**An Assessment of Copula FunctionsApproach in Conjunction with Factor Model in Portfolio Credit Risk Management**

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This study considers the performance of the five copula functions, namely, the Normal, t-, Clayton, Frank, and Gumbel copula functions that are often used in literature in conjunction with factor models for the modeling of joint distribution of the default times of a set of *I* firms. Two types of factor models are considered: static and dynamic. In either type of factor model, conditioned on some common factors, the defaults between firms are independent. However, these factor models fail to account for default clusteringin which firms’ credit risk increases simultaneously due to their commercial or financial relationships andas a consequence, the majority of defaults take place.For this reason, the contagious model that incorporates contagion mechanismsbetween firmsis introduced (Davis and Lo 1999; Jarrowand Yu 2001). A simulation study based on a mixture of a dynamic factor model with contagious effect is performed to assess the goodness of fit of the distribution function based on the aforementioned copula functions. It is demonstrated that as the contagious effect increases, the goodness of fit of the distribution function based on copula functions decreases, which highlights the deficiency of the copula function approach.

***Keyword***. Normal Copula, t-Copula, Clayton Copula, Frank Copula, Gumbel Copula, Factor Model, Default Clustering, Contagious Model.