

ETHICAL SOCIETY OF AUSTIN

**UNDERSTANDING THE FINANCIAL CRISIS
AND
COMMENTS ON THE ETHICAL ISSUES INVOLVED**

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Introduction

Headlines: Bear Stearns taken over by JPMorgan (March 16, 2008), Freddie Mac and Fannie Mae seized by Treasury (Sept. 8), Lehman fails (Sept. 15), AIG is effectively nationalized (Sept. 16), Reserve Primary “breaks the buck” (Sept. 16), Bank of America buys Merrill (Sept. 15), Goldman and Morgan Stanley apply for bank charters (Sept. 22), JPMorgan Chase buys WaMu (Sept. 26), Wells Fargo buys Wachovia (Oct. 3), TARP (Oct. 6), nine largest banks receive capital injections from TARP (Oct. 13), Fed begins “credit easing” (September/October 2008), American Recovery and Reinvestment Act (Feb. 2009 “stimulus package”), Public-Private Investment Program (announced Feb., some details announced April), Bank “stress test” results (May 7)

The economy has been in a recession for over a year, and it is turning out to be a deep as well as long recession. The government has allocated and committed hundreds of billions of dollars (TARP, stimulus package), and the balance sheet of the Fed has tripled in size.

What caused the financial crisis? How should we think about the huge social and economic costs of the crisis? To what extent was the crisis caused by ethical breaches? Was it caused by excesses that could have and should have been contained by government policy? Or are periodic crises the price we have to pay for the benefits of a dynamic economy—and if so, what does that imply about how we should think about government bailouts?

Understanding the financial crisis

Mortgage market

What happened when the bubble in home prices burst? (Why did this cause a financial crisis?)

Why was there a bubble in the first place?

Transmission to the real economy

More on causes

Comments on the ethical issues involved

Fraud

Wall Street

Government

How to think about the ethical issues involved?

Understanding the financial crisis

Mortgage market

- *The size of the mortgage market (dollar value of mortgages) exploded.*
- *Lending standards and practices eroded.*
- *Once the bubble in home prices burst, defaults on mortgages rose sharply.*

Lending standards and practices eroded.

- Historically, the risk to mortgage lenders had been contained by (i) *due diligence* on the borrower's ability to repay, and on the value of the property, and (ii) *substantial down payments*.
- This decade saw an *erosion of lending standards* and *smaller down payments* ("stated income loans," "NINJA loans", "no money down," fraudulent appraisals). Political agendas, profits.
- *The stage was set for defaults to spike if home prices fell.* Lending practices had not screened out borrowers who couldn't repay. High LTV ratios greatly reduced incentives to repay.
- *The bubble in home prices increased the risk.* As long as home prices kept rising, borrowers who couldn't repay could simply refinance or sell (often with a capital gain). This pulled risky borrowers into the pool of borrowers. Yields on mortgage lending were high, and there were fees and profits to be made, which pulled funds into the mortgage market.

What happened when the bubble in home prices burst? (Why did this cause a financial crisis?)

- *Values of mortgage-backed securities fell.*
- *Losses on balance sheets impaired financial institutions and financial markets.*
- *These mechanisms are self-reinforcing.*
- *Leverage and deleveraging—an example*

Values of mortgage-backed securities fell.

- In past decades, banks originated and held mortgages (“It’s a Wonderful Life”). Any **securitization** was simple (“pass-throughs”).
- In recent years, investment banks used the cash flows from a pool of mortgages to manufacture an array of securities (**mortgage-backed securities, or MBS’s**) with different risk/return characteristics (“super-senior tranche, “mezzanine tranches,” “equity tranche” or “toxic waste”).
- **Ratings agencies** (Moody’s, S&P, Fitch) rated these MBS’s, and other “structured products” such as CDO’s. Banks, pension funds, insurance companies, municipalities, Freddie Mac and Fannie Mae, etc., all purchased MBS’s as investments (i.e., they held MBS’s on their balance sheets).
- **Defaults on mortgages triggered losses on balance sheets of banks (pension funds, insurance companies, municipalities, Freddie Mac and Fannie Mae, etc.).**

Losses on balance sheets impaired financial institutions and financial markets.

- 1) When financial firms experience losses on their balance sheets, they need to “***shrink their balance sheets:***” (i) sell or write down their distressed assets (MBS’s), (ii) reduce their liabilities (repay what they’ve borrowed), and (iii) rebuild their capital cushions (equity, net worth). **See example.** ***Deleveraging reduced lending by banks.***
- 2) MBS’s are difficult to price (you need a lot of loan-by-loan information, expertise, and computer time to “price” interest rate risk, default risk, and prepayment risk). Distressed MBS’s are really hard to price!

When values of MBS’s fell, banks could not assess the balance sheets of other banks (and financial institutions, insurance companies, etc.). ***Counterparty risk reduced interbank lending.***

- 3) Many investors in MBS’s (and other “structured products,” as well as corporate debt, sovereign debt, etc.) bought protection against potential losses using ***credit default swaps (CDS’s).*** AIG, and Lehman (and many others) sold protection on lots of MBS’s.

Falling values of MBS’s increased probabilities these “insurers” would have to make large payouts.

Investors who had bought protection using CDS’s had to worry their counterparties (insurers) would go bankrupt, leaving them exposed to defaulting MBS’s, and defaults on corporate debt.

Yields on corporate debt spiked.

- 4) Money market mutual funds (MMMF's) invest in **asset-backed commercial paper** (ABCP), as well as government debt and high-grade corporate debt (commercial paper).

ABCP is issued by Special Purpose Vehicles (SPV's), which invest in corporate debt, MBS's, etc. Through SPV's, investors in MMMF's indirectly provide short-term and medium-term financing for corporations and mortgages.

Structured Investment Vehicles (SIV's) were off-balance sheet SPV's owned by banks. In Fall 2007, many SIV's faced insolvency due to falling values of MBS's. Many banks took their SIV's back onto their balance sheets (guaranteed their liabilities) but then shut them down. **ABCP market seized up.**

After Reserve Primary "broke the buck" (it held Lehman debt when Lehman went bankrupt), there was a run on MMMF's. **Commercial paper market seized up.**

- 5) The "shadow banking system" shrank as some hedge funds went out of business and others reduced leverage. **Lending by the shadow banking system fell.**

The Fed has opened a set of lending facilities designed to support the functioning of financial markets by lending against a variety of collateral.

These mechanisms are self-reinforcing.

- ***Spatial correlation of home prices.*** In an area with a high default rate, foreclosures push home prices down further. More borrowers are pushed “under water,” increasing the default rate and foreclosures.

- ***Deleveraging by financial institutions.***
 - ✓ When financial firms experience losses on their balance sheets, they need to “shrink their balance sheets.” ***Deleveraging.***
 - ✓ Because distressed MBS’s are difficult to price, they are ***“illiquid”*** (they fetch a lower price if they have to be sold quickly). Financial firms have to sell MBS’s and other illiquid assets because they have to deleverage, causing prices to fall. This increases realized losses and wipes out more capital on financial firms’ balance sheets. ***More deleveraging.***
 - ✓ ***“Mark-to-market” accounting*** forces other financial firms to write down MBS’s on their balance sheets. ***Yet more deleveraging.***

- Spatial correlation of prices of the fundamental assets (homes), a common need to deleverage, illiquidity-induced correlation of prices of MBS’s (and other hard-to-price assets), and mark-to-market accounting increased risk. ***Increase in risk was not correctly assessed.***

Leverage and “deleveraging”—an example

To begin, all banks are identical. Each has a ***leverage ratio*** (assets/equity) of **$130/20 = 6.5$** .

Loans represent interbank lending, or other interbank liabilities (one bank holding the commercial paper of another bank, one bank selling protection to another bank in the CDS market, etc.) ***Risky assets*** might be MBS's, commercial loans, etc. “Common” means an asset similar enough to those held by other banks that “mark-to-market” accounting rules apply.

Sequence:

- ***Bank #1 experiences a negative shock to its balance sheet*** (unique risky asset is wiped out).
- Bank #1 is insolvent and is shut down. It ***defaults*** on its loan from Bank #2, and it “calls” its loan to Bank #4. During liquidation, Bank #1’s holdings of the common risky asset are sold, ***driving the market price down from 80 to 75***.
- Bank #2 writes off its loan to Bank #1. ***All banks mark their holdings of the common risky asset to 75***. Bank #4 sells assets to pay off its loan from Bank #1.
- Bank #2 and Bank #4 are now more highly leveraged (assets/equity). They have to “shrink their balance sheets” (***deleverage***) to bring their leverage ratio in accordance with regulatory requirements.

BANK #1 (to begin)

	<u>A</u>	<u>L</u>	
Reserves	10	100	Deposits (FDIC-insured)
Loan to BANK #4	5	5	Borrowed from BANK #2
Corporate lending	5	5	Bond-holders of BANK #1
Common risky asset	80	20	Equity (E)
Unique risky asset	30		

Leverage ratio = A/E = 130/20 = 6.5

BANK #1 (insolvent)

	<u>A</u>	<u>L</u>	
Reserves	10	100	Deposits (FDIC-insured) FDIC pays 5
Loan to BANK #4	5	5 0	Borrowed from BANK #2
Corporate lending	5	5 0	Bond-holders of BANK #1
Common risky asset 75	80	20 0	Equity (E)
Unique risky asset	0 30		

BANK #1 sells common risky asset, driving its price down to 75.

Note: Corporate borrowers must find alternative source of continued lending

BANK #2

		A		L		
Reserves		10		100	Deposits	
Loan to BANK #1	0	5		5	Borrowed from BANK #7	
Corporate lending		5		5	Bond-holders of BANK #2	
Common risky asset	75	80		20	10 Equity (E)	
Unique risky asset		30				$A/E \uparrow 130/20 = 6.5 \text{ to } 120/10 = 12$

BANK #4

		A		L		
Reserves		10		100	Deposits	
Loan to BANK #9		5		5	Borrowed from BANK #1	<i>lending</i> ↓
Corporate lending		5		5	Bond-holders of BANK #4	
Common risky asset	75	80		20	15 Equity (E)	
Unique risky asset		30				$A/E \uparrow 130/20 = 6.5 \text{ to } 120/15 = 8$

Banks are now more highly leveraged, must “shrink their balance sheets.”

BANK #2

	<u>A</u>	<u>L</u>	
Reserves	10	100	Deposits
		5	Borrowed from BANK #7
Corporate lending	5	5	Bond-holders of BANK #2
Common risky asset	75	10	Equity (E)
Unique risky asset	30		$A/E = 120/10 = 12$

BANK #2

	<u>A</u>	<u>L</u>	
Reserves	10	100	Deposits
		5	Borrowed from BANK #7
Corporate lending	5	5	Bond-holders of BANK #2
Common risky asset	75	10	Equity (E)
Unique risky asset	30	10	New equity (sale of stock)

$A/E = 115/20 = 5.75$

Banks lends less, and must raise additional capital

Why was there a bubble in the first place?

- ***Demand for homes increased a lot faster than supply.***
- ***(But supply increased a lot in response—amplifying the effects of the financial crisis!)***
- ***Demand for homes could not have increased without an increase in mortgage financing.***

Why did money flow into mortgages? (increased supply of mortgages)

- ***Securitization*** (perceived to reduce risk, spread risk)
- ***Freddie/Fannie*** (implicit government guarantee, political pressure to increase availability of mortgages, and to serve previously underserved borrowers)
- ***Ratings agencies*** (interpreted as a government stamp of approval)
- ***Low interest rates*** (caused investors to seek yield—***lending standards eroded, yields rose!***)
- ***Global glut of saving*** (US current account deficit)
- ***Boom in home prices*** (increased profit opportunities on mortgage lending)

Why did demand for mortgages increase?

- ***Demand for home-ownership*** (people with weak credit who saw borrowing to buy a home as a one-way bet, homeowners who took equity out of their home)
- ***Boom in home prices*** (investors, speculators, homeowners who took equity out of their homes, homeowners who stretched themselves to borrow ***all perceived little or no downside risk***)

Why did home prices boom? Increased supply of and demand for mortgages! ***Bubble!***

Transmission to the “real” economy

- *Impaired financial markets*
- *Wealth effects*

Impaired financial markets

- Uncertainty about values of MBS's causes illiquidity of MBS's. *Difficult for banks to deleverage and clean up balance sheets.*
- Losses on bank balance sheets due to declining values of MBS's and mark-to-market accounting. Banks may be insolvent. *Difficult for banks to raise capital and clean up balance sheets.*
- Fear of additional losses on bank balance sheets. Fear of counterparty risk due to unknown sizes and locations of losses on balance sheets throughout the financial system. *Retreat to cautious lending practices.*
- Higher demand for safe assets such as Treasuries, and correspondingly lower demand for corporate debt, commercial paper, etc. *Credit crunch.*
- Shrinking “shadow” banking system (hedge funds, SIV's, etc.). *Extreme decline in non-bank lending.*

Wealth effects

- *Equity in homes* exceed \$6 trillion.
- Losses of *stock market wealth* about \$6 trillion.

More on causes

- **Securitization.** Perceived to reduce risk, spread risk. **Flawed incentives in securitization process.**
Fraudulent lending, appraisal fraud.
- **Freddie/Fannie.** Implicit government guarantee, political pressure to increase availability of mortgages, and to serve previously underserved borrowers.
- **Ratings agencies.** Interpreted as a government stamp of approval.
- **Low interest rates.** Caused investors to seek yield—**lending standards eroded, yields rose!**
- **Global glut of saving** (and the **US current account deficit!**).
- **Demand for home-ownership.** People with weak credit who saw borrowing to buy a home as a one-way bet, homeowners who took equity out of their home. **Fraudulent mortgage applications.**

Global imbalances

National saving:	$S = \text{private saving} + \text{government saving}$
Investment:	$I = \text{business fixed inv} + \text{residential inv} + \text{inventory inv}$
Current account:	$CA = \text{net exports} + \text{other stuff}$
Relationship:	$S - I = CA$

$CA < 0$ implies “borrowing from abroad” (capital inflows). **US.**

$CA > 0$ implies “lending to abroad” (capital outflows). **China, other emerging markets, oil and commodity exporters.**

Why did these global imbalances arise?

US:

- **Government budget deficits**
- **Low levels of private saving** (wealth effect—housing wealth, equity wealth)
- **Attractive investment opportunities (real investment)**
- **Low interest rates**

Emerging markets:

- **Rapid economic growth**
- **High saving rates**
- **Appetite for safe, “bond-like” investments**
- **Exchange rates**

Low interest rates

Coming out of the recession of 2001 (March – November) and 9/11 events, the Fed lowered US short-term interest rates

Jan 3, 2001	6%
Dec 11, 2001	1.75%

Fed funds rate was 1% or 1.25% for a year and a half (from Nov 2002 to June 2004), and was 2% or below for three years (Nov 2001 to Dec 2004)

Why did the Fed lower rates and keep them low?

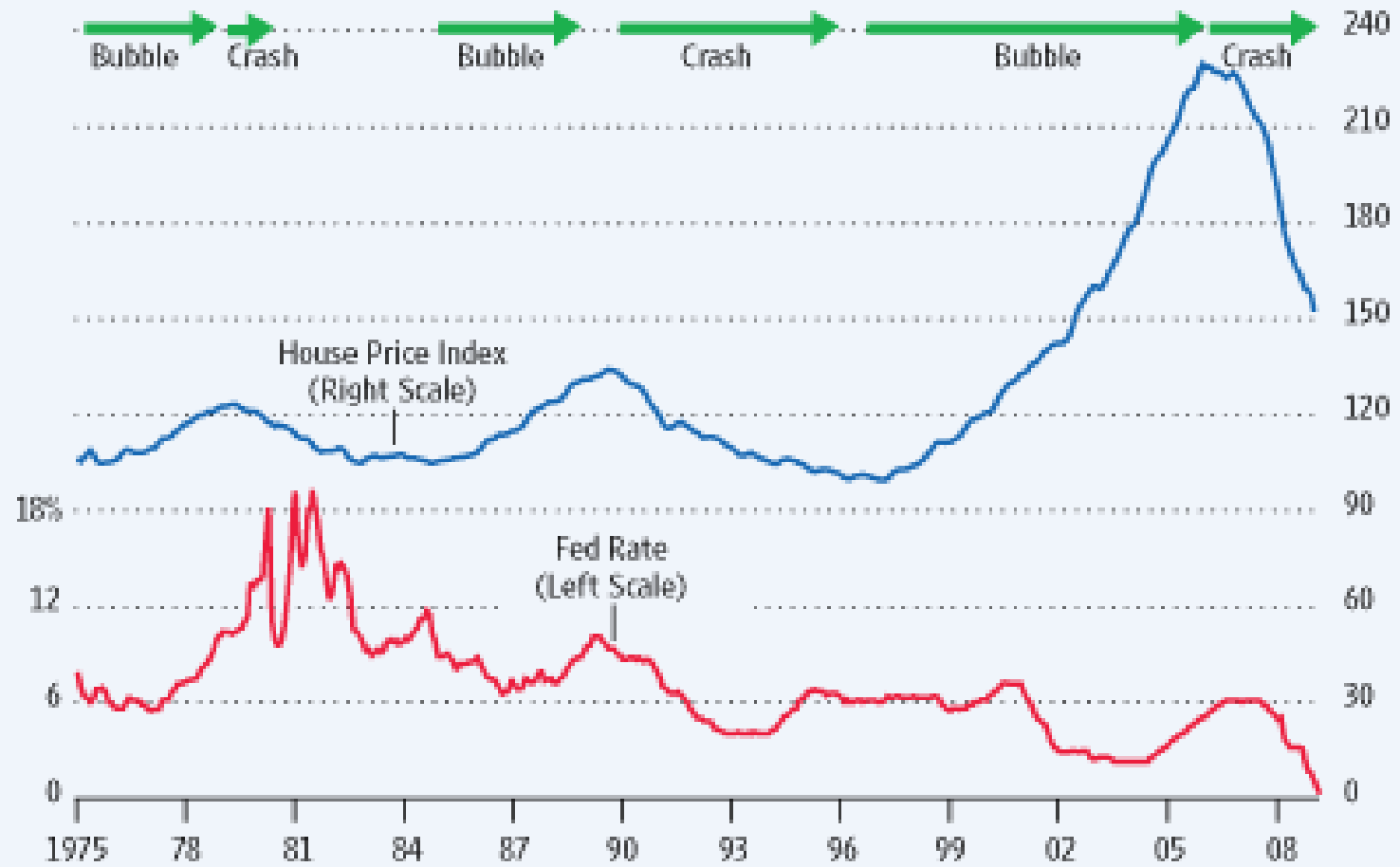
- **To stimulate the economy** (recovery from recession, promote housing sector)
- **To fight deflation**

Central banks around the world followed (generally difficult economic conditions; to ease adjustment to changing patterns of international trade)

Global real interest rates were negative for several years (in the 2002-2006 period)!

The Fed and the Bubble

Federal funds rate and inflation adjusted U.S. housing prices, 1975-2009



Sources: Federal Reserve, Freddie Mac CMHPI (1975-1986) and Case-Shiller index (1987-2008)

Wall Street Journal, April 6, 2009

Appetite for safe, “bond-like” investments

China:

- Low cost workers, **undervalued yuan**, and other developments favorable for FDI and portfolio investment in China. **Rapid industrialization and economic growth!**
- China’s share of world manufacturing **doubled** in ten years (1997 – 2007), from about 5% to 11%.
- US trade deficit with China **exploded** from less than \$50 bn to \$250 bn (1/3 of US trade deficit).
- What to do with huge stock of dollars? **US Treasuries (safe, liquid)!**

Holdings of US Treasuries, \$ bn

<u>Country</u>	<u>Jan 2008</u>	<u>Dec 2006</u>	<u>Dec 2000</u>
Japan	587	623	318
China	493	397	60
UK	160	92	50
Oil exporters	141	110	48
Hong Kong	55	54	39
South Korea	42	67	30
Taiwan	39	59	33
Singapore	38	31	28

Source: US Department of Treasury, Zandi pp. 83-84

As China's stock of "dollars" (including US Treasuries) increased, it expanded its portfolio to include "agency" MBS's. *More yield, just as safe!*

Then China entered the market for "private label" MBS's (backed by non-agency mortgages, including subprimes and alt-A's). *Historically safe, structured to be safe, rated as safe by Moody's, S&P, and Fitch!*

Other emerging market economies also had to find a place to "park" dollars generated due to current account surpluses:

- Rapid growth due to globalization.
- High commodities prices (partly due to China's rapid economic growth).
- US trade deficit with emerging market economies more than doubled from 2000 to 2008 (\$150 bn to \$350 bn).

This large flow of dollars to abroad was recycled into foreign holdings of US bonds (**US Treasuries** and **private bonds, including MBS's**). *Foreign holdings of US bonds tripled from about \$2 trillion to almost \$7 trillion from 2000 to 2008.*

Global sea of funds in search of yield, in a low interest rate environment!

Structured products (MBS's, both agency and private label, CDO's, etc) offered an array of risk-return characteristics. ***Structured to be safe, rated as safe, could be insured (CDS's), could be hedged!***

Holdings were diversified, risk was spread, financial system was viewed as robust.

US financial sector exported financial services—it manufactured safe, “bond-like” instruments out of various raw materials, including mortgages.

Erosion of lending standards, fraud, poor incentives in the securitization process, flawed ratings, political pressures, etc., contributed to the crisis.

Flow of funds into US mortgage market from abroad also contributed!

Comments on the ethical issues involved

Fraud

- *Borrowers (lying about income and assets, lying about intention to reside at the property)*
- *Lenders (misrepresenting terms of mortgages, fraudulent appraisals, falsifying documents)*
- *Wall Street did not confront fraud (in late securitizations probably more than 50% of mortgages were obtained fraudulently)*

Wall Street

Flawed incentives in the securitization process (brokers' fees, default risk passed along, "traders" faced less downside risk than upside potential to their compensation)

Government

- *Government pushed home ownership (Freddie Mac, Fannie Mae, Community Reinvestment Act)*
- *Congress did not take necessary steps to update regulatory environment (as Paulson strongly recommended)*
- *Ratings agencies (did a shoddy job, and government status backfired)*

*Question: If not for ethical breaches, would the financial crisis have occurred? Almost certainly.
Would the bubble have burst sooner, with less destructive consequences? Most likely.*

How to think about the ethical issues involved?

Innovation and a dynamic capitalist economy

In retrospect, some of the growth of the US economy in this decade was unhealthy growth, in that it was unsustainable, and it distorted the production structure of the economy (and financial structure) in ways that are costly to adjust to. For example, there is now an oversupply of housing in some areas. Arguably, there is too much capacity for producing cars in the US.

One common response to the economic crisis is to urge policy-makers to spot bubbles and excesses early, so they can be stopped early.

This can be hard. Against what benchmark do we measure the path of the economy in order to spot a bubble? A dynamic economy by definition involves things we haven't seen before.

Financial innovation and financial market regulation

The financial sector is unique. Its job is to ***intermediate*** between savers and borrowers—to gather saving from diverse households, possibly in small amounts, and to put those funds to productive use.

Financial intermediation ***creates value*** in an economic sense. For example, intermediaries

- evaluate investment opportunities.
- screen borrowers, and offer loan contracts appropriate to the mix of borrowers in the pool applying for loans (intermediaries solve ***“adverse selection”*** problems).
- monitor borrowers and investment projects, which conserves on monitoring costs compared to individual savers having to do so (***“delegated monitoring” solves “moral hazard” and “costly auditing” problems***).

How should we think about value added by the financial sector as a general matter, and about financial innovation in particular?

Gains from a well-functioning financial system are widely beneficial. ***Examples:*** **(i)** Microfinance and group lending (Grameen Bank) allow poor borrowers without collateral to start small businesses and better their lives. **(ii)** Stock markets and other secondary financial markets allow long-lived technologies to be utilized (Industrial Revolution). **(iii)** Credit-scoring allows individuals to build a credit history so they don't have to wait to own a home or a business. **(iv)** Financial instruments allow people to save for retirement and, by reducing the need to provide for old age by having children, reduce birth rates in developing countries. Etc.

But history suggests that financial innovation sometimes causes very costly instability in the financial system and in the economy! **Examples:** (i) US financial crisis of 2007-9. (ii) Asian economic crisis of 1997-8. (iii) Mexican peso crisis of 1994-5. (iv) Japan's collapse in property values and recession, starting around 1990. (v) Stock market collapse of 1929. Etc.

The financial sector adds value because **"frictions" (private information, and fixed costs)** create problems that financial intermediaries can mitigate or solve. **But these frictions imply markets are imperfect (markets don't necessarily yield an efficient outcome)!**

In an environment with market failures (imperfect markets), **externalities** and **spillovers** can exist. Externalities occur when an entity (such as a bank) does not take into account all of the effects of its actions—for example, a bank may get so large that it is "too big to fail," or "too connected to fail," and yet it may take on so much risk that it endangers the entire financial system.

The purpose of **regulating** financial firms is to prevent or at least mitigate negative externalities so that society can have the benefits of financial intermediation and financial innovation without too much systemic risk.

Because financial markets are complex, and evolving with the economy, regulatory design is a difficult, dynamic but extremely important problem.

Government “bailouts”

A bailout is, if people expected it, just implementation of social insurance by the government. But if people did not expect it, then a bailout involves wealth transfers. ***The point is that one cannot tell which, just from observing the government’s response to a crisis.***

Even if people did not expect a bailout, it may be that even those who make a net transfer to others are better off than if the government had done nothing, because of the negative impact on all of systemic failure.

If people didn’t expect a bailout, then the associated wealth transfers (benefits and costs) have not only current but also future consequences, because they change the “rules of the game.”

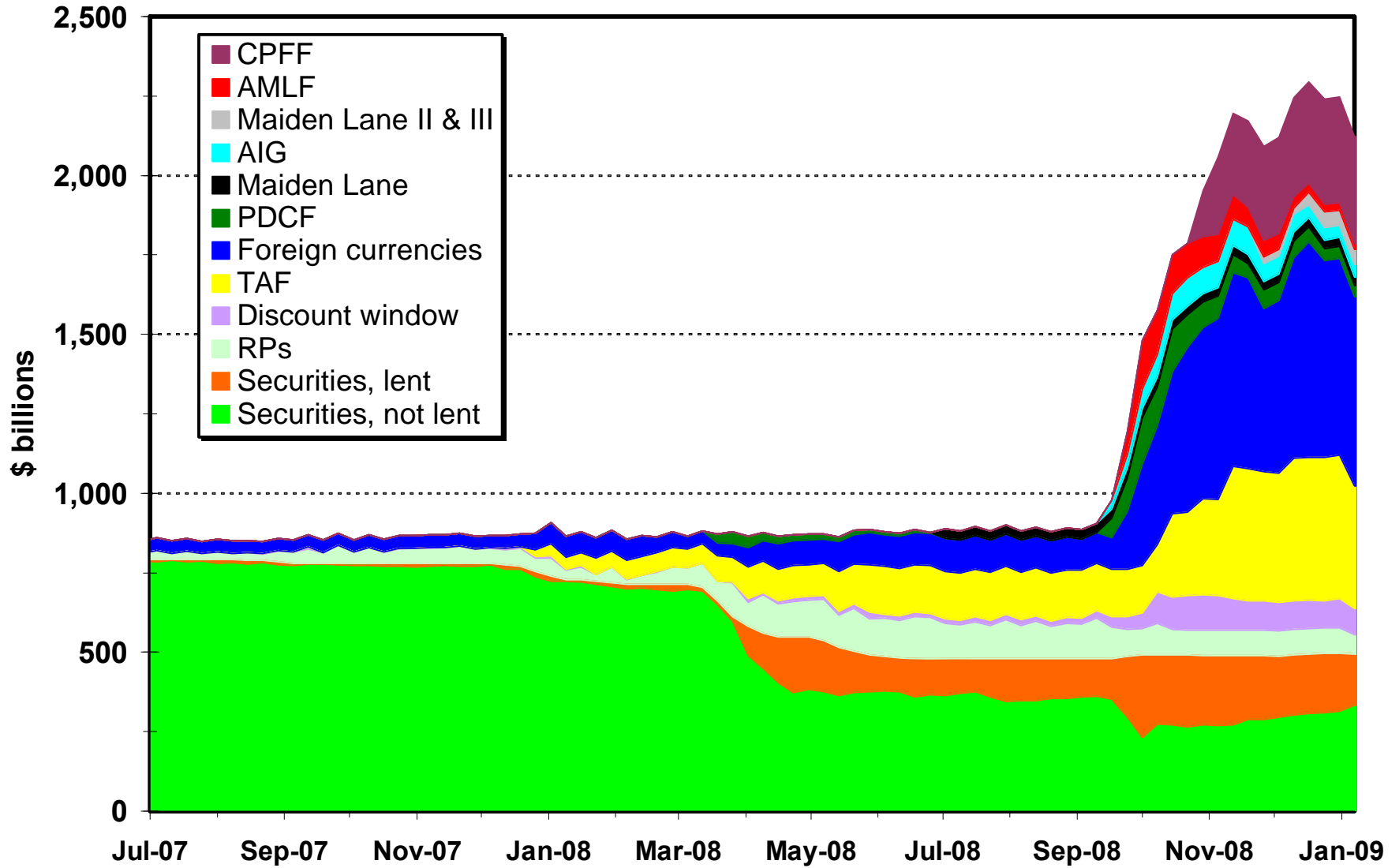
- ***Moral hazard.*** People will try to guess the ways how the government will respond to future crises, and they will take those expectations and beliefs into account when deciding how much risk to take on. If people believe they will be bailed out, they will take on more risk. The unintended effect could be to increase the amount of risk in the economy, because the government cannot commit to “no bailouts” in the future (***time consistency problem***).
- ***Rent-seeking behavior.*** People may put more effort and resources into trying to manipulate government institutions for their benefit. We not like the outcome. Also, a rent-seeking society tends to be an inefficient one—resources used up in trying to capture “rents” are wasted.
- ***Uncertain “rules of the game” are bad for business.***

Difficult ethical dilemmas arise:

- It may be that everyone is made better off by government intervention. But the costs and benefits of the measures taken by the government certainly are not uniformly distributed across the population. Federal government debt as a share of GDP is expected to more than double (CBO projections), which will disproportionately impact young generations. Some workers have kept their jobs as a result of government intervention, others have not. New homeowners and those with good credit benefit from low interest rates engineered by the Fed, but retirees on fixed incomes do not.
- Government intervention may create moral hazard problems and inefficiencies that will plague the economy for years. Are future crises and lower standards of living worth it?
- Government intervention provides direct help to some individuals who were reckless, irresponsible, and even dishonest concerning their finances, while not helping others who were fiscally prudent. Yet this may be necessary, because (for example) it may be impractical to isolate dishonest borrowers, and we may need to help some irresponsible borrowers in order to support the financial system.
- A mortgage contract includes an option to walk away. Some borrowers who could pay their mortgage are under water, and are choosing not to pay, i.e., they are choosing to walk away. Through the financial system, defaulting on a mortgage may hurt an elderly person who is trying to maintain a decent standard of living based on limited assets.

- It is tempting to try to keep the benefits of government intervention within the borders of the US, by erecting barriers against competing imports, and by keeping out foreign workers. But arguments for these measures to not stand up to scrutiny. Why don't all people, regardless of where they were born, deserve an equal chance to better their standards of living by working hard, making things people want to buy, and selling those things to us? If we think it is fine for US workers to make things (or produce services) for export, how can we deny other countries the opportunity to export to us? With regard to foreign workers in the US, the US has benefited from its inception from smart people moving here from all over the world, who then worked hard, paid taxes, created jobs, etc.
- When we bail out the US car companies, we put foreign car companies who have factories in the US at a competitive disadvantage. Should we worry about benefiting auto workers in Detroit at the expense of auto workers in Illinois or Alabama who work for Toyota? Suppose government bailouts of US companies deter foreign companies from building factories here; should we worry about US jobs lost in the future?

Fed's Balance Sheet, Assets



Fed's Balance Sheet, liabilities

