

Title: A multi-name structural credit risk model with a reduced-form default trigger

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Abstract:

In this talk, we present a multi-name hybrid credit risk model where the default of each company is highly related to how elements of its capital structure evolve over time. A non-linear transformation of leverage links the structural component to the reduced-form part of the model. As a result, the value of assets and liabilities of each company at their respective moment of default can be used as a basis for a recovery rate model. Since the evolution of assets and liabilities are linked across firms, there is an additional contagion effect because both the moment of default and the amount of losses for each default are dependent. Although dependence in the moment of default has been widely investigated, interrelations in the amount of losses at default have been surprisingly overlooked and have a very important impact on aggregate losses. Various capital structures are proposed that create different dependence structures between firms. Risk management and pricing applications are presented. Using the companies of the CDX NA (IG and HY) indices, it is shown that the model with endogenous recovery rate does significantly increase aggregate potential losses (with respect to other recovery rate assumptions) and replicates steep increasing correlation skews.