

Ruin Probabilities of a Discrete-time Multi-risk Model

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Abstract. We investigate a multi-risk model describing insurance business with two or more independent series of claim amounts. Each series of claim amounts consists of independent non-negative random variables. Claims of each series occur periodically with some fixed inter-arrival time. Claim amounts occur until they can be compensated by a common premium rate and the initial insurer's surplus. It was derived the recursive formula for calculation of finite-time ruin probabilities. In the case of bi-risk model, it is presented a procedure to calculate the ultimate ruin probability. We add several numerical examples illustrating application of the derived formulas.

Keywords: multi-risk model; discrete-time risk model; ruin probability; recursive formula; net profit condition