

ABSTRACT

The elementary problem of minimizing the probability of ruin for the insurer is found by Fletcher- Reeves method. The individual claim size distribution is concentrated on a closed interval and its first two moments are known. The elementary problem is solved by the general optimization algorithm and the starting optimal direction extremal point is found, the Fletcher-Reeves algorithm is used to find the optimal direction extremal point of the non-ruin probability in the space considered. This optimal extremal distribution, the point at which the non-ruin probability is minimum can be found by regula-falsi method. One of the main practical interests is to increase the convergence speed of the algorithm and minimize the time of the numerical solution of the ultimate ruin probability, given some fixed constraints on the moments of the claim size distribution. The optimization problem can be extended to more general risk model. The numerical solution is derived with this methodology can be applied to other optimization problems in actuarial science.