

ABSTRAK

Penelitian ini bertujuan mengkaji volatilitas saham PT Aneka Tambang Tbk (ANTM), PT Merdeka Copper Gold Tbk (MDKA), dan PT Bumi Resources Minerals Tbk (BRMS) dengan menggunakan model GARCH(1,1) berdasarkan data harga penutupan harian selama periode 2020–2025 yang diperoleh dari Yahoo Finance. Data penelitian terlebih dahulu ditransformasikan ke dalam bentuk log-return, kemudian dianalisis melalui uji Augmented Dickey-Fuller, uji ARCH-LM, estimasi parameter menggunakan metode Maximum Likelihood Estimation, evaluasi out-of-sample one-step ahead, serta proyeksi multi-step untuk 21 hari perdagangan. Hasil analisis menunjukkan bahwa ketiga saham memiliki karakter volatilitas yang berubah dari waktu ke waktu (time-varying), memperlihatkan gejala volatility clustering, dan menunjukkan persistensi volatilitas yang tinggi, terutama pada saham ANTM dan BRMS. Berdasarkan tingkat risikonya, BRMS tercatat sebagai saham dengan volatilitas tertinggi, dengan volatilitas terakhir sebesar 5,3157%, lebih besar dibandingkan MDKA sebesar 3,1798% dan ANTM sebesar 2,3077%. Dalam pengujian prediksi jangka pendek, model GARCH(1,1) dinilai cukup memadai. Pendekatan rolling window memberikan hasil terbaik pada ANTM dan BRMS, sedangkan pendekatan fixed lebih sesuai untuk MDKA

Kata Kunci : *Time Series, Volatility Forecasting, Financial Econometrics. GARCH, Pertambangan*

ABSTRACT

This study aims to examine the stock volatility of PT Aneka Tambang Tbk (ANTM), PT Merdeka Copper Gold Tbk (MDKA), and PT Bumi Resources Minerals Tbk (BRMS) using the GARCH(1,1) model based on daily closing price data for the 2020–2025 period obtained from Yahoo Finance. The research data was first transformed into log-return form, then analyzed using the Augmented Dickey-Fuller test, the ARCH-LM test, parameter estimation using the Maximum Likelihood Estimation method, one-step ahead out-of-sample evaluation, and multi-step projections for 21 trading days. The analysis results show that the three stocks have time-varying volatility characteristics, exhibit symptoms of volatility clustering, and show high volatility persistence, especially in ANTM and BRMS stocks. Based on its risk level, BRMS is recorded as the stock with the highest volatility, with a final volatility of 5.3157%, greater than MDKA at 3.1798% and ANTM at 2.3077%. In short-term prediction testing, the GARCH(1,1) model was deemed adequate. The rolling window approach provided the best results for ANTM and BRMS, while the fixed approach was more suitable for MDKA.

Keywords : Time Series, Volatility Forecasting, Financial Econometrics. GARCH, Pertambangan