ABSTRAK

Revata Tanuwijaya (01112170009)

Perbandingan Metode ARFIMA dan ANN untuk Peramalan Harga Saham di Indonesia

Skripsi, Fakultas Sains dan Teknologi (2022).

(xv + 52 halaman, 22 tabel, 18 gambar, 4 lampiran)

Meramalkan harga suatu saham dapat dilakukan dengan berbagai macam metode. Metode umum yang biasa digunakan antara lain regresi linear, analisa deret waktu, model stokastik, *machine learning*, *artificial neural network*, dan berbagai macam metode lainnya. Fokus pada penelitian ini akan membandingkan metode analisa deret waktu dengan memori jangka panjang yaitu *autoregressive fractionally integrated moving average* (ARFIMA) dengan metode *artificial neural network* (ANN) untuk meramalkan harga saham mingguan di Indonesia. Penelitian ini akan melihat kemampuan setiap metode dalam meramalkan harga saham untuk mengetahui metode yang paling baik untuk menggambarkan pasar saham khususnya dalam negara Indonesia pada periode Januari 2014 hingga Juli 2021. Kemudian metode ARFIMA juga akan dibandingkan dengan metode ARIMA atau *autoregressive integrated moving average*, untuk mencari tahu apakah performa ARFIMA lebih baik dari metode ARIMA untuk menggambarkan data deret waktu yang memiliki memori jangka panjang. Hasil temuan dalam penelitian ini menunjukkan bahwa metode ARFIMA memiliki keunggulan dalam menggambarkan harga saham migguan di Indonesia jika dibandingkan dengan metode ANN yang terlihat dari nilai *mean absolute percentage error* (MAPE), *root mean square error* (RMSE), dan *R-squared.* Selain itu, penelitian ini juga menemukan bahwa metode ARFIMA menghasilkan peramalan yang hampir sama dengan metode ARIMA.

Kata kunci : *Autoregressive Fractionally Integrated Moving Average* (ARFIMA), *Artificial Neural Network* (ANN), Peramalan, Harga saham mingguan

Referensi : 23 (1981-2021)

ABSTRACT

Revata Tanuwijaya (01112170009)

Comparison of ARFIMA and Artificial Neural Network Models for Indonesian Stocks Market

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(xv + 52 pages, 22 tables, 18 figures, 4 appendix)

Predicting the price of a stock can be done by various methods. Common methods commonly used are linear regression, time series analysis, stochastic models, machine learning, artificial neural networks, and many various other methods. The focus of this study will compare the method of time series analysis with long-term memory that is autoregressive fractionally integrated moving average (ARFIMA) with the artificial neural network (ANN) method to forecast weekly stock prices in Indonesia. This research will look at the ability of each method in forecasting stock prices to find out the best method to describe the stock market, especially in Indonesia from January 2014 to July 2021. Then the ARFIMA method will also be compared to the ARIMA method or autoregressive integrated moving average, to find out if ARFIMA performance is better than the ARIMA method to describe time series data that has long-term memory. The findings in this study show that the ARFIMA method has an advantage in describing the stock price in Indonesia when compared to the ANN method as seen from the mean absolute percentage error (MAPE), root mean square error (RMSE), and R-squared. In addition, the study also found that the ARFIMA method produces almost the same result as the ARIMA method.

Keywords , : Autoregressive Fractionally Integrated Moving Average (ARFIMA) Artificial Neural Network (ANN), Forecasting, Weekly stocks price

Referensi : 23 (1981-2021)