



COMPARATIVE VALUE AT RISK BASED ON COPULA FUNCTION AN EMPIRICAL EVIDENCE FROM THAILAND

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ABSTRACT

The different assets possess different distribution functions, so it is a challenge to estimate the joint distribution function of the portfolio in order to manage the risk of the portfolio. Value at Risk (VaR) is the most popular risk measure. The traditional VaR is based on normal distribution assumption. However, the empirical evidence shows that the normality assumption is violated. Therefore, it is interesting to find the new method to estimate the VaR. Copula method is introduced to form joint distribution function. There are several copula functions that are used to compare with the Parametric VaR. From the result of backtesting, Copula VaR outperforms Parametric VaR for in-sample backtesting and out-of-sample backtesting especially in high confidence level for hypothetical two assets portfolio and three assets portfolio that consist of MSCI Thailand Index, Foreign Exchange (THB/USD), Gold Spot and MSCI Singapore Index.

Key word: Value at Risk, Copula function, Gaussian, Student's t, Gumbel, Clayton, Parametric method, Monte Carlo Method, Backtesting, Christoffersen test