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Title: Insurance risk process with periodic dividend decisions: A randomized approach

Abstract:

In the framework of the classical compound Poisson risk model, we propose a modification of the usual horizontal dividend barrier strategy by assuming that dividend decisions are made periodically. Under such a modification, lump sum dividends, instead of the usual continuous payment streams, are paid at discrete time points. Motivated by the Erlangization technique proposed by Asmussen, Avram and Usabel (2002), the intervals between these successive time points are assumed to follow an Erlang(n) distribution which can be used to approximate a deterministic time interval. The usual barrier model is contained as a special case as well. Three different methods are introduced to study the present value of dividends paid until ruin, which include (i) integro-differential equations; (ii) discounted increment; and (iii) discounted overshoot. The optimal barrier level maximizing the expected dividends is also discussed. Numerical examples are given to illustrate the effect of periodic dividend decisions on the performance of the dividend strategy. This is joint work with Hansjoerg Albrecher and Stefan Thonhauser.