Value at Risk: Crude Oil Price during the Covid-19 Pandemic

Ernie Hendrawaty[1*], Fajrin Satria Dwi Kesumah[1]
[1] *Department of Management, Faculty Economics and Business, Universitas Lampung, Lampung, Indonesia*
** Corresponding Author: ernie.hendrawaty@feb.unila.ac.id*

Abstract: Since the end of 2019, world economic conditions have experienced a difficult time due to the determination of the Covid-19 corona virus outbreak as a pandemic by the World Health Organization (WHO). One of the sectors that has felt the direct impact of this pandemic is the commodity sector, one of which is the crude oil commodity. The world crude oil price has decreased to reach a negative figure in the middle of Semester 1 2020, so that the level of uncertainty over the world crude oil price is relatively high due to fluctuations in the level of the economy. This study aims to measure the minimum level of risk posed by world crude oil prices through the Value at Risk (VaR) approach by applying the volatility rate modeling and the average Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model. The results of the study found that the AR (1)-GARCH (1,1) model is the best model for measuring the level of volatility and the average world crude oil price which is used as a measure of the minimum risk level for the VaR model. Furthermore, from the calculation results, the VaR value obtained with a time period of 15 days and a confidence level of 95% is 0.039108 or 3.91%. This means, with the level of uncertainty over world economic conditions, the world crude oil price has the potential to decline by a maximum of 3.91%.

Key Words: Pandemic, Covid-19, GARCH Model, Value at Risk