

Faculti Summary

<https://faculti.net/rank-based-multivariate-sarmanov-for-modeling-dependence/>

This video discusses the context of loss reserves for non-life insurance companies, differentiating them from life insurance companies. Non-life insurance covers areas such as auto and home insurance, requiring companies to set aside funds for future claims and to handle claims that have occurred but not yet been reported. The importance of managing reserves effectively, particularly considering the independence and interdependence of risks (e.g., due to natural disasters or pandemics), is emphasized.

Two main methodologies are presented for estimating dependence between risks in loss reserving: a multivariate approach using non-parametric models and a parametric approach based on copulas, which capture dependencies between risks. The rank-based method for estimating dependence is highlighted as a more robust option compared to conventional simultaneous estimation methods.

The proposed methodology combines rank-based estimation with flexible distributions, showing that this approach captures risk interdependencies better, thereby leading to a reduction in required risk capital and enhanced diversification benefits for insurance companies. The results from applying this methodology to real datasets from U.S. and Canadian insurance companies demonstrate its effectiveness.

This video concludes by noting the relevance of this model in light of international regulations (IFRS 17), emphasizing its potential for improving solvency risk assessments and contributing positively to the economy and society as a whole.