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Ruin probabilities in classical risk models with gamma claims

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Abstract

In this paper, we provide three equivalent expressions for ruin probabilities in a Cramér–Lundberg model with gamma distributed claims. The results are solutions of integro-differential equations, derived by means of (inverse) Laplace transforms. All the three formulas have infinite series forms, two involving Mittag–Leffler functions and the third one involving moments of the claims distribution. This last result applies to any other claim size distributions that exhibits finite moments.

Keywords:

Ruin probability | Mittag–Leffler function | gamma distribution | Laplace transform

Notes

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