

RISK MODELS OF ORDER K^*

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Abstract

In this paper we consider two compound processes of order k , one that is a Poisson process of order k and another one, Pólya-Aeppli process of order k . We define a Poisson of order k risk model and we consider a Pólya-Aeppli of order k risk model. For these risk models we define an exponential martingales. The corresponding martingale approximations of the ruin probability for these processes are given. Finally, we compare these models in the case of exponentially distributed claims.

MSC: 60K10; 62P05.

keywords: Poisson process, Pólya-Aeppli process, ruin probability, risk model, martingale approximation

1 Introduction.

We consider the standard risk model $\{X(t), t \geq 0\}$, defined on the complete probability space (Ω, \mathcal{F}, P) and given by

$$X(t) = ct - \sum_{i=1}^{N(t)} Z_i, \quad \left(\sum_1^0 = 0 \right). \quad (1)$$

Here c is a positive real constant representing the risk premium rate and $\{N(t), t \geq 0\}$ is a counting process.

*Accepted for publication on March 27, 2019

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