

**On Ultimate and Finite Horizon Ruin**  
**in Cramer – Lundberg model with Pareto Severity**

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Abstract

In this work, we conduct a systematic numerical study on the distribution of ruin-time and ultimate, as well as finite-horizon ruin probability, focussing on how they vary with the different parameters of the severity (Pareto) distribution, premium safety loading and initial capital. Of particular interest is to explore any connection and structure between the two -- the ruin-time and probability of ruin. In absence of analytic expressions, it is useful to examine the closeness of asymptotic form or find useful bounds. Study may be extended for Generalized and different forms of the Pareto distribution and possibly to the Sparre Andersen model, by considering alternate distribution for the inter-claim time. The work is part of more exhaustive study on this domain in collaboration with other academic partners of the RARE (Risk Analysis, Ruin and Extremes) group.

Keywords: Compound Poisson process, Heavy-tailed distribution, Ruin probability.