Abstract

In this thesis ruin probability of the Lundberg risk process is used as a criterion for determining the security loading of premium. Both single and aggregated claim processes are considered. The aggregated claim process is composed of two different homogeneous claim processes. Both independent and dependent cases are considered. Lévy copulas are used to model the dependence. Lévy copulas provide an elegant and flexible manner to model dependencies and can be a useful tool when modelling dependence of jump processes with applications in insurance and risk management. The optimal value function for minimum ruin probability is analysed and stochastic control theory is used to obtain the optimal loading of the expected premium principle minimizing the probability of ruin. Numerical simulations of different case studies are presented.