

# An Alternative Frequency Dependence Model and its Applications\*

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## **Abstract**

In this paper, a multivariate quasi-negative binomial distribution is proposed to model frequency dependence among different risk types. The operational risk diversification effect is illustrated through frequency dependency modeled by the bivariate quasi-negative binomial distribution under a framework of Monte Carlo simulation.

**Keywords and phrases:** Bivariate quasi-negative binomial distribution; marginal distribution; dependence; operational risk.