

Monte Carlo Based Software for Analysis of Reinsurance Processes

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We describe the Reinsurance Analyzer, an experimental Java application for analysis and comparison of various types of reinsurance contracts, first introduced in [1]. An approach realized in this program is based on global stochastic modeling of flows of claims with different types of claim and inter-claim time distributions. These flows are processed with the use of different types of reinsurance contracts. The parameters of the contracts are balanced by average-(re)insurer-payment type parameters. Then contracts are compared by additional risk and other characteristics. Using Monte Carlo simulation, the software provides a comparison between balanced contracts using a set of risk measures, e.g. value at risk, coefficient of variability etc. We further present the possibility to investigate the risk transfer within chains of reinsurance companies (retrocession).

The results of some experimental studies are presented.

References

- [1] Silvestrov, D., Teugels, J., Masol, V., Malyarenko, A. Innovation methods, algorithms, and software for analysis of reinsurance contracts, *Theory of Stoch. Process.*, **12(28)** (2006), no. 3–4, 203–238.