnie MBS issuers

Responses by originators: whether and to whom to sell loans?

Looking at cross-originator variation in shares of loans sold to BOA or Chase...

	BOA's exit			Chase's exit		
	(1) Share of loans sold to bank aggregator	(2) Share of loans sold to nonbank aggregator	(3) Share of loans securitized by originators	(4) Share of loans sold to bank aggregator	(5) Share of loans sold to nonbank aggregator	(6) Share of lo securitized originators
$1[t^* \leq t \leq t^* + 5\ ] \times$ Pre-exit Originator-level Share (H_{jt})	-0.247***	0.063***	0.184***	-0.364***	0.295***	0.069
	(0.052)	(0.013)	(0.056)	(0.079)	(0.057)	(0.074)
$1[t^* + 6 \leq t \leq t^* + 11\ ] \times$ Pre-exit Originator-level Share (H_{jt})	-0.553***	0.176***	0.377***	-0.717***	0.493***	0.224**
	(0.060)	(0.033)	(0.075)	(0.097)	(0.089)	(0.101)
Lender FE	Y	Y	Y	Y	Y	Y
Quarter FE	Y	Y	Y	Y	Y	Y
N. Obs.	3,172,594	3,172,594	3,172,594	2,890,858	2,890,858	2,890,85
Adj. R^2	0.87	0.52	0.88	0.80	0.72	0.88

- BOA: 1/3 switch to nonbank aggregators, 2/3 become integrated issuer-originators
- Chase: larger switch to nonbank aggregators vs integrated issuers

Why did only BOA's exit lead to shift to integrated originators?

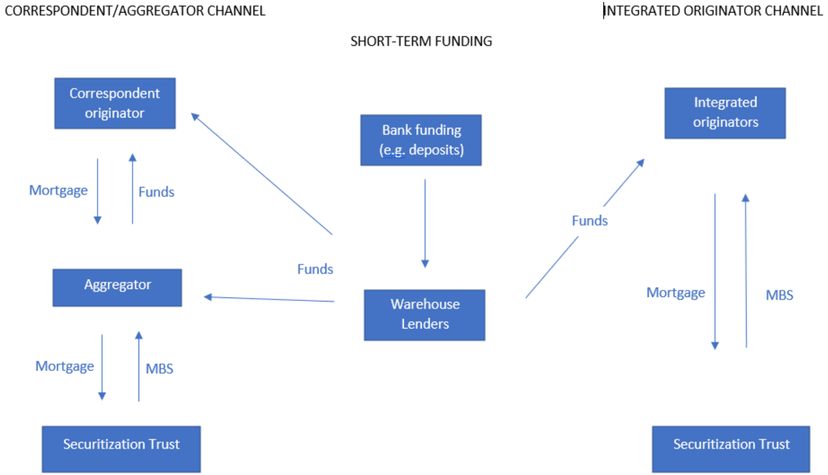
Additional results:

- Large originators $3-4\times$ more likely to become MBS issuers after exit
- Correspondent originators heavily exposed to Chase were small

Why scale matter?

- Becoming an issuer is cost-effective only for larger lenders
- Small MBS trade at a significant discount (Atanasov et al., 2017)
- minimum net worth, minimum liquidity requirements, etc

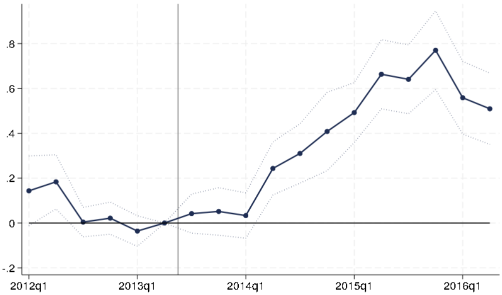
Nonbanks use external warehouse funds to finance loan pipeline



- Top warehouse lenders: Chase, BOA, Wells Fargo, Credit Suisse...

Exiting bank aggregators facilitated nonbank entry

Outcome: county-level share of nonbank MBS issuers that receive warehouse funding from exiting banks



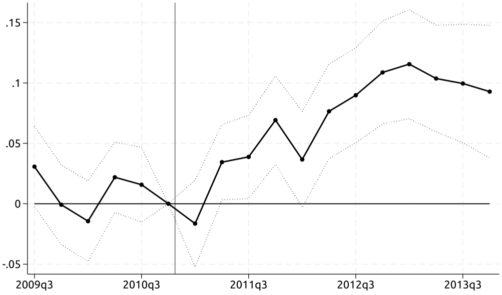
Chase's Exit

- Almost all nonbank entry partially funded by exiting banks
- If size-proportional utilization, then exiting banks indirectly funded 1/3 of nonbank entry
- Banks' role shifted to indirect lending (no FCA lawsuit risk)

Exits led to increased lending to low-score borrowers

Average Credit Score and BOA's Exit

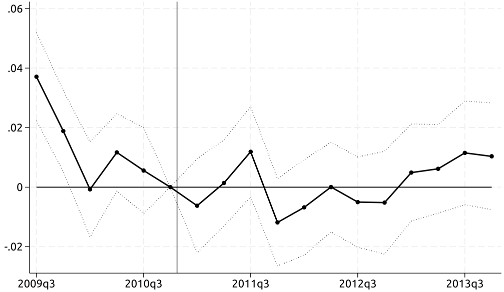
Fraction of Loans to CS ≤ 680



Improved loan performance, conditional on hard info?

Ex-post Default and BOA's Exit

Ex-post 60-Day Delinquency and BOA's Exit



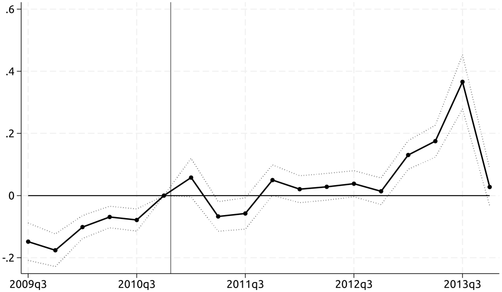
Likely mechanisms for credit box

- Nonbank channel
  - Lower performance liability compared to banks
- Integrated originator channel
  - Reduced asymmetric info between originators and issuers

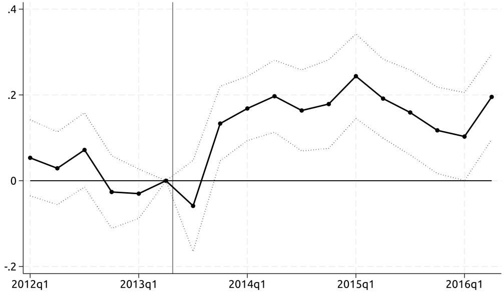
$\Rightarrow$ More lending to lower-score borrowers, better "soft information" originations

Exits had different effects on mortgage interest rates

BOA's Exit



Chase's Exit



Likely mechanisms for prices

- Nonbank short term funding costs
  - Rely on external warehouse funding, unlike banks. Warehouse lenders (Jiang, 2023) $\Rightarrow$ double marginalization in short term funding

- Integrated originator-issuers funding cost
  - Disintermediate aggregator $\Rightarrow$ eleminates double marginalization in MBS issuance

BOA's exit: larger increase in originator-issuers $\rightarrow$ countervailing effects.

Chase's exit: smaller increase in originator-issuers $\rightarrow$ nonbank funding effect likely dominated.

Conclusion

Big bank aggregators' exit led to different roles for banks and nonbanks in mortgage lending, which also affected the credit supply

- If banks were enticed back into the aggregator space, what happens?
- How to entice banks to re-enter? Limited liability policies??
    - Banks continue to bolster the market through warehouse funding
- Even if banks return, policymakers should figure out a way to keep the best of the both worlds: lower funding cost and less adverse selection.