Dependent Risks and Excess of Loss Reinsurance[*]

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Abstract

In this paper we study, from the insurance point of view, the optimal excess of loss retention limits for two dependent risks. We consider two optimization criteria, which are quite connected. The expected utility of wealth with respect to the exponential utility function and the adjustment coefficient of the retained aggregate claims amount. We consider that the number of claims is generated by a bivariate Poisson distribution. The premium calculation principle used for the excess of loss treaties is the expected value principle. Although the systems of equations, that give the optimal solution for both problems, look quite similar, we will see that the optimal solution is heavily dependent on the criterion chosen.

Keywords: Reinsurance; excess of loss; expected utility of wealth; exponential utility function; adjustment coefficient; bivariate Poisson; dependent risks.