

A Hyperexponential Approximation to Finite-Time and Infinite-Time Ruin Probabilities of Compound Poisson Processes

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Abstract : This article considers the problem of evaluating infinite-time (or finite-time) ruin probability under a given compound Poisson surplus process by approximating the claim size distribution by a finite mixture exponential, say Hyperexponential, distribution. It restates the infinite-time (or finite-time) ruin probability as a solvable ordinary differential equation (or a partial differential equation). Application of our findings has been given through a simulation study.

Keywords : ruin probability, compound poisson processes, mixture exponential (hyperexponential) distribution, heavy-tailed distributions

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