

Global Financial Systems

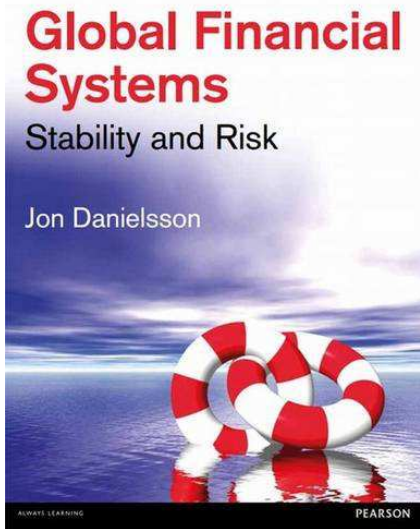
Chapter 14

Bailouts

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Book and slides



- Updated versions of the slides can be downloaded from the book web page www.globalfinancialsystems.org

The \$50 billion bailout

- Imagine you are the finance minister of your country
- You just received the CEO of your biggest bank
- She told you that her bank was failing, and if you did not give it \$50 billion by the end of business today, the bank would go bust
- And that would cause a systemic crisis
- Do you agree to the ~~request~~ demand?
- Or call the bluff?

AIG

<https://www.youtube.com/watch?v=wz-PtEJEaqY>

Successful and unsuccessful bailouts

Sweden 1992

- Good bank — bad bank
- Crisis resolution costs around 4% of GDP
- Some dodgy assets valuable
- Good banks sold
- Key features
 1. bailout never threatened the solvency of the Swedish state, the Standard & Poors rating on foreign debt dropped to AA+ from AAA and recovered quickly back to AAA
 2. shareholders lost out, there was no bailout of bank owners

Ireland 2008

- Classic problem: real estate bubble and overextended banking system in general
- Like Sweden
- Ireland had the second largest banking system in Europe by assets over GDP = 929%
- Had sharply increasing total gross debt/GDP

but...

- State guarantee for all bank obligations, not taking over shareholders' equity
- Supposed to restore faith in its financial system
- Private debt to the sovereign, partly via ECB
- Role of EU
- Now feels it was treated excessively harshly as now bail-ins are used elsewhere
- The government apparently tried to use bail-ins at the time, but was rebuffed by the ECB

Spain and Italy in 2017

- Bank Popular Spain summer 2017, taken over by Santander at no cost to the Spanish taxpayer
- Italy spent €17 billion it can ill afford to rescue Veneto Banca and Banca Popolare di Vicenza

later

- CS and SVB

Lending of last resort — LOLR

A theme throughout history

- The authorities announce the banks are on their own
- The banks proclaim they never will need government help
- The right-wing — pro-market — says the market should decide winners and losers, the government has no role — think of moral hazard
- The left wing says the government should help poor people not bail out rich bankers
- Still...
- After all, we want the banks to take risk — a country without risk-taking does not grow

After a banking crisis happens

- The costs of banking crises so significantly outweigh the private costs of bailouts
- Becomes very difficult not to provide bailouts
- Of course, the banks know this and are encouraged to engage in irresponsible behaviour
- Consequently, we are better off having an orderly regime for dealing with liquidity provisions and bailouts

19th century finance

- London was the main financial centre of the world — (well, the only one)
- It was incredibly corrupt
- The directors of the biggest failed bank (next slide) hired the government's lawyer to defend them
- Essentially, no law applied to finance
 1. Except for theft and fraud, which got you executed
- Private money, public money and institution money mixed easily
- The Bank of England (BoE) was a private, profit-making institution competing with other banks

Overend and Gurney (O&G)

- The biggest domestic bank in the UK
- Decided to go into what now would be called junk bonds
- Mostly connected to the high-tech industry of the time — shipping
- Started as a proprietorship
- When it was about to default, it sold shares, claiming it held no bad debt!
- That claim became the foundation for an unsuccessful private prosecution

- After it failed, it sought help from the BoE
- BoE refused to bail out O&G, resulting in widespread panic
- This led to the first modern financial stability regulations — *lending of last resort* (LOLR)

What happened to the family

- The bank had the name of Overend and Gurney, with a 3rd partner having the name of Barclay, with many other partners connected by family
- Even though it was a partnership with unlimited liability and the bank was bankrupt
 - no family member became destitute
 - and soon afterwards the family became the 2nd biggest shareholder in a new bank with the family name — Barclays bank
 - with the last surviving family member dying a decade ago, having been the biggest shareholder of Barclays bank

Bagehot and lending of last resort (LOLR)

The Bank studied how they should respond to future crises, and the editor of the Economist and future Bank employee *Walter Bagehot*, published a white paper in 1873 on the topic, establishing the three principles of LOLR

1. the central bank should lend freely;
2. at a penal rate of interest;
3. on good banking securities.

Bailouts

Distinction between illiquidity and insolvency

- A firm that is insolvent is bankrupt. Capital has been exhausted
- Financial institutions are closed before $CAR < 8\%$
- Pari passu
- Difficult to distinguish between illiquidity and insolvency
- Before a crisis, a bank is considered solid
- Now it can't monetize assets thought otherwise, safe
- Is this bank insolvent or only illiquid?
- It can be impossible to make the distinction in real-time
- For this reason, the authorities often prefer to err on the side of caution

What are bailouts?

- An entity is provided with funds in order to prevent bankruptcy
- Here, a special case of bailouts where the recipient of the funds is a financial institution and the *provider is the government*
- One might think that it should only be used when an institution's failure threatens the financial system since
- Ordinarily, the government has special resolution mechanisms for dealing with failing firms that do not involve bailouts
- But (next page)

Banks are different when they fail

- Society depends on banks continuing to operate
- Normal bankruptcy processes are slow
- The distinction between a bank that goes bankrupt with enormous costs to society and one that survives thanks to an almost costless liquidity guarantee can be very small
- The government's objective is to ensure uninterrupted banking services
- And the protection of important, or politically important, entities, such as poor elderly depositors, pension funds and insurance companies
- The middle classes demand bailouts

Main categories of bailouts

1. Direct bailouts — funds provided by the government directly to a failing bank, as a loan or grant or guarantee — usually done by the treasury, but could be done by the central bank
2. Lending of last resort — done by the central bank
3. Liquidity provision (lowering of interest rates and increase in money supply) — done by the central bank
 - The distinction between the three may not be clear, and the same bailout could fall into more than one category

Direct bailouts

- We discuss the preference ordering at the end of the section
- Which do you think the banks prefer and which do the taxpayers prefer?
 1. Equity injection
 2. Preference shares
 3. Loans
 4. Loan guarantees

The pricing of loan guarantees and purchases

adverse selection — “a win-win-win” or “a win-win-lose proposal: the banks win, investors win, and taxpayers lose.”

- When the government offers to buy/underwrite assets from institutions in difficulty
- They have an incentive to first sell to the government the *worst* assets — *adverse selection* (legal cases now)
- And creditors believing an institution will be saved or is too big to fail will not worry too much about asset quality

Liquidity provision

- Central bank directly increases the money supply in response to some crisis event
- Frequently used tool by the Fed in recent years, for example, in reaction to the LTCM, 9/11 attacks, etc.
- '*Greenspan put*'
- Can also be quite damaging and costly
 1. inflationary
 2. moral hazard

Lending of last resort — LOLR

- During a crisis, a financial institution, or every institution, may find access to cash severely curtailed
- Normally safe securities — e.g. short-dated government bonds — cannot be monetized
- This causes a liquidity crisis, causing widespread failures and economic distress
- The idea behind LOLR is that a single organization — typically the central bank — accepts “safe” securities as collateral for cash
- After all, the central bank prints money

What assets to accept as collateral

- Ideally, only high-quality assets, but in a crisis, the market may be unwilling to accept assets that normally would be easy to pledge

“We lent by every possible means and in modes we have never adopted before; we took in stock on security, we purchased Exchequer bills, we made advances on Exchequer bills, we not only discounted outright, but we made advances on the deposit of bills of exchange to an immense amount, in short, by every possible means consistent with the safety of the Bank. Seeing the dreadful state in which the public was, we rendered every assistance in our power.”

Jeremiah Harman, 1825

Visibility

- Often do LOLR without anybody knowing, while a direct bailout is highly visible (UK and US crisis example)
- Banks prefer to fund themselves via the interbank market rather than the central bank because of the reputational costs
- If a bank requires assistance from the central bank, this signals that its liquidity needs cannot be satisfied on the wholesale interbank markets — *stigma effect* (next slide)

The stigma effect

- Reputation risk
- RFC in Great Depression
- Keep a LOLR operation secret
- Forcing all banks to borrow from the central bank, regardless of whether they need it or not?

ECB

- Significant longer-term assistance to banks
- Blurs the distinction between a direct bailout and LOLR
- A bank that has needed support for many years is no longer facing liquidity problems. Rather it is more likely to be insolvent
- Zombies?
- If the authorities want to help the banks, it would be better to recognize the problems and directly use taxpayers' money to recapitalize them
- Using the ECB in this manner is not appropriate

Direct bailouts and preference ordering

- Banks and taxpayers have the opposite preference ordering
 1. Equity injection
 2. Preference shares
 3. Loans
 4. Loan guarantees

Alternatives

Bail-ins

- In a crisis, force creditors of a large, systemically important bank, rather than taxpayers, to assume losses if the bank gets into difficulty — AT1
- At a time when a bank is still operating as a going concern, preventing failure
- Overseen by the regulators *rather than bankruptcy courts*
- There is no automatic triggers for the bail-in, instead regulators decide implement the bail-in, presumably right before collapse — *one minute to midnight*
- That prevents banks from *gaming the triggers*, and investors from speculating activation

- The idea of bail-ins is controversial, and some banks fear it may push up their funding costs
- Bail-ins do have several benefits
 1. prevent bankruptcies and thus both the bankruptcy courts and, more importantly cross-border issues in resolution
 2. shields taxpayers from having to bail out banks
- May work for individual failures, but not if many fail
- A cornerstone of EU approaches from 2013 before taxpayer was on the hook

Forbearance

- Were the regulators refrain from using their full powers to intervene, for example, to to close an insolvent bank
- Or where we ignore MTM and focus on book value
- “Evergreening”, “extend and pretend” or “delay and pray”
- Earn its way out of difficulty
- Makes banks look arbitrarily healthy
- Reduces the overall credit in the economy, holding back economic growth.
- Normally would be discouraged by banking supervisors
- Zombie banking
- Japan, China

Bailouts and Moral Hazard

- Demand for government bailouts of private institutions can be very difficult to resist
- Not agreeing to a bailout could result in a small shock becoming a big crisis
- Vexing for the taxpayer to line the pockets of the bankers profiting from the bailouts
- Just encourages the bankers to take more risk since they will be bailed out
- Bailouts create moral hazard

Moral hazard

- Banks receive unpriced government guarantees
- Externalities from the failure of a large bank outweigh moral hazard in the short term
- Risk return trade-off between the benefits of preventing panic now and the costs of inducing riskier activity later
- Banks know this and are incentivized to take on too much risk when things are good in the full expectation of a bailout when things are bad
- The bigger, the more dangerous, the worse run and more interconnected a financial institution is, the more likely it is to be bailed out

Morality of bailing out bankers

- Transfer from the relatively poor to the very rich
- After AIG, employees in the CDS division demanded and got bonuses in the millions of dollars for solving the mess they created
- Some of them got such retention bonuses and left
- Following a public outcry, the chief executive acted surprised: “*stunned people such that our wind-down has slowed down*”
- The BBC interviewed a trader who said:
‘he had been looking forward to a recession in order to profit from it. “I dream of another moment like this,” adding: “Anybody can actually make money. It’s an opportunity.”’

- In bailing out, there are serious moral issues
- Politicians need to consider the moral dimension also
- One might expect executives and shareholders who enjoy convex payoffs, all the benefits but limited downside, should be penalized severely in case of failure
- But are they?

Political implications

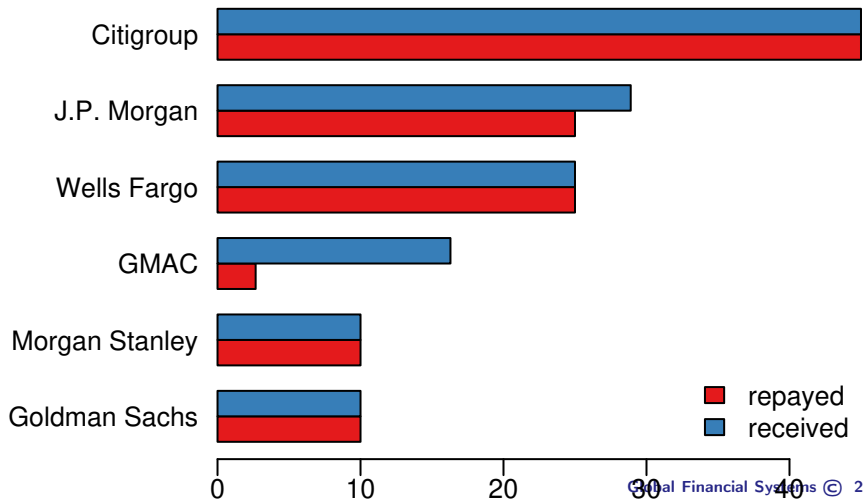
- The perception that the government bailed out corrupt and incompetent bankers in 2008 — very wealthy people — created enormous political backlash
- It is one of the main drivers of the population we have seen since
- The US government bailing out the SVB depositors (to be discussed later) could have important consequences in the next presidential election

Bailouts from 2007

TARP

- October 2008
- Originally \$700 billion
- Eventually \$432 billion
- Cost to taxpayers may be \$19 billion,
- Small amount suggests that the crisis in the US was about liquidity, not solvency
- Still moral hazard

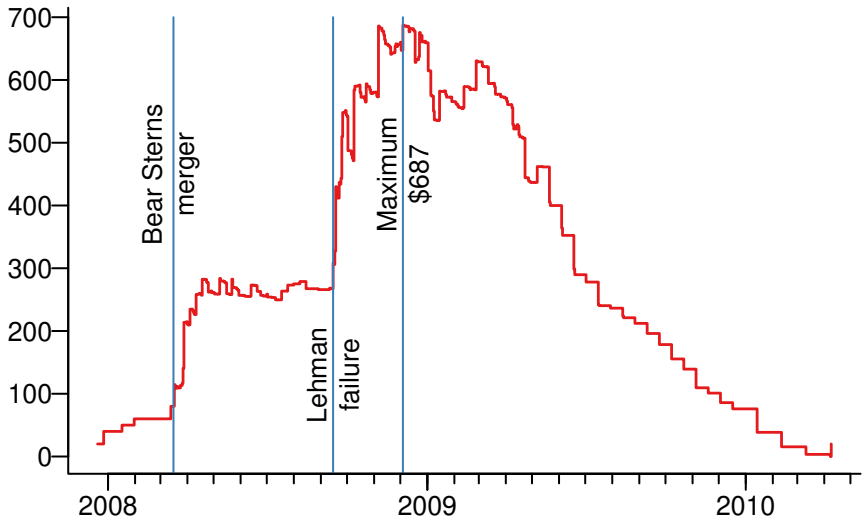
Largest TARP bailout recipients in the private financial sector



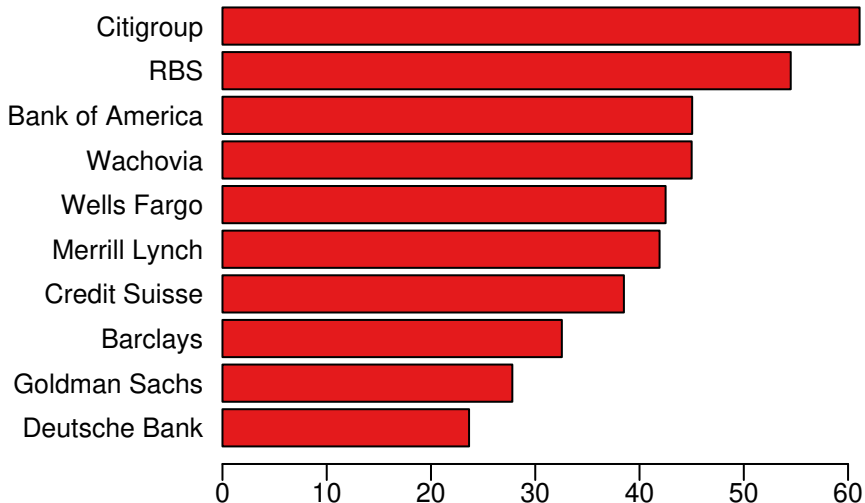
Credit and liquidity facilities

- Secret, and much larger credit and liquidity facility program of the Fed
- Freedom of Information Act— Bloomberg

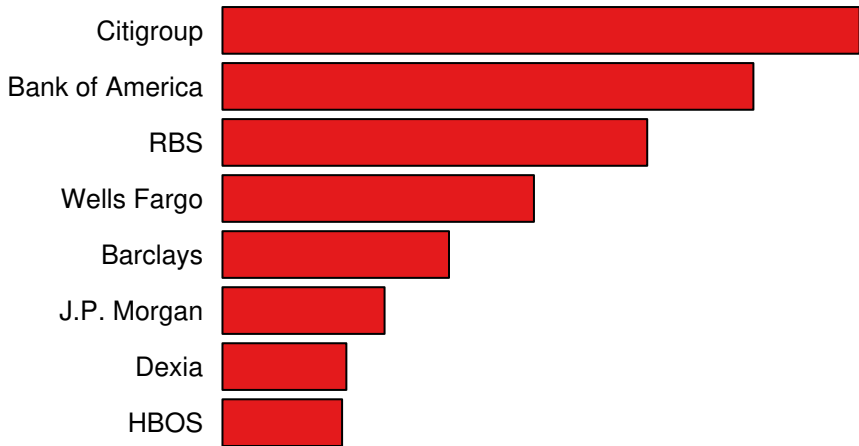
Fed emergency lending



Outstanding Dec. 4, 2008



Profit of largest recipients from the Fed emergency lending



Model of Asset Bubbles

Pangloss model

Model of asset bubbles

modified Krugman (1998)

- Financial intermediaries operate under an *implicit* government guarantee and are subject to *moral hazard*
- *Financial intermediaries* engage in excessive lending activities

Model

- Assume a simple two-period economy
- Firms purchase capital in the first period, which they use in production processes in the second period
- The production function has the following form:

$$f(K) = (\alpha + \epsilon)K - \beta K^2$$

- K is capital, ϵ is a random variable
- Investors are risk-neutral

- Capital earns its marginal product, which is the first derivative of the production function:

$$\frac{df(K)}{dK} = \alpha + \epsilon - 2\beta K$$

- The economy borrows at the world interest rate = 0
- Capital will be invested until the expected return of capital equals the cost of funds:

$$(\alpha + E[\epsilon]) - 2\beta K = 0$$

- Solving for K:

$$K = \frac{(\alpha + E[\epsilon])}{2\beta}$$

Moral hazard

- Now we add guaranteed financial intermediaries, which are subject to moral hazard because of the government guarantee
- The intermediaries will compete away any economic profit. Therefore:
 - Guaranteed intermediaries will purchase all available capital K in the end, and all other agents will be driven out. This captures the extreme level of leverage of the guaranteed intermediaries
 - Investment is pushed up to the point where $r = 0$ for the *highest possible value* of ϵ . This captures the over-optimistic investment behaviour of the intermediaries

- In normal economic conditions, investors focus on the *expected value* of an investment
- Guaranteed financial intermediaries will focus on the *Pangloss value* of an investment, which is the return that would be achieved under the most favourable outcome possible

Example

- Suppose that $\alpha = 1$, $\beta = 0.25$ and ϵ is either 0 or 1 with both values occurring with equal probability so that the expected value of ϵ is $E[\epsilon] = 0.5$
- The undistorted level of investment is:

$$K = \frac{1 + 0.5}{2(0.25)} = 3$$

- But guaranteed intermediaries will base their investment decision not on the expected value of $\epsilon = 0.5$ but on the Pangloss value and therefore assume that $\epsilon = 1$
- The level of investment will be pushed up to:

$$K = \frac{1 + 1}{2(0.25)} = 4$$

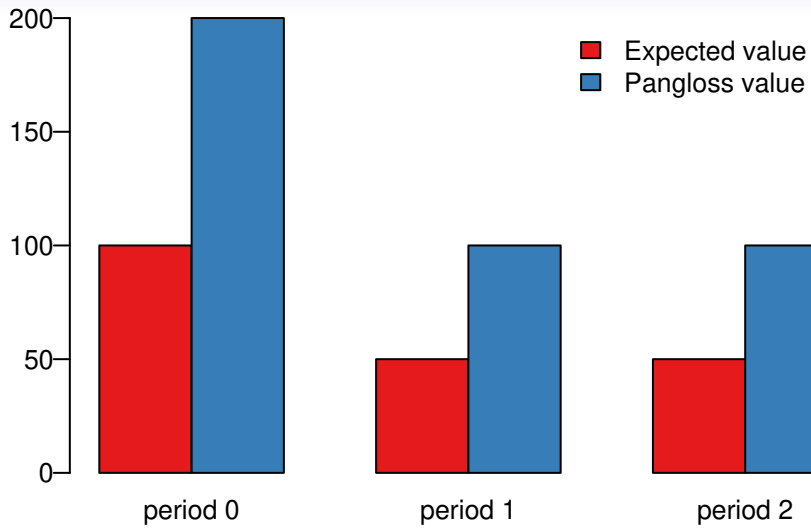
- The result is *overinvestment* that lowers *expected welfare*
- Because the increased gains in the favourable state will not offset the increased losses in the unfavourable state

Impact of perfectly inelastic assets like land

- So far, we have assumed that capital is perfectly *elastic*, meaning that any increase in demand will be satisfied without a price increase
- If capital was perfectly *inelastic*, the increase in demand would lead to a higher price – this would be the case for land
- Assuming a *three-period* economy with *land* as the only available asset
- In the first period, investors bid for land, which generates returns in the following two periods
- The return in each period can be either *100* with probability $1/3$ or *25* with probability $2/3$

	t=1		t=2	
	p	outcome	p	outcome
Good state	$1/3$	100	$1/3$	100
Bad state	$2/3$	25	$2/3$	25

- In an undistorted economy, investors would be willing to pay the expected return for both periods of 50, a total value of 100
- In the distorted economy, intermediaries will pay the Pangloss returns of 100 in both periods, a total value of 200
- Guaranteed intermediaries will raise the price to *double* the amount in the undistorted economy



Implications for banking crises

- Probability of the guarantee being exercised is $\frac{8}{9}$, $1 - \frac{1}{3} \times \frac{1}{3}$
- If additional periods are added, the likelihood rapidly approaches certainty because the guarantee is required on the first failure
- Unavoidable nature of banking crises
- Until 2007 a large fraction of the US banking industry was prepared to use models that assumed that US house prices could not fall
- Recurrence of crises at roughly 79 (2007 – 1929) year intervals
- Implying a 1.3% chance on average that investors are unaware of some adverse possible outcome to their decisions

- The central message of the model is that the traditional crisis model could not explain the crisis because the problem was *off the government's balance sheet* and the liabilities were *not visible* beforehand
- The boom-bust cycle created by financial excess preceded the crisis because the *financial crisis* was the real driver of the process