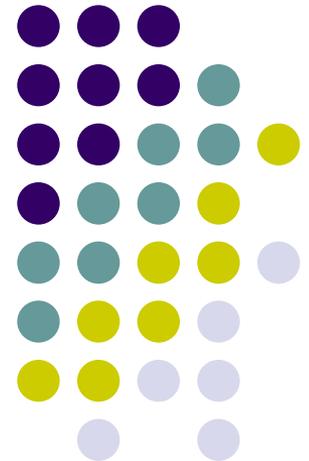


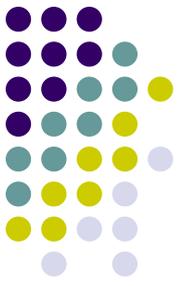
Finance: Economic Lifeblood or Toxin?

Marco Pagano
Università di Napoli Federico II,
CSEF, EIEF and CEPR

Henry Thornton Lecture
Cass Business School
31 October 2012

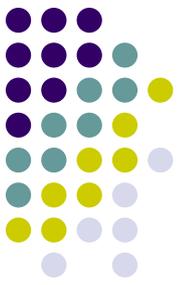


Motivation: two conflicting views of finance



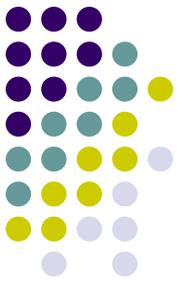
- Typical textbook view: efficient allocation machine, ensuring that
 - capital is put to its best use
 - risks **from** the real economy are shared efficiently
- Current view emerging from the media:
 - culprit of giant misallocation of resources:
 - empty real estate developments in the U.S., Spain and Ireland
 - massive losses on banks' loan portfolios, funded by taxpayers
 - cost of forgone output and employment in the current recession
 - bubbles and crashes: source of risk **for** the real economy
- Both views have been with us for a long time...

Hicks (1969): finance as growth engine



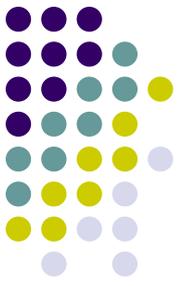
“According to Hicks, the products manufactured during the first decades of the industrial revolution had been invented much earlier. Thus, technological innovation did not spark sustained growth. Many of the existing innovations, however, required large injections and long-run commitments of capital. The critical new ingredient that ignited growth in eighteenth century England was capital market liquidity” (Levine, 1997).

Massive evidence on the finance-growth nexus



- This claim by Hicks has been generalized in later work and validated by massive evidence:
 - “the preponderance of evidence suggests that both financial intermediaries and markets matter for growth and that reverse causality alone is not driving this relationship. Furthermore, theory and evidence imply that better developed financial systems ease external financing constraints facing firm” (Levine, 2005)
- More on this below...

Keynes (1936): finance as potentially harmful “casino”



“As the organization of investment markets improves, the risk of the predominance of speculation does however increase... These tendencies are a scarcely avoidable outcome of our having successfully organized ‘liquid’ investment markets. It is usually agreed that casinos should, in the public interest, be inaccessible and expensive. And perhaps the same is true of Stock Exchanges.” (*General Theory of Employment, Interest and Money*, pp. 158-9)



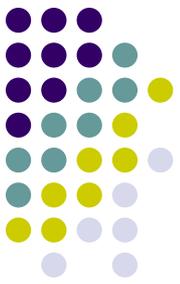
Lineage of Keynes' view

- Minsky: **irrational** behavior of bankers and investors
⇒ credit inherently prone to boom-bust cycles
- Shiller: irrational exuberance ⇒ bubbles in stock and housing markets
- Lately, behavioral finance has built an extensive body of research based on bounded rationality
- Alternative view: finance is dysfunctional because policy and regulation provide perverse **incentives** to market participants – or at least fail to correct them
- If so, why are policy and regulation ill-designed?



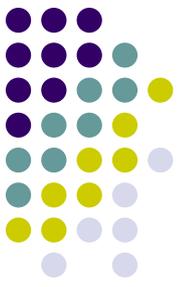
Both views may be right

- In early stages of economic development, financial development (e.g. liberalization of banking industry) may lift financial constraints on firms \Rightarrow expand output: finance as “**lifeblood**”
- Financial development gradually reduces the fraction of constrained firms \Rightarrow in financially developed countries, further increases in credit bring no further increases in output, but induce drop in lending standards, etc. \Rightarrow hypertrophy of finance, instability: finance as “**toxin**”
- Upshot: **non-linear** effect of financial development



Plan of lecture

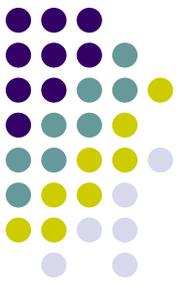
- The bright side: finance as engine of growth
- The dark side: financial hypertrophy
 - Shadow banks and securitization
 - Low interest rates and drop in lending standards
 - Bailouts, excess lending and systemic risk
- Non-linear effects of financial development on:
 - long-run growth
 - bank solvency and systemic stability
- Why did regulation fail? The role of politics



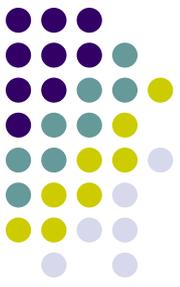
1. The bright side

- What does “financial development” mean?
 - banking liberalization, leading to more competition among incumbents and entry of new banks
 - stock market liberalization, allowing foreigners to invest in home stocks and residents to invest in foreign stocks
 - reforms strengthening investor protection
- Questions: does financial development lead to:
 - mitigating firms’ finance constraints \Rightarrow output expansion, entry?
 - more efficient allocation of funding across firms?

Key issue: sorting out direction of causality



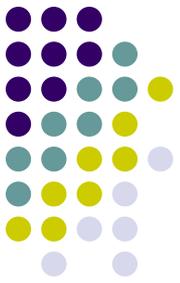
- Three types of data:
 - country-level: King & Levine (1993), Beck, Levine & Loayza (2000), Demirgüç-Kunt & Levine (2001)
 - industry-level: Rajan & Zingales (1998), etc.
 - firm-level: Guiso, Sapienza & Zingales (2004), etc.
- “Quasi-natural experiments”:
 - bank liberalizations: Jayaratne and Strahan (1996) on bank branch liberalization in the U.S. and Bertrand, Schoar & Thesmar on 1985 French Banking Act
 - stock market liberalizations: Henry (2000), Bekaert, Harvey & Lundblad (2005), Gupta & Yuan (2009)



2. The dark side

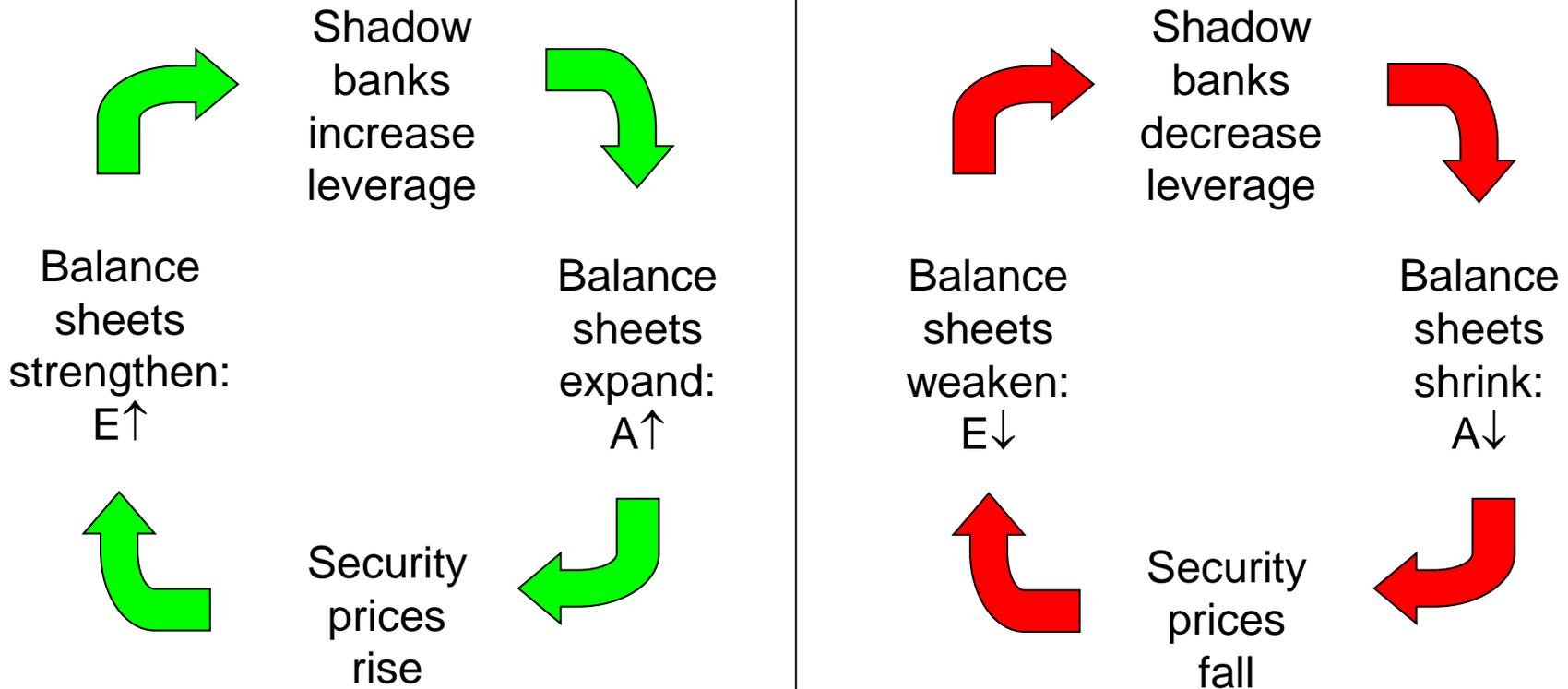
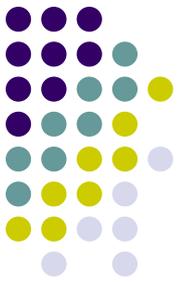
- Until 2007, in the U.S. and Europe there was an over-expansion of finance: abnormal growth in
 - private credit
 - leverage of financial institutions
 - issuance of securitized assets
 - compensation of financial-sector employees
- This “hypertrophy” of finance has gone hand-in-hand with a deterioration of lending standards
- Why? Broadly speaking, for **three reasons...**

2.1. Shadow banks and securitization

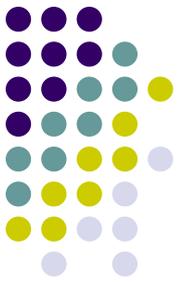


- Development of “shadow banks” in the U.S.: unregulated and funded by securities issuance – especially securitizations – rather deposits:
 - finance companies
 - structured investment vehicles
 - Investment banks
 - government-sponsored agencies (Fannie Mae, etc.)
- Mutual feedback between asset price bubble and leverage of shadow banks

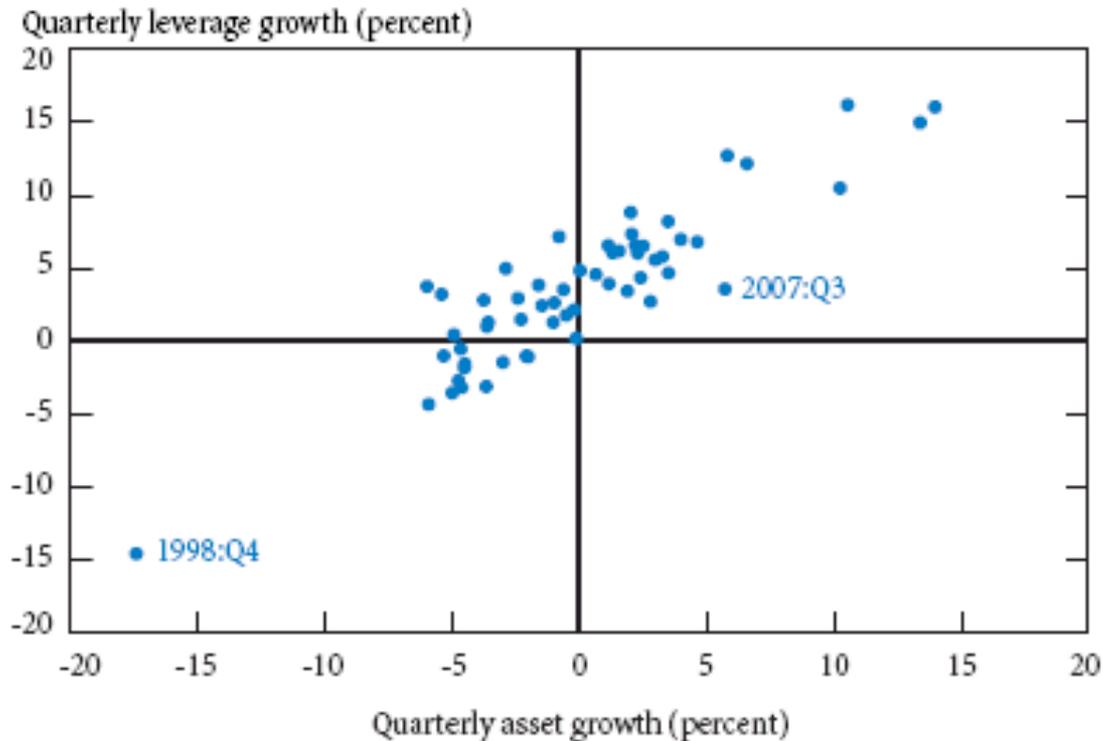
Mutual feedback mechanism, both in boom and in bust



Adrian & Shin (2008): pro-cyclical leverage

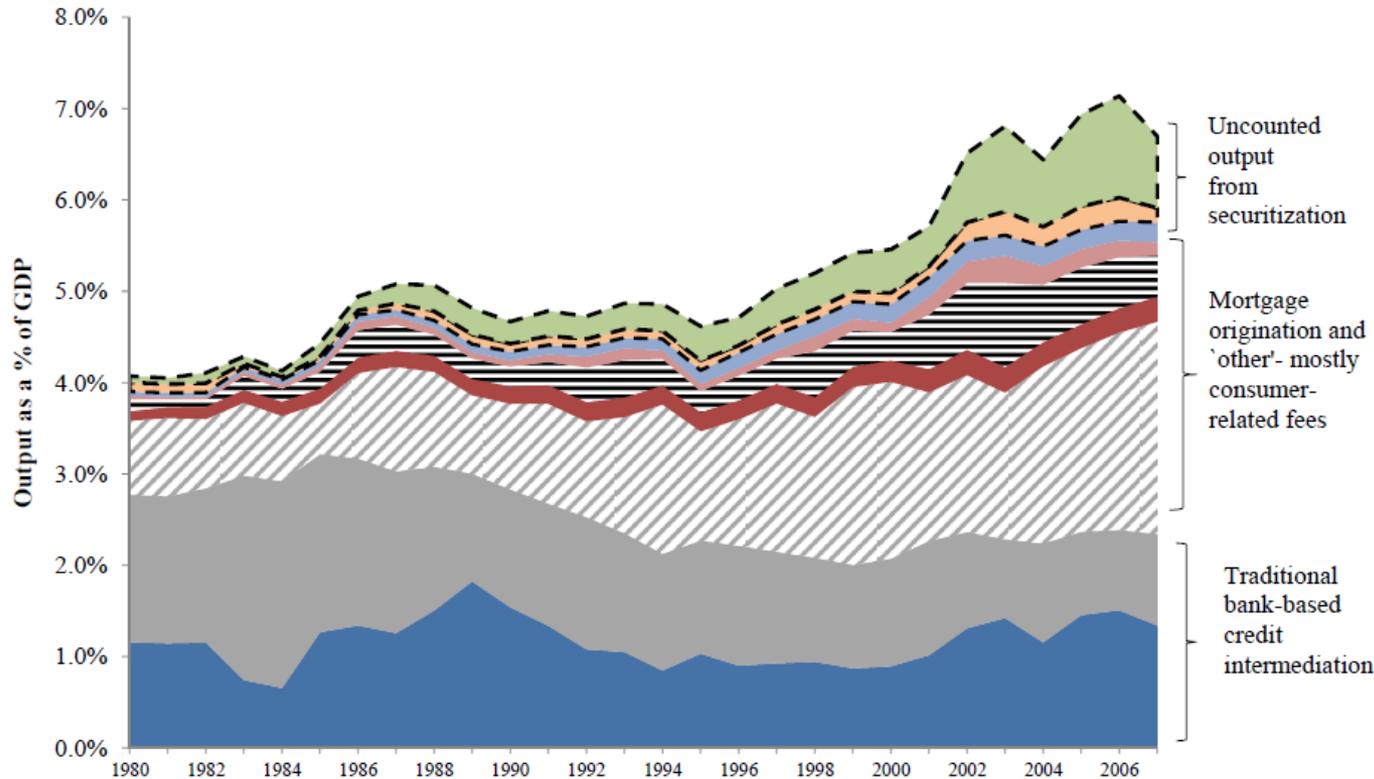


Total Asset Growth and Leverage Growth of U.S. Investment Banks



Drawn from T. Adrian and H. S. Shin, "Liquidity, Monetary Policy, and Financial Cycles", *Current Issues in Economics and Finance*, 2008.

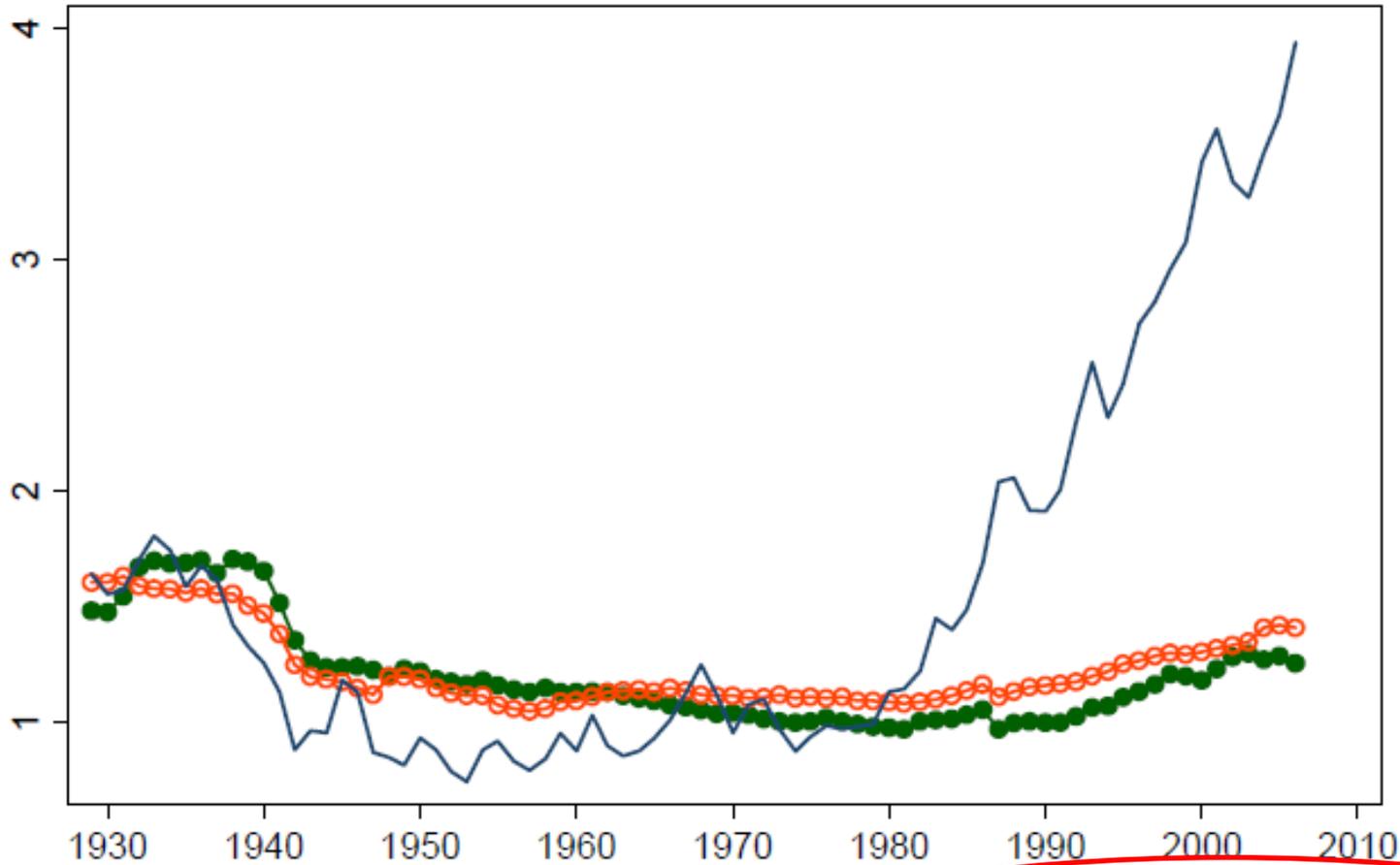
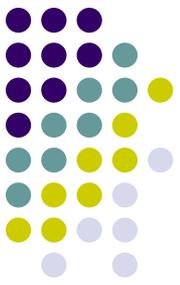
Greenwood & Scharfstein (2012)



Output of U.S. finance industry as % of GDP

- Imputed output loans
- Imputed output deposits
- ▨ Other
- Noninterest income deposit accounts
- = Originations
- Other fees on residential loans
- Credit Card fees
- Securitizations on bank balance sheets
- All other securitization

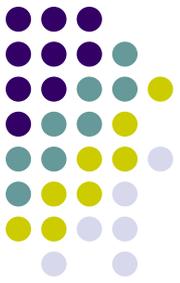
Philippon & Resheff (2008): wage of U.S. finance workers



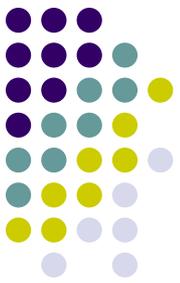
Relative
to non-
farm
private
sector

—●— Credit —○— Insurance — Other Finance = Asset Management and Investment Banks

2.2. Low interest rates and drop in lending standards



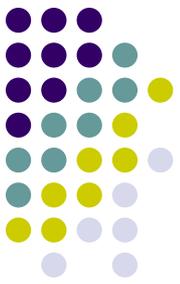
- Shadow banks and securitizations were particularly prominent in the U.S.
- But feedback loop between asset prices and credit expansion and deterioration of credit standards also occurred in Europe: Ireland, Spain, Iceland
- Low interest rates due to lax monetary policy were a common culprit on both sides of the Atlantic:
 - encouraged banks to take larger and riskier bets in the “search for yield”



Theoretical rationale

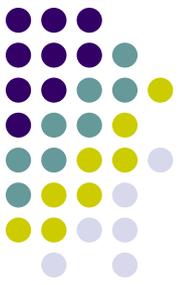
- Acharya & Naqvi (2012): moral hazard within banks induces them to take too much risk, and this incentive is exacerbated by abundant liquidity:
 - Banks keep liquid reserves to face sudden deposit withdrawals
 - If their managers' effort is unobservable, it is optimal to
 - tie their compensation to the loans they make
 - if the bank suffers a liquidity shortfall randomly audit the managers to penalize them if they lent at excessively low rates
 - When the bank is flush with liquidity, loan officers anticipate infrequent audits \Rightarrow underprice loans and lend too much

Evidence about effect of low rates on banks' risk-taking



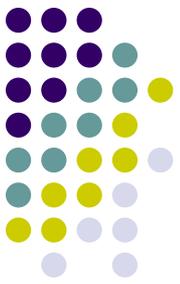
- Dell’Ariccia, Igan & Laeven (2012): lending standards in the U.S. dropped more in areas with greater credit boom and greater increases in house prices
- Maddaloni & Peydrò (2011): survey evidence about determinants of bank lending standards shows that low short-term rates softened euro-area banks’ standards
- Jimenez, Ongena, Peydrò & Saurina (2011) use data on loan contracts and applications to identify effect of loan supply and demand shifts, and find that lower short-term rates induced less capitalized banks to lend more to riskier firms, and engage in greater forbearance

2.3. Systemic bailouts, excess lending and systemic risk

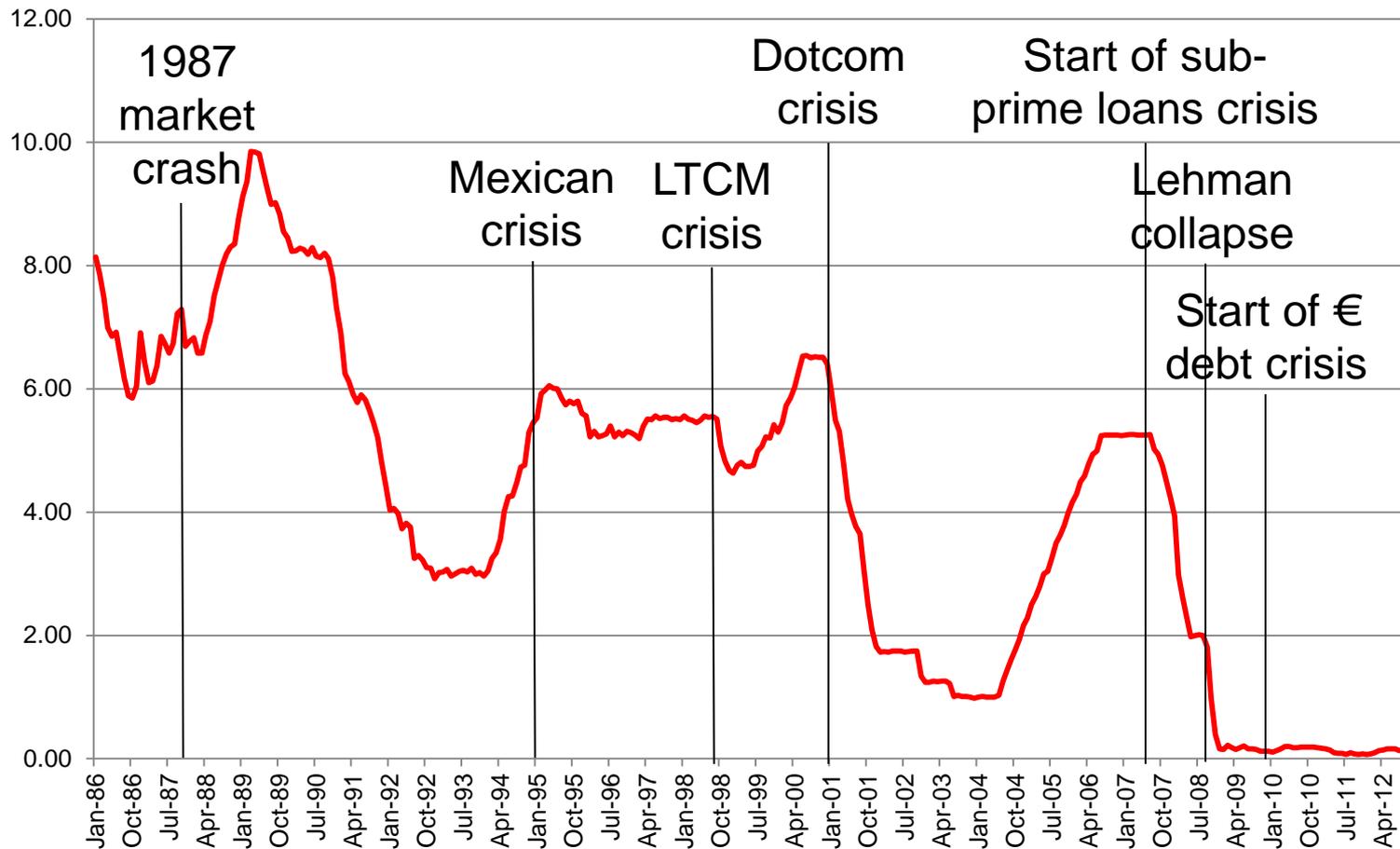


- Previous argument: too low policy rates \Rightarrow excess bank lending, drop in lending standards
- But argument can go also the other way round: **anticipation** of monetary accommodation (and/or bailouts) \Rightarrow excess bank lending, drop in lending standards
- Important: central bank is **captive** of the banks' **collective** excess risk taking decisions (“too many to fail”). Only time consistent policy is excess accommodation!

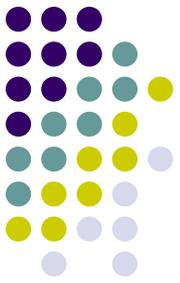
Systemic bailouts: monetary policy and “Greenspan’s put”



Federal Funds Rate

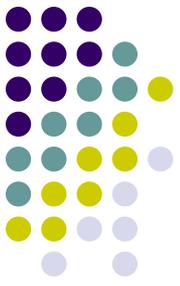


“Too Many To Fail”: theory and evidence

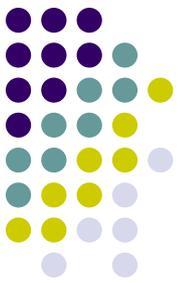


- Farhi and Tirole (2012) formalize this argument:
 - repeated accommodation and/or bailouts create the expectation of further accommodation and/or bailouts in the future: “plant the seed of the next crisis”
 - safety in numbers: banks’ tend to pick correlated bets
- Brown and Dinç (2011) study bank failures in 21 emerging countries in the 1990s: governments are less likely to close a failing bank if the banking system is weak

3. Non-linear effects of financial development



- Hypothesis: “both roles of finance are present, but at different levels of financial development”
- Beyond a threshold, finance turns from “lifeblood” to “toxin”
- Empirically, non-linearity in the relationship between private credit/GDP and:
 - growth rate of value added
 - creditworthiness of banks
 - systemic stability

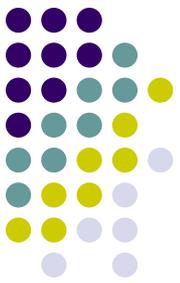


3.1. Long-run growth

- Rajan-Zingales (1998) “interaction approach”:

$$Y_{jc} = \delta(FD_c \times ED_j) + \gamma SHARE_{jc}^{1970} + \mu_j + \mu_c + \varepsilon_{jc}$$

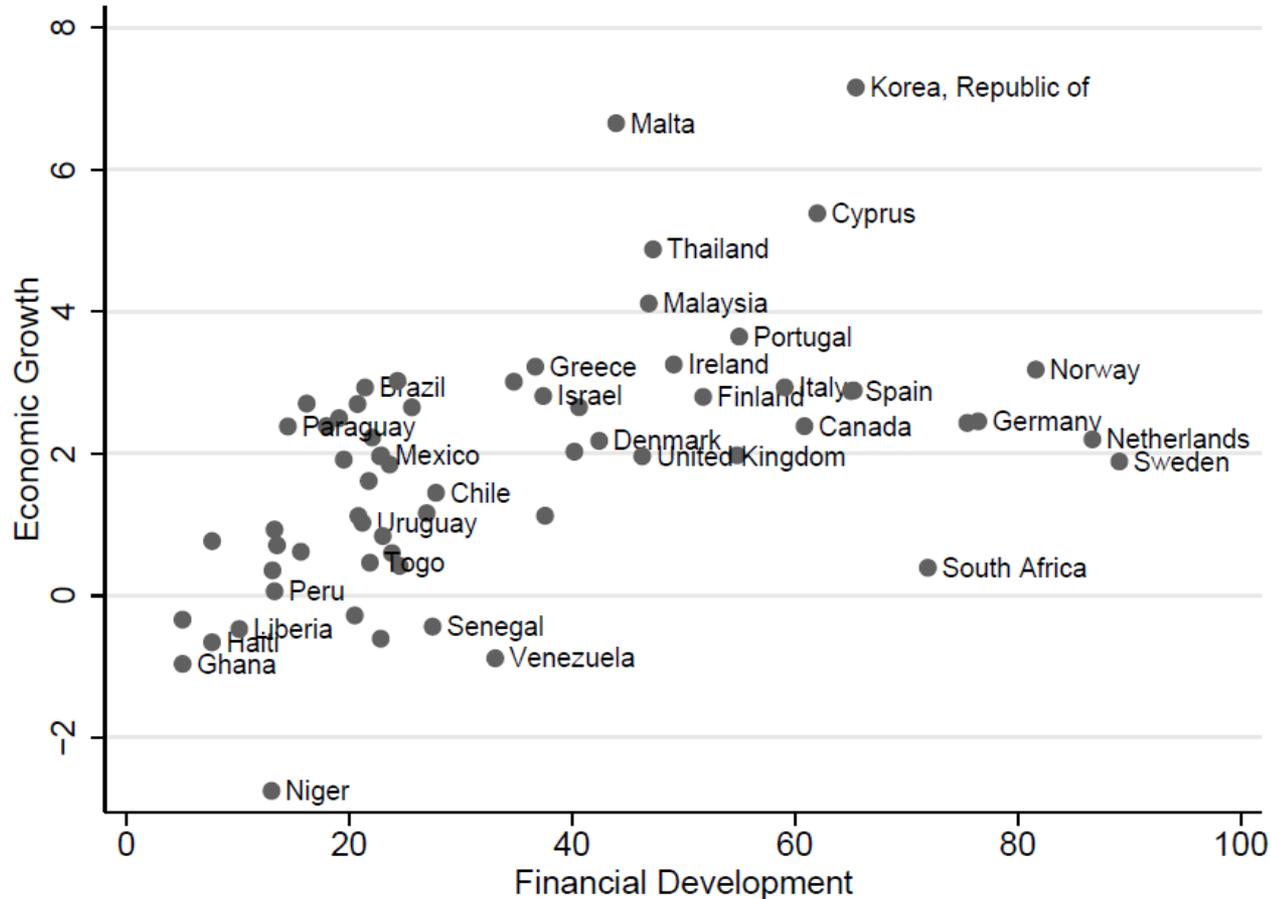
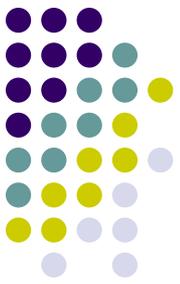
- Y_{jc} : growth of real value added from 1970 to 2003, UNIDO INDSTAT3 2006 data, 28 three-digit industries, 63 countries
- ED_j : external dependence from Rajan & Zingales (1998)
- Financial development (FD_c):
 - private credit/GDP
 - stock market capitalization/GDP (1980–95 averages)



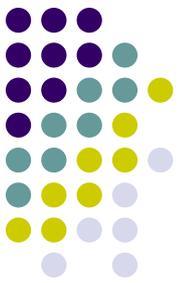
Regression results

<i>Explanatory variable:</i>	<i>All countries</i>		<i>OECD countries</i>		<i>Non-OECD countries</i>	
Industry's share in 1970	-0.156 ^{***} (0.030)	-0.204 ^{***} (0.027)	-0.212 ^{***} (0.054)	-0.212 ^{***} (0.055)	-0.161 ^{***} (0.032)	-0.213 ^{***} (0.030)
External dependence × stock market capitalization (80-95)	0.026* (0.014)		-0.022 (0.018)		0.037** (0.016)	
External dependence × claims of banks and other fin. inst. (80-95)		0.034** (0.016)		-0.011 (0.011)		0.091** (0.036)
Observations	1533	1637	628	628	905	1009
R ²	0.32	0.33	0.48	0.48	0.30	0.32

Graphically



Economic Growth is the growth rate of real GDP and Financial Development is total private credit/GDP. Data sources: WBI and Beck & Demirgüç-Kunt (2009).



3.2. Bank solvency

Dependent variable: Z-risk = (banks' ROA + equity/assets)/ σ (ROA)

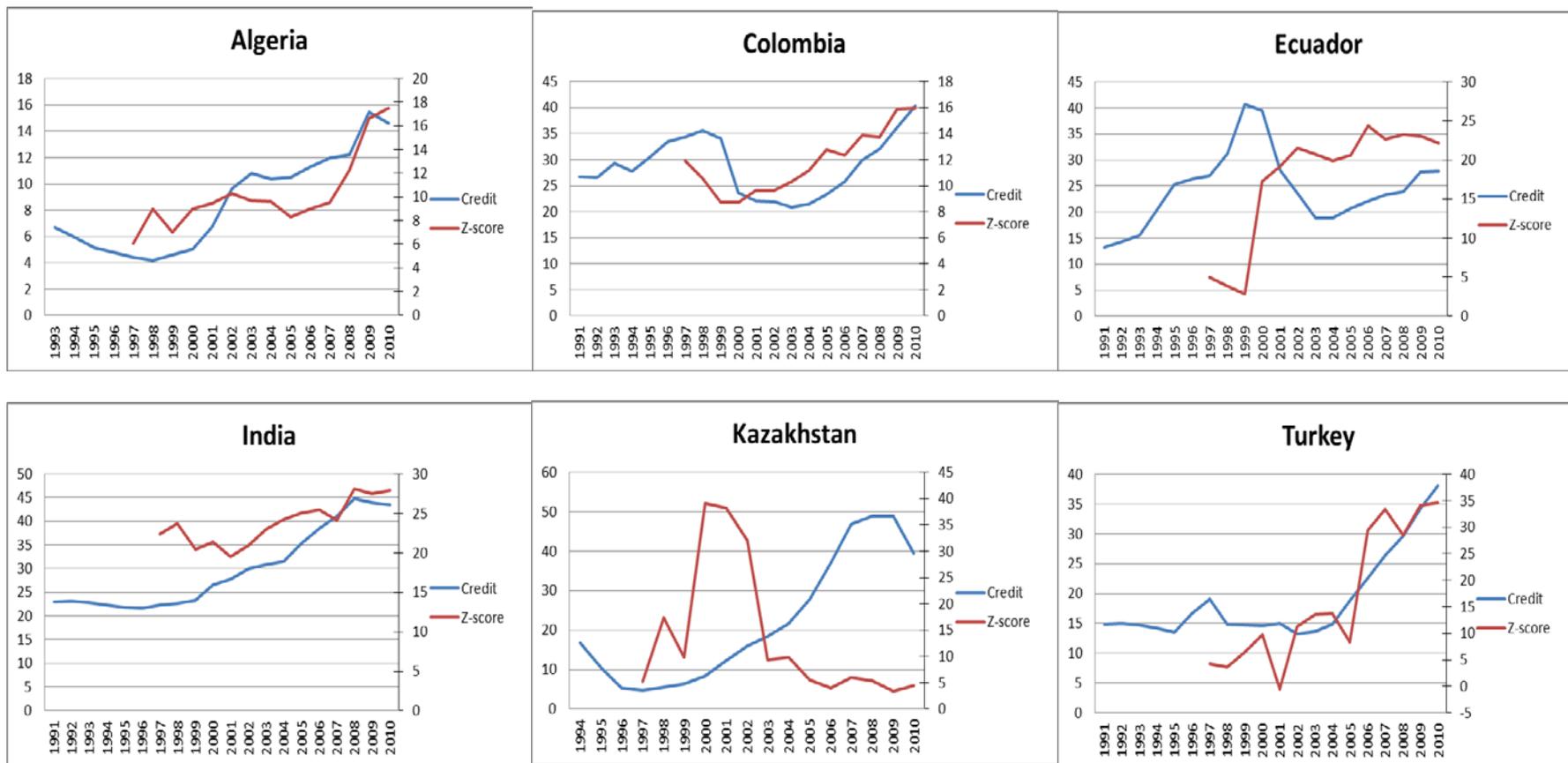
Data from Financial Structure Dataset, sample period: at most 1997-2010

Explanatory variable:	All countries	Countries with credit/GDP <50%	Countries with credit/GDP >50%
Credit/GDP	-0.111*** (0.014)	-0.055 (0.055)	-0.116*** (0.014)
Country and year fixed effects	Yes	Yes	Yes
Observations	2,048	1073	975
Countries	166	88	78
R ²	0.61	0.51	0.64

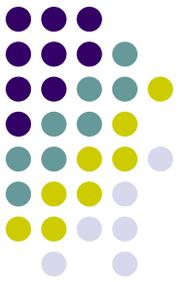
Bank solvency and credit/GDP in selected low-credit/GDP countries



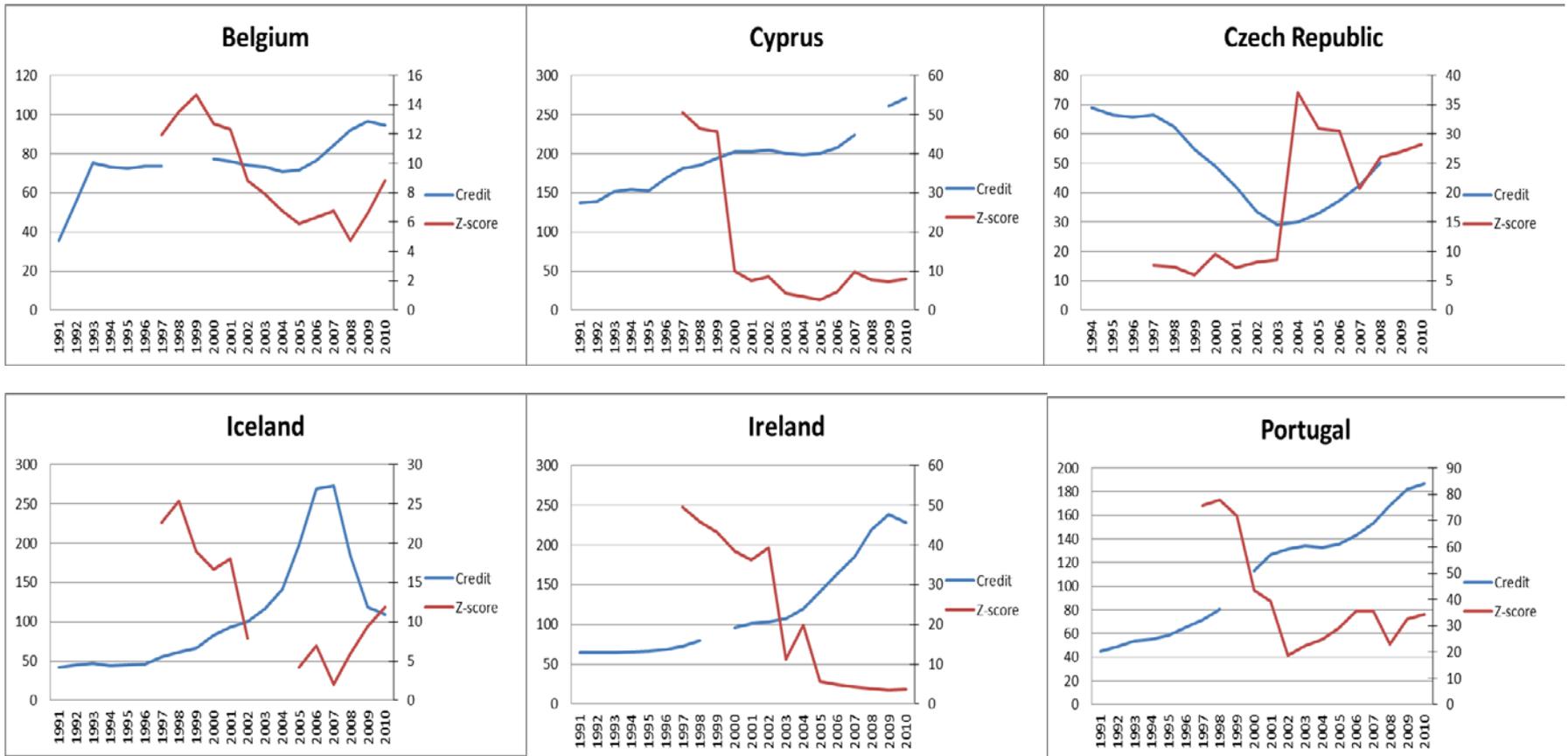
$$\text{Z-risk} = (\text{banks' ROA} + \text{equity/assets}) / \sigma(\text{ROA})$$

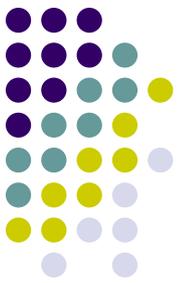


Bank solvency and credit/GDP in selected high-credit/GDP countries



$$\text{Z-risk} = (\text{banks' ROA} + \text{equity/assets}) / \sigma(\text{ROA})$$





3.3. Systemic instability

Dependent variable: aggregate capital shortfall of banks/ capitalization

Source for the dependent variable: VLab, sample period: at most 2000-11

Explanatory variable:	All countries	Countries with credit/GDP <50%	Countries with credit/GDP >50%
Credit/GDP	0.009*** (0.003)	-0.024 (0.033)	0.0078** (0.002)
Country and year fixed effects	Yes	Yes	Yes
Observations	353	51	302
Countries	46	10	36
R ²	0.44	0.46	0.52



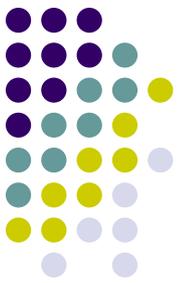
4. Why did regulation fail?

- If the “toxic” side of finance emerges when it expands beyond a threshold level, it is natural to ask
 - why regulation failed to prevent its “hypertrophy”
 - which specific aspects of regulation failed
- In many cases, the problem was regulatory inertia, or clueless extension of rules “by analogy” to new settings: “sins by omission”
- In others, it was inappropriate changes in rules: “sins by commission”



4.1. “Sins of omission”

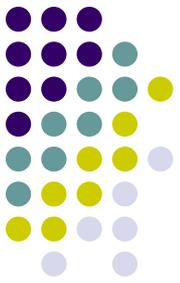
- Inaction vis-à-vis fast financial innovation:
 - Example 1: extensive regulatory delegation to credit ratings agencies. These had been effective in the corporate bond market, but not well suited for the more complex asset-backed securities
 - Example 2: no oversight of LIBOR setting, even after it became the reference rate for a huge amount of financial contracts, creating conflicts of interest for banks making LIBOR submissions
- A variant of Goodhart’s Law at work...



4.2. “Sins of commission”

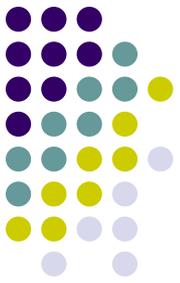
- Here politics played a key role:
 - In the U.S., political determination to support widespread homeownership induced
 - government-backed agencies to guarantee high-risk loans
 - in 2001 the FDIC to lower banks’ capital requirement for investments in MBSs and CDOs from 8% to 1.6%
 - In Europe, political will to support demand for public debt induced the EU commission to allow banks to apply a zero risk weight on *all* their euro-area sovereign debt holdings in setting their capital ratios

Iceland



- Benediktsdottir, Danielsson & Zoega (2011):
 - politicians provided key support to transform a tiny fishing and aluminum-producing economy into a platform for international banking
 - privatized banks by selling them to their cronies, and allowed them to borrow hugely in international markets with the implicit government guarantee
 - failed to equip the country with supervisory authorities adequate to the scale of the banks

Spain



- The managers of the Cajas, regional politicians and real estate developers formed a powerful social coalition that channeled much credit towards the construction business before the crisis
- Cuñat & Garicano (2009): Cajas controlled by politically appointed managers lent more to real estate developers and performed worse in the crisis
- Garicano (2012): these political connections also explain the “supervisory failure of the Banco de España”, i.e. excessive forbearance of the Cajas



Conclusions

- In assessing the merits and faults of finance, economists often tend to be excessively influenced by recent events: currently, the crisis
- Instead, we should think of the overall picture
- Even if now it is unpopular, finance has given much support to growth and efficiency
- Our task: ask what can lead it to become hypertrophic and “toxic”, and when this happens
- This lecture: just a first step in this direction