Optimal Dividend payment under time of ruin constraint
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Abstract

We consider the classical optimal dividend payments problem under the Cramér-Lundberg model with exponential claim sizes subject to a constraint on the time of ruin (P1). We use the Lagrangian dual function which leads to an auxiliary problem (P2). For this problem, given a multiplier Λ, we prove the uniqueness of the optimal barrier strategy and we also obtain its value function. Next we prove that the optimal value function of (P1) is obtained as the point-wise infimum over Λ of all value functions of problems(P2) and present a series of numerical examples. Finally, we present partial results on the generalization of this problem to the case when the surplus is assumed to be a spectrally negative Lévy process.

Keywords: Dividend payment, Optimal control, HJB equation, Lagrange multipliers

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