Stock Exchange Data – Price Forecasting

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December 2022

1 Introduction

Stock markets from across the world are tracked using indices that measure a section of the stock market, such as the Nasdaq Composite Index. Price forecasting is a very important task in the financial industry, as it can be used to guide strategies of investors.

Historically, portfolio managers have used discretionary methods – they rely on fundamentals and the judgement of analysts to make investment decisions [1]. However, with the rise of big data and computational power, systematic methods have become increasingly popular – this focuses on rules-based strategies that are implemented by a computer and involve little to no human intervention [1].

In this project, we will investigate the following question: can we use regression models on stock market index data to forecast prices effectively?

2 Methodology and Dataset

2.1 About Stock Exchange Data Set

2.2 Data Cleaning

2.3 Data Exploration

2.4 Feature Engineering

2.5 Data Filtering

2.6 Regression Models

2.7 Models Evaluation

3 Results

3.1 Ridge Regression

3.2 LASSO Regression

3.3 LSTM Regression

4 Discussion

4.1 Limitations of the Study

4.2 Future Work

References

[1] C. R. Harvey, S. Rattray, A. Sinclair, and O. Van Hemert, Man vs. machine: Comparing discretionary and systematic hedge fund performance *The Journal of Portfolio Management*, vol. 43, no. 4, pp. 55–69, 2017.