

ABSTRACT

IMPLEMENTASI MODEL *VECTOR AUTOREGRESSIVE INTEGRATED MOVING AVERAGE* (VARIMA) IN THE FORECASTING OF NETFLIX'S OPENING AND CLOSING STOCK PRICE DATA.

By

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The VARIMA (Vector Autoregressive Integrated Moving Average) model is an extension of the ARIMA (Autoregressive Integrated Moving Average) model, used to handle multivariate time series data, where more than one variable or time series component is studied simultaneously. This model consists of three main components: vector autoregressive (VAR), differencing, and vector moving average (VMA). This study aims to forecast Netflix's opening and closing stock prices using the Vector Autoregressive Integrated Moving Average (VARIMA) model. This model consists of three main components: vector autoregressive (VAR), differencing, and vector moving average (VMA). The data used includes stock prices from 2014 to 2023, analyzed using multivariate time series methods. Stationarity tests were conducted using the Augmented Dickey-Fuller (ADF) test and Box-Cox transformation to ensure the data meets model assumptions. The best model was selected based on the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC). The analysis results show that the VARIMA(1,1,1) model delivers the best performance with high prediction accuracy, as indicated by a Mean Absolute Percentage Error (MAPE) of 0.0649% and a Root Mean Square Error (RMSE) of 2492. This model was then used to forecast stock prices for the next six months, providing predictions that can aid in investment decision-making. In conclusion, the VARIMA(1,1,1) model is an accurate and reliable tool for forecasting Netflix stock price movements, offering valuable insights for investors and analysts.

Keyword : Forecasting, Time Series, VARIMA

ABSTRAK

IMPLEMENTASI MODEL *VECTOR AUTOREGRESSIVE INTEGRATED MOVING AVERAGE* (VARIMA) PADA PERAMALAN DATA PEMBUKAAN DAN PENUTUPAN SAHAM NETFLIX

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Model VARIMA (*Vector Autoregressive Integrated Moving Average*) adalah pengembangan dari model ARIMA (*Autoregressive Integrated Moving Average*) yang digunakan untuk menangani data deret waktu multivariat, di mana lebih dari satu variabel atau komponen deret waktu dipelajari secara simultan. Model ini terdiri dari tiga komponen utama yaitu *Vector Autoregressive* (VAR), *Differencing* dan *Vector Moving Average* (VMA). Penelitian ini bertujuan untuk meramalkan harga saham pembukaan dan penutupan Netflix menggunakan model *Vector Autoregressive Integrated Moving Average* (VARIMA). Data yang digunakan adalah harga saham dari tahun 2014 hingga 2023, yang dianalisis dengan metode time series multivariat. Uji stasioneritas dilakukan menggunakan uji *Augmented Dickey-Fuller* (ADF) dan transformasi Box-Cox untuk memastikan data sesuai dengan asumsi model. Model terbaik dipilih berdasarkan nilai *Akaike Information Criterion* (AIC) dan *Bayesian Information Criterion* (BIC). Hasil analisis menunjukkan bahwa model VARIMA(1,1,1) memberikan performa terbaik dengan akurasi prediksi tinggi, ditunjukkan oleh nilai *Mean Absolute Percentage Error* (MAPE) sebesar 0.0649% dan *Root Mean Square Error* (RMSE) sebesar 2492. Model ini kemudian digunakan untuk peramalan harga saham untuk 6 bulan ke depan, memberikan prediksi yang dapat membantu dalam pengambilan keputusan investasi. Kesimpulannya, model VARIMA(1,1,1) merupakan alat yang akurat dan andal dalam meramalkan pergerakan harga saham Netflix, memberikan wawasan penting bagi investor dan analis.

Kata kunci : Peramalan, Time Series, VARIMA