Green Finance

An analysis of effects of green policies on the financial market

Approach 1

- We analyse companies which have been in the renewables field since the start.
- We pre-process our data using Heiken-Ashi candles.
- This greatly reduces noise in our dataset while giving us significant insights into underlying trends in the dataset.
- The ADX indicator was employed to identify the strength of a trend. Analysing state of consecutive candles and combining them with ADX based decisions (like 10 day ADX below 25 shows no established trend, while above 60 may indicate an established trend.

Approach 2

- We analyse companies which implemented green policies realizing the need.
- Once again we incorporate Heiken-Ashi. This gives us clear idea on trends underlying trends and reduces noise.
- We incorporate a machine learning model to make predictions.
- The model is an LSTM. It was incorporated using TensorFlow.
- We then predicted the OHLC values of the next few years.
- We then reanalyze this with data including the year of implementation of the green policy.
- We notice that the companies may perform significantly better or worse after implementing Green Policies.

- The key decisions of investing or releasing stock is taken in an algorithm that incorporates data from these parameters.
- Risk management : ATR based stop-loss ensures minimizing risk in the market.
- Evaluation Metrics : Sharpe Ratio and Sortino Ratio allow us to judge performance with risk adjusted returns.
- This solution caters to looking in general at companies which have been involved in the green field.

- This implementation gives us the platform to come up with a novel solution.
- Using the delta between post-green era data and predicted non-green data, we propose a new parameter, GreenLoss.
- New companies looking to move into the green field can use our tool to predict their potential performance, using just their current data.

Libraries used

- yfinance: This library was used to fetch the stock market data off of yahoo finance
- pandas : to analyse dataframes.
- pandas_ta : tools to analyse OHLCV data.
- TA_Lib : Tools to help us do quantitative analysis.

- We also had significant code written on our own to implement various things.