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FORECASTING STOCK PRICE VOLATILITY USING WAVELET TRANSFORM ALGORITHM GARCH MODEL

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In this era of globalization, stocks are investments that can provide high returns but also provide high risks because stock prices change every day or are volatile. This rapid movement of stock prices up and down is called volatility. In this study, we will analyze stock price volatility forecasting using the *Maximal Overlap Discrete Wavelet Transform – Generalized Autoregressive Conditionally Heteroskedasticity* (MODWT-GARCH). MODWT-GARCH is a combination models of MODWT and GARCH. The MODWT process is used for pre-processing, namely the decomposition of time series data using the *Wavelet* Transform Daubechies 4 (db4), while the GARCH process is used to forecasting a time series model on the MODWT decomposition data. The purpose of this study is to show that the use of a combination model to forecast data using the MODWT-GARCH provides more accurate forecasting results than using the GARCH model. The results of forecasting the IHSG (Composite Stock Price Index) for the period January 2016 – December 2020 obtained that the MODWT-GARCH(1,1) forecast which has an average of 99,99% close to the actual value with an MSE value of 4,227127 and a MAPE value of 0,091533 which is smaller than the MSE GARCH(1,1) which is 38,75482 and MAPE is 0,700310.

Keywords: GARCH, IHSG, MODWT-GARCH, Volatility