ABSTRACT

Stocks are one of the most popular investment instruments among the public. Generally, investors aim for high returns with minimal risk. One way for investors to achieve a proper balance between gaining returns and managing risk is through portfolio formation. Investment risk is related to the volatility of stock returns, which reflects the degree of fluctuation in stock performance. One approach used to analyze data with volatility is the Autoregressive Integrated Moving Average (ARIMA) model. This study aims to select stocks using the ARIMA model and construct an optimal stock portfolio by minimizing risk using the Mean-Semivariance method. The Mean-Semivariance method was chosen because it does not require the assumption of data normality and can more accurately measure risk by considering downside risk. The data used in this study are daily stock returns from 10 different sectors listed in the ESG Quality 45 IDX KEHATI index, namely AKRA, ANTM, ASII, EMTK, TLKM, DSNG, BBRI, KLBF, PWON, and SCMA, during the period from August 1, 2021 to December 31, 2024. The results show that the best ARIMA models are ARIMA(1,0,2) for AKRA, ARIMA(1,0,0) for ASII, and ARIMA(2,0,0) for DSNG. DSNG and KLBF stock has a negative expected return and is therefore excluded from portfolio formation. The portfolio constructed using the Mean-Semivariance method allocates 93.98% of investment weight to AKRA and 6.02% to ASII. The Value at Risk (VaR), which measures potential risk faced by investors, is calculated using the Historical Simulation method at a 95% confidence level with a holding period of 1 day, 10 days, and 30 days, resulting in values of 0.0236%, 0.0747%, and 0.1294%, respectively.

Keywords: *Stocks, ARIMA, Optimal Portfolio, Mean-Semivariance, Value at Risk, Historical Simulation, ESG Quality 45 IDX KEHATI*