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Forecasting Financial Markets using Neural Networks: An Analysis of Methods and Accuracy

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Abstract: *The application of neural networks in forecasting financial markets has become a significant area of research, driven by the potential to capture the complex and non-linear dynamics inherent in financial data. Studies consistently explore the effectiveness of various neural network architectures, such as recurrent neural networks (RNNs) and long short-term memory (LSTM) networks, in predicting market trends. A key focus is on analysing the accuracy of these models compared to traditional forecasting methods, with research highlighting the critical role of data preprocessing and feature selection in enhancing prediction performance. While neural networks demonstrate promising capabilities in adapting to market volatility and identifying intricate patterns, challenges remain in achieving consistent and reliable forecasts. These challenges include the inherent noise in financial data, the influence of unpredictable events, and the need for continuous model refinement. Overall, the research emphasizes the ongoing development and strategic implementation of neural network models to improve financial market forecasting.*

Keywords: Neural networks, financial market forecasting, recurrent neural networks (RNNs), long short-term memory (LSTM), data preprocessing, feature selection, prediction accuracy, market volatility, non-linear dynamics, time series analysis.