

# The Redistributive Effects of Financial Deregulation<sup>1</sup>

Anton Korinek

Jonathan Kreamer

Johns Hopkins and NBER

University of Maryland

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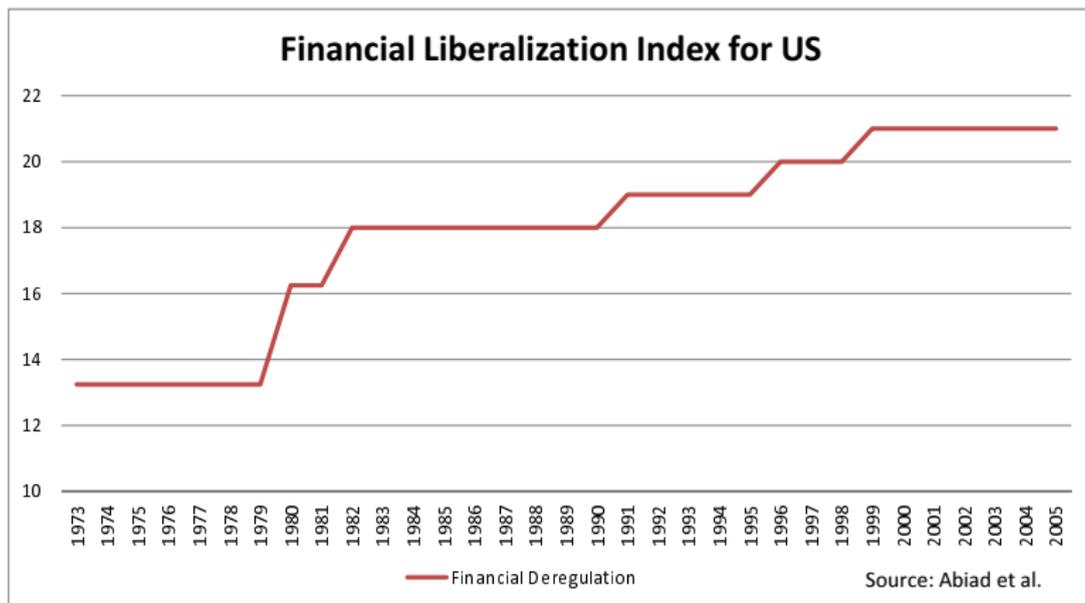
<sup>1</sup> Financial support from INET is gratefully acknowledged.

# Motivation

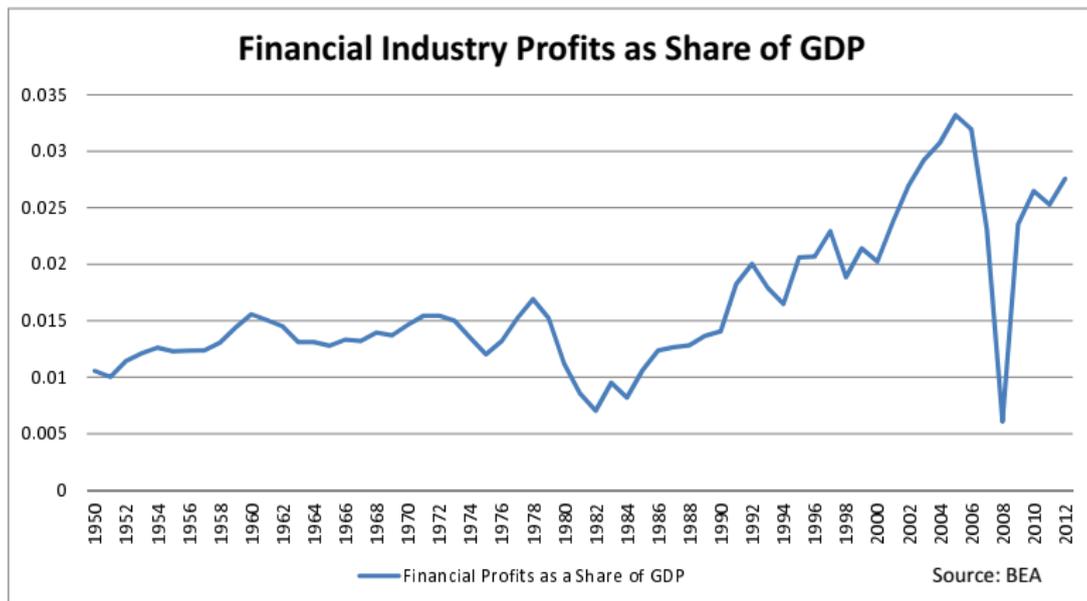
## Trends over the past decades:

- financial deregulation
- increasing 'size' of financial sector
- crises with devastating effects on real economy

# Motivation



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# Motivation

## **Deregulation allows financial sector to:**

- take on greater risk
- earn higher expected return

## **BUT: financial risk-taking can hurt the real economy:**

- losses in financial sector capital lead to credit crunch
- steep declines in output, wage earnings, etc.  
= negative externalities on the real economy

→ **Led to calls from Main Street for tighter regulation**

→ **Fiercely opposed by Wall Street**

# Further Motivation



# Key Questions

**Objective of this paper:** develop a formal model to analyze:

- How does risk-taking by banks affect the *distribution of surplus* in the economy?
- What are the *distributive effects* of different financial policies?
  - ▶ restrictions on risk-taking
  - ▶ bailouts

# Key Considerations

## 1 Financial sector is special:

- ▶ exclusive in its ability to intermediate capital to real economy  
→ at the heart of a modern economy

## 2 Financial markets are incomplete:

- ▶ banks need to have skin in the game  
→ bank capital matters
- ▶ individuals cannot perfectly share risk  
→ redistributions matter

# Key Results

- ➊ Risk-taking by the financial sector leads to:
  - ▶ externalities on the real economy when downside risk materializes (credit crunch, output collapse, ...)
  - ▶ financial sector does not internalize these when trading off risk vs. return

→ Wall Street prefers more risk than Main Street

→ **distributive conflict**
- ➋ Channels that affect equilibrium risk-taking:
  - ▶ financial deregulation
  - ▶ financial innovation
  - ▶ agency problems
  - ▶ market power
  - ▶ bailouts

→ **shift surplus from Main Street to Wall Street**

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# Benchmark Model

## Benchmark model:

- two agents:
  - ▶ bankers (Wall Street): allocate capital
  - ▶ workers (Main Street): provide labor, own firms
- linear utility
- single homogenous good
- three time periods  $t = 0, 1, 2$

# Benchmark Model

## Bankers:

- Period 0:
  - ▶ born with 1 unit of capital
  - ▶ invest fraction  $x \in [0, 1]$  in risky return  $\tilde{A}$  with  $E[\tilde{A}] > 1$
  - ▶ remainder  $1 - x$  earns safe return 1
- Period 1:
  - ▶ return shock  $\tilde{A}$  determines bank equity:

$$e = \tilde{A}x + (1 - x)$$

- ▶ raise deposits  $d$  at deposit rate  $r$
- ▶ rent out  $k = d + e$  at lending rate  $R$
- ▶ financial constraint as e.g. in Holmstrom-Tirole:

$$rd \leq \phi Rk$$

- Period 2 payoff:

$$\Pi = Rk - rd$$

# Benchmark Model

## Workers:

- Period 1:
  - ▶ born with large endowment of good
  - ▶ supply  $\ell = 1$  unit of labor at wage  $w$  to firms
  - ▶ supply  $d$  units of capital at deposit rate  $r$  to bankers
- Period 2:
  - ▶ receive wage bill  $w\ell$ , return on deposits  $rd$  and consume

## Firms: collectively owned by workers

- Period 1:
  - ▶ rent capital  $k$  from banks at price  $R$
  - ▶ hire labor  $\ell$  from workers at wage  $w$
- Period 2:
  - ▶ produce output  $F(k, \ell) = Ak^\alpha \ell^{1-\alpha}$
  - ▶ pay banks, workers  $\rightarrow$  zero profits

# First-Best

## Maximize Total Surplus

- Employment  $\ell = 1$
- Capital investment  $k^*$  s.t.  $F_k(k^*, 1) = 1$
- Risk-taking  $x^* = 1$  since  $E[\tilde{A}] > 1$

# Laissez-Faire Equilibrium: Backward Induction

**Period 1 and 2 Allocations** for given bank equity  $e$ :

- First-best level of capital intermediation is feasible iff

$$e \geq e^* := (1 - \phi)k^*$$

- If  $e < e^*$ , then  $k(e)$  is solution to implicit equation

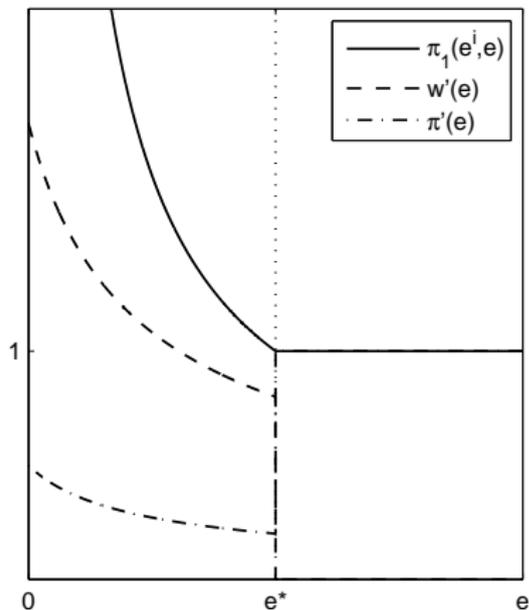
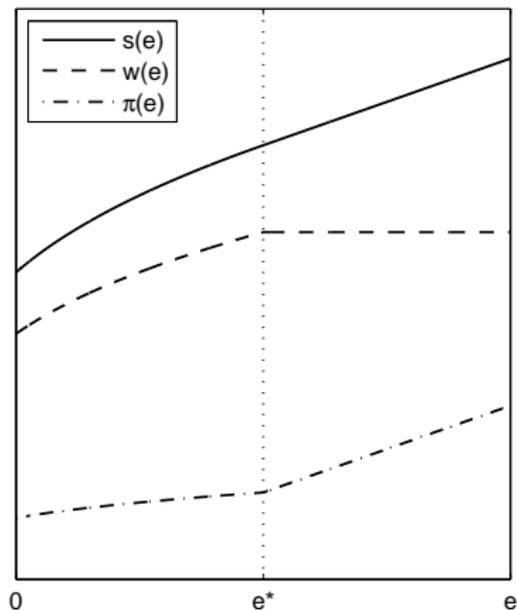
$$k = e + \phi k F_k(k, 1)$$

- In summary,

$$k'(e) = \begin{cases} \frac{1}{1 - \phi \alpha F_k} > 1 & \text{for } e < e^* \\ 0 & \text{for } e \geq e^* \end{cases}$$

→ bank equity matters for real economy  
when financial constraint is binding

# Marginal Value of Bank Equity



# Period 0 Problem

- In period 0, bankers choose  $x^i \in [0, 1]$  to solve:

$$\max_{x^i \in [0, 1], e^i} \Pi^i(x^i; x) = E[\pi(e^i, e)] \quad \text{s.t.} \quad e^i = (1 - x^i) + \tilde{A}x^i$$

- Equilibrium  $x^{LF}$  satisfies

$$E[\pi_1(e^i, e)(\tilde{A} - 1)] = 0$$

- Analogous expressions for workers  $x^W$  and bankers  $x^B$  collectively

# Pareto Frontier

## Proposition (Pareto Frontier)

(i) *The preferred risk allocations of workers and bankers satisfy*

$$x^W < x^B$$

(ii) *Over the interval  $[x^W, x^B]$ ,*

- *worker welfare  $W(x)$  is strictly decreasing in  $x$*
- *banker welfare  $\Pi(x)$  is strictly increasing in  $x$*

(iii) *Equilibrium risk-taking satisfies:*

- *bankers collectively prefer  $x^B > x^{LF}$*
- *if  $e^* \leq 1$ , workers prefer  $x^W < x^{LF}$*

# Pareto Frontier

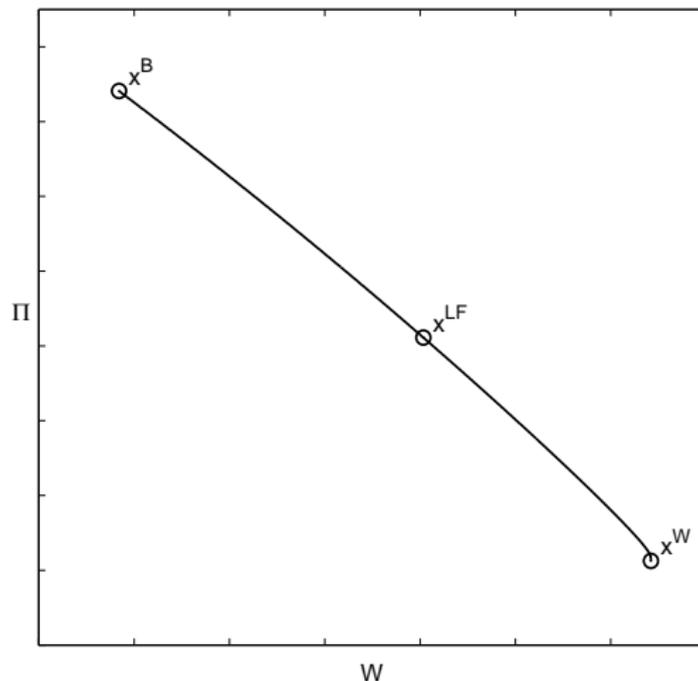


Figure: Risk-taking by the financial sector has distributive effects

# Intuition for Distributive Conflict

## Consider two polar cases:

### 1 Model without financial constraint:

- ▶ financial intermediation does not depend on bank capital (capital imposes no pecuniary externalities)

→ no distributive conflict over risk-taking

### 2 Model of capitalists and workers (no intermediation/storage):

- ▶ capitalists earn profit  $\pi = \alpha F(e, 1)$
- ▶ workers earn wage  $w = (1 - \alpha)F(e, 1)$   
(capital imposes symmetric pecuniary externalities on wages)

→ no distributive conflict

## Our framework:

- asymmetric externalities on the downside, but not upside
- occasionally binding constraints lead to redistributive conflict

# Financial Regulation

## Two simple forms of regulation of risk-taking:

- quantity intervention  $x = \bar{x}$  or ceiling  $x \leq \bar{x}$
- tax on risk-taking  $\tau^x$

### Corollary (Financial Regulation)

*(i) A quantity intervention  $x = \bar{x}$  or a tax  $\tau^x$  can implement any risk allocation on the Pareto frontier*

*(ii) A risk ceiling  $x \leq \bar{x}$  implements any allocation  $x^R \leq x^{LF}$*

*(iii) Lowering  $x$  increases worker welfare and reduces banker welfare*

# Pareto-Improving Deregulation?

- needs to compensate workers for higher crisis risk
- uncontingent transfer at  $t = 0$  or 1 doesn't work:  
→ tightens constraint in low states
  - uncontingent transfer at  $t = 2$ :  
emulates LT debt stake, substitutes for limited pledgeability
  - contingent transfer in good states of  $t = 1$ :  
emulates equity stake, substitutes for missing risk markets  
→ could be implemented as excess profit tax/bonus tax

**Deregulation can only create Pareto-improvement  
if we can overcome one of the two financial imperfections**

# Equilibrium Risk-Taking

## Channels that affect equilibrium risk-taking:

- financial deregulation
- financial innovation
- agency problems
- market power
- bailouts

→ **shift surplus from Main Street to Wall Street**

# Bailouts

## Ex-Post:

- bailouts substitute for incomplete insurance markets
- but involve transfer from workers to bankers

## Ex-Ante:

- bailouts increase incentive for risk-taking (“moral hazard”)
- this exacerbates negative externalities on Main Street
- ex-ante effects often outweigh ex-post effects

→ bailout guarantees cause redistribution even if no monetary cost

# Pareto Frontier

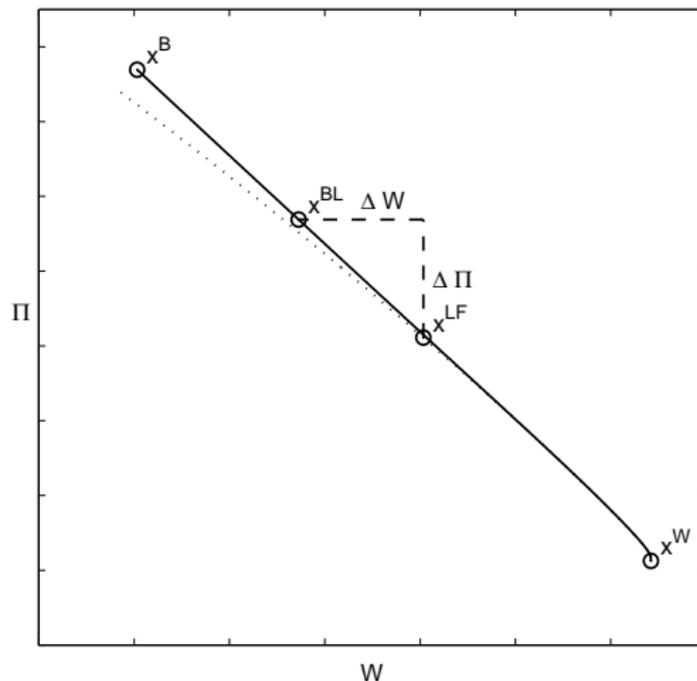


Figure: Bailouts are akin to “banker-biased” technological progress

# Conclusions

- Level of financial risk-taking affects the real economy:
  - ▶ bank capital has characteristics of a public good
  - ▶ low bank capital has negative externalities

→ distributive conflict

- Financial risk-taking is affected by:
  - 1 financial regulation/deregulation
  - 2 financial innovation
  - 3 agency problems
  - 4 market power
  - 5 government safety nets

→ exacerbate distributive conflict