THE PROBABILITIES OF ABSOLUTE RUIN IN THE RENEWAL RISK MODEL WITH CONSTANT FORCE OF INTEREST

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Abstract. In this paper we consider the probabilities of finite- and infinite-time absolute ruin in the renewal risk model with constant premium rate and constant force of interest. In the particular case of compound Poisson model, explicit asymptotic expressions for the finite- and infinite-time absolute ruin probabilities are given. For the general renewal risk model, we present an asymptotic expression for the infinite-time absolute ruin probability. Conditional distributions of Poisson processes and probabilistic techniques regarding randomly weighted sums are employed in the course of this study.

Keywords: Absolute ruin; Asymptotics; Constant force of interest; Convolution equivalence; Heavy tails; Renewal risk model

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