Ruin Probabilities of the Some Risk Models

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Abstract

In this paper, we study the numerical calculation to obtain bounds for the finite time ruin probabilities for two particular insurance risk models, that both models are extensions of the classical risk model. The first model allows for the investment at a fixed rate of interest of the surplus whenever this is above a given level. The second model studied in this paper is the classical risk model modified by allowing the rate of premium income to vary through time according to the level of the surplus. An essential feature of the two models studied in this paper is that they are time-homogeneous Markov processes. Also we discuss the extension of these models to allow for the parameters to change over time in a deterministic way.

Keywords and phrases: Ruin probability, Risk models, Numerical algorithms, Markov chains.

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