Assessing the stock price variation based on the DOE-based optimization of neural network

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Abstract

Stock return predictions are at the core of many research issues, and neural networks (NNs) are widely applied and were proven to be efficient for stock price forecasting. However, the stock return prediction by NNs always determines the parameter settings of the NNs rationally through a trial-and-error methodology. This paper integrates design of experiment (DOE) and directed Taguchi method to construct a NN (BPNN) engine, and further optimize the prediction accuracy under a robust DOE-based predictor. Adopting data from Taiwan Stock Exchange (TWSE), the financial ratios of the listed stocks of TWSE were computed. The research results indicated that the proposed approach can effectively improve the forecasting performance of stock price variations.

Keyword：Stock price forecasting; Back-propagation neural network; Design of experiment; Financial Statements