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Credit Risk using Time Changed Brownian Motions

Time changed Brownian motions such as the variance gamma model have been very popular for modelling equities, but less applied in the credit risk domain. The reason for their late adoption despite their versatility may be the intractable nature of the first passage problem in these models. In this talk I show how this difficulty can be circumvented. Thus freed, we are able to investigate some consequences of adding jumps to firm value (structural) models. We then move to multivariate credit models and consider the implications of introducing dynamic default correlations through time change.