Typ: Masterarbeit
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Titel: Reduction of the Ruin Probability for an Insurance Company by Capital Transfer in a Bipartite Network

Abstract: The objective of this master thesis is the computation of the asymptotic ruin probability under consideration of capital transfer in the context of an insurance network model. In this model, objects which are exposed to catastrophic risks influencing the operating result and capital are insured. The network of the insurance companies can be modeled by a bipartite graph. Due to large policy limits, the risks are shared among the insurance companies to lower the consequences. If a large loss occurs and an insurance company cannot cover the loss, the insurance company must declare insolvency. In insurance pools or groups, the insurance members or subsidiaries might be obligated to pay the outstanding loss of the insolvent insurance company. By reciprocal capital transfer, the risk of insolvency can be influenced. How likely is insolvency if insurance companies transfer capital? Three cases are investigated: In the first case, the insurance companies are competitors which do not transfer capital. In the second case, the insurance companies transfer capital among each other if another insurance company cannot pay the loss. Moreover, it is assumed that in this case, there are no transactions costs which means that the capital transfer does not include any exchange rates or administrative fees of the banks. In the third case, the insurance companies shift capital like in the second case, but every transfer may include transaction costs.