

Abstract

Initial Surplus for Captive Insurers based on Classical Risk Models

Capital adequacy and proper governance practices are among the most important issues in risk management. This thesis proposes to address the issue of capital adequacy in the frame of ruin theory by extending the work by Intarasit, Chuarkham, and Sattayatham, 2013 to include fixed income as well and level dependent premium income. The model based on ruin probability is deemed to be better suited to a captive insurer, rather than a traditional insurer, as the theory of economic agents struggling to attain Pareto equilibrium may not apply to a captive. The thesis thus looks at adding asset returns and relaxing various assumptions of the classical risk process, and, obtaining the initial surplus for the new models. The assumption of constant premium income rate will be replaced by premiums that depend on the amount of surplus at a given time and also, with a stochastic premium. The thesis also proposes to look at the omega model which introduces a bankruptcy function to the risk process. This bankruptcy function however, is that of the parent company and not of the captive insurer.

The utility of the owners will also be considered in obtaining the initial surplus required to keep the captive solvent. Estimation of the parameters will also be done using the Bayesian method to cater for parameter risks