

**VALUE AT RISK (VAR) PREDICTION OF BIVARIATE PORTOFOLIO USING
APPROACH MONTE CARLO-COPULA GAUSSIAN SIMULATION AND
VARIANCE-COVARIANCE METHOD**

*(Case Study : Weekly Stock of Company Samsung Electronics Co., Ltd (005930.KS)
and Apple Inc (AAPL) in 2017)*

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ABSTRACT

Investment always related to risk, risk can be predicted using Value at Risk (VaR), calculation of VaR uses stock return value of time series data and there are several methods used. This research of VaR predicton focuses on approach the Monte Carlo-Copula Gaussian Simulation and Variance-Covariance method. Stock data used is weekly in 2017 for Samsung Electronics Co., Ltd (005930.KS) and Apple Inc. (AAPL) company. The results of VaR analysis using the Monte Carlo-Copula Gaussisan Simulation are predicted using the best ARIMA model with portfolio residual dependency level of 0,0259. Value of Copula Gaussian parameter is -0,9991453 and based on these parameter there are 300 generate return data were generated and a normality test was performed using α : 95 %, the result is data does not follow normal distribution, therefore VaR prediction can not be carried out. The results of the analysis using Variance-Covariance method has portfolio standard deviation is 0,02887185 which obtained maximum VaR prediction with an initial investment fund of Rp 750,000,000 and α : 90% is Rp 28.150.057, 95% is Rp 35.630.649 and 99% is Rp 50.453.564.

Keywords: *Portfolio, Value at Risk (VaR), Monte Carlo Simulation, Copula Gaussian, Variance-Covariance.*