CDS with Counterparty Risk in a Markov Chain Copula Model with Joint Defaults

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We study counterparty risk on CDS in a Markov chain model of two reference credits, the firm underlying the CDS and the CDS protection seller. More specifically, we consider a Markov chain copula model in which wrong way risk is represented by the possibility of joint defaults between the counterparty and the firm. In this set-up we derive semi-explicit formulas for most quantities of interest with regard to CDS counterparty risk, like price, Credit Value Adjustment (CVA), Expected Positive Exposure (EPE) or hedging strategies. Model calibration is made simple by the copula property of the model. Numerical results show adequation of the behavior of EPE and CVA in the model with stylized features.