

Tail dependence and copulas

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Abstract

The concept of copula represents a way for describing the dependence among the components of a given random vector. As such, it has gained a lot of popularity during the last years, especially in view of its possible applications to finance, insurance and natural sciences.

According to Sklar's Theorem, a variety of multivariate distribution functions can be constructed by putting together univariate marginal distribution functions and a suitable copula, expressing the association among the variables of interest. In particular, copulas allow to construct flexible multivariate models that exhibit various kinds of dependencies in the tails of their distributions, a feature of great interest in risk management.

In this talk, we present some recent results concerning the use (and some misuses) of copulas for capturing tail dependencies. In particular, we will show how a multivariate distribution function having a specific tail behaviour can be obtained by considering special copula constructions.

Moreover, we introduce and discuss the concept of threshold copula, emphasizing its possible application to the detection of (spatial) contagion between two financial markets.