

Abstract

Making portfolio on stock investing can reduce risk on investment. Risk measurement associated with big investment because risk affect the losses that will be experienced by investors. Glosten-Jagannathan-Runkle (GJR) model is one of method in time series analysis that used to model data which moved based on time (volatility) and have asymmetric effect. Value-at-Risk (VaR) can be used to risk estimation. Determinaton of VaR with Normal distribution become irrelevant when financial data has a thick tail distribution (heavy tail) implemented by student-t distribution. Copula method used for dependency indicators among variables so can used for modelling joint distribution. In this Final Project, determined VaR on portfolio of two stock prices assets from close price of S&P100 and S&P600. GJR and Copula model used for determining VaR. Based on the result of the portfolio VaR using GJR-n-*Clayton Copula*, GJR-t-*Clayton Copula*, GJR-n-*Gumbel Copula* and GJR-t-*Gumbel Copula* obtained best model with mean error 138,56 and 164,44 is GJR-n-*Clayton Copula* and GJR-t-*Clayton Copula*, respectively. Therefore, GJR-n-*Clayton Copula* and GJR-t-*Clayton Copula* is more representative to predict the value of a portfolio VaR.

Keywords: Portfolio, Value-at-Risk, GJR, Copula