

Counterparty Risk on a CDS in a Model with Joint Defaults and Stochastic Spreads

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Abstract

A Markov model with simultaneous defaults and stochastic spreads is devised for modeling the counterparty risk on a CDS. The ‘wrong way risk’ in this model is accounted for by the possibility of the common default of the reference name and the counterpart. Semi-explicit formulae are derived for most quantities of interest, such as Credit Valuation Adjustment (CVA) and Expected Positive Exposure (EPE). A dynamic copula property as well as appropriate specifications of the model make the calibration efficient. Numerical results are presented to show the adequation of the behavior of EPE and CVA in the model with stylized features. The spread risk in the model significantly increases the CVA in the cases of a low risk reference entity, or of a low correlation between the reference entity and the counterpart.

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