Affine Markov chain model of multifirm credit migration

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This talk will explore a natural extension of the intensity based doubly stochastic framework for credit default. The essential addition is to introduce a Markov chain for the "credit rating" of each firm, which are independent conditioned on one or more stochastic time changes, or equivalently, stochastic intensities. Stochastic time change is then combined with other stochastic factors, for example, the interest rate and the recovery rate, into a multidimensional affine process. The resulting AMC framework has the computational effectiveness of the intensity based models. Already, the minimal version of the AMC framework which combines stochastic interest rates, stochastic recovery rates and the multifirm migration process gives very good qualitative reproduction of essential features of dynamic credit spread curves, default correlations and multifirm default distributions. At the end of the talk, we show how the same framework extends to large scale basket credit derivatives, particularly CDOs.