

Risk models based on time series for count random variables

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Abstract

In this paper, we generalize the classical discrete time risk model by introducing a dependence relationship in time between the claim frequencies. The model used are the Poisson autoregressive model and the Poisson moving average model. In particular, the aggregate claim amount and related quantities such as the stop-loss premium, value at risk and tail value at risk are discussed within this framework. Finally, applications in reinsurance and capital assessment to illustrate the results are given.

Keywords: Discrete time risk model; Dependence; Poisson MA(1) process; Poisson MA(q) process; Poisson AR(1) process; Reinsurance; Economic Capital

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