

[#5] Impact of Finance

Johan Hombert

The impact of finance

- Finance practitioner's perspective
 - ▶ How to value, invest, choose capital structure, hedge, etc.
- Today: a social scientist's perspective
 - ▶ What is the impact of finance practice on the rest of us?

Road map

The growing size of the financial sector

Government vs. profit-driven banks

Bank size and bank competition

Structured finance and the Great Financial Crisis

Liquidity risk

Credit booms and banking crises

Credit and employment

The growing size of the financial sector: the US¹

Two ways to measure the size of the financial sector:

- Quantity of **input**: income of finance industry (wages + profits)
- Quantify of **output**: financial instruments issued (debt, equity, deposits, etc.)

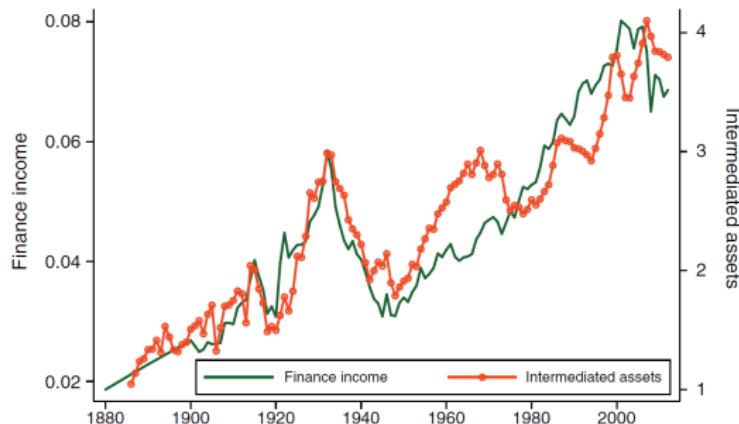


FIGURE 2. FINANCE INCOME AND INTERMEDIATED ASSETS OVER GDP

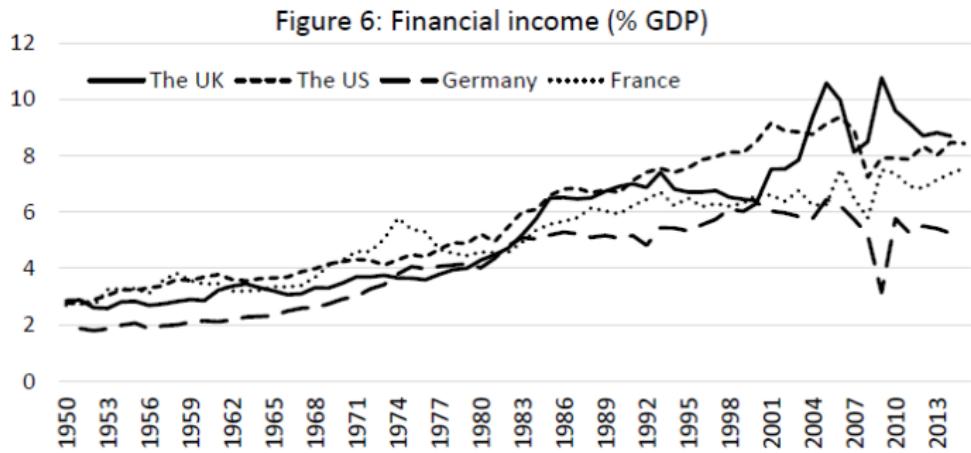
Notes: Both series are expressed as a share of GDP, excluding defense spending. Finance income is the domestic income of the finance and insurance industries, i.e., aggregate income minus net exports. It is available from 1880 to 2012. Intermediated assets include debt and equity issued by nonfinancial firms, household debt, and various assets providing liquidity services. Data range for intermediated assets is 1886–2012.

¹“Has the US Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation,” Philippon, 2015, *American Economic Review* [[pdf](#)]

The growing size of the financial sector: the US

- NB: The ratio output/input has been approximately constant. Does it imply that productivity in the finance industry has stagnated for the last 140 years?

The growing size of the financial sector: Europe²



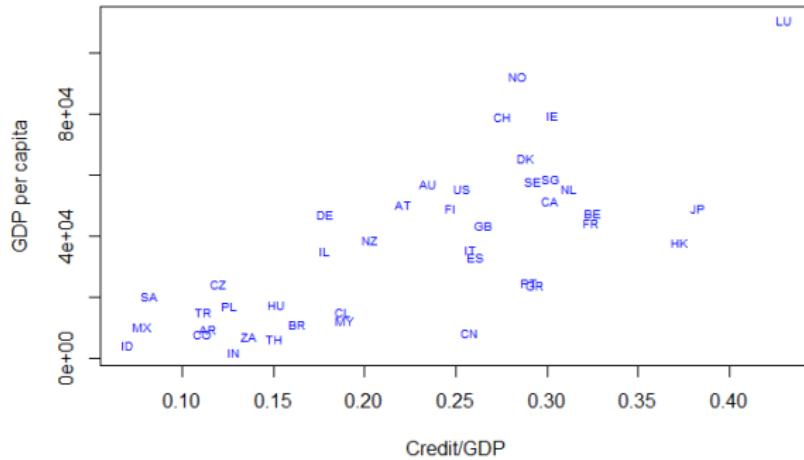
²“Financial Consumption and the Cost of Finance: Measuring Financial Efficiency in Europe (1950–2007)” Bazot, 2018, *Journal of European Economic Association* [[pdf](#)]

Question

What is the impact of the growth of finance on the real economy?

Finance and economic growth

- Countries with more developed credit markets are richer



Q. Convinced that a larger financial sector makes countries wealthy?

Correlation is not causation

- Correlation between finance and growth could reflect that
 1. Financial development spurs economic growth (causality)
 2. Economic growth spurs financial development (reverse causality)
 3. Other factors such as education, institutions, etc., drive both economic growth and financial development (omitted variable)
- Old debate: Joseph Schumpeter (1911) on 1, Joan Robinson (1952) on 2, etc.

Methodology

- Typical pattern: financial reforms → growth of finance → what impact on the real economy?
- No definite answer (this is social science, not physics)
 1. Context dependent
 2. Challenging to pin down causal relationships
- Modern approach in economics research: use “natural experiments”
 - ▶ Focus on a well-identified variation in the factor to be analyzed (e.g., deregulation)
 - ▶ Use data and econometrics to analyze outcomes
 - ▶ 2021 Nobel Prize to Joshua D. Angrist and Guido W. Imbens “*for their methodological contributions to the analysis of causal relationships*”

Questions

- What is the impact of government-controlled vs. profit-driven banks?
- What is the impact of larger banks?
- What is the impact of competition between banks?
- What is the impact of financial innovation such as securitization?
- Does deregulation cause financial crises?

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Question

- Some countries have government-influenced credit allocation whereas others rely on profit-maximizing banks
- What is the impact?

From gov-controlled to profit-maximizing banks: France 1980s



ARTICLE

Banking Deregulation and Industry Structure: Evidence from the French Banking Reforms of 1985

MARIANNE BERTRAND, ANTOINETTE SCHOAR, DAVID THESMAR

First published: 20 March 2007 | <https://doi.org/10.1111/j.1540-6261.2007.01218.x> | Citations: 282

[pdf]

- Post-WW2 until 1980s: government tightly controls the allocation of credit
- 1985 deregulation: allocation of credit is decentralized to profit-maximizing banks
- Impact on the allocation of credit?

Alert: Econometrics coming up!

$$y = \beta_0 + \beta_1 x + u$$

Annotations for the components:

- y : Dependent Variable
- β_0 : Intercept Parameter
- β_1 : slope parameter
- x : Independent Variable
- u : error term

From gov-controlled to profit-maximizing banks: France 1980s

- Data: all French firms with revenues above €20 million or at least 100 employees

	Full Sample		Before 1985		After 1985	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Panel A: Firm-Level Data						
Bank debt	0.46	0.23	0.48	0.22	0.42	0.24
Trade credit	0.28	0.20	0.31	0.21	0.27	0.21
Equity	0.26	0.21	0.20	0.17	0.28	0.22
Capital cost	0.08	0.07	0.07	0.06	0.09	0.06
ROA	0.15	0.21	0.07	0.15	0.17	0.22
ROS	0.12	0.22	0.06	0.15	0.15	0.23
Sales	106.50	142.4	92.6	133.5	112.3	145.6
Total assets	122.10	222.6	95.5	196.8	132.7	230.4
Employment	192.40	210.8	203.6	216.5	188.5	208.4
Average wage	76.12	33.59	67.52	23.92	79.20	28.67
Outsourcing	0.42	0.25	0.44	0.27	0.41	0.24

From gov-controlled to profit-maximizing banks: France 1980s

- Econometric analysis
 - ▶ Each year t , run a linear regression in the cross-section of all French firms (indexed by i)
 - ▶ RHS variable: new credit (1-year change in outstanding credit)
 - ▶ LHS variable: future performance (2-yr fwd-looking change in ROA)

- Regression equation: $\Delta ROA_i^{(t \rightarrow t+2)} = a + b \cdot \Delta Credit_i^{(t-1 \rightarrow t)} + \epsilon_i$

- Result:

	Before 1985	After 1985
b	-0.026	+0.052
(both statistically significant)		

- Interpretation

- ▶ Before 1985: more credit goes to poorly performing firms
 - ▶ After 1985: more credit goes to more productive firms
- ⇒ Better allocation of credit after deregulation

From gov-controlled to profit-maximizing banks: France 1980s

- Conclusion: profit-driven banks lend when they expect repayment, i.e., to productive firms → efficient allocation of credit

Convinced?

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Structured finance and the Great Financial Crisis

Liquidity risk

Credit booms and banking crises

Credit and employment

Question

- What is the impact of having large banks vs. small local banks? the impact of stronger competition between banks?

Bank size and bank competition: US 1980-90s

The Finance-Growth Nexus: Evidence from Bank Branch Deregulation Get access >

Jith Jayaratne, Philip E. Strahan

The Quarterly Journal of Economics, Volume 111, Issue 3, August 1996, Pages 639-670, <https://doi.org/10.2307/2946668>

[pdf]

- Banking laws are at the state level
- Before 1972: most U.S. states restrict opening of new bank branches
- States lifted these restrictions *at different points in time* → natural experiment

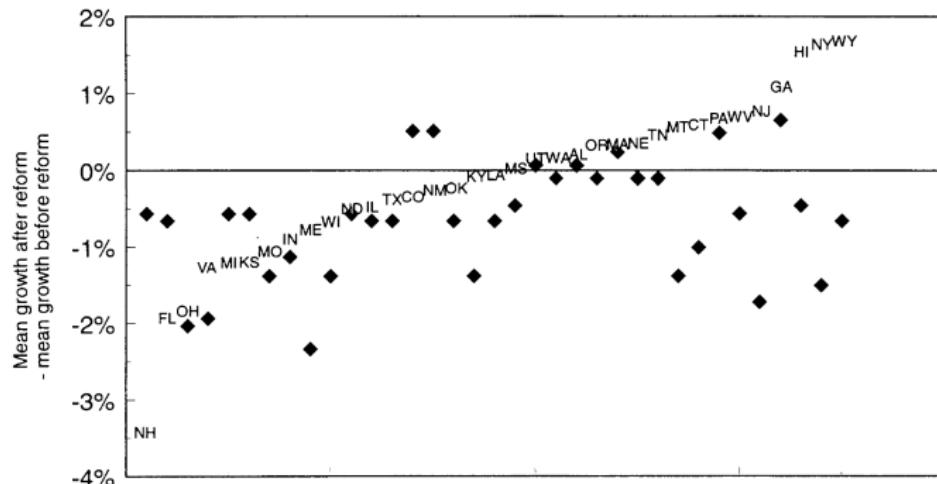
States deregulated by 1972	Year M&A branch restrictions lifted	States that deregulated after 1972	Year M&A branch restrictions lifted
Alaska		Maine	1975
Arizona		Michigan	1987
California		Missouri	1990
DC		Mississippi	1986
Delaware		Montana	1990
Idaho		North Dakota	1987
Maryland		Nebraska	1985
North Carolina		New Hampshire	1987
Nevada		New Jersey	1977
Rhode Island		New Mexico	1991
South Carolina		New York	1976
South Dakota		Ohio	1979
Vermont		Oklahoma	1988
States that deregulated after 1972		Oregon	1985
Alabama	1981	Pennsylvania	1982
Colorado	1991	Tennessee	1985
Connecticut	1980	Texas	1988
Florida	1988	Utah	1981
Georgia	1983	Virginia	1978
Hawaii	1986	Washington	1985
Illinois	1988	Wisconsin	1990
Indiana	1989	West Virginia	1987
Kansas	1987	Wyoming	1988
Kentucky	1990	States that have not deregulated	
Louisiana	1988	Arkansas	
Massachusetts	1984	Iowa	
		Minnesota	

Bank size and bank competition: US 1980-90s

- Methodology: for each state that deregulates during the 1972–1992 period, compare its subsequent growth to that of states that do not deregulate
 - ▶ Wyoming deregulates in 1988: calculate its GDP growth rate over 1989–1992 → +1.7% reported as WY on the next slide
 - ▶ Compare to growth rate of all the states that do not deregulate during 1972–1992 → -0.6% reported as the diamond below WY

Bank size and bank competition: US 1980-90s

Change in Mean Growth Rates: Treatment versus Control States



Treatment states	Control states
'ST'	◆

- GDP growth is higher after deregulation compared to non-deregulating states

Bank size and bank competition: US 1980-90s

- Conclusion: U.S. banking deregulation improved economic growth

Questions? Comments?

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Liquidity risk

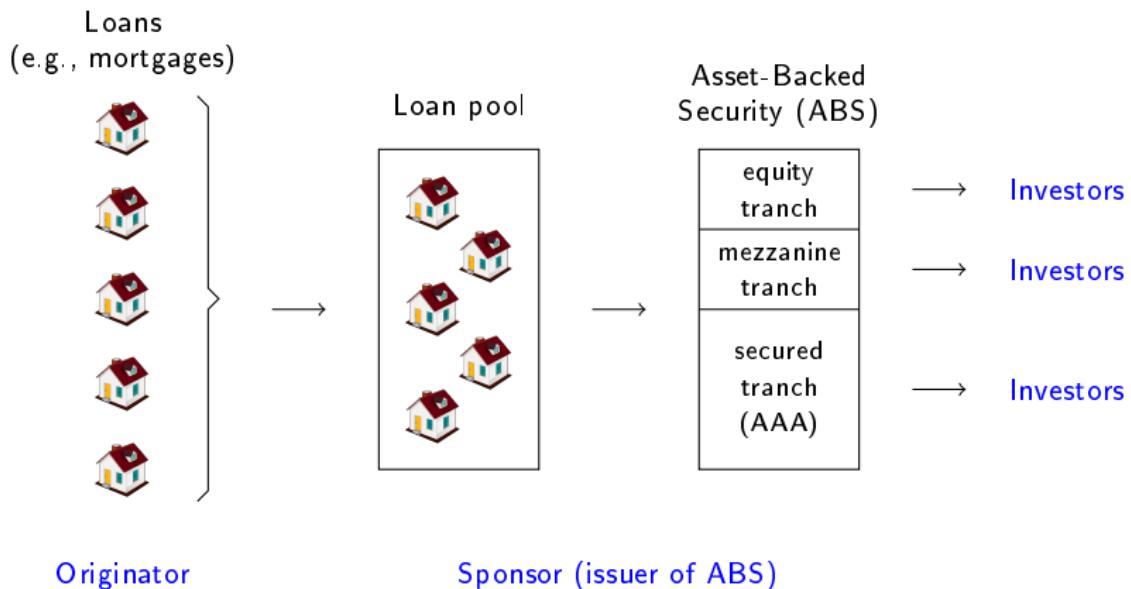
Credit booms and banking crises

Credit and employment

Deregulation, US 2000s

- New wave of financial deregulation around 2000
- Repeal of Glass-Steagall Act: allows consolidation of investment banking (deposit-taking, lending), commercial banking (advisory, securities underwriting and trading), and insurance
- Deregulation of securities and derivatives markets (CDS, etc.)
- Deregulation of securitization: asset-backed securities (MBS, CDO, CDO-squared, etc.)

Securitization

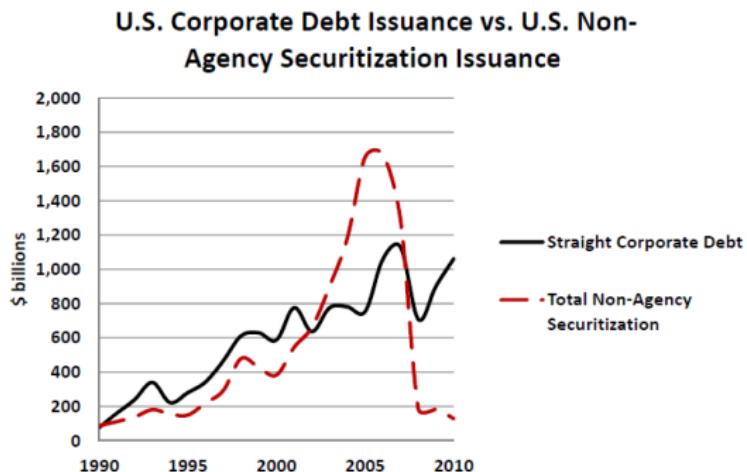


The Great Financial Crisis

- Phase 1: credit expansion
- Phase 2: defaults and bank failures
- Phase 3: credit crunch and recession

Phase 1: credit expansion

- Growth in securitized debt



(source: Gorton and Metrick, 2013)

Phase 1: credit expansion

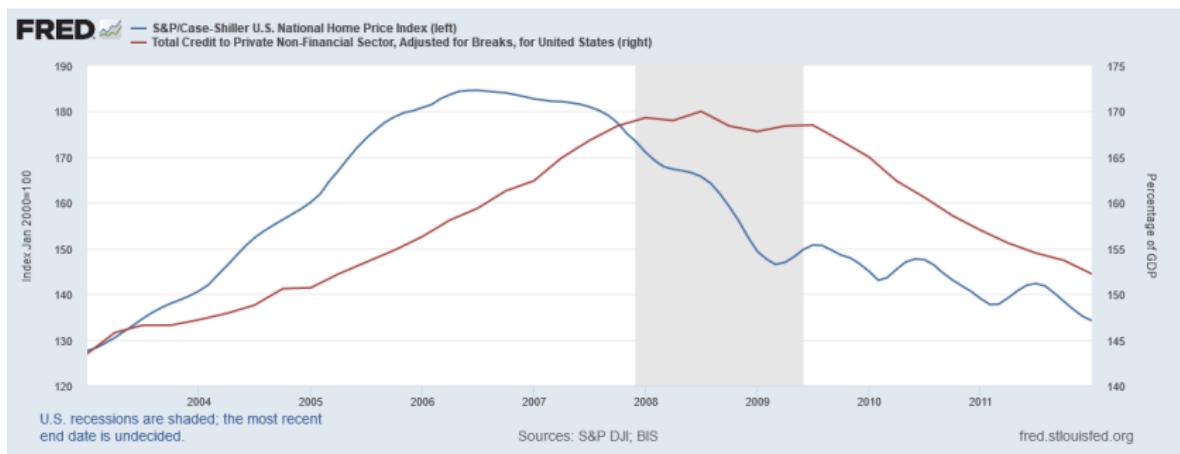
- All sorts of loans were securitized, including risky ones (subprime mortgages)

Table 7: Major Securitized Asset Classes

Aircraft leases	Manufactured housing loans
Auto loans (prime)	Mortgages (prime)
Auto loans (subprime)	Mortgages (alt-A)
Auto leases	Mortgages (subprime)
Commercial real estate	Mortgages (commercial)
Computer leases	RV loans
Consumer loans	Small business loans
Credit card receivables	Stranded utility costs
Equipment leases	Student loans
Equipment loans	Trade receivables
Franchise loans	Time share loans
Future flows receivables	Tax liens
Healthcare receivables	Taxi medallion loans
Health club receivables	Vatical settlements
Home equity loans	Whole businesses
Intellectual property cash flows	
Insurance receivables	
Motorcycle loans	
Music royalties	

Phase 1: credit expansion

- Strong growth of **credit** and **housing prices** (2003–2006)



Phase 2: defaults and bank failures

- Increasing default rate on securitized debt (2006–2010)

Table 10: S & P Global Structured Finance 5-Year Default Rates (%)

5 years ending	AAA	AA	A	BBB	BB	B	CCC	CC/C	Investment-grade	Spec-grade	All
2000	0.00	0.00	0.09	0.46	5.65	12.50	44.00	100.0	0.05	12.30	0.69
2001	0.00	0.00	0.30	0.58	3.37	11.64	35.29	75.00	0.10	9.66	0.74
2002	0.00	0.21	1.34	3.85	7.91	12.77	53.33	50.00	0.63	11.99	1.45
2003	0.11	0.37	1.01	9.21	10.81	14.60	44.44	38.46	1.33	13.40	2.36
2004	0.13	0.51	1.19	9.55	11.99	15.31	22.73	25.00	1.62	13.69	2.73
2005	0.12	0.60	1.68	5.79	10.05	28.92	48.94	30.00	1.28	19.27	3.17
2006	0.00	0.72	1.67	5.14	8.53	25.00	53.93	22.73	1.33	16.99	3.19
2007	0.00	0.51	1.13	4.14	5.83	10.69	52.91	55.74	1.17	11.68	2.63
2008	0.01	0.07	0.42	4.26	3.95	10.10	40.00	48.86	1.13	9.13	2.33
2009	0.22	0.64	2.14	7.93	9.98	22.18	40.26	57.55	2.67	16.96	4.83
2010	1.53	5.91	12.14	22.33	33.73	50.89	50.68	52.17	10.34	40.56	14.96

Phase 2: defaults and bank failures

- Defaults propagate in the financial sector due to
 - ▶ Short-term liabilities and high leverage
 - ▶ Network of liabilities between financial institutions

Lehman Files for Bankruptcy, Merrill Sold, AIG Seeks Cash

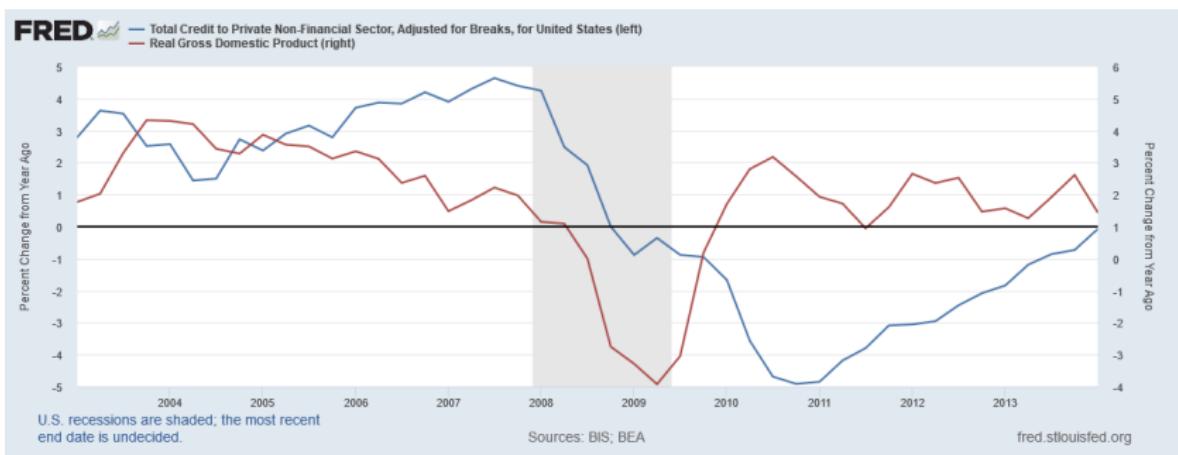
By Carrick Mollenkamp, Susanne Craig, Serena Ng and Aaron Lucchetti

Sept. 16, 2008 6:52 pm ET

NEW YORK -- The American financial system was shaken to its core on Sunday. [Lehman Brothers Holdings](#) Inc. filed for bankruptcy protection, and [Merrill Lynch](#) & Co. agreed to be sold to [Bank of America](#) Corp. [BAC -1.41%](#) ▼

Phase 3: credit crunch and recession

- Credit to non-financial sector and **GDP** shrink (2008–2010)



Questions on banking crises

- Does securitization lead to lax screening of loans?
- Is banks' reliance on short-term funding a problem?
- Does excessive lending lead to banking crises?
- Do banking crises spill over to the real economy?

Securitization and incentives

- Lenders are not exposed to default risk when loans are securitized. This may reduce their incentives to screen borrowers

Q. How would you test this hypothesis?



Volume 125, Issue 1
February 2010

JOURNAL ARTICLE

Did Securitization Lead to Lax Screening? Evidence from Subprime Loans*

Benjamin J. Keys, Tanmoy Mukherjee, Amit Seru, Vikrant Vig

The Quarterly Journal of Economics, Volume 125, Issue 1, February 2010, Pages 307–362,
<https://doi.org/10.1162/qjec.2010.125.1.307>

Published: 01 February 2010

[pdf]

- Data: loans originated and securitized (coverage 90% of total market)

Panel A: Summary statistics by year

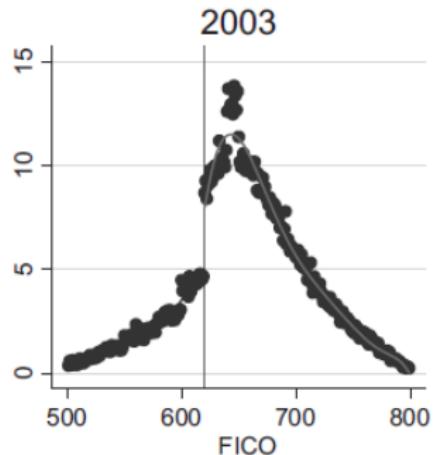
Low documentation	Full documentation
Number of observations	1,000
Mean	100
Standard deviation	10
Min	0
Max	200

	Number of loans	Mean loan-to-value	Mean FICO		Number of loans	Mean loan-to-value	Mean FICO
2001	35,427	81.4	630	101,056	85.7	604	
2002	53,275	83.9	646	109,226	86.4	613	
2003	124,039	85.2	657	194,827	88.1	624	
2004	249,298	86.0	658	361,455	87.0	626	
2005	344,308	85.5	659	449,417	86.9	623	
2006	270,751	86.3	655	344,069	87.5	621	

Securitization and incentives

- Loans with FICO above 620 are easier to securitize \Rightarrow more incentives to originate these loans

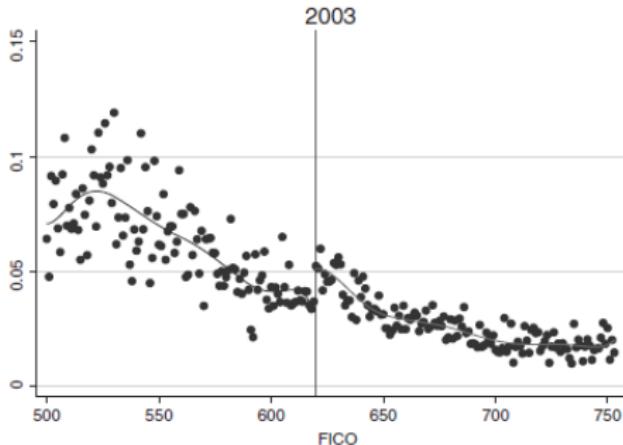
Number of low-documentation loans originated by FICO score (in '00s)



Securitization and incentives

- Loans with FICO above 620 are easier to securitize \Rightarrow less incentives to screen these loans

Default rate by FICO score



Securitization and incentives

- Econometric analysis (“regression discontinuity design”)
 - ▶ Estimate linear regression where 1 observation = 1 bin of FICO score
 - ▶ LHS variable: default rate for FICO score i
 - ▶ RHS variables: third-order polynomial of FICO score and dummy variable for FICO above 620

$$\text{DefaultRate}_i = \alpha_0 + \alpha_1 \cdot \text{FICO}_i + \alpha_2 \cdot (\text{FICO}_i)^2 + \alpha_3 \cdot (\text{FICO}_i)^3 + \beta \cdot (\text{FICO}_i \geq 620) + \epsilon_i$$

Panel A: Dollar-weighted fraction of loans defaulted (60+ delinquent)					
Year	$\text{FICO} \geq 620 (\beta)$	$t\text{-stat}$	Observations	R^2	Mean
2001	0.005	(0.44)	254	.58	0.053
2002	0.010	(2.24)	254	.75	0.051
2003	0.022	(3.47)	254	.83	0.043
2004	0.013	(1.86)	254	.79	0.049
2005	0.023	(2.10)	254	.81	0.078
2006	0.044	(2.68)	253	.57	0.155

- ▶ In 2006, securitized loans just above the 620 threshold are 4.4 percentage points (28%) more likely to default than loans just below

Securitization and incentives

- Conclusion: strong demand for securitized loans reduced lenders' incentives to screen borrowers

Q. Convinced?

Securitization and asymmetric information

- Did issuers of mortgage-backed securities genuinely supply the securities demanded by the market?
- or did they know that MBSs were overvalued?

Securitization and asymmetric information

- Anecdotal evidence
 - ▶ Goldman Sachs securitized subprime mortgages and sold the resulting asset-backed securities to institutional investors
 - ▶ Emails obtained by the SEC during the 2010 investigation

"According to Sparks, that business is totally dead, and the poor little subprime borrowers will not last so long!!!" (email from Goldman's trader "fabulous Fab" to his girlfriend, March 2007)

"I've managed to sell a few abacus bonds to widow and orphans that I ran into at the airport, apparently these Belgians adore synthetic abs cdo2."
(fabulous Fab, June 2007)

- Is this a systematic pattern?

Q. How would you test if issuers of MBSs knew about the risk?



Wall Street and the Housing Bubble

Ing-Haw Cheng

Sahil Raina

Wei Xiong

AMERICAN ECONOMIC REVIEW
VOL. 104, NO. 9, SEPTEMBER 2014
(pp. 2797-2829)

[pdf]

- Data: personal investment in housing by mid-level managers at lead financial institutions active in (mortgage-backed) securitization

The most prominent companies in our sample are: Wells Fargo (27 people), Washington Mutual (23), Citigroup (16), JP Morgan Chase (14), AIG (12), Countrywide, Deutsche Bank, Merrill Lynch, UBS, and Lehman Brothers (9 each). The most common position titles are Vice President (87), Senior or Executive Vice President (58), and Managing Director (39).

- Do they divest houses before the housing crash – or do they purchase more houses during the bubble?
- Control groups
 - ▶ Equity analysts: work in finance but not related to housing
 - ▶ Lawyers: high income high education, but not finance

Wall Street and the Housing Bubble

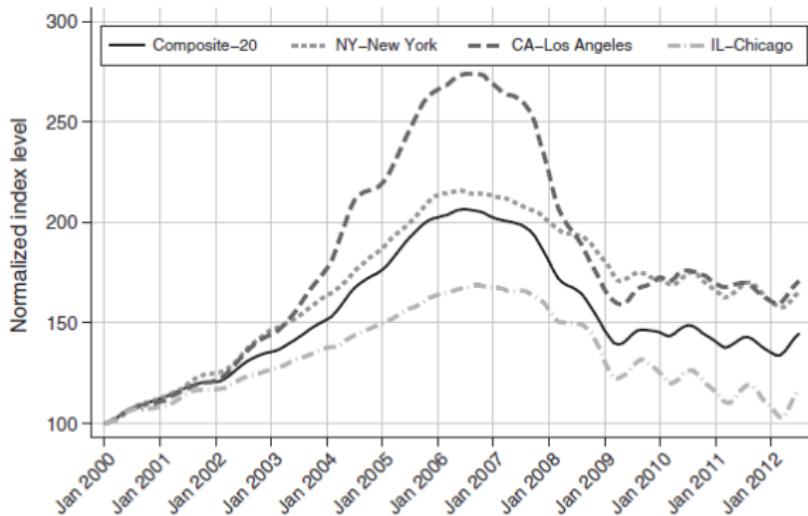
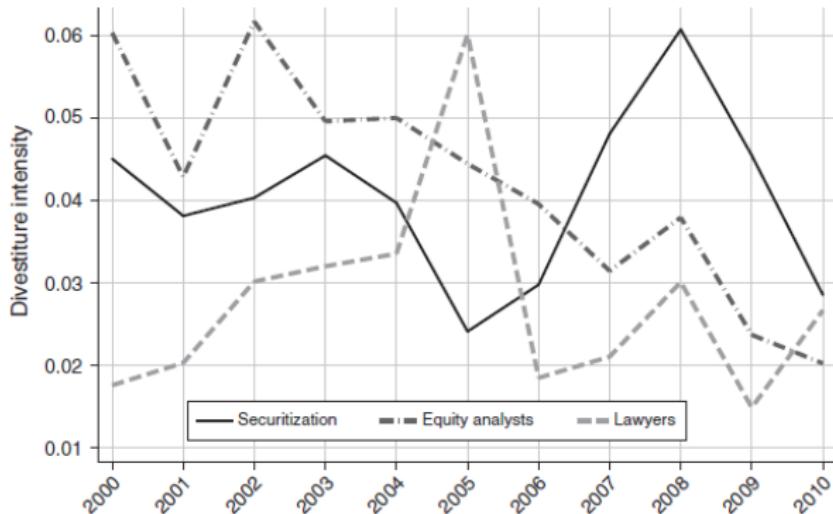


FIGURE 1. HOME PRICE INDICES

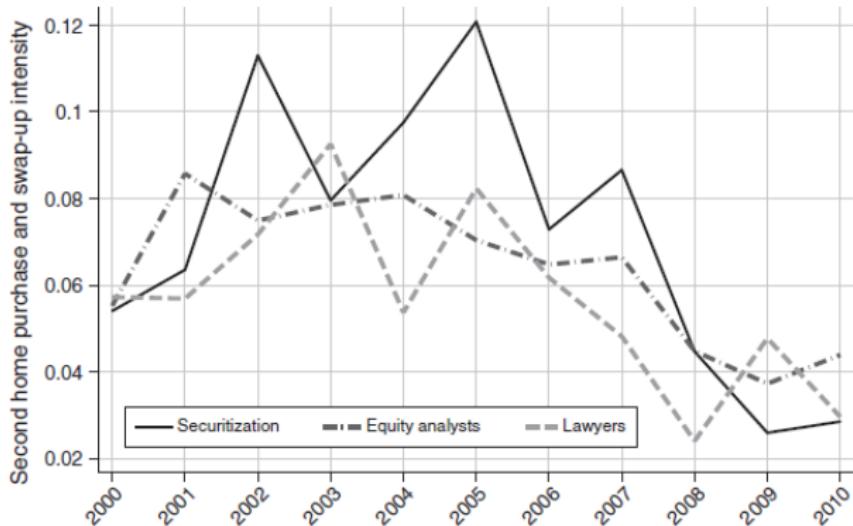
Wall Street and the Housing Bubble

- % who sell a house (primary or secondary residence) without buying another one



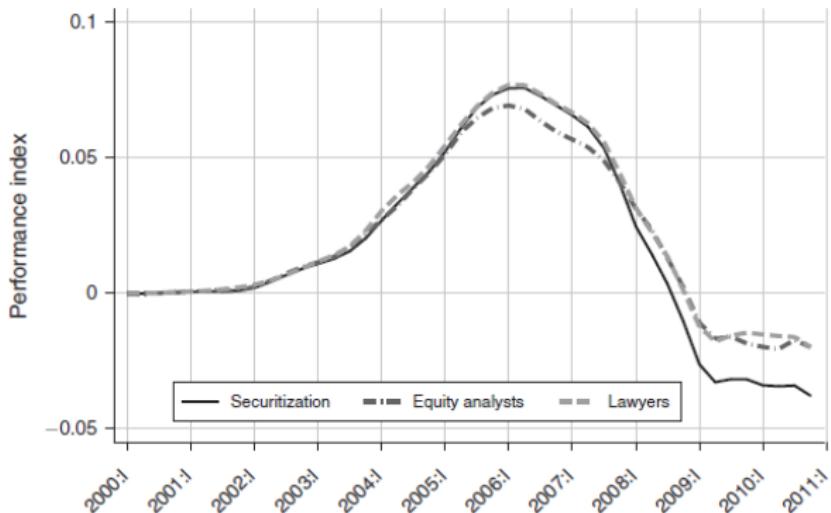
Wall Street and the Housing Bubble

- % who buy an additional house (without selling another one)



Wall Street and the Housing Bubble

- Trading performance: money earned or lost on transactions between 2000 and 2011



Wall Street and the Housing Bubble

- Conclusion: issuers of MBS did not know about the housing bubble

Convinced?

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Refinancing risk

- Banks' reliance on short-term funding → refinancing risk?

ARTICLE |  Full Access

Wholesale Funding Dry-Ups

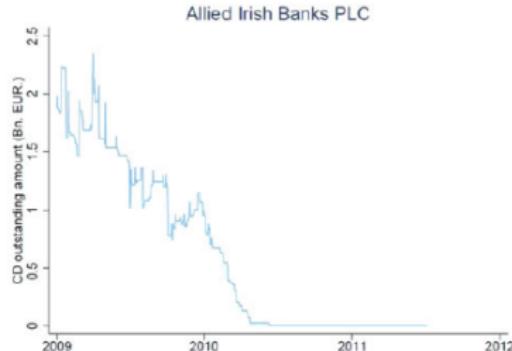
CHRISTOPHE PÉRIGNON, DAVID THESMAR, GUILLAUME VUILLEMAY

First published: 10 October 2017 | <https://doi.org/10.1111/jofi.12592> | Citations: 56

[pdf]

Outstanding Certificates of Deposits (CDs) at two European banks during the Great Financial Crisis and European Sovereign Debt Crisis

Panel A: Full Dry-Ups



Questions

- What causes liquidity dry-ups?
- What is the impact of liquidity dry-ups?
- Can liquidity dry-ups be self-fulfilling?

Banking game

- Roles
 - ▶ The bank: **Me**
 - ▶ N short-term creditors: **You** (N =number of students in the class)
- You hold 100 worth of debt on the bank expiring now. Choose btw:
 - ▶ Rolling over at 2% interest rate → the bank owes you **102 at maturity**
 - ▶ Stop lending → the bank pays you **100 now**

- Bank's balance sheet:

Assets	Liabilities
Loans: $N \times 100$	Short-term debt: $N \times 100$

- Bank's assets pays off to the bank (per \$1 of book value today):
 - ▶ 1.05 at maturity if held until maturity
 - ▶ 1 now if liquidated now

Let's play!

Please decide whether to roll over or stop lending

<https://poll-maker.com/QE9RVMB6O>

Outcome with liquid bank's assets

Illiquid bank's assets

- Now, the bank's assets are **illiquid**: they pay off
 - ▶ 1.05 at maturity if held until maturity
 - ▶ **0.80** now if liquidated now
- The rest is the same

Let's play!

Please decide whether to roll over or stop lending

<https://poll-maker.com/QE9RVMB6O>

Outcome with illiquid bank's assets

Fresh money (with illiquid assets)

- Go back to the point in time just after creditors have decided to roll over or not, but before the bank liquidates assets at 80 cents on the dollar
- A deep pocket investor steps in and can provide fresh money to the bank (in this case, the deep pocket investor's claim is junior to the existing creditors)
- Please form groups of two persons: one is the bank, one is the deep pocket investor
- Goal of each party: maximize his or her profit
- Negotiations are open

Fresh money (with impaired assets)

- Now, the bank's assets are illiquid and **impaired**: they pay off
 - ▶ **0.95** at maturity if held until maturity
 - ▶ 0.80 now if liquidated now
- Re-do the negotiation between the bank and the deep pocket investor

Outcome of the negotiation

- When the bank's assets are illiquid but not impaired
- When the banks' assets are illiquid and impaired

Back to rollover decisions

- You are a short-term creditor again, deciding to roll over or not
- As before, the bank can raise fresh money from a deep pocket investor after rollover decisions are made but before assets are liquidated
- Please decide whether to roll over or stop lending

if the bank's assets are illiquid but not impaired

<https://poll-maker.com/QJ2T2DNCU>

if the banks' assets are illiquid and impaired

<https://poll-maker.com/QSFGF1NYR>

Evidence on liquidity dry-ups

Dependent Variable: $\Delta ROA = ROA_t - ROA_{t-1}$						
	Baseline			Share CD	Crisis	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Partial and Full Dry-Ups						
DryUp	-0.395** (0.142)	-1.681*** (0.427)	-0.392* (0.121)	-1.002** (0.577)	-0.878*** (0.295)	-0.679*** (0.206)
DryUp * Share CD ∈ [4%, 9%]					0.331 (0.357)	
DryUp * Share CD > 9%					0.367 (0.423)	
DryUp * Crisis						0.101 (0.192)
Controls	No	Yes	Yes	Yes	Yes	Yes
Returns control	No	No	No	Yes	No	No
Issuer fixed effect	No	No	Yes	No	No	No
Adj. R^2	0.013	0.351	0.682	0.378	0.366	0.368
N. Obs.	948	496	496	231	496	496

- Liquidity dry-up causes under-performance? Or expectation of future under-performance causes liquidity dry-up?

Evidence on liquidity dry-ups

Dependent Variable: Δ Impaired Loans/Loans						
	Baseline			Share CD	Crisis	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Partial and Full Dry-Ups						
DryUp	0.582*** (0.140)	0.749*** (0.207)	0.385** (0.163)	0.512*** (0.199)	0.621*** (0.178)	0.596*** (0.164)
DryUp * Share CD $\in [4\%, 9\%]$					-0.320 (0.385)	
DryUp * Share CD $> 9\%$					-0.214 (0.306)	
DryUp * Crisis						-0.049 (0.098)
Controls	No	Yes	Yes	Yes	Yes	Yes
Returns control	No	No	No	Yes	No	No
Issuer fixed effect	No	No	Yes	No	No	No
Adj. R^2	0.100	0.109	0.529	0.111	0.113	0.115
N. Obs.	676	490	490	229	490	490

Banking game (cont'd)

- The bank had \$2bn outstanding short-term debt
 - ▶ \$1bn not rolled over → bank must find \$1bn now
 - ▶ \$1bn rolled over → bank owes \$1.02bn at maturity
- Assets are illiquid and impaired
 - ▶ 0.95 on the dollar if held until maturity
 - ▶ 0.80 on the dollar if liquidated now
- Please form groups of three persons:
 - ▶ The bank
 - ▶ The deep pocket investor
 - ▶ The short-term creditor for \$1 bn (suppose only one – or their representative)
- Negotiations are open

Road map

The growing size of the financial sector

Government vs. profit-driven banks

Bank size and bank competition

Structured finance and the Great Financial Crisis

Liquidity risk

Credit booms and banking crises

Credit and employment

Credit booms gone bust

- Great Financial Crisis of 2008: credit boom that gone wrong
- Is this a systematic pattern?
- Yes, according to the Austrian business cycle theory (von Mises 1912, Hayek 1930) and Keynesian economists (Minsky 1977)
- What is the evidence?



AMERICAN
ECONOMIC
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Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870-2008

Moritz Schularick

Alan M. Taylor

AMERICAN ECONOMIC REVIEW
VOL. 102, NO. 2, APRIL 2012
(pp. 1029-61)

- Data: credit and banking crises in 14 countries from 1970 to 2008
- 79 major banking crises, i.e., one every 25 years on average
- Econometric analysis:
 - ▶ LHS variable: dummy variable $Crisis_{i,t} = 1$ if crisis in country i in year t , and $=0$ otherwise
 - ▶ RHS variables: credit growth rate in country i in year $t-1, t-2, \dots$

Credit booms gone bust

Estimation method	OLS
Fixed effects	None
Specification	(1)
L. $\Delta \log (\text{loans}/P)$	-0.0281 (0.0812)
L2. $\Delta \log (\text{loans}/P)$	0.301*** (0.0869)
L3. $\Delta \log (\text{loans}/P)$	0.0486 (0.0850)
L4. $\Delta \log (\text{loans}/P)$	0.00494 (0.0811)
L5. $\Delta \log (\text{loans}/P)$	0.0979 (0.0746)
Observations	1,272
Groups	14
Sum of lag coefficients	0.425***
Standard error	0.123

- Credit growth predicts crisis (stronger at 2-year horizon)

Q. Questions? Comments?

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Credit and jobs

- Credit, GDP, employment, all drop in the crisis
- One story: distressed banks cut lending → credit drops → firms can't invest and hire
- Another: firms expect recession → cut investment → credit drops
- **How to establish causality?**



JOURNAL ARTICLE

EDITOR'S CHOICE

The Employment Effects of Credit Market Disruptions: Firm-level Evidence from the 2008–9 Financial Crisis *

FREE

Gabriel Chodorow-Reich

Volume 129, Issue 1
February 2014

The Quarterly Journal of Economics, Volume 129, Issue 1, February 2014, Pages
1–59, <https://doi.org/10.1093/qje/qjt031>

[pdf]

- Compare borrowing by companies linked to distressed banks to borrowing of companies linked to healthy banks
- Company-bank relationships are persistent: in 70% of syndicated loans, the lead arranger is the same as in the borrower's previous loan

Credit and jobs

- Measures of bank health
 - ▶ Change in lending during the crisis
 - ▶ Losses in the mortgage-backed market
- Econometric analysis
 - ▶ LHS variable: dummy variable =1 if the company borrows during Oct'08–Jun'09, =0 otherwise
 - ▶ RHS variable: health of lenders in the company's previous syndicated loan

Credit and jobs

	(1)	(2)	(3)	(4)	(5)	(6)
	Firm obtains a new loan or positive modification					
	Probit		$\Delta \tilde{L}_{i,s}$ instrumented using			
			Lehman exposure	ABX exposure	Bank statement items	All
Explanatory variables						
% Δ loans to other firms ($\Delta \tilde{L}_{i,s}$)	2.19** (0.79)	2.00*** (0.53)	3.65** (1.28)	2.33* (1.12)	2.28** (0.64)	2.32** (0.63)
2-digit SIC, state, loan year FE	No	Yes	Yes	Yes	Yes	Yes
Bond access/public/private FE	No	Yes	Yes	Yes	Yes	Yes
Additional Dealscan controls	No	Yes	Yes	Yes	Yes	Yes

- Firms linked to healthier banks are more likely to get a loan during the crisis

Credit and jobs

	(1)	(2)	(3)	(4)	(5)	(6)
	Employment growth rate 2008:3–2009:3					
	OLS		$\Delta \tilde{L}_{i,s}$ instrumented using			
			Lehman exposure	ABX exposure	Bank statement items	All
Explanatory variables						
% Δ loans to other firms ($\Delta \tilde{L}_{i,s}$)	1.17*	1.67** (0.61)	2.49* (1.00)	3.17* (1.35)	2.13* (0.88)	2.38** (0.77)
Lagged employment growth		0.0033 (0.019)	0.0039 (0.019)	0.0045 (0.019)	0.0036 (0.019)	0.0039 (0.019)
Emp. change in firm's county		0.89* (0.43)	0.85+ (0.46)	0.86+ (0.48)	0.87+ (0.45)	0.89+ (0.46)
2-digit SIC, state, loan year FE	No	Yes	Yes	Yes	Yes	Yes
Firm size bin FE	No	Yes	Yes	Yes	Yes	Yes
Firm age bin FE	No	Yes	Yes	Yes	Yes	Yes
Bond access/public/private FE	No	Yes	Yes	Yes	Yes	Yes
Additional Dealscan controls	No	Yes	Yes	Yes	Yes	Yes

- Firms linked to healthier banks cut jobs less during the crisis

Credit and jobs

- Conclusion: credit disruption causes job losses
- This suggests that, conversely, credit provision is important for job creation

Questions? Comments?

Several ideas discussed today are due to Ben Bernanke, Douglas Diamond and Philip Dybvig, who were awarded the 2022 Nobel Prize in Economics *“for research on banks and financial crises”*



Finance & Research at HEC

- M2
 - ▶ Practice oriented: ‘Finance’ major
 - ▶ Research oriented: ‘Quantitative Economics and Finance’ major
- More? Do a PhD
 - ▶ 5 years; academic careers; avg starting salary 220,000 USD; more info at <https://www.hec.edu/en/doctoral-program/research-areas/finance>

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Noémie Pinardon-Touati (placement: Columbia University , 2022)
Credit Under Political Influence



Huan Tang (placement: London School of Economics, 2020)
Online Privacy



Sylvain Catherine (placement: Wharton, 2018)
Household Finance