Hand in the homework that is due today

What caused the Global Financial Crisis?

We’ll focus today on
- Financial Innovation and Regulatory Issues
- Other issues have been cited, including monetary policy errors, capital inflows from abroad.

Prof. Bonham has placed several short pieces about today's material online.
2000-06 surge in home prices
  • Why?
Housing prices began to fall in 2007
Delinquencies and foreclosures surged
20% failure rate on sub-prime mortgages
Financial Market Fallout

- **2007: Crisis in markets for mortgage-related assets**
  - Large losses at hedge funds from credit default swaps
    - mortgage bond guaranteeing
  - Credit rating downgrades of subprime products
  - Prices of mortgage-backed securities fell and demand dried up
  - Banks began to write down mortgage-related assets
  - Some institutions were unable to raise needed funds

- **Two key crisis events were outside the U.S.:**
  - In August 2007, French bank BNP Paribas froze redemptions saying couldn’t value underlying securities
  - UK bank Northern Rock bailed out in Sep 2007

- Fed and other central banks began aggressive response
Financial Market Fallout

- 2008: Credit conditions continued to worsen
  - March: Bear Sterns
  - Sep: Fannie Mae and Freddie Mac
  - Sep. 15: Lehman Bros.
  - Sep. 16: AIG
  - Sep. 25: WAMU

- Credit markets froze up

- US and world entered most severe recession since 1930s

- How did the structure and operation of financial markets and institutions cause this?
What is the traditional model for mortgage lending?
- Banks make loans and hold loans as income-earning assets

How is most of it done now?
- A bank or loan originating company (e.g. Countrywide) makes a loan and then sells it
  » In U.S. Fannie Mae and Freddie Mac or private financial institution
- They securitize the loans and sell them to investors
- The “originate-to-distribute” model
Originate-to-Distribute Model

- **Originating Firm Creates Assets**
  - Proceeds of Sale of Assets
  - Sells Cash Flows From Pool of Assets

- **Pooling of Assets**

- **Master Trust Pool of Assets**

- **Tranching of Assets**
  - Securitization Investors
    - Senior Tranche AAA
    - Next Tranche AA
    - Next Tranche A
    - Last Tranche BBB
Creating asset backed securities
This is a form of collateralized debt obligation (CDO)

What are the benefits of such “structured finance”?

- Pooling lowers risk through diversification
- Subordination allows some highly-rated securities
  » Credit default swaps can be used to reduce risk further
  » Some investors can only hold highly-rated securities
- Security sales can tap large pool of funds
- This all means lower interest rates, greater access to credit
- And risk is channeled to investors who are willing to bear it
Growth of CDO Market

Why did it grow so fast?

- financial innovation
- growth of non-bank financial institutions
- low interest rate environment
- rapid home price appreciation
Mortgage meltdown

- Prices of mortgage credit default swaps

![Graph showing the decline in Mortgage Credit Default Swap ABX Indices from January 2007 to January 2009. The graph displays different rating categories: AAA, AA, A, BBB, BBB-. The ABX price decreases over time, indicating a deteriorating market.](image-url)
What went wrong?

- Exposure to losses was much larger than believed
  - Underestimation of potential home price decline
  - Correlation of losses
  - Some securitized asset structures magnified losses
    » CDO-squared
    - MarketPlace video
  - Lack of transparency made it harder for investors to assess risk
  - Incentive problems in structured finance
    » Loan originators have no skin in the game
      - Poor monitoring
Poor monitoring led to falling credit quality

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Source: Inside Mortgage Finance.
What went wrong?

- Incentive problems in structured finance (continued)
  - The rating agencies
  - What do the rating agencies do?
    » Why have the grown in importance over the years?
      • What is their particular role in structured finance?
    » What are the potential problems with reliance on rating agencies?
      • Incentives for issuing investment bank?
      • Incentives for rating agencies?
  » What went wrong?
  » How might we fix it?

What went wrong?

- Little or no regulation of non-bank financial institutions
  - Severe maturity mismatches
  - Very high leverage ratios, facilitated by regulatory changes and regulatory arbitrage
    » Why is high leverage attractive? Dangerous?
  - Banks set up structured investment vehicles (SIVs) to hold asset backed securities (also called more generally special purpose vehicles)
    » But banks were still threatened. Why?
      • Liquidity backstops
Leverage at U.S. Investment Banks

Source Data: Company Annual Reports (SEC Form 10K)
Why did it spread beyond mortgages?

Why did a crisis in a relatively limited part of the markets turn into a full-blown financial crisis?

- **Borrower balance sheet effects**
  - Loss spiral
    - asset price falls $\rightarrow$ must sell assets to correct balance sheet $\rightarrow$ asset sales cause further asset price declines $\rightarrow$ etc.
  - Margin / *haircut* spiral. With increased assessments of risk,
    - larger margins are required $\rightarrow$ must reduce leverage $\rightarrow$ asset sales $\rightarrow$ as in loss spiral.

- **Lending channel**
  - Precautionary hoarding by banks and nonbanks.

- **Runs on nonbank financial institutions**
  - E.g. hedge funds pulling money out of Bear Sterns; AIG forced to post more collateral
Why did it spread beyond mortgages?

• Network effects
  » Counterparty risk. The argument for saving AIG.