1035-60-566   **Andrei Lopatin*** (`alopatin@numerix.com`), 4320 Winfield Rd, Suite 200, Warrenville, IL 60555, and **Timur Misirpashaev**. *Two-Dimensional Markovian Model for Dynamics of Aggregate Credit Loss.*

We propose a new model for the dynamics of the aggregate credit portfolio loss. The model is Markovian in two dimensions with the state variables being the total accumulated loss L_t and the stochastic default intensity λ_t. The dynamics of the default intensity are governed by the equation $d\ln(\lambda_t) = \kappa(\rho(L_t, t) - \ln(\lambda_t))dt + \sigma dW_t$. The function ρ depends both on time t and accumulated loss L_t, providing sufficient freedom to calibrate the model to a generic distribution of loss. We develop a computationally efficient method for model calibration to the market of synthetic single tranche CDOs. The method is based on the Markovian projection technique which reduces the full model to a one-step Markov chain having the same marginal distributions of loss. Our model offers a convenient framework for the pricing of dynamic credit instruments, such as options on indices and tranches, by backward induction. Path dependent instruments can be evaluated via the Monte Carlo technique. We calibrate the model to a set of recent market quotes on CDX index tranches and apply it to the pricing of tranche options and forward starting CDOs. (Received September 11, 2007)