Market Index Trend Prediction using Deep Learning and Risk Analysis

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Abstract : Trading in financial markets is subject to risks due to their high volatilities. Here, using an LSTM neural network, and by doing some risk-based feature engineering tasks, we developed a method that can accurately predict trends of the Tehran stock exchange market index from a few days ago. Our test results have shown that the proposed method with an average prediction accuracy of more than 94% is superior to the other common machine learning algorithms. To the best of our knowledge, this is the first work incorporating deep learning and risk factors to accurately predict market trends.