Optimizing the expected utility of dividend payments of an insurance company

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Summary of the PhD thesis

The subject of the thesis is a natural combination between the expected utility theory and the problem of optimizing dividend payments of an insurance company. There is a lot of papers in actuarial and financial mathematics literature covering the topic of optimal expected dividend payments. However, if we consider the problem of optimal expected utility of dividend payments, this PhD thesis is one of the few sources.

This work includes results, published by author, concerning the problem of maximizing the expected utility of dividend payments of an insurance company whose reserves are modeled as a classical Cramér–Lundberg risk process. This optimization problem was investigated under the constraint that the dividend rate is bounded. In this set up it was proved that the value function is differentiable and satisfies the Hamilton–Jacobi–Bellman equation. Moreover, the optimal dividend strategy was identified.

In this PhD thesis, also the subject of optimal expected utility of dividend payments in discrete version of Cramér–Lundberg model without and with capital injections was considered. In these models, using Banach fixed point theorem, it was shown that the value function satisfies Bellman equation. Moreover, some properties of the value function were proved.

This dissertation summarizes known results and shows potential possible generalizations of the considered problem.

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