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On a class of renewal risk models with a constant dividend barrier. (English) Zbl 1122.91345
Insur. Math. Econ. 35, No. 3, 691-701 (2004).

Summary: We consider a compound renewal (Sparre Andersen) risk process in the presence of a constant dividend barrier in which the claim waiting times are generalized Erlang(n) distributed (i.e., convolution of n exponential distributions with possibly different parameters). An integro-differential equation with certain boundary conditions for the Gerber-Shiu function is derived and solved. Its solution can be expressed as the Gerber-Shiu function in the corresponding Sparre Andersen risk model without a barrier plus a linear combination of n linearly independent solutions to the associated homogeneous integro-differential equation. Finally, explicit results are given when the claim sizes are exponentially distributed.

MSC:

91B30 Risk theory, insurance (MSC2010)

60K10 Applications of renewal theory (reliability, demand theory, etc.)

Cited in **63** Documents

Keywords:

Sparre Andersen risk process; Integro-differential equation; Generalized Erlang(n) distribution; Time of ruin; Surplus before ruin; Deficit at ruin

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