

Analyze Risk Measure *Expected Shortfall* of Market Stock Indices

Reima Agustina Kusumawardani¹, Deni Saepudin², Aniq Atiqi Rohmawati³

^{1,2,3}Fakultas Informatika, Universitas Telkom, Bandung

¹reimaagustinak@students.telkomuniversity.ac.id, ²denisaepudin@telkomuniversity.ac.id,

³aniqatiqi@telkomuniversity.ac.id

Abstract

Risk measurement is important to do, especially in the world of investment relating to large amounts of funds. One of risk measure in financial management is *Expected Shortfall* (ES). ES is the expected value of return if the return exceeds the maximum return limit (*Value-at-Risk*). VaR is the maximum loss (negative return) that may occur over a period of time and a certain of confidence level. At a 90% confidence level, the smallest return value, called VaR. So the probability of the return value less than VaR is 0.1. VaR does not give information to any losses below it. ES is a solution to solve this problem. The calculation results state that from several levels of confident, there is a negative return that is smaller than VaR and ES is proven to be able to overcome it. The results of the empirical and theorists ES calculation declare that the error deviation between the two calculations is not much different. This study calculates VaR by modifying the *Historical Simulation* method and analyzing ES risk calculations by involving the distribution function of random variables or observations. The ES calculation involves the VaR value, confidence level and number of observations. The data that will be used in this Final Project is the weekly return data from the JKSE stock index.

Keywords: expected shortfall, value at risk, risiko, return, historical simulation, distribution function
