

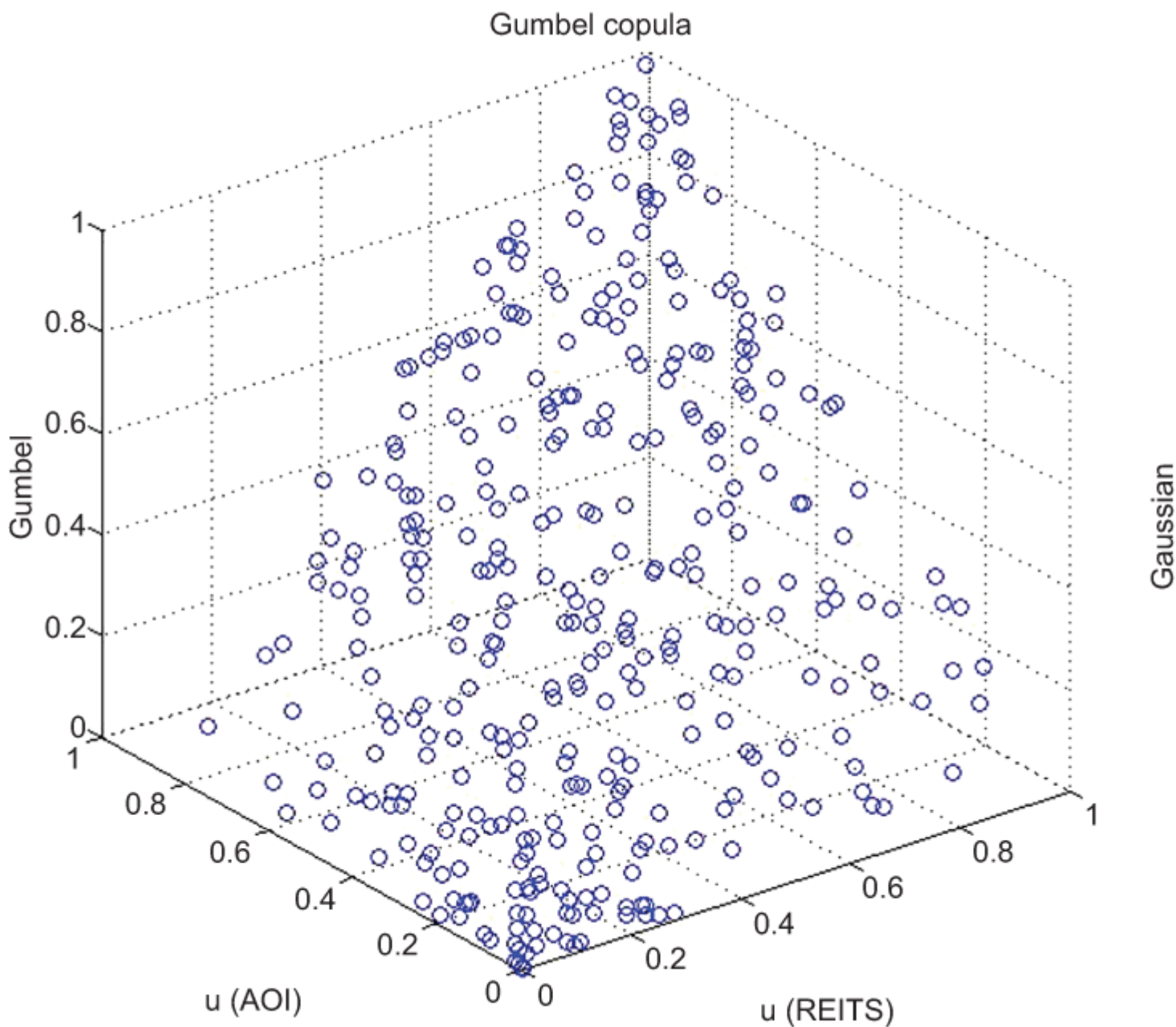


Copula Dependence Structure on Stock Market with Application to Risk

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Abstract

Traditionally, dependency between stock returns has been expressed by linear correlation and been measured whether they follow the same trend of movement under the assumption of joint elliptical distribution. However, this method cannot fully describe the dependencies between two stock returns, such as lower tail, upper tail or center dependency. In this thesis, I make use of the copula analysis method to model these dependencies. One objective of this thesis is to analyze the stock returns in the real stock market, then apply the copula technique to compile the real data and investigate the intrinsic link and relevant structure between them. Further, I will study rare events under extreme value theories. Together with the use of copula technique that models default correlation, I will construct peaks-over-threshold model to analyze the dependence structure between different stock returns and simulate the real world data. Firstly, the copula model is estimated based on the data in two dimension. Then, the application is extended to three dimension, and the three-dimensional copula model is constructed by the similar method.

<http://www.math.chalmers.se/~palbin/SX.pdf>^[1]

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