

Sessão: Modelação de valores extremos e acontecimentos raros

On optimal reinsurance of dependent risks

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Buying reinsurance, an insurance company passes part of its risk exposure to other company, paying a deterministic sum (premium) in compensation.

By choosing different types of reinsurance, the insurer can cede different parts of the risk distribution. If the price of reinsurance is proportional to the expected value of the ceded risk, then it is known that the optimal treaty from the point of view of the direct insurer consists of ceding the tail of its risk distribution. However, the expected value principle is not a realistic assumption and such treaties are seldom used in practice, due to their very high prices. It has been shown that under other pricing principles and various optimality criteria, it is optimal to split the risk's distribution tail in a non-proportional way.

Further, the performance of a portfolio is sensitive to dependencies among the underlying risks. Taking these dependencies into account makes the characterization of optimal reinsurance very difficult from both the analytical and computational point of views.

In this talk, we discuss a viable scheme for the design of optimal treaties in the presence of arbitrary dependence structures.