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PrObEx and model - calibrating dependencies among risks in non-life

The latest financial crisis has dramatically shown that dependence among risks cannot be ignored. (Re)insurance companies may use copula models in order to prudently account for dependence (especially in the tail) within their internal models. Once a certain copula model has been chosen, actuaries are left with the issue of estimating the copula parameter(s). However, standard statistical estimation techniques generally fail to provide a reliable estimate if data is scarce. In order to reduce the parameter uncertainty, we developed a Bayesian model to calibrate copula parameters: PrObEx. We provide an introduction to such a key innovation in SCOR's internal model, discussing both the mathematical aspects and the practical implementation for calibrating dependencies in Non-Life. Our method can be used also in other contexts (e.g. Economy, Life, etc.).

D. Canestraro has been awarded for this presentation on PrObEx, with the prize “for the best Scientific Presentation by a Young Actuary at the First European Congress of Actuaries” (Brussels, June 7-8, 2012).

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