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A note on scale functions and the time value of ruin for Lévy insurance risk processes.
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Summary: We examine discounted penalties at ruin for surplus dynamics driven by a general spectrally negative Lévy process; the natural class of stochastic processes which contains many examples of risk processes which have already been considered in the existing literature. Following from the important contributions of [*X. Zhou*, *N. Am. Actuar. J.* 9, No. 4, 95–108 (2005; [Zbl 1215.60051](#))] we provide an explicit characterization of a generalized version of the Gerber-Shiu function in terms of scale functions, streamlining and extending results available in the literature.

MSC:

[91B30](#) Risk theory, insurance (MSC2010)
[60G51](#) Processes with independent increments; Lévy processes
[60K10](#) Applications of renewal theory (reliability, demand theory, etc.)

Cited in **1** Review
Cited in **36** Documents

Keywords:

scale functions; ruin; spectrally negative Lévy processes; Gerber-Shiu function; Laplace transform

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