



**Universität
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Master Thesis

De-noised Empirical Asset Pricing via Machine Learning

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Abstract

Financial time series sequences are non-stationary and dominated by noise, which makes stock prediction one of the most challenging problems. Nowadays, it has been a trend that researchers have turned to techniques in the computer science fields of big data and machine learning for stock price forecasting. This thesis applies Independent Component Analysis (ICA) method to reduce the influence of noise. Together with ICA, this thesis applies Support Vector Machine (SVM) to predict stock performance. In order to evaluate the proposed method, the simulated data generated by Monte Carlo Simulation is used as illustrative data sample. Apart from simulated data, the SSE Composite Index is also used to evaluate the method. The results show that the combination of ICA and SVM performs better than forecasting by SVM without denoising data.

Key words:

Monte Carlo Simulation, Independent Component Analysis, Support Vector Machine