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## Ruin Theory in the Presence of Heavy-Tailed Claims

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## Abstract

The present thesis studies the behaviour of the ruin probability of a portfolio of insurable risks in the framework of the Cramér-Lundberg model. As is well-known, this behaviour is different depending on whether the severity distribution of the individual portfolio risks can be considered light-tailed or heavy-tailed. In particular, the overall behaviour of the ruin probability of the portfolio is to a large extent influenced by the presence of heavy-tailed claims. This is confirmed through a detailed numerical study, which estimates the ruin probability of a portfolio of insurable risks of a stylised insurance company. Various measures available to the insurance company to mitigate the impact of this influence by e.g. purchasing excess-of-loss reinsurance or increasing premiums are then explored. The overall conclusion is that careful capital and risk management of the portfolio is called for in the presence of heavy-tailed risks in order to avoid ruin.

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