Ch 8 Securitization and the Credit Crisis of 2007

Derivatives are concerned with transferring risk from one entity in the economy to another.
Another way of transferring risk in the economy is **securitization**.

Securitization

Banks traditionally funded loans with deposits. As demand for residential mortgages grew, mortgage-backed securities were developed. Portfolios of mortgages were created and the cash flows were packaged as securities. Securitization enabled banks to increase lending faster than their deposits were growing. Securitization techniques were later also applied to other asset classes such as automobile loans and credit card receivables.

ABSs

Asset-backed security

- portfolio if income-producing assets is sold by the bank to a special purpose vehicle (SPV)
- cash flows from assets are allocated to tranches

Cash flows are allocated to tranches by specifying a waterfall.

- a separate waterfall is applied to principal and interest payments
  – principal payments are allocated to senior tranche until its principal is fully repaid
  – interest payments are allocated to senior tranche until it has received its promised return on its outstanding principal

ABS CDOs

- finding investors for mezzanine tranches was difficult
- led to creation of ABSs of ABSs
  – many different mezzanine tranches were packaged together and tranched out
  – *ABS CDO*
  – designed so that the senior tranche of the ABS CDO has a very high credit rating

Although the senior tranche of the ABS CDO has a credit rating equally as high as that of the senior tranche of the ABS, it is much riskier. It has a lower threshold of losses that allow it to remain intact.

The US Housing Market

Subprime mortgages are mortgages that are considered to be significantly more risky than average.

The Relaxation of Lending Standards

Relaxing lending standards allowed more people to buy houses. Rising demand for houses caused housing prices to rise, which made housing harder to afford, so lending standards had to be further relaxed.

Adjustable-rate mortgages (ARMS) were developed. These had a low initial interest rate followed by a much higher rate after a few years.

Subprime Mortgage Securitization

Subprime mortgages were frequently securitized. Buyers of securitized mortgages cared less about the credit risk and more about whether they could sell it to someone else. This depended mostly on the loan-to-value ratio and the borrower's FICO score. These factors too were of doubtful quality.

The government did not regulate the behavior of mortgage lenders because it was trying to expand home ownership.

The Bubble Bursts

Mortgage holders could not afford their mortgages which led to foreclosures and declining housing prices.

In the US, mortgages are nonrecourse in many states. This means if there is a default, the lender can take possession of the house, but other assets of the borrower are off-limits. Thus the borrower has a free American-style put option, in which the borrower can sell the house to the lender for the principal outstanding on the mortgage. This encouraged speculative activity.

Suppose two people have identical houses next to each other. Both have mortgages of $250,000. Both houses are now worth $200,000 and can sell for $170,000 in foreclosure. The optimal strategy for both owners it to exercise the put option and buy the neighbor's house.

The decline in real estate prices was not unique to the US.

The Losses

Increasing foreclosures led to losses on mortgages. Investors in tranches formed from mortgages incurred big losses. Financial institutions with big positions in some of the tranches incurred huge losses and had to be rescued with government funds.

The Credit Crisis

The losses on securities backed by residential mortgages led to a credit crisis. Banks became much more risk-averse and were reluctant to lend. Creditworthy individuals and corporations found borrowing difficult. Credit spreads increased.

What Went Wrong?

- mortgage originators used lax lending standards
- products were developed to enable mortgage originators to transfer credit risk to investors
- ratings agencies were trying to rate the new structured products with little historical data
- investors relied on the inaccurate ratings rather than forming their own opinions of risks
- returns offered on the products were higher than those on bonds with comparable ratings

Regulatory Arbitrage

Many of the mortgages were originated by banks, and banks were also the main investors in the tranches created from the mortgages. This was because of *regulatory arbitrage*. The regulatory capital banks were required to keep for the tranches created from a portfolio of mortgages was much less than the regulatory capital required for mortgages themselves.

Incentives

agency costs - situation where incentives are such that the interests of two parties in a business relationship are not perfectly aligned

The process of mortgage origination and securitization had many agency costs.

- originators had incentive to make loans acceptable to creators of ABS and ABS CDO tranches
- individuals who valued houses had incentive to provide a high valuation (low loan-to-value ratio)
- tranche creators had incentive to structure the tranches to maximize the volume of high-rated tranches
- rating agencies had incentive to rate structured products highly

Employees of financial institutions also had incentive to generate short-term profits, because bonuses are based on short-term performance.

The Aftermath

OTC derivatives markets have become more regulated.

- requirement to standardize OTC derivatives and clearing through CCPs
- requirement to post initial margin and variation margin with the CCP
- requirement to contribute to a default fund

Dodd-Frank Act in the US provides for more oversight of financial institutions. Under the Volcker rule, proprietary trading and other similar activities become more difficult. Under Basel III, banks are required to satisfy certain liquidity requirements.