SOCIETY OF ACTUARIES

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The Credit Crunch of 2007

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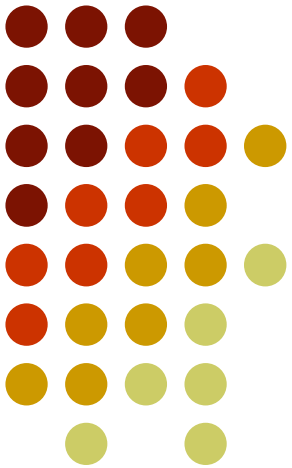
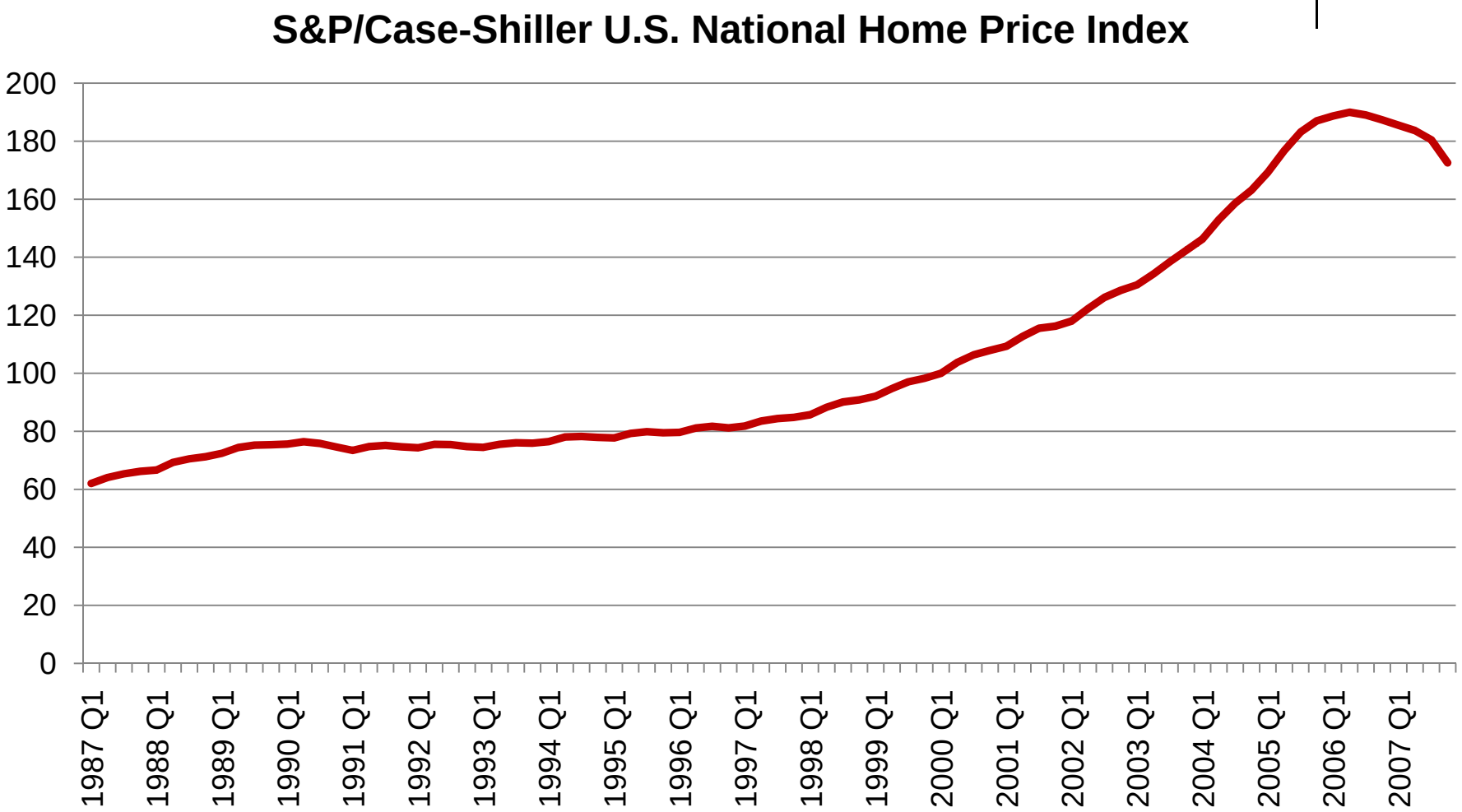
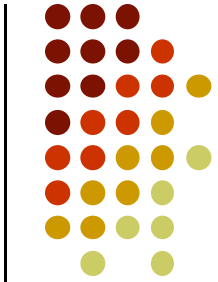


U.S. Real Estate Prices, 1987 to 2007, inflation-adjusted

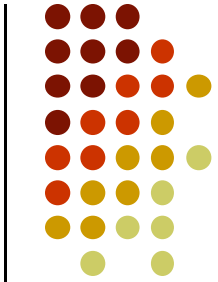


What happened…



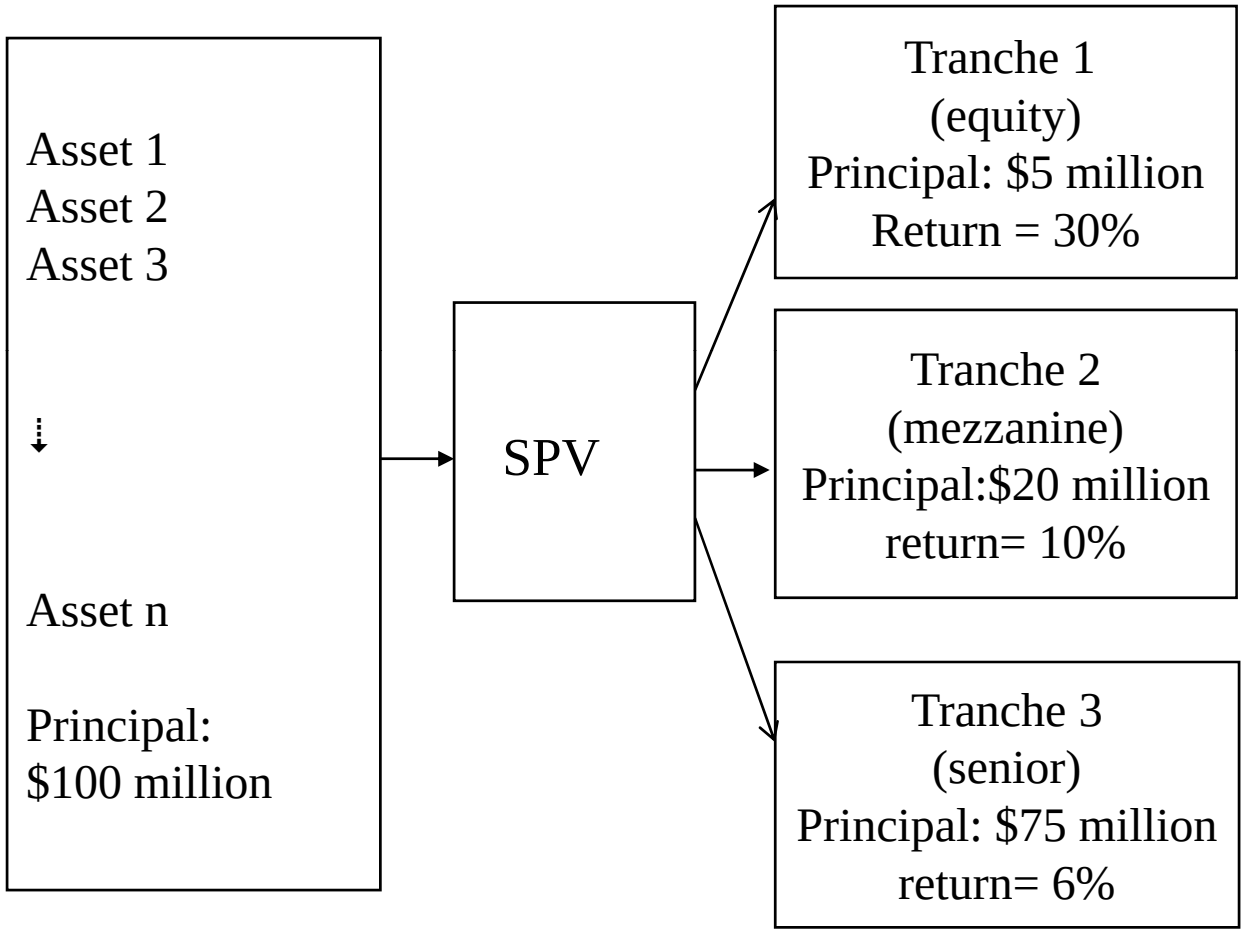
- During 2000 to 2006 U.S. real estate prices rose fast and mortgage lenders thought that they had more than adequate collateral
- They relaxed lending standards and made it easier for people to borrow more than they could afford
- Features of the market: ARMs and NINJAs
- Easy-to-obtain mortgages fueled the demand for homes and helped to keep real estate prices rising

What happened…



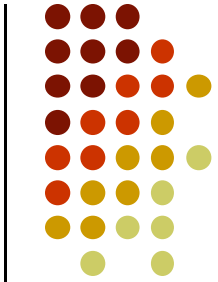
- Mortgages were packaged in financial products and sold to investors
- In 2007 the bubble burst and the market was forced to confront the reality that many U.S. subprime mortgages would not be serviced
- U.S. real estate prices fell and financial products, backed by the mortgages, that were previously thought to be safe began to be viewed as risky
- There was a “flight to quality” and credit spreads increased by 50% to 100% across the board

Asset Backed Security



A "waterfall" defines the precise rules for allocating cash flows to tranches

The Key Role of Correlation

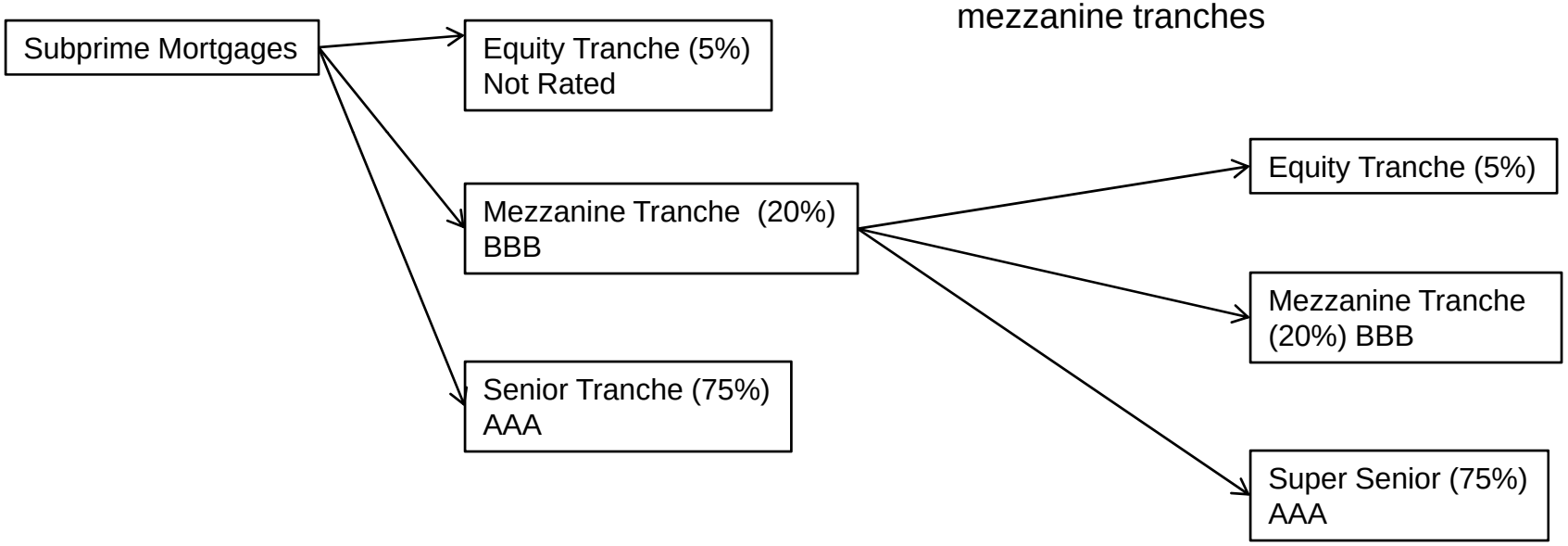


As the default correlation between the assets increases…

- What happens to the riskiness of the most senior tranche (Tranche 3)?
- What happens to the riskiness of the most junior tranche (Tranche 1)?

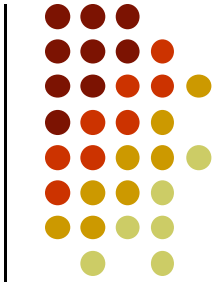
Structured Products Created from Structured Products (ABS CDOs)

The mezzanine tranche is repackaged with other mezzanine tranches



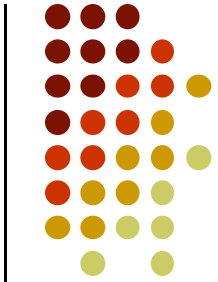
How much of the original portfolio of subprime mortgages is AAA?

Losses to AAA tranche of ABS CDO



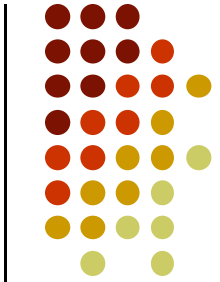
Losses to Subprime portfolio	Losses to Mezzanine Tranche of ABS	Losses to Equity Tranche of ABS CDO	Losses to Mezzanine Tranche of ABS CDO	Losses to Senior Tranche of ABS CDO
12%	35%	100%	100%	13.3%
15%	50%	100%	100%	33.3%
18%	65%	100%	100%	53.3%

Motivation for Credit Risk Transfer Using ABSs



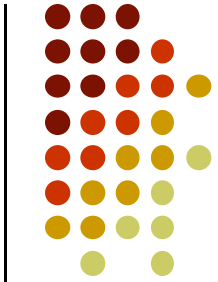
- Financial institutions want to get assets off their balance sheets
- Many investors want AAA-rated securities, and relatively few bonds are rated AAA

What Went Wrong (The Frictions)



- Origination: May not be an incentive to take soft data into account
- "Lemons:" Possibly only the worst loans get transferred
- Moral Hazard: The originator may not have an incentive to service loans properly

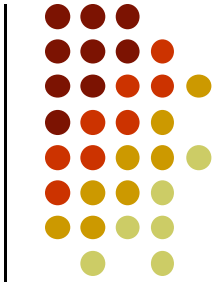
Alternative Credit Risk Transfer Mechanisms



- Selling loans
- Buying credit default swaps
- ABSs

ABSs are potentially best at overcoming the frictions

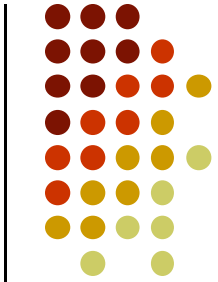
Structured credit products will stage a comeback…



…. but investors need to be satisfied that the frictions have been overcome

- One possibility is to insist that the equity tranche be retained by the originator
- A better alternative might be to insist that the originator retain a certain percentage of all tranches

The Lessons from 2007



- Only invest in things you understand
- Do not finance long term assets with short term liabilities
- Beware of the “herd mentality”
- Correlation increases in adverse market conditions