

Credit Default Swaps at AIG Case Study

(Michigan Ross School of Business case W04C41)

From 1997 to 2007 AIG Financial Products (AIGFP) had entered into credit default swaps on large amounts of tranches of bundles of debt. While initially this was mostly on commercial bonds, by the mid-2000s this was increasingly on mortgage-backed securities (MBS). The risk of default of these tranches was believed to be very low, lower than for most AAA-rated debt, and so it was referred to as “super-senior”.

As the US housing crisis started to bite in 2007, Goldman Sachs, the largest buyer of AIG’s CDS on these mortgage-backed securities, decided that the US housing market was falling, and their CDSs were beginning to be very valuable. Given AIG’s drop in rating from AAA to A, Goldman Sachs started to worry about credit risk. So they demanded \$1.8 billion in collateral from AIG. AIG disagreed with the need, and thought the credit default risk they were insuring against was very unlikely.

Questions to answer:

1. Explain how a large band of a bundle of relatively weak BBB-rated mortgages could be turned, through the use of CDOs, into AAA-rated debt.
2. Explain the importance to the risk evaluation of assumptions about the correlation of mortgage defaults. What caused those assumptions to fail?
3. Was this just a temporary liquidity problem brought on by disagreement over Mark-to-Market pricing that would go away as the insurance policies and CDOs reached maturity, as AIG claimed? Or was this a fundamental insolvency issue from AIG making bad bets in the financial markets? Or both?
4. What went wrong with their risk management processes? How would you have strengthened the risk management process? What other measurements might you have used, and how would they have helped prevent the failure?
5. Consider a BBB-tranche from a mortgage-backed securitisation deal (MBS) as shown in Exhibit 4. Assume, for simplicity’s sake, that this is a zero-coupon security – so all the value is exchanged at maturity. Also assume that:
 - The mortgage pool as a whole is worth \$1 million.
 - MBS AAA tranche is 80% of original mortgage pool, other tranches are 5% each.Construct a pay-off diagram at maturity showing the payoff to holders of the BBB tranche as a function of the value of the underlying mortgage pool.
6. A CDO is made up from four BBB tranches from MBSs from different US States. If the super-senior tranche of the CDO backed by the BBB-tranche of the MBS above is 70% of the combined face value of all the CDO tranches, and the MBSs in all states are perfectly correlated, draw the pay-off diagram for the Super-Senior tranche as a function of the value of the underlying mortgage pool. How would the diagram change if the four tranches had a correlation of 0?
7. Summarise in one paragraph (less than 100 words) the main 1 or 2 mistakes made by AIG that led to the loss.

There are lots of write-ups on this disaster. Feel free to read widely – though you must do your own interpretation and come to your own conclusions.

A clear summary of how a couple of academics see the problem:

<https://insight.kellogg.northwestern.edu/article/what-went-wrong-at-aig>

while a journalist sees it differently:

https://www.huffingtonpost.com/david-paul/credit-default-swaps-the_b_133891.html

Professor Hull's answer is in section 6.2 of the course textbook. If you want the maths, he publishes it in various papers including:

<http://www-2.rotman.utoronto.ca/~hull/DownloadablePublications/AAArisk.pdf>

You should be ready to discuss this case in the Week 8 lecture on **17th March**. I will summarise the case, and then expect <5 minute presentations from each group on one thing that is interesting that you have discovered.

After that discussion, your report should be submitted on Moodle by the end of **Tuesday, 24th March**.

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