

A Collective Approach to Optimisation of Renewing Warranty Policy

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Abstract : In this real world, a manufacturer may produce more than one product. The products produced by the same manufacturer may share the same type of parts, similar design, and be produced in the same factory, i.e. some common causes. From the perspective of warranty management, the frequencies of those products' warranty claims may have statistical dependence caused by the common causes. Warranty policy optimisation in the existing research, majorly, has not considered such dependence, which may increase bias in decision making. In the market, renewing warranty policies are provided to some unrepairable products and consumer electronic products. This paper optimises the renewing warranty policy collectively in a multi-product scenario with a consideration of the dependence among the warranty claims of the products produced by the same manufacturer. The existence of the optimal solution is proved. Numerical examples are used to validate the applicability of the proposed methods.

Keywords : mean-risk framework, modern portfolio theory, renewing warranty policy, warranty policy optimisation

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