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# On forecasting ability of the artificial neural network model in time series data: Based on gold price in Sri Lanka

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Forecasting is the prediction of values of a variable based on known past values of that variable or other related variables. Forecasts also may be based on expert judgments which in turn are based on historical data and experience. Artificial Neural Network (ANN) is a powerful data mining tool that can capture and represent complex input-output relationships. In this study, the forecasting ability of ANN model with standard Back-propagation learning algorithm and trial-and-error observations in time series data has been analyzed based on gold price in Sri Lanka for a period of three years from 2014 to 2017. Comparing ANN model output and actual output via plots and measuring Mean Square Error (MSE), we conclude that number of inputs effects to the time series data forecasting in an ANN model and forecasting ability decreases with increasing the number of forecasting days. Therefore, $n^{th}$-day forecasting by changing the input-output data patterns: past 30 day values and $n^{th}$-future day value as input and output data respectively, is better if need to forecast several future days.

**Keywords:** artificial neural network, back-propagation algorithm, forecasting, time series data and gold price

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