Precise Large Deviations of Aggregate Claims in a Time-Dependent Renewal Risk Model

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Abstract

Consider a time-dependent renewal risk model. In this model, claim sizes and inter-arrival times correspondingly form a sequence of independent and identically distributed random pairs. However, each pair obeys a dependence structure described via the conditional tail probability of a claim size given the inter-arrival time before the claim. For the case of heavy-tailed claims, we establish a precise formula for large deviations of aggregate claims.

Keywords: Aggregate claims; Asymptotics; Dependence; Heavy tail; Precise large deviations

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