Dimitrova, Dimitrina S.; Kaishev, Vladimir K.; Zhao, Shouqi
On the evaluation of finite-time ruin probabilities in a dependent risk model. (English)
Zbl 1410.60044

Summary: This paper establishes some enlightening connections between the explicit formulas of the
finite-time ruin probability obtained by Z. G. Ignatov and the second author [Scand. Actuar. J. 2000,
No. 1, 46–62 (2000; Zbl 0958.91030); J. Appl. Probab. 41, No. 2, 570–578 (2004; Zbl 1048.60079)] and
Z. G. Ignatov et al. [Insur. Math. Econ. 29, No. 3, 375–386 (2001; Zbl 1074.62528)] for a risk model
allowing dependence. The numerical properties of these formulas are investigated and efficient algorithms
for computing ruin probability with prescribed accuracy are presented. Extensive numerical comparisons
and examples are provided.

MSC:
60G40 Stopping times; optimal stopping problems; gambling theory
91B30 Risk theory, insurance (MSC2010)
91G70 Statistical methods; risk measures
91G60 Numerical methods (including Monte Carlo methods)

Keywords:
finite time ruin probability; dependent risk modeling; Appell polynomials; numerical implementation;
order statistics

Software:
QRM

Full Text: DOI Link

References:

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(1999) · Zbl 0952.91030
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(2000) · Zbl 1074.62528