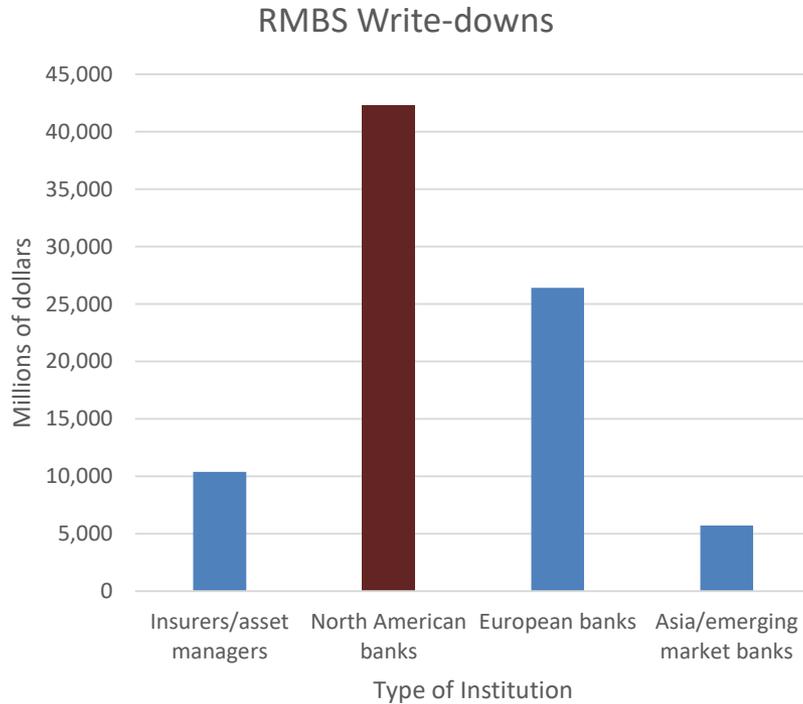

The Securitization Flash Flood

January 7th, 2017
Determinants of Bank Lending
IBEFA Conference
Kandarp Srinivasan

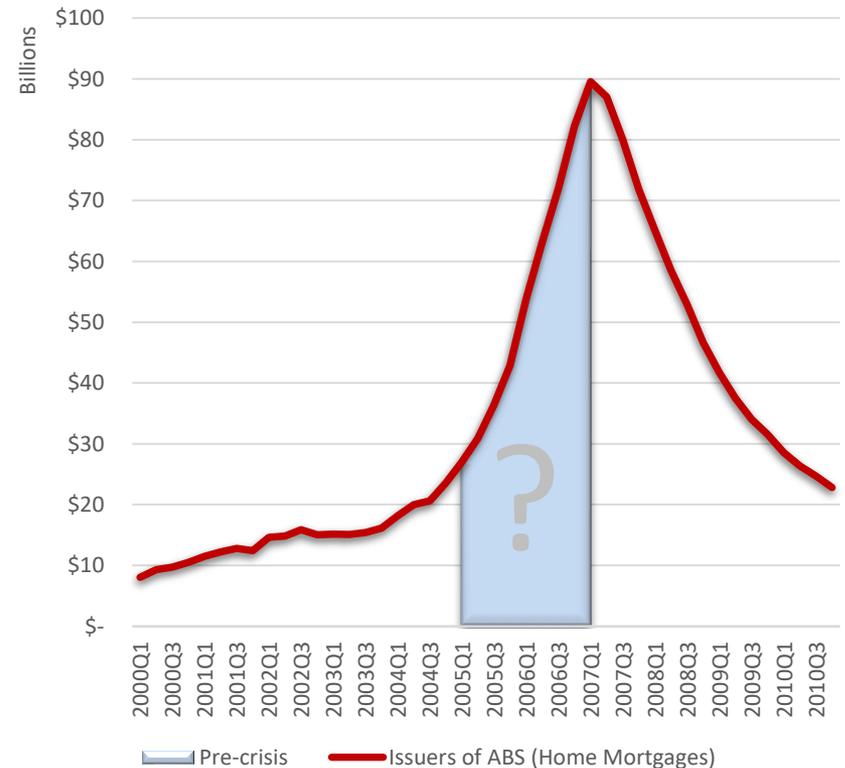
If securitization is about *transferring* risks, why did risks *remain* on bank balance sheets?

Why did banks have large MBS exposures before the crisis?



Beltran et al (2013), Federal Reserve Discussion Paper

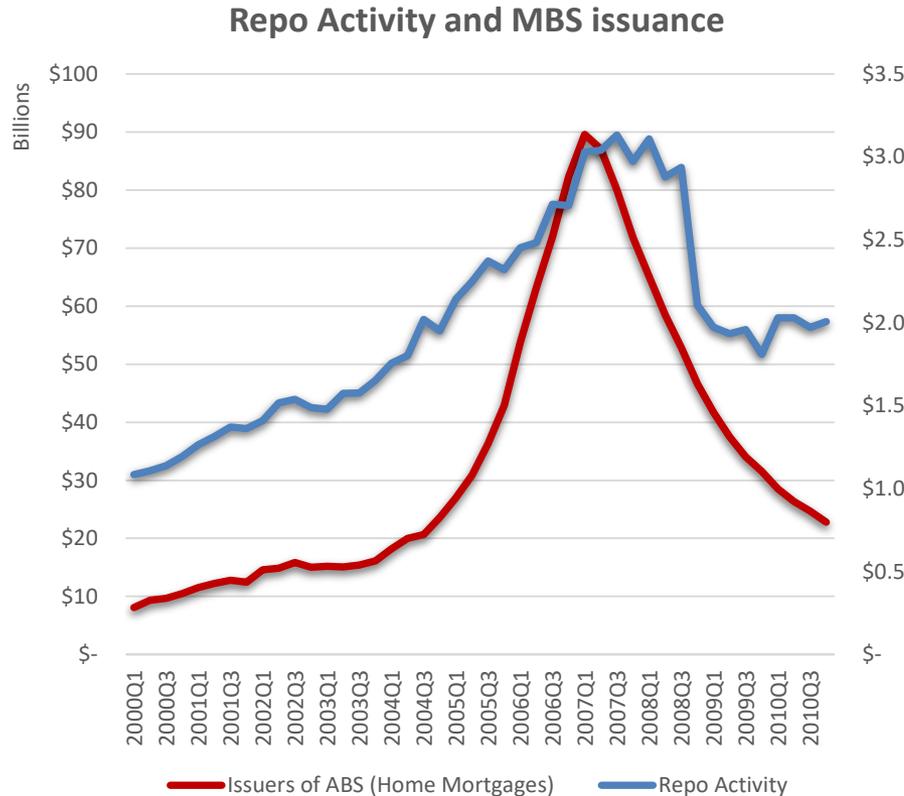
Why was there a dramatic rise in securitization (specifically) in 2005 and 2006?



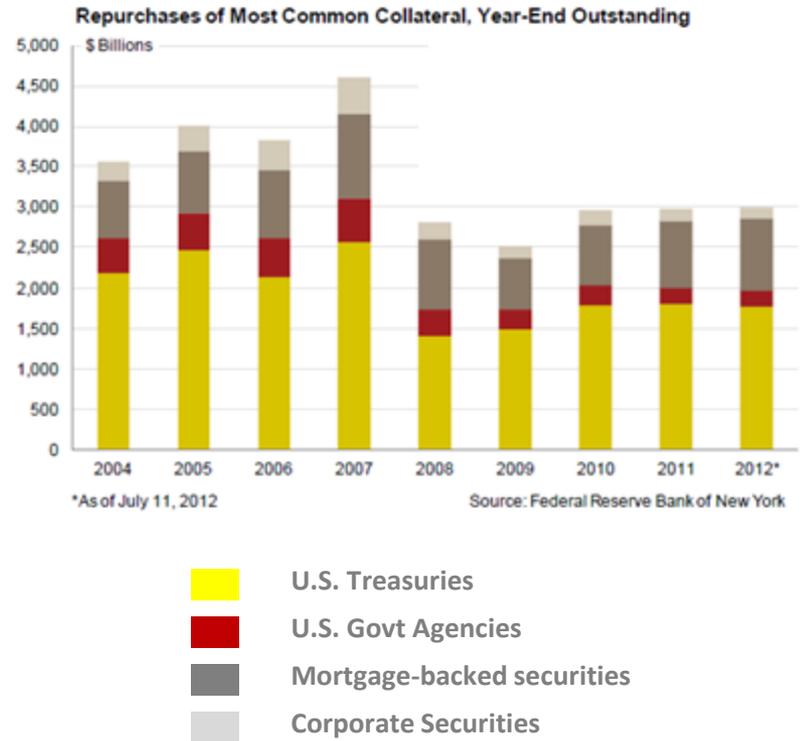
Federal Reserve Flow of Funds

Repo markets as the missing link

1. Significant increase in repo activity when securitized products flooded the market (2005, 2006)



2. Securitized products heavily used as collateral in repo markets



Collateral demand in repo markets could potentially drive the issuance of securitized bonds (Gorton and Metrick [2012])

Research Question



Did banks increase securitization activity and holding of MBS to facilitate borrowing from the repo market?

Why do we care?

- The financial crisis was centered around securitized banking. We allocated \$700bn of tax-payer money for purchasing securitized products at the peak of the crisis.

Research Summary

Main Finding

Shock to repo collateral demand leads to an increase in holdings of securitized products and greater mortgage securitization activity

Research Design

Natural Experiment: Passage of the Bankruptcy Act of 2005

Law specifically introduced preferential treatment for repos backed by *mortgage-related assets*

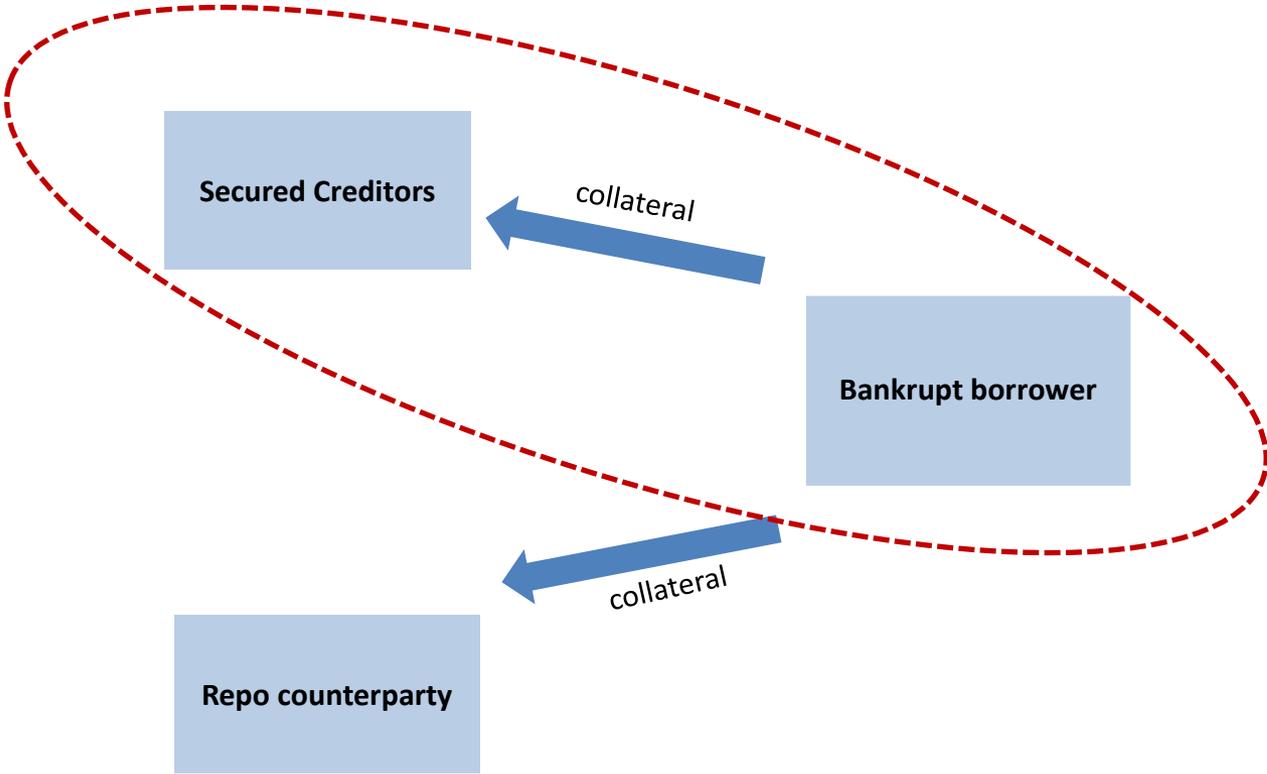
Three contributions

Establish repo collateral demand as a contributing factor to the rise in structured finance in the pre-crisis years

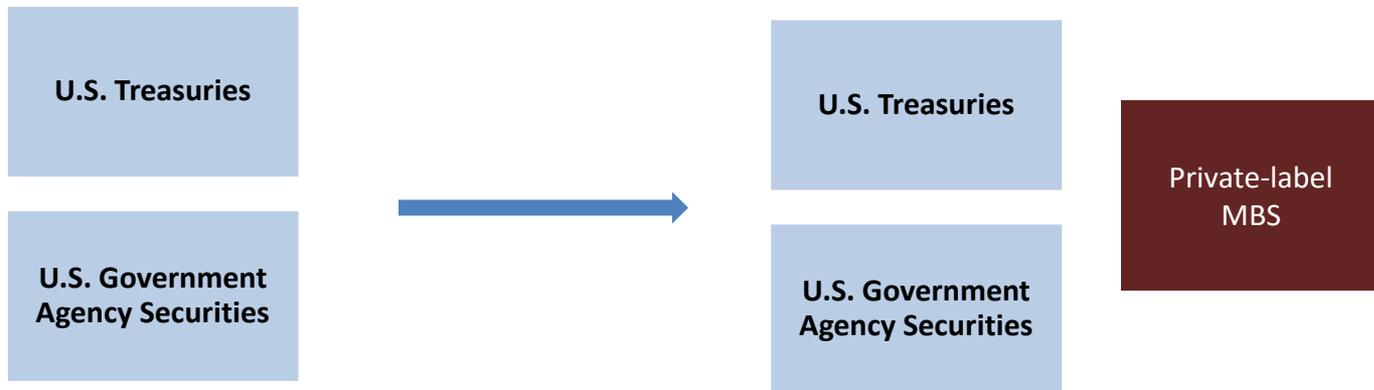
The Bankruptcy Act of 2005 unintentionally contributed to the rise in shadow banking

Highlights asset-liability synergy of intermediaries: As the asset side becomes more liquid, the funding strategy becomes more “unstable” (theoretical prediction in Hanson et al (2015))

Understanding the Bankruptcy Act of 2005



The Bankruptcy Act expanded the menu of safe-harbored collateral



Banks active in trading can exploit repo funding opportunities

Difference	Definition	Description
Cross-section	Treated	Banks with high trading activity (top quartile of trading liabilities)
	Control	Banks with low trading activity (bottom quartile of trading liabilities)
Time Series	δ_τ	Dynamic time indicators capture pre and post effects

- Banks active in trading regularly borrow cash in repo markets ([Krishnamurthy et al 2010](#))
- By nature of their trading expertise, trading-active banks are better positioned to exploit repo funding opportunities.

$$y_{it} = \beta_0 + \sum_{\tau=1}^T \beta_\tau Treated * \delta_\tau + \gamma X_{it-1} + \delta_i + \delta_t + \dot{o}_{it}$$

Results

Increase in holdings following expansion of safe harbor (1)

	Holdings of highly rated tranches			
	(1)	(2)	(3)	(4)
Treated X 2004Q2	0.003 [0.426]	0.004 [0.487]	-0.006 [-0.700]	-0.006 [-0.727]
Treated X 2004Q3	0.001 [0.302]	0.003 [1.048]	0.001 [0.433]	0.004 [1.364]
Treated X 2004Q4	0.009*** [3.107]	0.008** [2.877]	0.009*** [3.888]	0.009** [2.747]
Treated X 2005Q1	0.016*** [3.362]	0.014*** [3.485]	0.015*** [4.082]	0.014*** [3.571]
Treated X 2005Q2	0.022*** [3.210]	0.023*** [3.451]	0.021*** [3.336]	0.022*** [3.133]
Treated X 2005Q3	0.019** [2.601]	0.019** [2.757]	0.021*** [3.564]	0.021*** [3.506]

...Continued

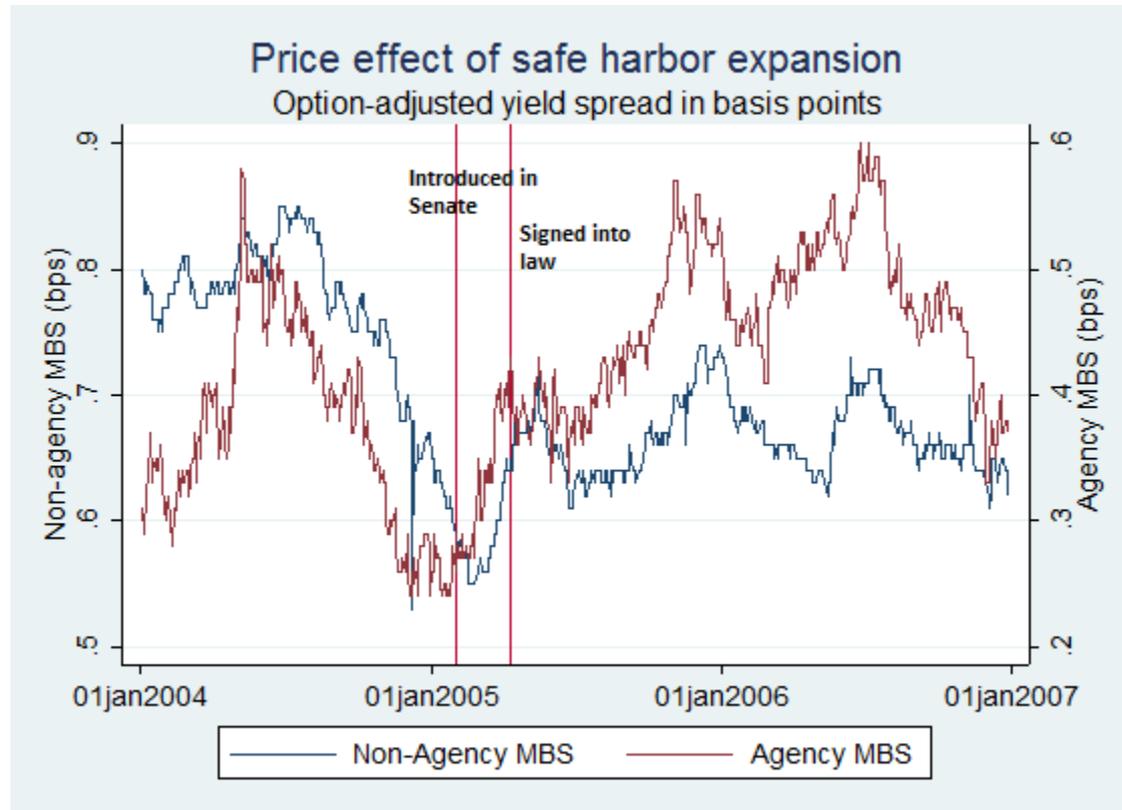
Economic significance of the differential effect increases in the later half of the sample

Increase in holdings following expansion of safe harbor (2)

	Holdings of highly rated tranches			
	(1)	(2)	(3)	(4)
Treated X 2005Q4	0.024** [3.040]	0.025*** [3.210]	0.025*** [3.550]	0.025*** [3.605]
Treated X 2006Q1	0.023** [2.742]	0.023** [2.874]	0.025*** [3.524]	0.025*** [3.583]
Treated X 2006Q2	0.029** [3.051]	0.029*** [3.118]	0.031*** [3.338]	0.031*** [3.331]
Treated X 2006Q3	0.033** [2.650]	0.033** [2.763]	0.035** [2.964]	0.035** [3.043]
Treated X 2006Q4	0.031** [2.455]	0.030** [2.536]	0.031** [2.656]	0.031** [2.737]
Observations	743	743	997	997
R-squared	0.912	0.910	0.910	0.907
Controls	Yes	Yes	Yes	Yes
Size FE	Yes	No	Yes	No
Year Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes

Holdings of AAA-rated MBS are highest in the quarters immediately preceding the financial crisis

Decrease in private-label MBS yields



The yield on private-label MBS securities went down after expansion of safe harbor provisions. The increase in price suggests safe harbor expansion made private-label MBS more valuable.

Increase in mortgage securitization activity following safe harbor expansion

	Mortgage Securitization Activity			
	(1)	(2)	(3)	(4)
Treated X 2004Q2	-0.000	0.001	0.005	0.005
	[-0.007]	[0.021]	[0.141]	[0.157]
Treated X 2004Q3	0.030	0.032	0.030	0.031
	[1.297]	[1.366]	[1.336]	[1.358]
Treated X 2004Q4	0.025	0.025	0.024	0.024
	[1.549]	[1.516]	[1.474]	[1.504]
Treated X 2005Q1	0.017	0.015	0.015	0.014
	[0.906]	[0.852]	[0.841]	[0.806]
Treated X 2005Q2	0.024	0.024	0.024	0.024
	[1.012]	[1.039]	[0.993]	[0.980]
Treated X 2005Q3	0.029	0.029	0.028	0.027
	[1.507]	[1.522]	[1.479]	[1.445]

...Continued

Securitization activity is not statistically significant in the early part of the post-period. If we view securitization as a complex manufacturing process, we expect natural constraints on the responsiveness of supply (the price elasticity of supply is less than 1).

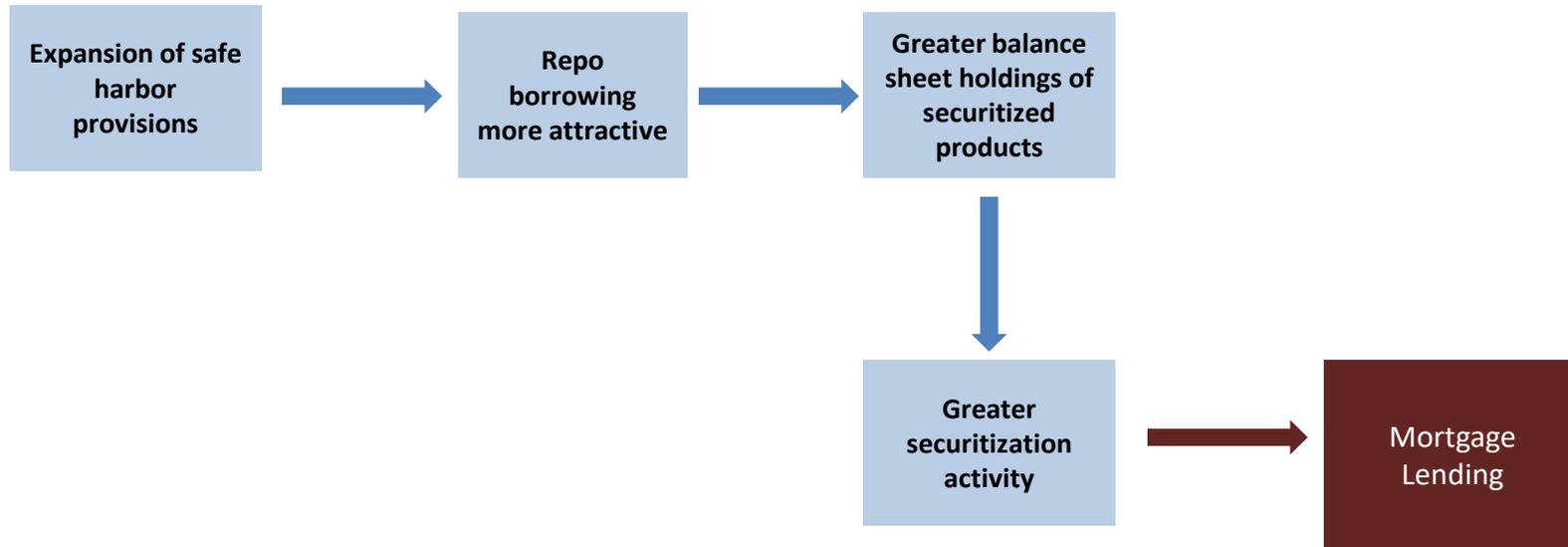
Increase in mortgage securitization activity following safe harbor expansion

Acharya et al (2010)
hypothesize the
Bankruptcy Act of
2005 may have led to
growth in MBS in the
following years.

	Mortgage Securitization Activity			
	(1)	(2)	(3)	(4)
Treated X 2005Q4	0.031 [1.581]	0.030 [1.595]	0.029 [1.526]	0.028 [1.499]
Treated X 2006Q1	0.038* [1.889]	0.038* [1.917]	0.036* [1.864]	0.035* [1.836]
Treated X 2006Q2	0.055* [1.887]	0.053* [1.839]	0.054* [1.833]	0.053 [1.788]
Treated X 2006Q3	0.061** [2.383]	0.058** [2.351]	0.059** [2.372]	0.056** [2.311]
Treated X 2006Q4	0.071** [2.760]	0.068** [2.723]	0.069** [2.745]	0.066** [2.698]
Observations	1,202	1,202	3,771	3,771
R-squared	0.965	0.964	0.966	0.966
Controls	Yes	Yes	Yes	Yes
Size FE	Yes	No	Yes	No
Year Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes

Securitization activity is highest in the quarters immediately preceding the financial crisis

Real effects of greater securitization activity



Secondary market activities can have real effects

- Mian and Sufi (QJE; 2009)
 - Expansion in mortgage credit to subprime ZIP codes closely correlated with the increase in securitization of subprime mortgages
 - Nadauld and Sherlund (JFE; 2013)
 - Findings rely on the argument that increase in securitization in the pre-crisis period was driven by forces exogenous to factors affecting the primary mortgage market
-

Did banks offer lower mortgage rates after safe harbor?



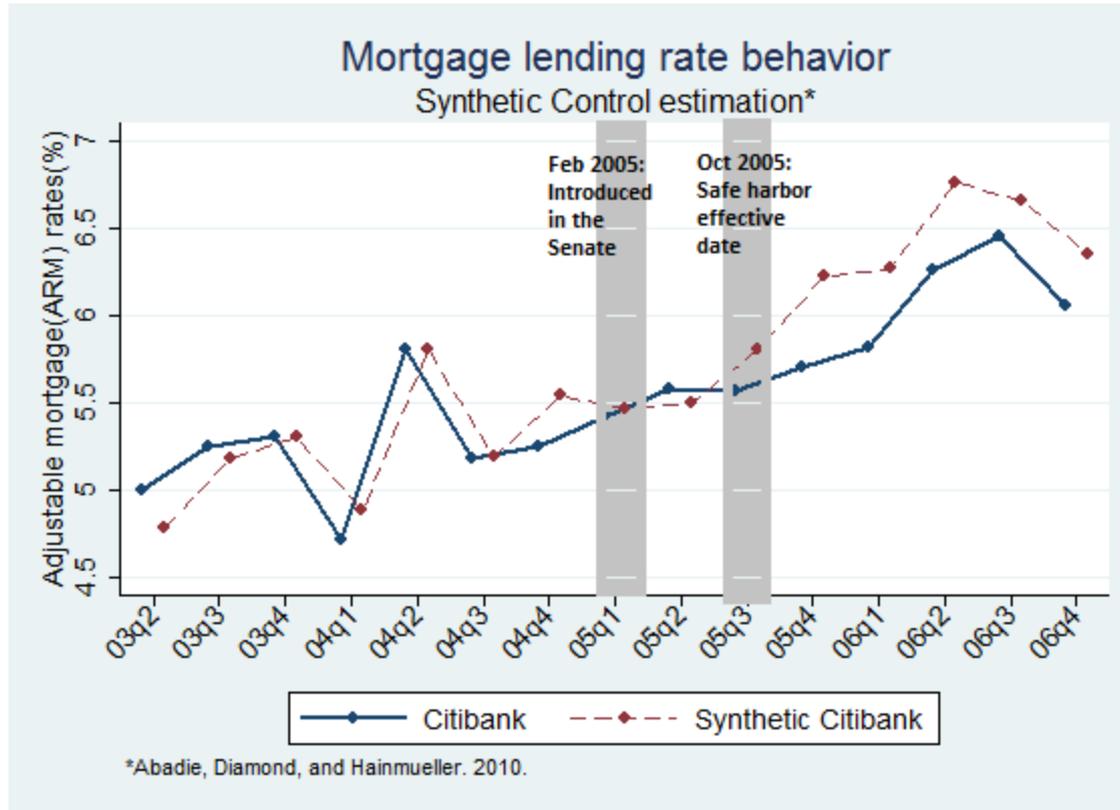
Data limitation: Focus analysis on individual treated units

- Citibank, JP Morgan and Bank of America
- These systemically important banks have disproportionate real effects on the economy
- Also, lawsuits on these banks for abusive lending practices
 - Bank of America (Department of Justice; 2012),
 - Citibank (Securities and Exchange Commission; 2010) and
 - JP Morgan (Securities and Exchange Commission, 2012)
- Soon after BAPCPA (April 7th, 2005) , Chase expanded home equity loan and line of credit amounts

I use Synthetic Control Estimation (Abadie et al 2010) to estimate a “treatment effect” on an individual bank

Lending rates*: Synthetic Control Estimation

Dependent variable : 5 year adjustable rate mortgage for a 175K principal



Citibank lowered its rates relative to the counterfactual following expansion of safe harbor provisions.

Conclusion

Key Takeaway

- Expansion of safe harbor provisions had the unintended effect of dramatically increasing mortgage securitization activity in the years immediately preceding the Financial Crisis of 2007-2009

Why does it matter?

Ongoing policy debate on safe harbor for financial contracts

- *American Bankruptcy Institute*
From the 2014 Final Report of the Commission to Study Reform on Chapter 11: safe harbor provisions may have “*extended to contracts and situations beyond the original intent of the legislation.*”
- *Federal Reserve Board of Governors*
In May 2016, the Fed proposed a rule to restrict counterparties from liquidating contracts during the bankruptcy of systemically important institutions.

Regulation on securitization may be incomplete if it fails to account for the connection with repo markets
