

1023-60-569

Kay Giesecke* (giesecke@stanford.edu), Department of Management Science and Eng.,
Stanford University, Terman Engineering, Stanford, CA 94305-4026. *Pricing credit from the top
down with affine point processes.*

A portfolio credit derivative is a contingent claim on the aggregate loss of a portfolio of credit sensitive securities. We develop an economically motivated and computationally tractable top down valuation framework in which portfolio loss follows an affine point process. The magnitude of each loss is random and defaults are governed by an intensity that is driven by affine jump diffusion risk factors. The portfolio loss itself is a risk factor so past defaults influence future loss dynamics. This enables the top down model to capture feedback from events and it introduces a dependence structure among default rates, recovery rates and interest rates. An affine point process supports semi-analytical transform based pricing and calibration. Hedging is facilitated by random thinning. We demonstrate the features of the top down framework in the context of CDS index and tranche swaps. This is joint work with Eymen Errais and Lisa Goldberg. (Received September 18, 2006)