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Stability Bound of Ruin Probability in a Reduced Two-Dimensional Risk Model

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Abstract : In this work, we introduce the qualitative and quantitative concept of the strong stability method in the risk process modeling two lines of business of the same insurance company or an insurance and re-insurance companies that divide between them both claims and premiums with a certain proportion. The approach proposed is based on the identification of the ruin probability associate to the model considered, with a stationary distribution of a Markov random process called a reversed process. Our objective, after clarifying the condition and the perturbation domain of parameters, is to obtain the stability inequality of the ruin probability which is applied to estimate the approximation error of a model with disturbance parameters by the considered model. In the stability bound obtained, all constants are explicitly written.

Keywords : Markov chain, risk models, ruin probabilities, strong stability analysis
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