



INTISARI

MODEL PERAMALAN NILAI TUKAR MATA UANG MENGGUNAKAN METODE *HYBRID* GLARANN

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Peramalan nilai tukar mata uang merupakan masalah klasik dalam bidang ekonomi. Dalam kurun waktu beberapa tahun terakhir model *hybrid* banyak dikembangkan untuk melakukan peramalan. Gagasan utama dalam model *hybrid* adalah menggunakan kelebihan masing-masing model untuk meningkatkan akurasi peramalan. Metode *hybrid* GLARANN merupakan gabungan dari model *Generalized Linear Autoregression* (GLAR) yang termasuk model linear dan *Artificial Neural Network* (ANN) yang digolongkan dalam model nonlinear. Gagasan metode *hybrid* GLARANN yaitu menggunakan model GLAR dalam mendeteksi pola linear dan ANN dalam mendeteksi pola nonlinear pada data runtun waktu. Aplikasi metode *hybrid* GLARANN yaitu pada peramalan nilai tukar rupiah (IDR) terhadap beberapa mata uang asing, yaitu dollar Australia (AUD), euro (EUR), dollar Hongkong (HKD), yen Jepang (JPY), dollar Singapura (SGD), dan dollar Amerika (USD), dengan nilai ekspor sebagai variabel eksogen. Berdasarkan evaluasi hasil peramalan, metode *hybrid* GLARANN efektif pada peramalan AUD berdasarkan nilai RMSE, MAE, MAPE dan NMSE. Namun tidak efektif pada peramalan HKD, SGD, dan USD. Pada peramalan EUR dan JPY, model GLAR merupakan model yang paling efektif. Sedangkan, metode *hybrid* GLARANN hanya lebih efektif daripada ANN berdasarkan RMSE dan NMSE.

Kata kunci: Metode *hybrid*, model GLAR, *artificial neural network*, peramalan, nilai tukar mata uang



ABSTRACT

EXCHANGE RATES FORECASTING MODEL USING GLARANN HYBRID METHOD

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Exchange rates forecasting is a classic problem in economics. In the last few years, many hybrid models have been developed to perform forecasting. The main idea in the hybrid model is to use the advantages of each model to improve forecasting accuracy. The GLARANN hybrid method is a combination of the Generalized Linear Autoregressive (GLAR) model which includes a linear model and an Artificial Neural Network (ANN) which is classified as a nonlinear model. The idea of the GLARANN hybrid method is to use the advantages of each model, the GLAR model in detecting linear patterns and ANN in detecting nonlinear patterns in time series data. The application of the GLARANN hybrid method is the rupiah exchange rate (IDR) against several foreign currencies, namely the Australian dollar (AUD), euro (EUR), Hong Kong dollar (HKD), Japanese yen (JPY), dollar Singapore (SGD), and US dollar (USD), with export value as exogenous variable. The forecast results show that the hybrid GLARANN method is effective in forecasting AUD based on the RMSE, MAE, MAPE and NMSE values. However, it is not effective in forecasting HKD, SGD and USD. In EUR and JPY forecasting, the GLAR model is the most effective model. Meanwhile, the GLARANN hybrid method is only more effective than ANN based on RMSE and NMSE.

Keywords: hybrid method, GLAR model, artificial neural network, forecasting, exchange rates