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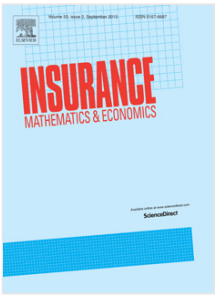

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Extended Gerber–Shiu Functions in a Risk Model with Interest

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Abstract

We consider a compound Poisson risk model with interest. The Gerber–Shiu discounted penalty function is modified with an additional penalty for reaching a level above the initial capital. We show that the problem can be split into two independent problems; an original Gerber–Shiu function and a first passage problem. We also consider the case of negative interest. Finally, we apply the results to a model considered by Embrechts and Schmidli (1994).

Key words: discounted penalty function; interest; classical risk process; shot noise process; first passage time

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