Quantitative Finance > Pricing of Securities

Valuation Bound of Tranche Options

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We performed a comprehensive analysis on the price bounds of CDO tranche options, and illustrated that the CDO tranche option prices can be effectively bounded by the joint distribution of default time (JDDT) from a default time copula. Systemic and idiosyncratic factors beyond the JDDT only contribute a limited amount of pricing uncertainty. The price bounds of tranche option derived from a default time copula are often very narrow, especially for the senior part of the capital structure where there is the most market interests for tranche options. The tranche option bounds from a default time copula can often be computed semi-analytically without Monte Carlo simulation, therefore it is feasible and practical to price and risk manage senior CDO tranche options using the price bounds from a default time copula only. CDO tranche option pricing is important in a number of practical situations such as counterparty, gap or liquidation risk; the methodology described in this paper can be very useful in the above described situations.

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