

Pricing of Credit Derivatives

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Abstract

The structuring and trading of credit derivatives has grown tremendously in recent years. As banks, security firms, and corporations continue to hedge and realign their credit risk and mutual funds strive to enhance their yield and to control their credit risk exposure this growth is expected to continue. The emergence of new credit derivative instruments on Wall Street is now commonplace. In addition to the standard products such as credit default swaps, total return swaps, credit spread options, collateralized bond obligations, and collateralized loan obligations, many new structures incorporating exotic option features have started to appear, e.g., the credit default swaption and credit spread options. Many credit derivative products are associated with emerging market sovereign debts. How to value these instruments in practice is an interesting but challenging task. Because most of the credit derivative transactions are over-the-counter trades, how each transaction is priced is not transparent to outsiders. Different firms may use dramatically different techniques and information in valuing similar instruments. As the credit derivative market develops, the bid and ask spread for typical products shrinks and standard valuation techniques appear.

This talk will give an overview of current pricing techniques. We first show how to build a credit curve. A credit curve gives the instantaneous default probability of a party at any time in the future. It is as important to credit derivative pricing as the yield curve is to fixed income derivative pricing. Then we show how to introduce the default correlation. Finally we give a few numerical examples on the pricing of credit default swaps and the first-to-default of a credit portfolio. A few actuarial concepts are used since there are some similarities between the default event of a credit risk and the death event of a human life.

