PATHS AND INDICES OF MAXIMAL TAIL DEPENDENCE: SOME NEW RESULTS

Abstract: Tail dependence refers to clustering of extreme events. In the context of financial risk management, the clustering of high-severity risks has a devastating effect on the well-being of firms and is thus of pivotal importance in risk analysis.

When it comes to quantifying the extent of tail dependence, it is generally agreed that measures of tail dependence must be independent of the marginal distributions of the risks but rather solely copula-dependent. Indeed, all classical measures of tail dependence are such, but they investigate the amount of tail dependence along the main diagonal of copulas, which has often little in common with the concentration of extremes in the copulas' domain of definition.

In this talk, we urge that the classical measures of tail dependence may underestimate the level of tail dependence in copulas. As a remedy, we will introduce a notion of paths of maximal (tail) dependence and utilize the notion to propose several new indices of tail dependence.