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Joint insolvency analysis of a shared MAP risk process: a capital allocation application.

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Summary: In recent years, multivariate insurance risk processes have received increasing attention in risk theory. First-passage-time problems in the context of these insurance risk processes are of primary interest for risk management purposes. In this article we study joint-ruin problems of two risk undertakers in a proportionally shared Markovian claim arrival process. Building on the existing work in the literature, joint-ruin – related quantities are thoroughly analyzed by capitalizing on existing results in certain univariate insurance surplus processes. Finally, an application is considered where the finite-time and infinite-time joint-ruin probabilities are used as risk measures to allocate risk capital among different business lines. The proposed joint-ruin allocation principle enables us to not only capture the risk dynamics over a given time horizon, but also overcome the "cross-subsidizing" effect of many existing allocation principles.

MSC:

91B30 Risk theory, insurance (MSC2010)

Keywords:

multivariate insurance risk processes; risk capital allocation; joint insolvency analysis

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