Quantitative Finance > Pricing of Securities

The Underlying Dynamics of Credit Correlations

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We propose a hybrid model of portfolio credit risk where the dynamics of the underlying latent variables is governed by a one factor GARCH process. The distinctive feature of such processes is that the long-term aggregate return distributions can substantially deviate from the asymptotic Gaussian limit for very long horizons. We introduce the notion of correlation surface as a convenient tool for comparing portfolio credit loss generating models and pricing synthetic CDO tranches. Analyzing alternative specifications of the underlying dynamics, we conclude that the asymmetric models with TARCH volatility specification are the preferred choice for generating significant and persistent credit correlation skews. The characteristic dependence of the correlation skew on term to maturity and portfolio hazard rate in these models has a significant impact on both relative value analysis and risk management of CDO tranches.

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