**Data Article**

**Title**: Short-Term Forecasting of the JSE All Share Index Using Gradient Boosting Machines

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**Abstract**

The paper discusses an application of Gradient Boosting Machines (GBM) to forecast the Johannesburg Stock Exchange (JSE) All Share Index (ALSI) closing price for the next trading day based on different training-testing split ratios. Daily data from the Wall Street Journal website, from 14 October 2009 to 16 April 2024, is used. Two models, Gradient Boosting Machines (GBM) and Principal Component Regression (PCR), are used for short-term prediction of the all-share index. Evaluation metrics such as Mean Absolute Error (MAE), Root Mean Square Error (RMSE), Mean Absolute Percentage Error (MAPE), and Mean Absolute Scaled Error (MASE) are used to assess the performance of the models. The results show that GBM consistently outperforms PCR across all split ratios, delivering more accurate predictions. These findings highlight the superior accuracy of GBM, making it a more effective model for short-term forecasting of the JSE ALSI closing price. The data are stored in an Excel file.

**Specifications Table**

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| --- | --- |
| Subject area | *Short-Term Forecasting* |
| More specific subject area | *Financial Market Modelling and Forecasting* |
| Type of data | *Excel file* |
| How data was acquired | *Provided and from the internet*  [**https://www.investing.com/**](https://www.investing.com/) |
| Data format | *Filtered and analysed.* |
| Experimental factors | *N/A* |
| Experimental features | *N/A* |
| Data source location | *Wall Street Journal Markets, FTSE/JSE Top 40 and S&P500 index Data portal webpage* |
| Data accessibility | *The data is hosted on GitHub* [*https://github.com/csigauke*](https://github.com/csigauke) |
| Related research article | *Short-Term Forecasting of the JSE All Share Index Using Gradient Boosting Machines* |

**Value of the Data**

The data can be used for financial time series forecasting in cross-sectional, temporal, or cross-temporal frameworks.

**Data**

The data used in this study is from Wall Street Journal Markets, FTSE/JSE Top 40 and S&P 500 index, and it can be accessed from [**https://www.investing.com/**](https://www.investing.com/). The data comprises Date, Close, Day, Month, diff1, diff2, diff5, Oilprice, Goldprice, Platprice, SandP and UsdZar.

**Experimental Design, Materials, and Methods**

Data used in the study is from Wall Street Journal Markets, FTSE/JSE Top 40 and S&P 500 index.

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**References**

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The FTSE/JSE Top 40 from <https://za.investing.com/indices/ftse-jse-top-40-historical-data> (accessed on 7 October 2024).

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