Bailouts

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Outline

- What is (and what isn't) a bailout?
- What do bailouts cost? Theory vs. Practice
  - and why it matters
- Which policy actions precipitated by the 2008 financial crisis were (and were not) bailouts?
- What were the direct costs of those bailouts?
  - Who were the direct beneficiaries?
  - Who paid?
- Summing it all up and implications for policy analysis

Why accurate cost assessment matters

- Essential for credible cost-benefit analysis
  - Retrospectively, “did the benefits justify the costs?” and “could the results have been achieved at a lower cost?”
  - Also for ongoing policymaking, “Do the costs of regulations to reduce likelihood of future bailouts exceed the benefits?”
- Reduce political and policy discord
  - Helps reconcile widely divergent perceptions about fairness, and the size and incidence of costs (and benefits)

What is (and isn't) a bailout?

- **A bailout** is a *colloquial term* for the provision of financial help to a corporation or country which otherwise would be on the brink of failure or bankruptcy.
  - The term is maritime in origin and describes the act of removing water from a sinking vessel using a bucket.

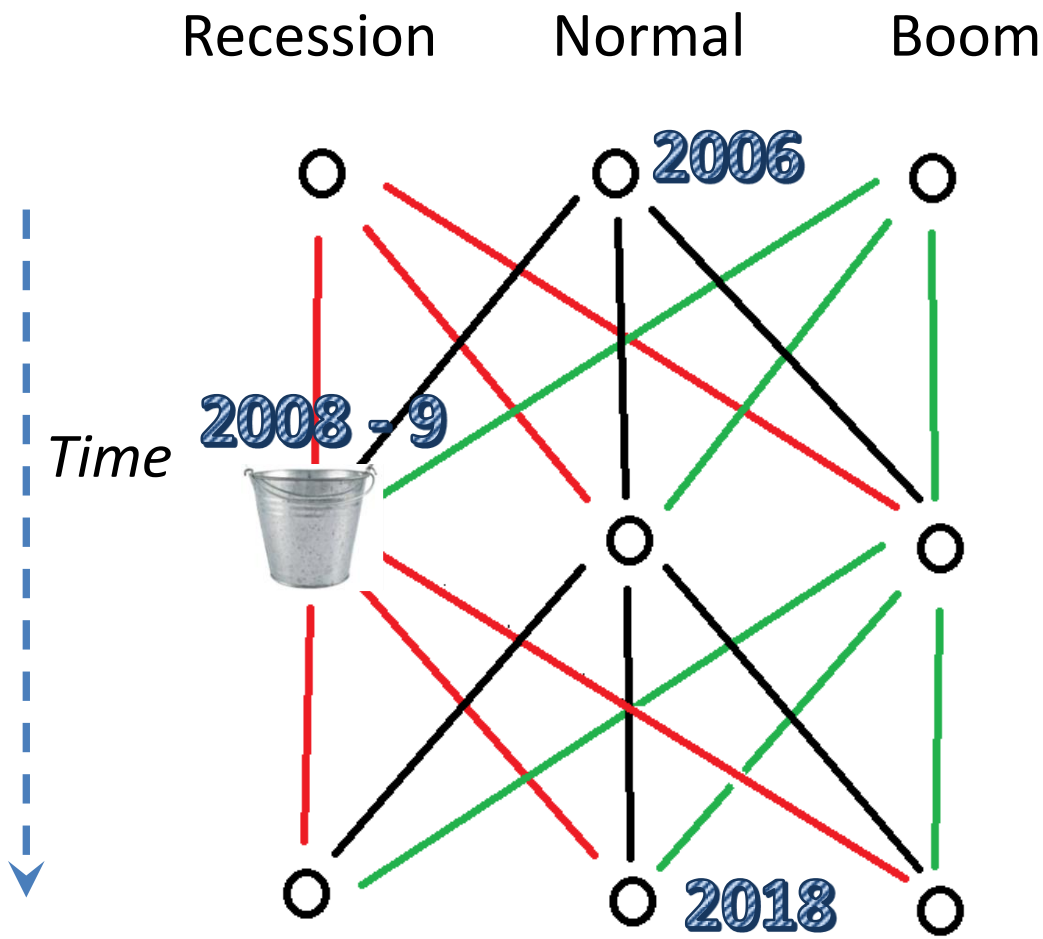
What is (and isn't) a bailout?

- What if your house is privately insured and the insurance company pays to rebuild it?
- What if your house is uninsured and your rich uncle Sam pays to rebuild it?

What is (and isn't) a bailout?

- Working definition
  - **It's a bailout if**
    - It involves **a value transfer arising from a subsidized or implicit guarantee**, or
    - It involves **a value transfer arising from new legislation** passed in response to significant financial distress
  - **It's not a bailout if**
    - A **fair or market value insurance premium** was assessed and collected ***ex ante***, or
    - There is a credible structure in place for **recovering the full value** of government payouts from the industry ***ex post***
    - Caveats apply when participation is involuntary

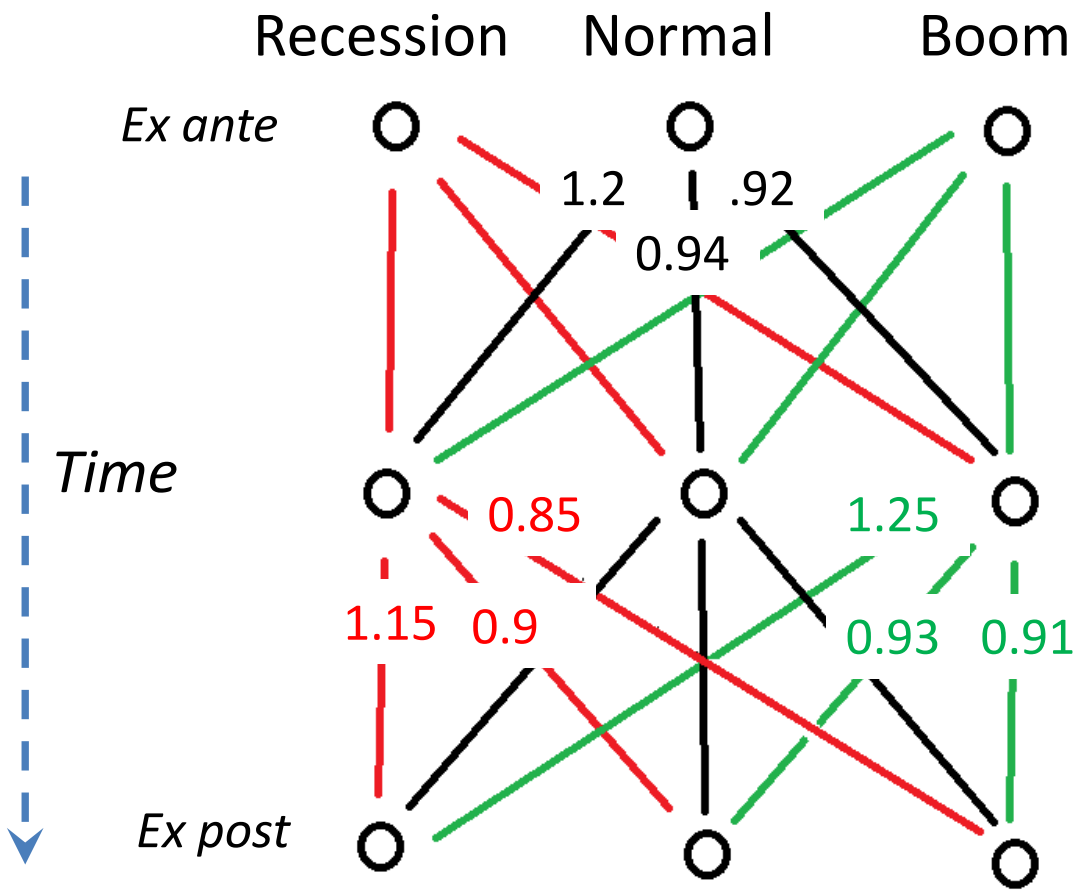
What does a bailout cost? Theory



A much more subtle question than most people imagine.

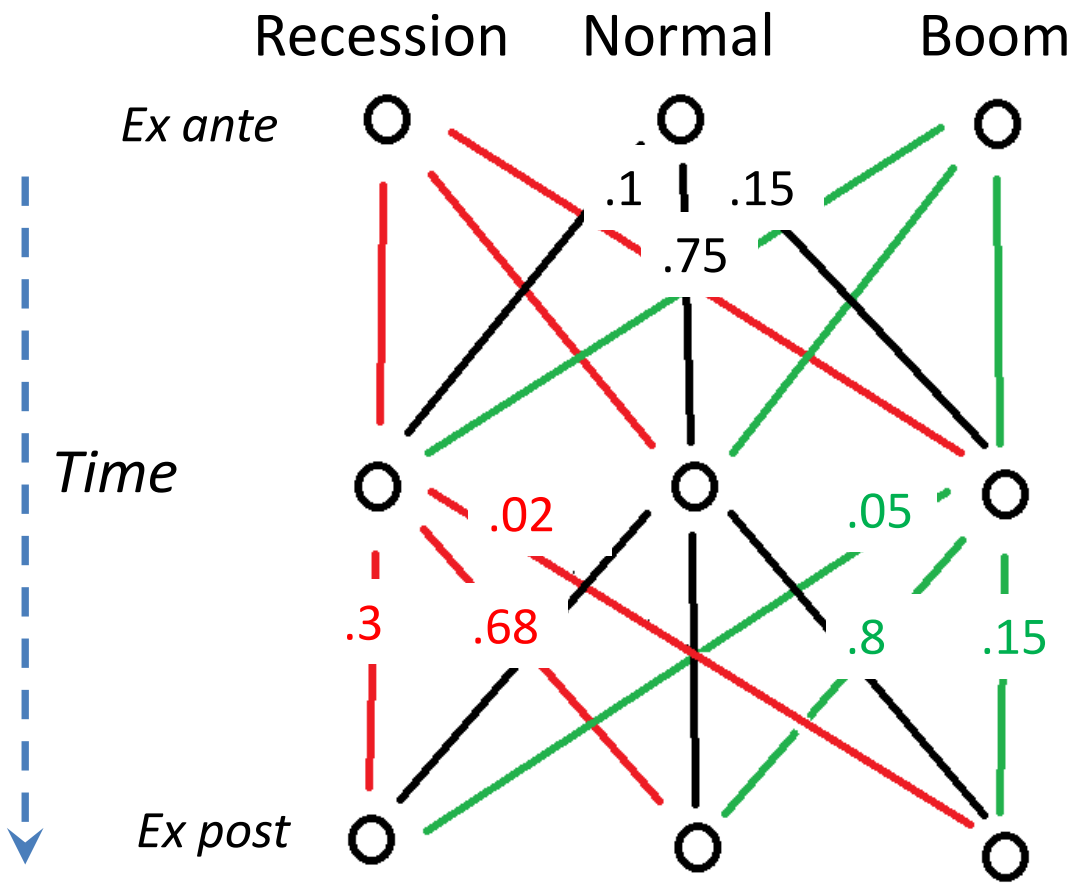
Best understood via an **Arrow-Debreu state-price framework**.

What does a bailout cost? Theory



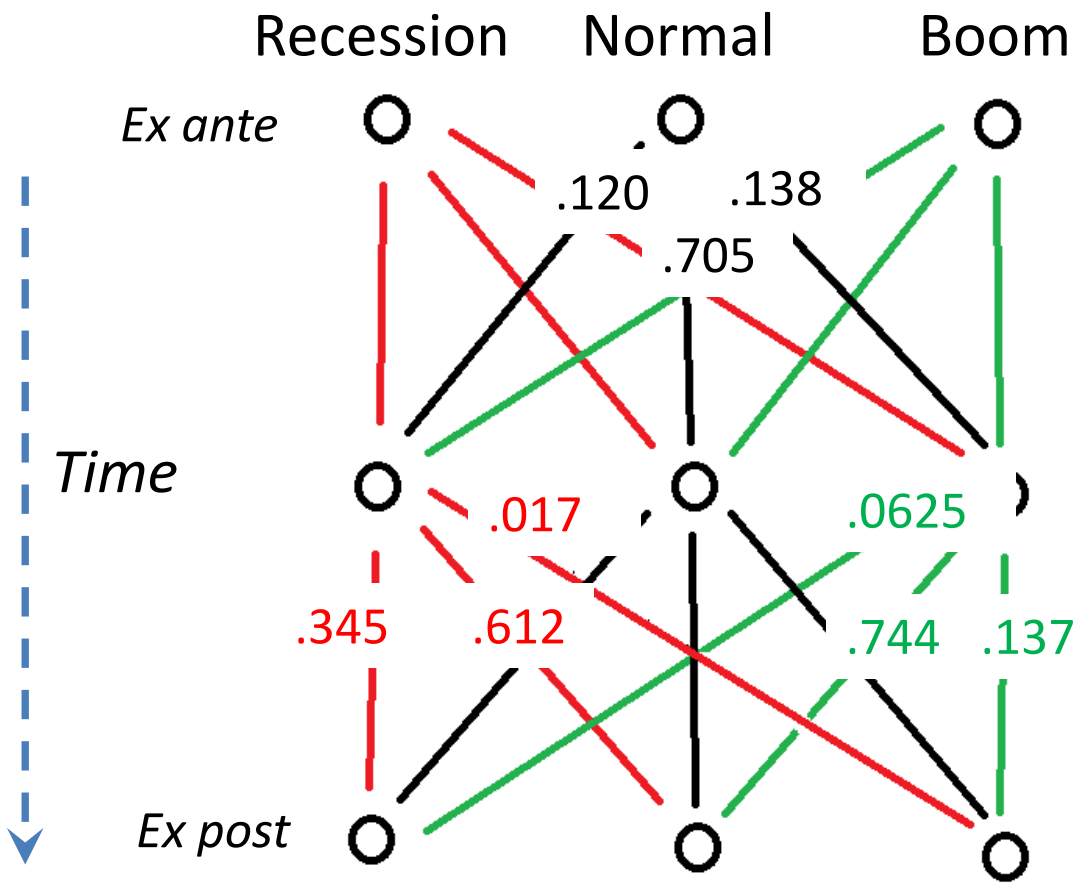
Notional **state-time present values** at t (in time t consumption units) for 1 unit of state-time t+1 consumption; *before probability adjustment*

What does a bailout cost? Theory



Notional **state-time probabilities** at time t of transition to t+1 states

What does a bailout cost? Theory



Multiplying state-time probabilities by state-time values gives **state prices**

State prices can be used to value any contingent claim. E.g., implied risk-free rate is 2.7% in recession, 3.8% normal, 6.0% boom.

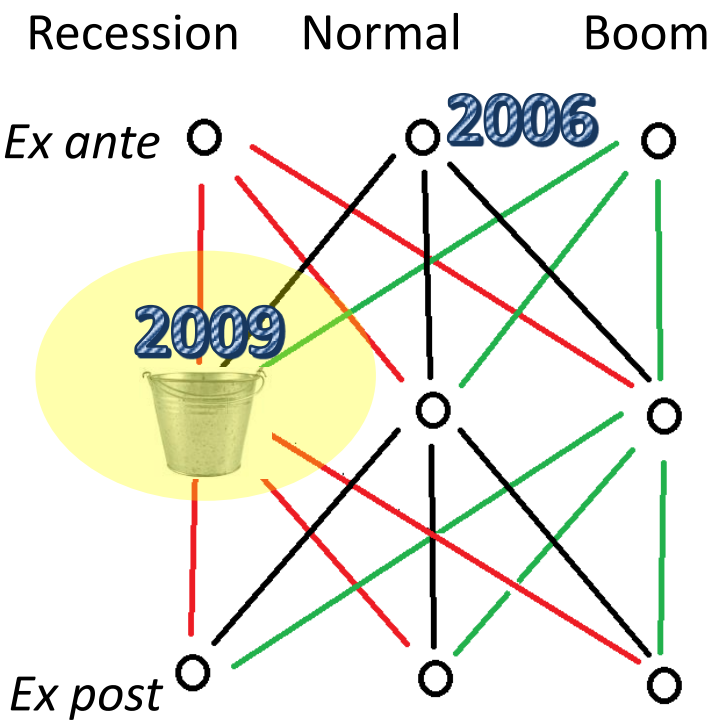
Standard valuation tools operationalize state-prices

- State prices are implicit in market prices
- Hence risk-adjusted discounting or an option pricing approach reflects state prices ("fair value" estimates)
- These methods avoid the pervasive error by gov'ts of equating their cost of capital with their borrowing costs
  - When the gov't makes a risky investment it can't be funded entirely by risk-free Treasury borrowing.
  - Taxpayers are the equity holders and absorb the risk
  - Gov'ts WACC is therefore similar to private sector WACC for risky investments
  - Neglecting the cost of risk leads to downward biased cost assessments

What does a bailout cost? Alternative metrics

- Three candidate metrics:
  - NPV as of state-time of bailout
  - NPV as of state-time subsidized guarantee is granted
  - Sum up *ex post* realized cash flows
- Starkly different answers
- Analysis of bailout cost for Fannie & Freddie is a first illustration of the conceptual and quantitative differences

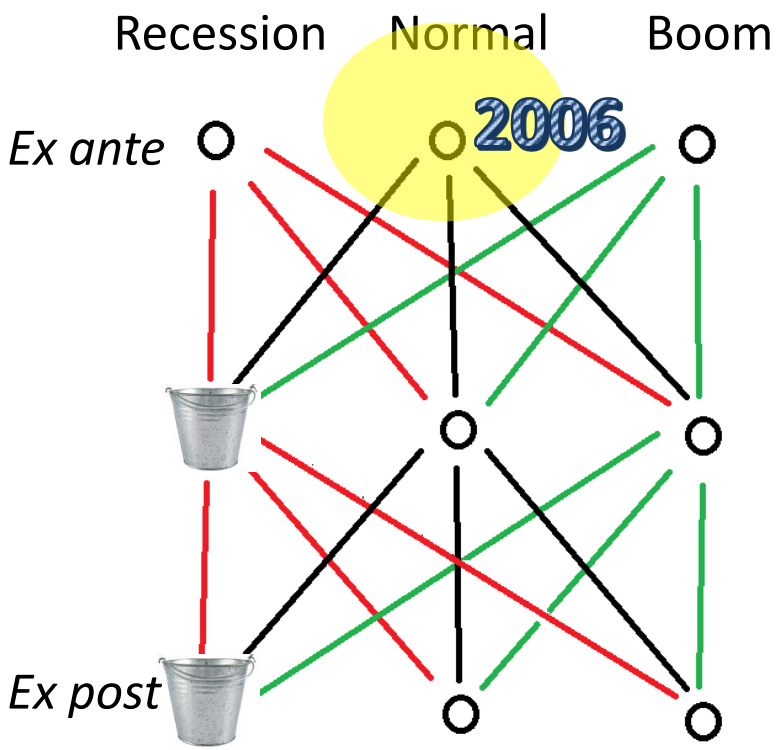
NPV at bailout for Fannie & Freddie: -**$291 billion**



- Housing & Economic Recovery Act of 2008 (HERA) initially gave Treasury power to buy unlimited securities to stabilize market
  - F&F put into conservatorship
- CBO estimated cost of $291 billion for existing book through end 2009
- Methodology was to project CFs incorporating defaults, recoveries & prepayments; discounting at rates inferred from jumbo market
- Direct benefits went to previously uninsured bond and MBS holders

https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/reports/01-13-fanniefreddie.pdffanniefreddie.pdf

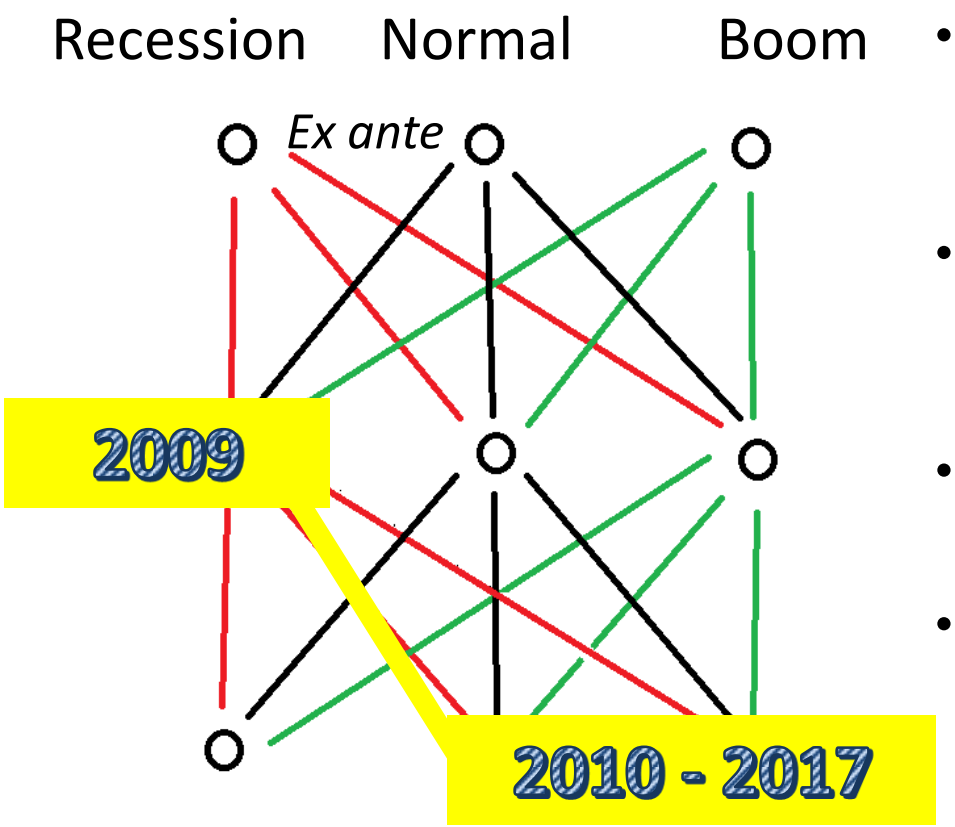
Ex ante NPV for Fannie and Freddie: **-$8 billion**



- Prior to HERA federal guarantee was implicit
- Lucas and McDonald (2006 & 2010) estimate the value of the guarantee over a 10-yr horizon at **-$8 billion**
- Contingent claims methodology calibrated w/ stock prices and firm data in 2006
- Direct benefits to shareholders & borrowers via lower borrowing costs and increased guarantee value.

Lucas and McDonald, "An Options-Based Approach to Evaluating the Risk of Fannie Mae and Freddie Mac," *Journal of Monetary Economics*, 2006

Ex post cash for Fannie and Freddie: +**$58 billion**



- Total cash payout of $116 billion to Fannie and $71 billion to Freddie from Treasury
- Total cash collected of $147 billion from Fannie and $98 billion from Freddie
- Net cash gain to government of $58 billion.
- *Note:* This treats the ongoing protection from the Treasury's preferred stock purchase agreements as costless

What does a bailout cost? Alternative metrics

- ***Preferred measure*: NPV as of state-time of bailout**
  - Forward-looking; takes into account all possible outcomes, time value, cost of risk; a market or fair value concept
  - The ***ex post*** value, mostly a transfer to unsecured creditors
- ***Also informative*: NPV as of state-time subsidized guarantee is granted**; a "nascent bailout" cost
  - Forward-looking; takes into account all possible outcomes, time value, cost of risk; a market or fair value concept
  - Usually small because bailouts are low probability events
  - The ***ex ante*** value, mostly a transfer to stockholders and customers
- ***Misleading*: Sum up *ex post* realized cash flows**
  - Neglects time value and risk adjustment
  - Inconsistent numeraire--like paying back USD100 with JPY100
  - Economically meaningful *ex post* accounting is impossible, but irresistible

The press tends to report *ex post* cash outcomes

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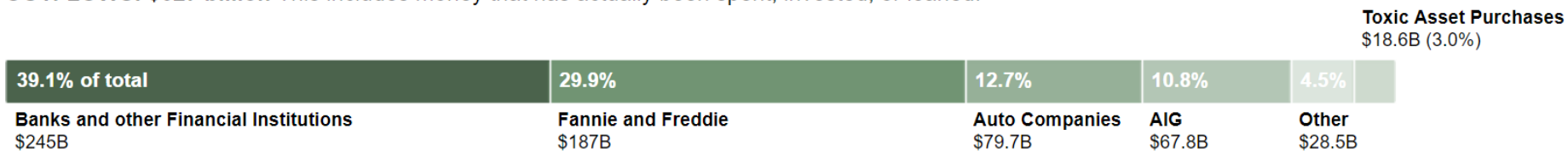
Bailout Tracker

Tracking Every Dollar and Every Recipient

The State of the Bailout

OUTFLOWS: $627 billion This includes money that has actually been spent, invested, or loaned.



INFLOWS: $713 billion Money returned and paid to Treasury as interest, dividends, fees or to repurchase their stock warrants.

"Gov't Profits" $86 billion

Those misleading figures are picked up by politicians…

"We got back every dime used to rescue the banks."

— *Barack Obama on Thursday, October 18th, 2012 in a campaign speech in Manchester, N.H.*

"The auto companies have now repaid taxpayers every dime and more of what my administration invested in."

— *Barack Obama on Wednesday, January 7th, 2015 in a speech in Detroit*

Others claim higher costs, but analyses often lacks rigor

POLITICS & POLICY

Overselling TARP: The Myth of the $15 Billion Profit

By MATT PALUMBO | January 6, 2015 9:11 PM

NATIONAL REVIEW

The Big Bank Bailout

Mike Collins Contributor
Reinventing America
I write about manufacturing and government policies

Forbes

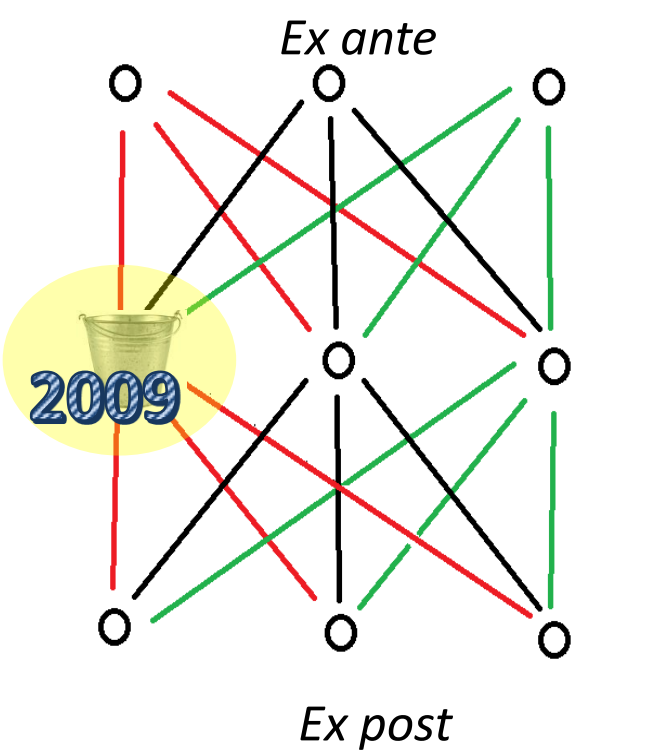
$16.8 trillion(!)

Most people think that the big bank bailout was the $700 billion that the treasury department used to save the banks during the financial crash in September of 2008. But this is a long way from the truth because the bailout is still ongoing. The Special Inspector General for TARP summary of the bailout says that the total commitment of government is $16.8 trillion dollars with the $4.6 trillion already paid out. Yes, it was trillions not billions and the banks are

U.S. bailouts in response to the financial crisis

- Fannie & Freddie ✓
- TARP
- FHA
- Federal Reserve emergency facilities
- SBLF & income-driven repayment on student loans
- FDIC expanded coverage

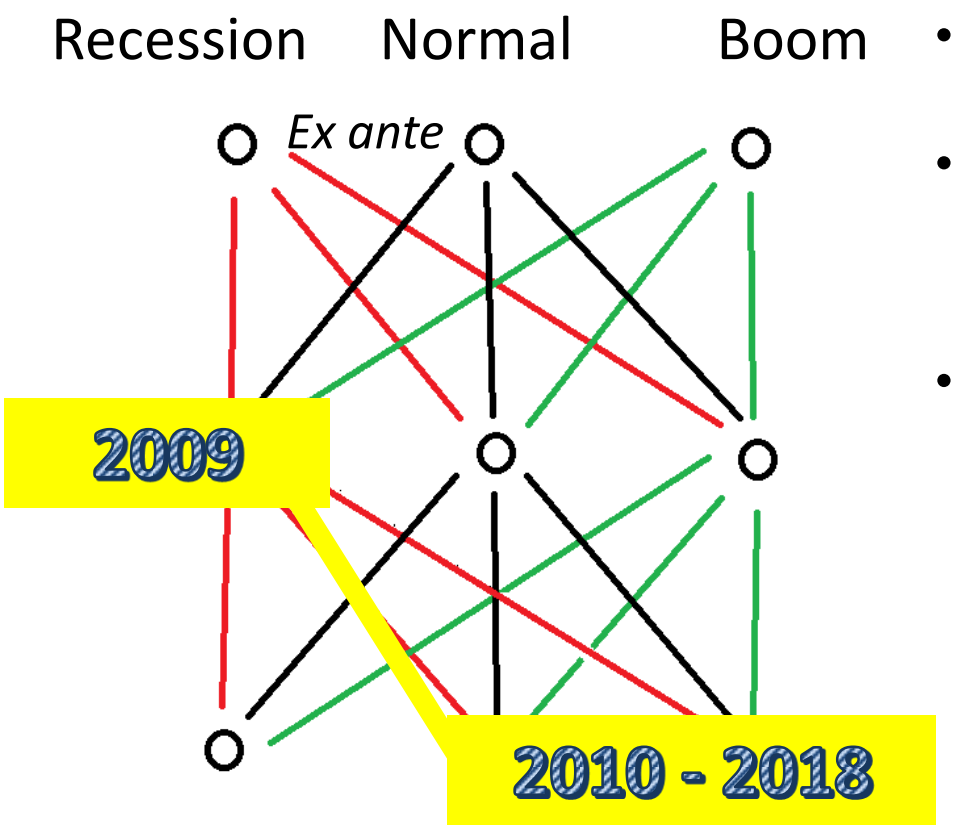
NPV at bailout for TARP: -**$90 billion**



- Enacted Oct. 2018
- CBO's 2009 TARP report put NPV at -$64 billion through 12/31/08
  - Based on difference between value of cash paid & stocks and warrants received
  - At that time disbursements were $247 billion of possible **$700 billion (headline number)**
- Congressional Oversight Panel independently put NPV at -$78 billion a few months later
- These figures are low
  - More purchases were still likely.
  - Backing for large contingent liabilities from Fed.
- Assume $100 billion more would be distributed at CBO subsidy rate puts NPV at **-$90 billion**

https://www.cbo.gov/publication/24859

Ex post cash for TARP: -**$30 billion**



- $442 billion was ultimately disbursed.
- Most funds were repaid. Exceptions were AIG, mortgage grant support programs, auto
- CBO estimates total net outlays of $30 billion as of 2016

Note: No *ex ante* calculation because actions were unanticipated.

Federal Housing Administration guarantees (FHA)

- FHA provides mortgage guarantees to low income and first-time homebuyers
  - *ex ante* underpriced guarantees provides significant ongoing subsidy
  - Emergency legislation (HERA) increased maximum insured mortgage from $362,790 to $625,000 in higher priced metropolitan areas
  - *ex post* large losses during and after crisis
  - Direct costs borne by taxpayers

- But not a typical bailout
  - Guarantees were in place and partially recognized in the budget
  - A gov't program, not private investors, is the direct beneficiary

Ex ante NPV for FHA

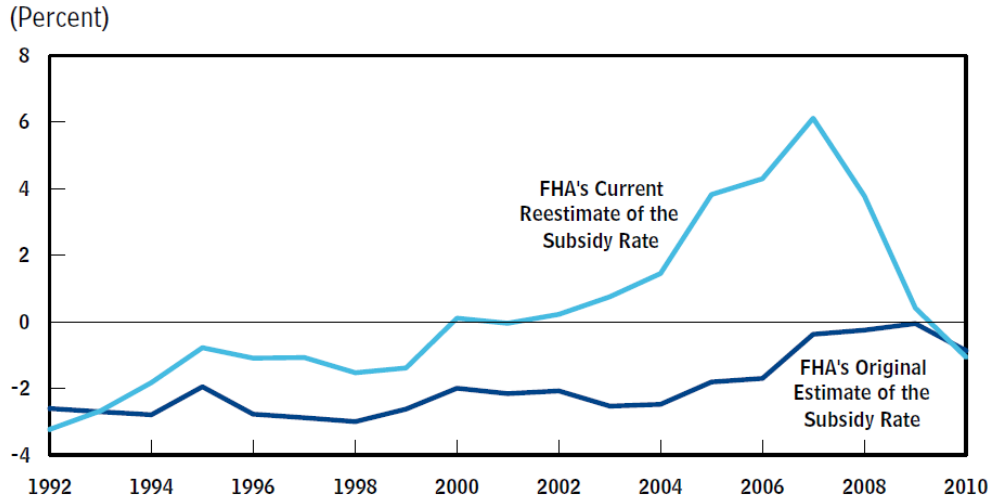
- Fair value subsidy rate estimate of 2% to 5% of principal balance (CBO*, 2006)
  - Versus slightly negative subsidy rate in federal budget under FCRA
- Outstanding insured mortgages of $448 billion in 2008
- Implies *ex ante* NPV in 2008 of approximately **-$15.7 billion**
  - 3.5% subsidy rate x $448 billion
  - A conservative estimate
    - Doesn't include cost of increasing loan size limit or likely volume growth during downturns
- Direct beneficiaries of expanded programs were homeowners that refinanced and buyers of higher cost properties

* "Assessing the Government's Costs for Mortgage Insurance Provided by the Federal Housing Administration," Letter to Jeb Hensarling

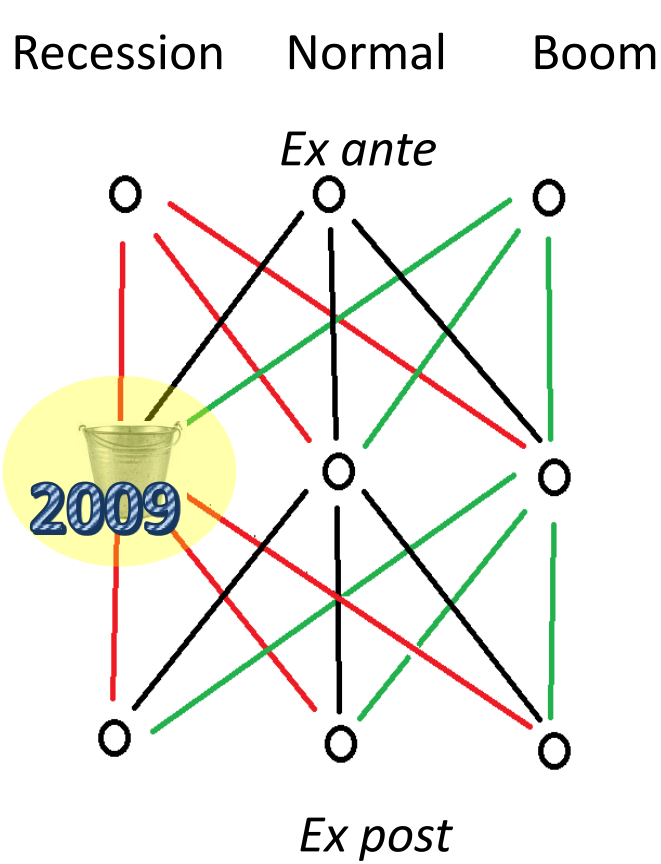
Other bailout cost measures for FHA

- ***Ex post*** net losses on a **mixed cash and accrual** basis between 1999 and 2011 totaled **-$44 billion**
  - Based in reestimates of budgetary costs (CBO, "Accounting for FHA's Single-Family Mortgage Insurance Program on a Fair-Value Basis" Letter to Paul Ryan, 2011.
  - These big numbers received little attention in the press because of the automatic budget authority to cover unanticipated losses

FHA's Original Estimates and Reestimates of Subsidy Rates for Its Single-Family Mortgage Insurance Program, by Loan Cohort Year



NPV at bailout for Fed programs: -**$21 billion**



- For most Federal Reserve emergency programs, either risk was absorbed by Treasury (with TARP funding), or the pricing was fair(ish)
- Largest exception was TALF, which had insufficient Treasury backing to cover risk cost
- See "The Budgetary Impact and Subsidy Costs of the Federal Reserve's Actions During the Financial Crisis," CBO Report, May 2010

http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/115xx/doc11524/05-24-federalreserve.pdf

Smaller bailouts

- Small Business Jobs Act (2010)
  - Created Small Business Lending Fund (SBLF) to provide capital to qualified community banks and community development loan funds
  - Provided preferred stock with dividend contingent on amount of small business lending (mini-TARP)
  - **NPV on a fair value basis at time of bailout** estimated at **-$6.2 billion** by CBO
    - https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/costestimate/hr5297housepassed0.pdf
  - Beneficiaries are small bank equity holders & customers
- Expansion of Income-Driven Repayment on Federal Student Loans (2009 and 2010)
  - **NPV on a fair value basis** estimated at **-$11 billion** (J. DeLisle, 2015)
    - https://www.newamerica.org/education-policy/edcentral/income-based-repayment-cost/
  - Beneficiaries are borrowers with student loans

Expanded FDIC coverage

- Deposit insurance increased from $100k to $250k, 10/08
  - Later made permanent by Dodd Frank
- Temporary Liquidity Guarantee Program, finalized 11/08
  - Debt Guarantee Program
    - Guarantee on newly issued debt, hence benefit is to stock holders
  - Transaction Account Guarantee Program
    - Unlimited coverage of transaction accounts
  - Initially no cost for short period, then fees

- FDIC is required by statute to recover losses from solvent institutions
  - Credit line from Treasury usually set at $100 billion, increased to $500 billion during crisis

Expanded FDIC coverage

- Is it a bailout when the industry is on the hook to repay in full?
- Answer depends on whether
  - participation in FDIC insurance is voluntary
  - full repayment is credible
- Do those conditions hold?
  - Participation is arguably not entirely voluntary. Banking institutions effectively have to provide FDIC insurance
    - New tax on the banking industry, borne by equity holders & customers
    - Cross-subsidies
    - Uninsured creditors directly benefit. So do equity holders & customers from lower borrowing costs going forward
  - If crisis became more severe, Treasury might not be fully repaid

Expanded FDIC coverage

- Hard to estimate cost of tail event that Treasury is not repaid
- But wrong to assign zero cost just because large uncertainty
- A rough subsidy calculation:
  - Assume that on the expanded Treasury line there was a 10% chance that the entire amount would be drawn and only 20% (in PV terms) recovered
  - Implies NPV at bailout of **-$10 billion**

Adding it all up

- NPV at time of bailout

	NPV @ bailout (billions)
Fannie & Freddie	-$291
FHA*	-$ 16
TARP	-$ 90
Federal Reserve	-$ 21
Other	-$ 17
FDIC	-$10
TOTAL	-$445

Total is about 3% of 2009 GDP

**ex ante* 2008

Takeaways

- Largest direct beneficiaries of bailouts were the unsecured creditors of large financial institutions
  - Most significantly, of Fannie & Freddie
  - Equity holders benefited less than the popular perception; many were wiped out
- The direct cost of bailouts arising from the 2008 U.S. financial crisis was around $450 billion
  - Not trillions
  - Not free
  - Big enough to raise questions about whether taxpayers could have been better protected
  - Small enough to take seriously the tradeoffs between the costs & benefits of new regulations to reduce the chance of future bailouts

Conclusions

- Thank you!

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