The Rise of Shadow Banking: Evidence from Capital Regulation

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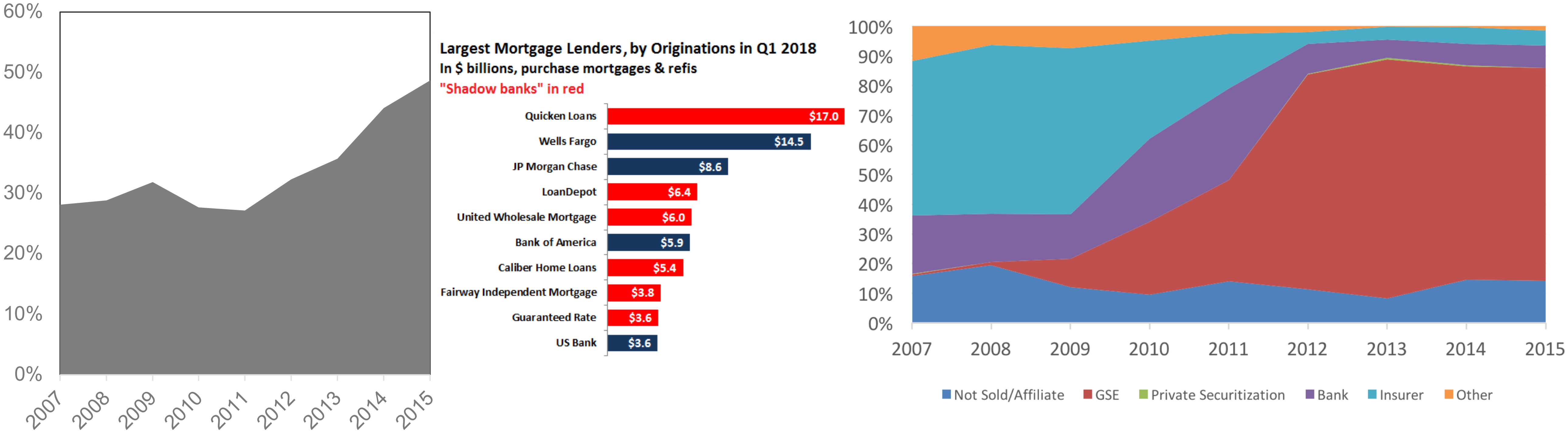
Overview

Dramatic Δ in Lending Landscape in last Decade

- ❑ Shadow banks have increased across segments around the world
- ❑ A 10 Trillion $ market in the US
  - ❍ The Rise of "Shadow Banks"

FIGURE 1: RISE OF SHADOW BANKS



Overview

This Paper

- Why the Rise?
  - Regulation ✓
  - Less-capitalized banks reduce loan retention; loans with higher capital requirements and at times when capital is scarce.
  - Non-banks step in following the sale of loans from less-capitalized banks.
- Why do we care? ✓
  - Stability
  - Loans by nonbanks experience greater sales and price volatility during the 2008 crisis
- Discussion
  - Mechanisms
  - Questions
  - Broader Issues

Discussion

Mechanisms

- ❑ How much of the growth driven by Regulation? And how much by Technology?
  - ❍ Regulation: capital costs, scrutiny/supervision burden
  - ❍ Technology: lower costs, better/higher quality products

FIGURE 2A: INCREASED REGULATION?

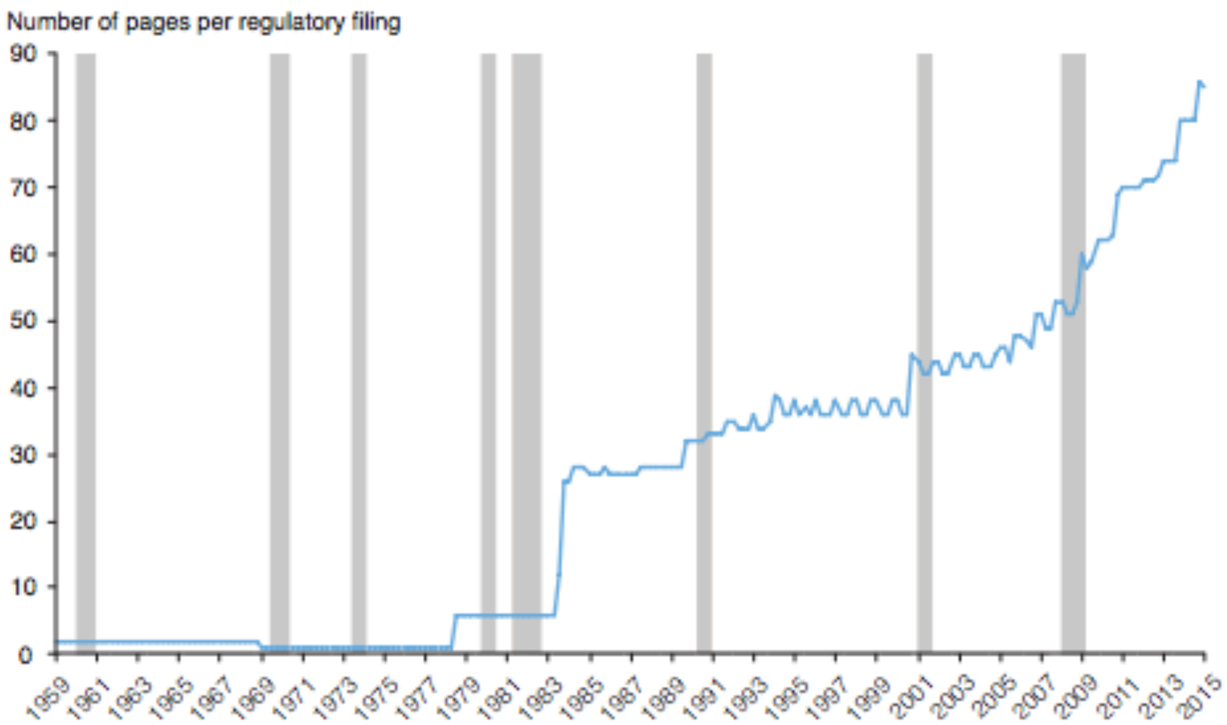


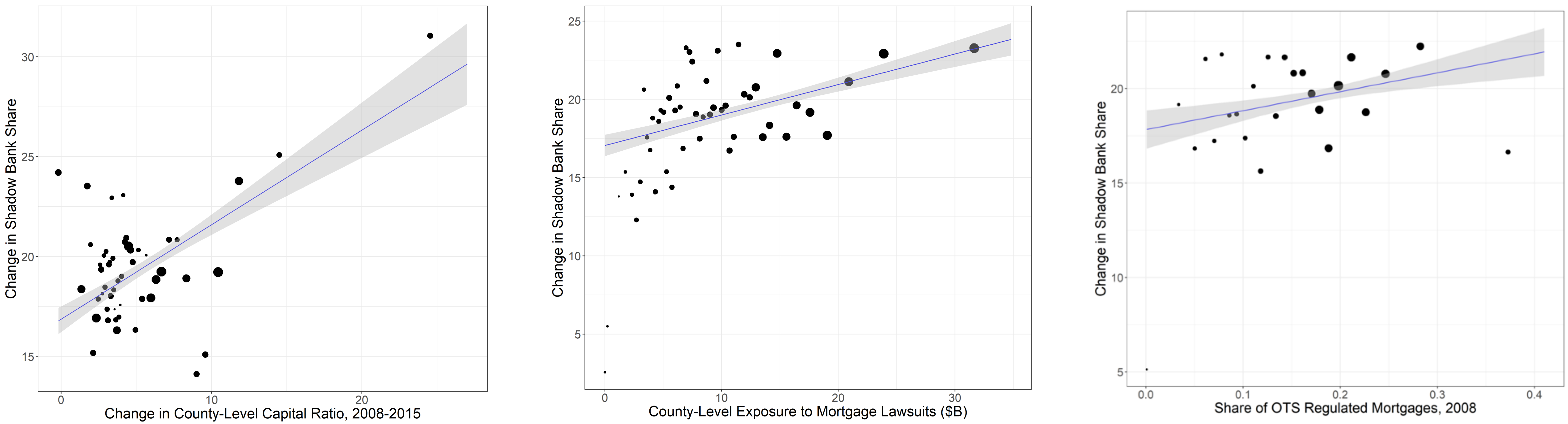
FIGURE 2B: BETTER TECHNOLOGY?

Discussion

Regulation?

- Assess bank responses to increases in regulatory burden
  - Shocks to Regulatory Burden (BMPS 2017)
  - Banks retreated and shadow banks entered in markets where regulatory burden increased
  - Substitution less than 1 for 1? (more later)

FIGURE 3: ROLE OF REGULATION



$$\Delta Shadow\ Bank\ Lending\ Share_c = \beta_0 + \beta_1 \Delta Regulatory\ Burden_c + X_c'\Gamma + \epsilon_c$$

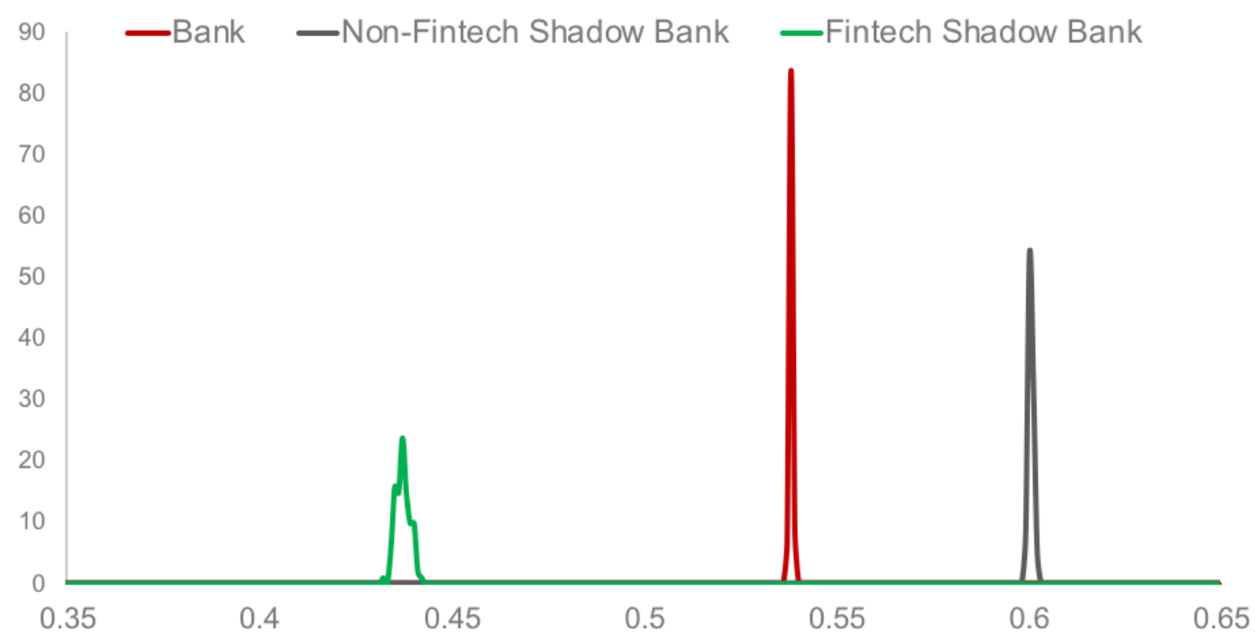
Discussion

Technology?

- Interest Rates
  - Higher interest rates, all else equal → premium for convenience
  - Different Models: How much do residuals explain interest rates? $\boldsymbol{R_i} = \beta_0 + \beta_1 \boldsymbol{X_i} + \epsilon_i$
- Faster Loan Sale (16 days), Flexibility to adjust (BMPS, Fuster et al.)

FIGURE 4: ROLE OF TECHNOLOGY

	(1) Interest Rate	(2) Interest Rate	(3) Interest Rate	(4) Interest Rate
Sample	All Lenders			
Shadow Bank	0.00665***	0.00714***	-	-
	(5.19)	(8.33)	-	-
Non-Fintech Shadow Bank	-	-	-0.0281***	-0.0242***
	-	-	(-20.48)	(-27.42)
Fintech Shadow Bank	-	-	0.143***	0.129***
	-	-	(87.68)	(101.99)
Borrower and Loan Controls	No	Yes	No	Yes
Zip x Quarter FE	No	Yes	No	Yes
Quarter FE	Yes	No	Yes	No
N	8,485,573	8,480,376	8,485,573	8,480,376
R^2	0.598	0.808	0.601	0.811



Discussion

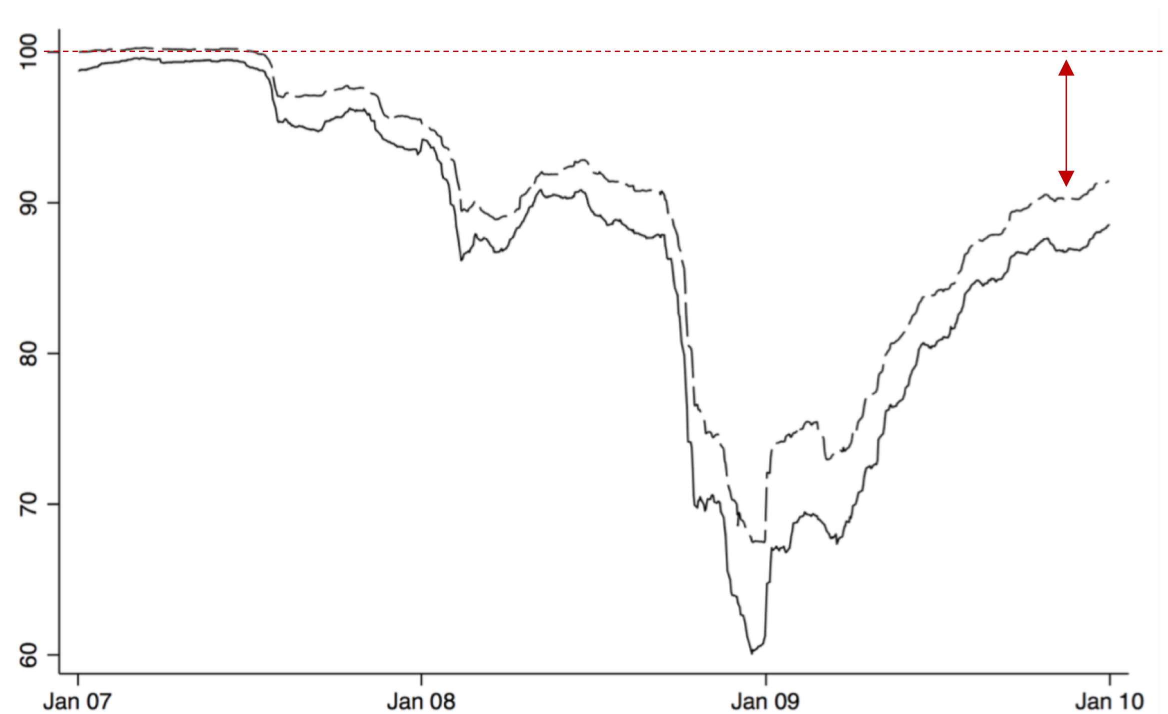
Funding?

- Who finances?
  - Monetary policy pass through deposits (DSS 2017/18; Xiao 2017)
  - Liquidity of OTD (BMPS 2018)

Discussion
Questions

- Stability results due to fire sales or riskier loans?
  - Non banks could be acquiring worse loans
  - …and then forced to sell them

FIGURE 5: FIRE SALES?



Discussion

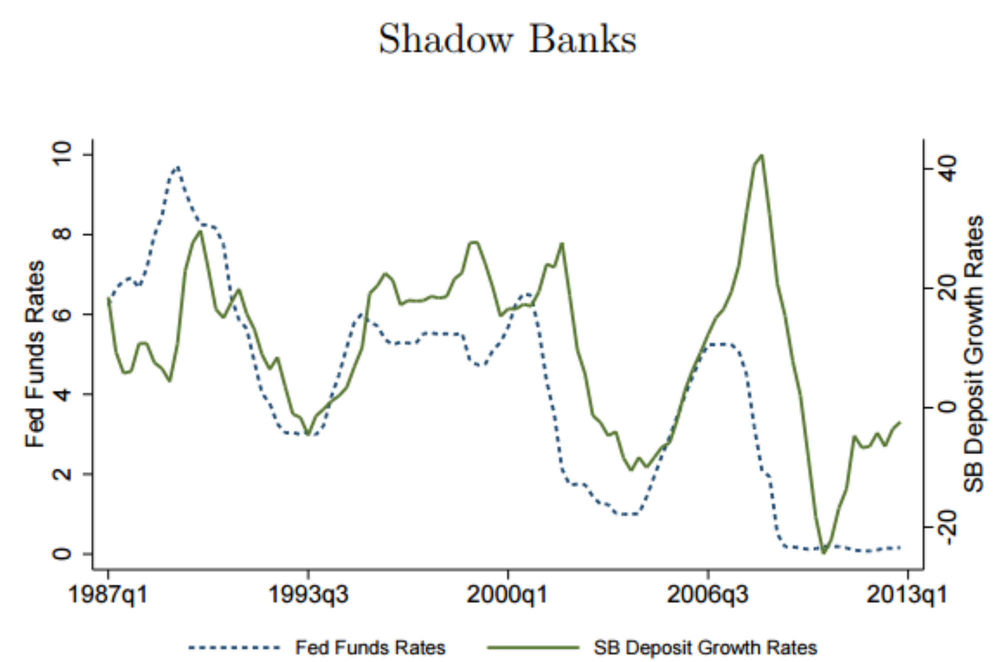
Questions

- Where does the non bank funding come from?
  - Where does the risk reside?
    - Banks? (Acharya et al.), GSEs? (BMPS 2017)
  - What policies shape shadow banks?
    - Households/Deposits/Capital Constraints/OTD...

FIGURE 6: FUNDING?

Big Banks Find a Back Door to Finance Subprime Loans

Lending to nonbank financial firms surges to record as banks avoid direct exposure

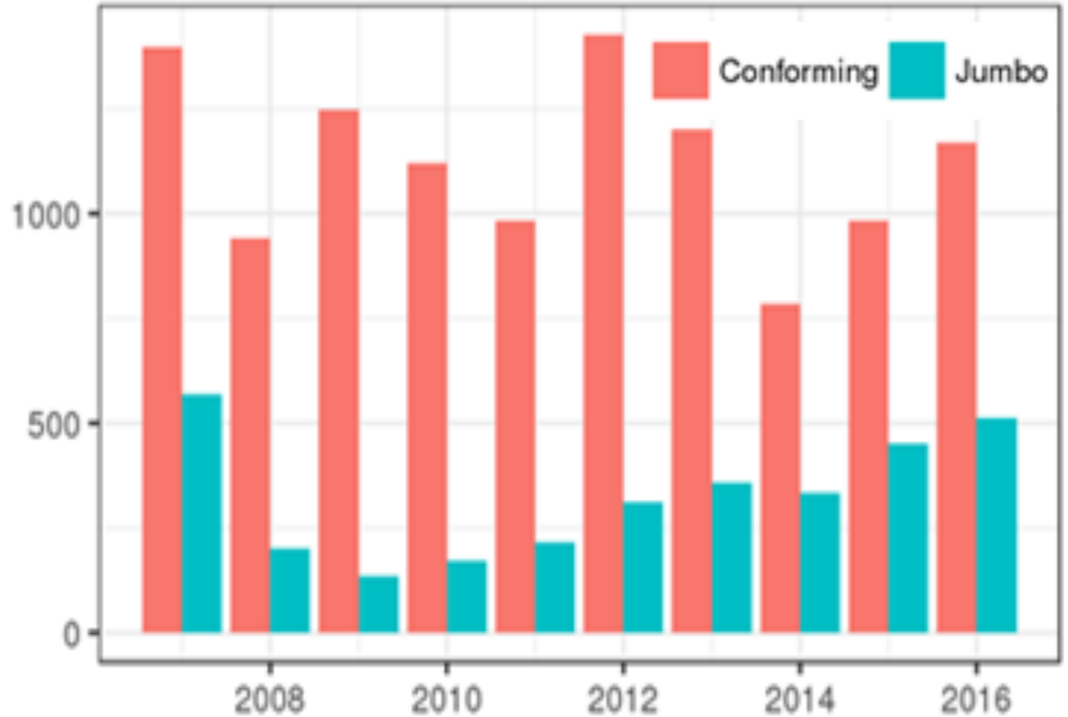


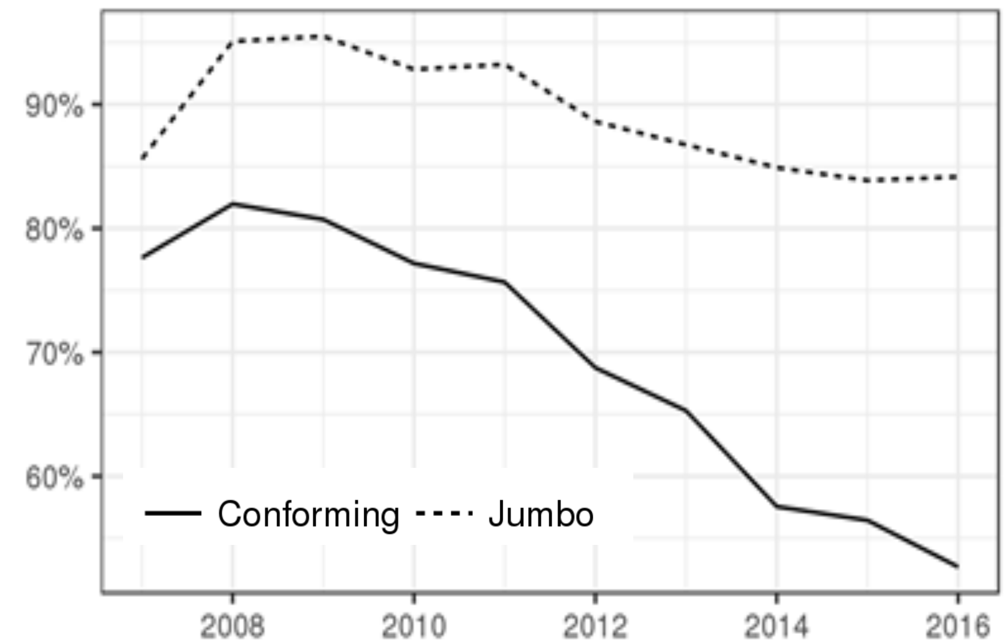
Discussion

Broader Connection

- Market structure impacts liquidity of OTD, which shapes where SB operate (BMPS 2018)
    - Conforming liquid OTD
    - Jumbo needs to be retained on balance-sheet

FIGURE 7: HETEROGENEOUS PENETRATION





Discussion

Broader Connection

- Market structure impacts liquidity of OTD, which shapes where SB operate (BMPS 2018)
    - Conforming liquid OTD
    - Jumbo needs to be retained on balance-sheet
- Capital position of banks and regulation impacts price and quantity

FIGURE 8: SPREAD AND MARKET SHARE

Discussion

Broader Connection

- Market structure impacts liquidity of OTD, which shapes where SB operate (BMPS 2018)
  - Conforming liquid OTD
  - Jumbo needs to be retained on balance-sheet
- Capital position of banks and regulation impacts ”pass-through”

FIGURE 9A: BANK MARKET SHARE

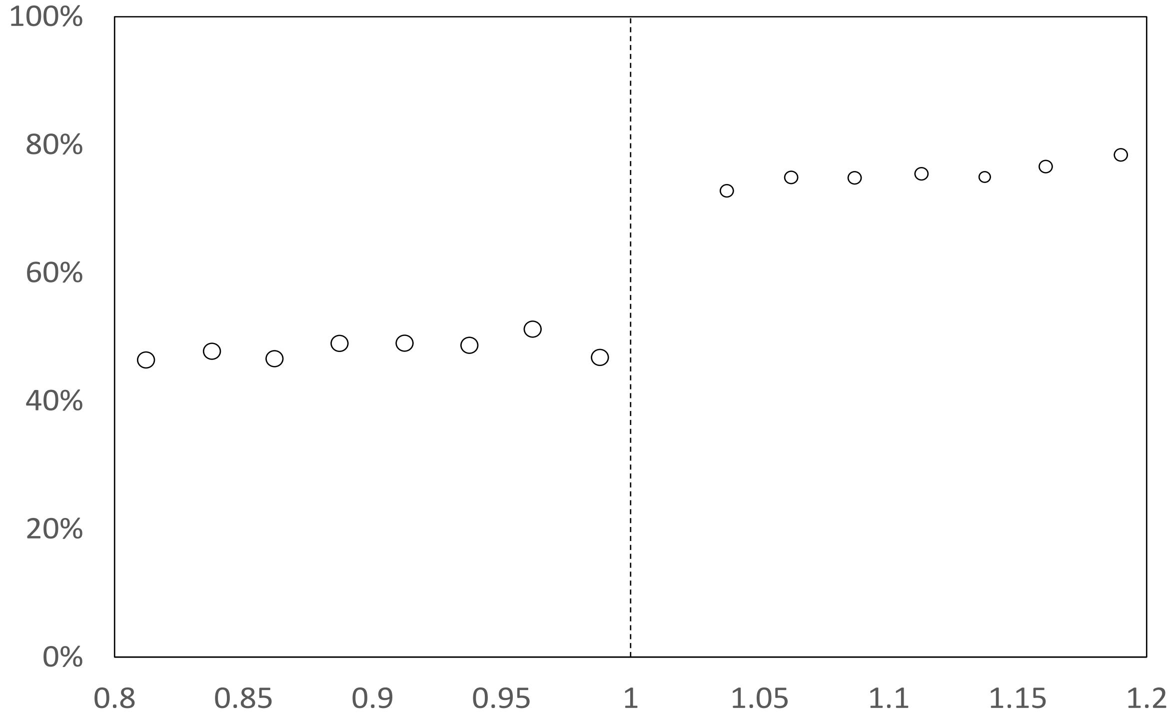
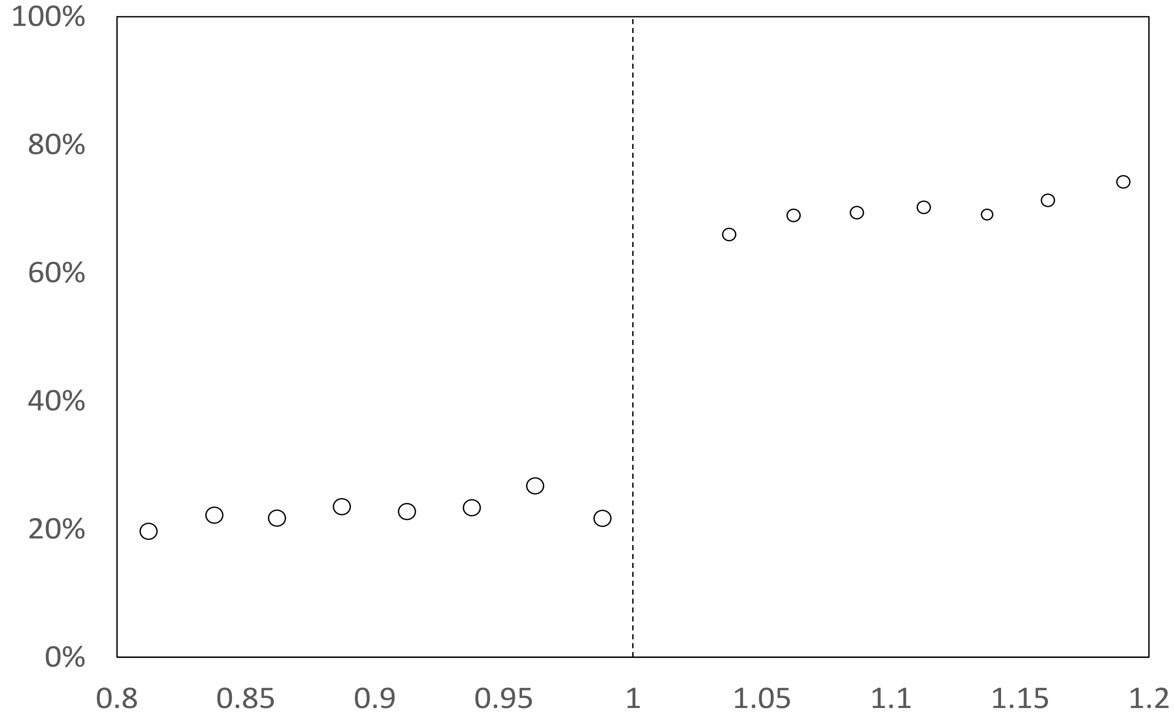


FIGURE 9B: BALANCE SHEET FINANCING



Discussion

Broader Connection

- Market structure impacts liquidity of OTD, which shapes where SB operate (BMPS 2018)
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  - Jumbo needs to be retained on balance-sheet
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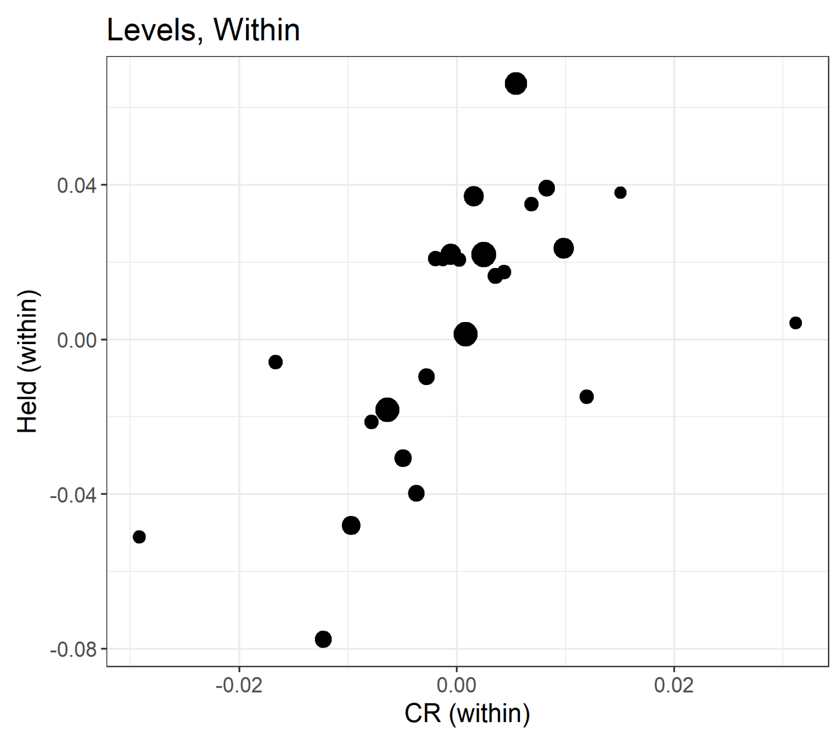
FIGURE 10: CAPITALIZATION AND BALANCE SHEET LENDING



Discussion

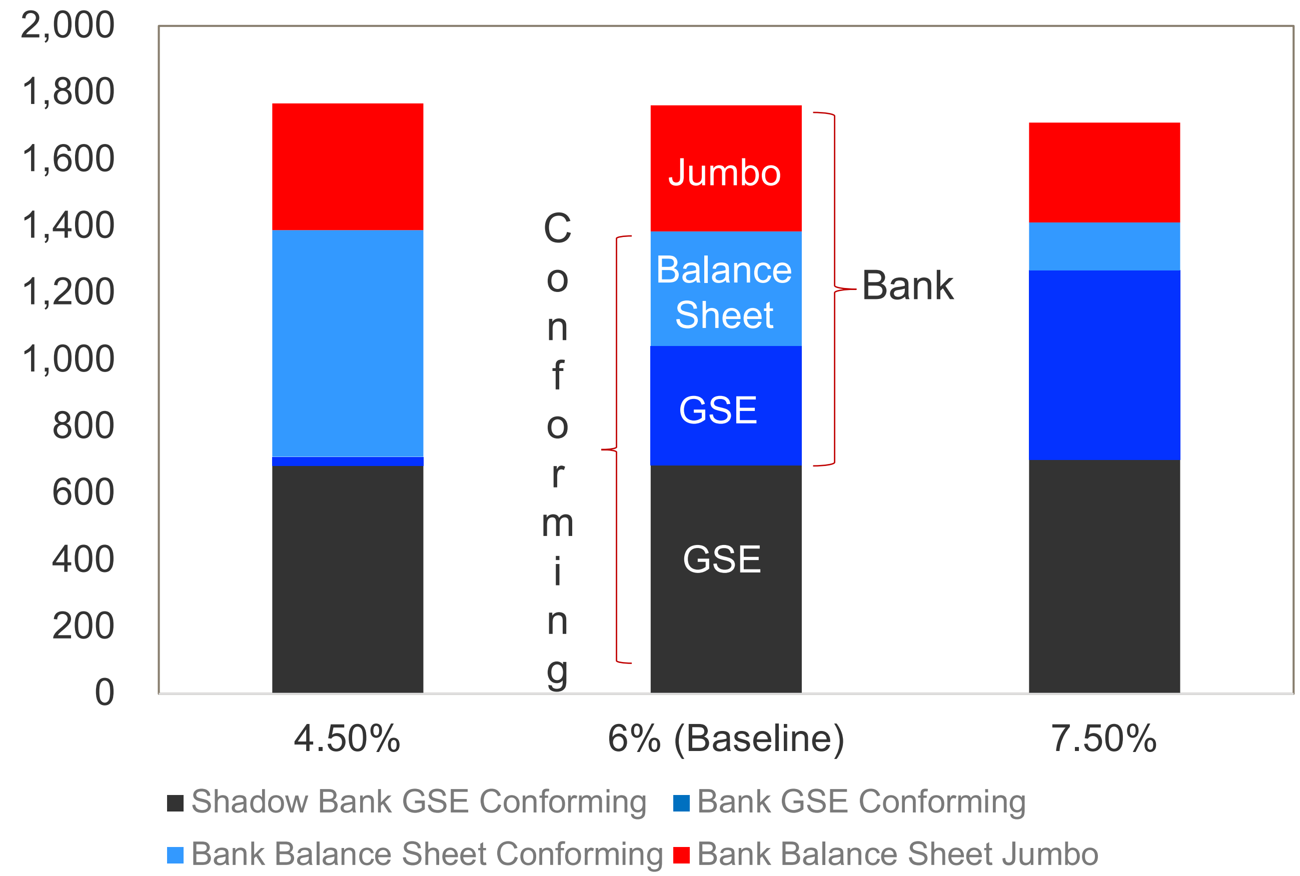
Broader Connection

Capital Requirements 6% → 7.5%

Lender	Loan Type	Financing Source	Change
Total	-	-	-$52b
Bank	Jumbo	Portfolio	-$79b
Bank	Conforming	Portfolio	-$201b
Bank	Conforming	GSE	+$211b
Shadow Bank	Conforming	GSE	+$16b

- Substitution not 1 for 1
- Differential effects across income distribution

Lending Volumes ($b)



Conclusion

- Very interesting paper that establishes regulation an important force in expansion of SB
- Some questions remain
  - Other factors?
  - Bad quality or fire sales?…important for stability
  - Who funds shadow banks?...where does the risk reside?
- Broader Implications
  - Aggregate bank capitalization can change relative prices/quantities and penetration across segments
  - Policies such as bank capital regulation, credit subsidies, and QE interventions can push lending into shadows in non-obvious ways and impact policy "pass-through"