

On a Bivariate Poisson Negative Binomial Risk Process

Krasimira Y. Kostadinova¹, Leda D. Minkova²

¹ Faculty of Mathematics and Informatics
Shumen University "K. Preslavsky"
e-mail: kostadinova@shu-bg.net

^{1,2} Faculty of Mathematics and Informatics
Sofia University "St. Kl.Ohridski"
e-mail: leda@fmi.uni-sofia.bg

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In this paper we define a bivariate counting process as a compound Poisson process with bivariate negative binomial compounding distribution. We investigate some of its basic properties, recursion formulas and probability mass function. Then we consider a risk model in which the claim counting process is the defined bivariate Poisson negative binomial process. For the defined risk model we derive the joint distribution of the time to ruin and the deficit at ruin as well as the ruin probability. We discuss in detail the particular case of exponentially distributed claims.

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