



The Subprime Crisis 2:  
The crisis of credit visualized



# Sources

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- ▶ [http://www.youtube.com/watch?v=bx\\_LWm6\\_6tA](http://www.youtube.com/watch?v=bx_LWm6_6tA)
- ▶ Brunnermeier (2009)



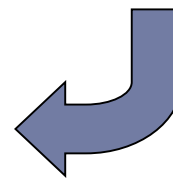
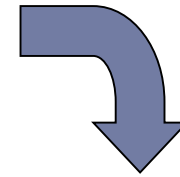
# 1. Low interest rates and credit boom

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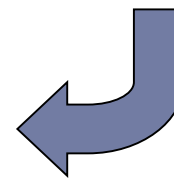
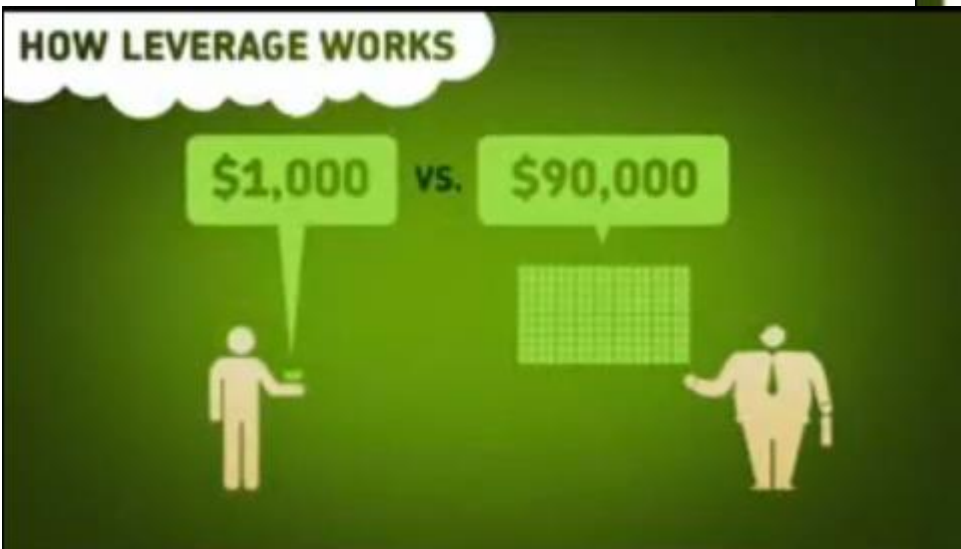
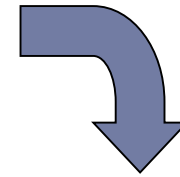
- ▶ Low interest rates (after 9/11 and .com bubble burst)
- ▶ Many countries in Asia and Middle East buy financial assets in U.S.A. to
  - ▶ 1) stabilize their currencies against U.S. Dollar
  - ▶ 2) in search for safety
- ▶ Benign economic environments often lead to credit booms, and to the creation of marginal assets and the issuance of marginal loans



# 1. Low interest rates and credit boom



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## 2. Changing banking industry

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- ▶ Two trends in the banking industry contributed significantly to the lending boom and housing frenzy that laid the foundations for the crisis.
- ▶ First, instead of holding loans on banks' balance sheets, banks moved to an “originate and distribute” model
- ▶ Second, banks increasingly financed their asset holdings with shorter maturity instruments



## 2.1. Securitization

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- ▶ **Securitization** is the process of transforming otherwise illiquid financial assets into marketable capital market securities
- ▶ Financial institutions can cheaply bundle together a portfolio of loans (such as mortgages) with varying small denominations (often less than \$100,000), collect the interest and principal payments on the mortgages in the bundle, and then “pass them through” (pay them out) to the third parties
- ▶ By dividing the portfolio of loans into standardized amounts, the financial institutions can then sell the claims to these interest and principal payments to third parties (other investors) as securities



## 2.1. Securitization

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- ▶ In the process, financial institutions typically create “structured” products often referred to as *collateralized debt obligations (CDOs)*
  - ▶ The first step is to form diversified portfolios of mortgages and other types of loans, corporate bonds, and other assets
  - ▶ The next step is to slice these portfolios into different *tranches*
- ▶ The safest tranche—known as the “super senior tranche”—offers investors a (relatively) low interest rate, but it is the first to be paid out of the cash flows of the portfolio
- ▶ In contrast, the most junior tranche—referred to as the “equity tranche” or “toxic waste”—will be paid only after all other tranches have been paid



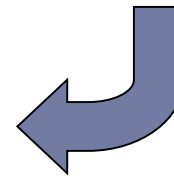
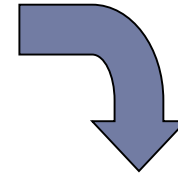
## 2.1. Securitization

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- ▶ The exact cutoffs between the tranches are typically chosen to ensure a specific rating for each tranche. For example, the top tranches are constructed to receive a AAA rating
- ▶ Buyers of these tranches or regular bonds can also protect themselves by purchasing *credit default swaps (CDS)*, which are contracts insuring against the default of a particular bond or tranche. The buyer of these contracts pays a periodic fixed fee in exchange for a contingent payment in the event of credit default



# 2.1. Securitization



## 2.2 Shortening the Maturity Structure

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- ▶ Most investors prefer assets with short maturities
- ▶ Activities was transferred to a *shadow banking system* (bank lending has been replaced by lending via the securities market) consisting of off-balance-sheet investment vehicles
- ▶ These structured investment vehicles raise funds by selling short-term asset-backed commercial paper, primarily to money market funds
- ▶ The short-term assets are called “asset backed” because they are backed by a pool of mortgages or other loans as collateral
- ▶ In the case of default, owners of the asset-backed commercial paper have the power to seize and sell the underlying collateral assets



## 2.2 Shortening the Maturity Structure

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- ▶ Another important trend was an increase in the maturity mismatch on the balance sheet of investment banks
- ▶ This change was the result of a move towards financing balance sheets with short-term repurchase agreements, or “repos”
- ▶ In a repo contract, a firm borrows funds by selling a collateral asset today and promising to repurchase it at a later date.
- ▶ The growth in repo financing as a fraction of investment banks' total assets is mostly due to an increase in overnight repos
- ▶ These magnify the problem of “Maturity Mismatch”



# 3. Housing boom

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- ▶ Mortgage brokers offered teaser rates, no-documentation mortgages, piggyback mortgages (a combination of two mortgages that eliminates the need for a down payment), and NINJA (“no income, no job or assets”) loans
- ▶ All these mortgages were granted under the premise that background checks are unnecessary because house price could only rise, and a borrower could thus always refinance a loan using the increased value of the house



# 3. Housing boom

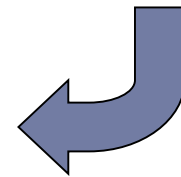
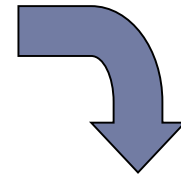
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- ▶ Conditional on no housing price decline, most subprime mortgages appeared relatively riskless: the value of the mortgage might be high relative to the price of the house, but it would slowly decline over time as house prices increased
- ▶ This combination of cheap credit and low lending standards resulted in the housing frenzy that laid the foundations for the crisis



# 3. Housing boom

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# Conditions before the crisis (cont.)

- ▶ Abreu and Brunnermeier (2002, 2003):

It was perceived to be more profitable to ride the wave than to lean against it. (Similar to behavioral finance?)

- ▶ “When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you’ve got to get up and dance. We’re still dancing.”



## Youtube link

[http://www.youtube.com/watch?v=bx\\_LWm6\\_6tA](http://www.youtube.com/watch?v=bx_LWm6_6tA)