

On the ruin time for risk reserve processes with heavy-tailed claims

Tsung-Lin Cheng^{1*} (鄭宗琳) and Heng-Hsiu Tsai²

¹Institute of Statistics and Information Science,
National Changhua University of Education

²Institute of Statistical Science, Academia Sinica

Abstract

In this paper, we extend Lemma 1 of Chow and Zhang (1986) to the risk reserve models with heavy-tailed claims. In particular, we obtain an upper bound and a lower bound for the expectation of the time to ruin for the risk reserve process. Our results don't require any assumptions on the distributions of the claims. Moreover, both of continuous-time indexed and discrete-time indexed risk reserve processes are discussed separately. Finally, we conduct a simulation for a risk reserve process with Cauchy-distributed claims to illustrate our main results.