Chapter 8
Securitization and the Financial Crisis of 2007-8

Short Concept Questions

8.1 They bought mortgages from issuers and packaged them as securities. For a fee, they guaranteed mortgages. If the borrower defaulted, they were responsible for losses.

8.2 A mezzanine tranche is a tranche with a seniority between the most senior tranche and the most junior (equity) tranche. It is more likely to absorb losses than the senior tranche and less likely to do so than the equity tranche.

8.3 An ABS is structured so that the cash flows from a portfolio of instruments such as mortgages are tranched out, that is, they are paid in priority sequence to different classes of investors.

8.4 In an ABS CDO, the cash flows received by tranches of ABSs are again tranched out.

8.5 A waterfall defines the way cash flows are allocated to tranches.

8.6 A subprime mortgage is a mortgage that is considered to be significantly more risky than average.

8.7 More people were able to get a loan to buy a house increasing demand.

8.8 "Agency costs" is a term used to describe the costs in a situation where the interests of two parties are not perfectly aligned. As described at the end of Section 8.3, the interests of valuers, mortgage originators, the creators of ABS and ABS CDO structures, the investors in the structures, traders, and the financial institutions for which traders worked were not perfectly aligned.

8.9 Some such as Lehman went out of business. Others such as Goldman Sachs became commercial banks.

8.10 The Basel committee of central bankers agrees on regulations which are implemented by its members.

Practice Questions

8.11

Losses on underlying assets	*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%	46.7%	100%	100%	17.9%
15%	66.7%	100%	100%	48.7%

8.12
The increase in the price of houses was caused by an increase in the demand for houses by people who could not afford them. It was therefore unsustainable.

8.13
Subprime mortgages were frequently securitized. The only information that was retained during the securitization process was the applicant's FICO score and the loan-to-value ratio of the mortgage.

8.14
Investors underestimated how high the default correlations between mortgages would be in stressed market conditions. Investors also did not always realize that the tranches underlying ABS CDOs were usually quite thin so that they were either totally wiped out or untouched. There was an unfortunate tendency to assume that a tranche with a particular rating could be considered to be the same as a bond with that rating. This assumption is not valid for the reasons just mentioned.

8.15
Typically an ABS CDO is created from the BBB-rated tranches of an ABS. This is because it is difficult to find investors in a direct way for the BBB-rated tranches of an ABS.

8.16
Consider the structure in Figure 8.1. Assume that there are 1,000 assets each with a principal of $100,000. Suppose that all the assets have a 5% chance of defaulting during the life of the ABS and there will be a 50% recovery. For the senior tranche to be affected, there have to be at least 400 defaults. When default correlation is zero, there is virtually no chance of this. As default correlation increases, 400 defaults become more likely. In the limit as the correlation approaches one, there is a 5% chance that all 1,000 will default.
As default correlation increases, the equity tranche becomes less risky. When the default correlation is low, some defaults are almost certain to happen so that the equity tranche experiences losses. As the default correlation increases, it becomes less likely that there will be defaults. In the limit as the correlation approaches one, there is a 95% chance that there will be no defaults and the equity tranche experiences no losses.

8.17
As indicated in Table 8.1, a moderately high loss rate will wipe out the mezzanine tranches of ABSs so that the AAA-rated tranche of the ABS CDO is also wiped out. A moderately high loss rate will at worst wipe out only part of the AAA-rated tranche of an ABS.

8.18
The end-of-year bonus usually reflects performance during the year. This type of compensation tends to lead traders and other employees of banks to focus on their next bonus and therefore have a short-term time horizon for their decision making.

8.19

Losses to subprime portfolio	*Losses to Mezz tranche of ABS*	*Losses to equity tranche of ABS CDO*	*Losses to Mezz tranche of ABS CDO*	*Losses to senior tranche of ABS CDO*
2%	0%	0%	0%	0%
6%	6.7%	67%	0%	0%
14%	60%	100%	100%	38.5%
18%	86.7%	100%	100%	79.5%

8.20.

Losses to subprime portfolio	*Losses to Mezz tranche of ABS*	*Losses to equity tranche of ABS CDO*	*Losses to Mezz tranche of ABS CDO*	*Losses to senior tranche of ABS CDO*
10%	0%	0%	0%	0%
13%	15%	100%	25%	0%
17%	35%	100%	100%	7.1%
20%	50%	100%	100%	28.6%

8.21

When the AAA-rated tranches of an ABS experiences defaults, the mezzanine tranches of the ABSs must have been wiped out. As a result, the AAA tranche of the ABS CDO has also wiped out. If the portfolios underlying the different ABSs have the same default rates, it must therefore be the case the AAA-rated tranche of the ABS is safer than the AAA-rated tranche of the ABS CDO. If there is a wide variation in the default rates, it is possible for the AAA-rated tranche of the ABS CDO to fare better than some (but not all) AAA-rated tranches of the underlying ABSs.

Resecuritization can only be successful if the default rates of the underlying ABS portfolios are not highly correlated. The best approach would seem to be to obtain as much diversification as possible in the portfolio of assets underlying the ABS. Resecuritization then has no value.

8.22

For losses to be experienced on the AAA-rated tranche of the CDO squared, the loss rate on the mezzanine tranches of the ABS CDOs must be greater than 35%. This happens when the loss rate on the mezzanine tranches of ABSs is $10 + 0.35 \times 25 = 18.75\%$. This loss rate occurs when the loss rate on the underlying assets is $5 + 0.1875 \times 15 = 7.81\%$