

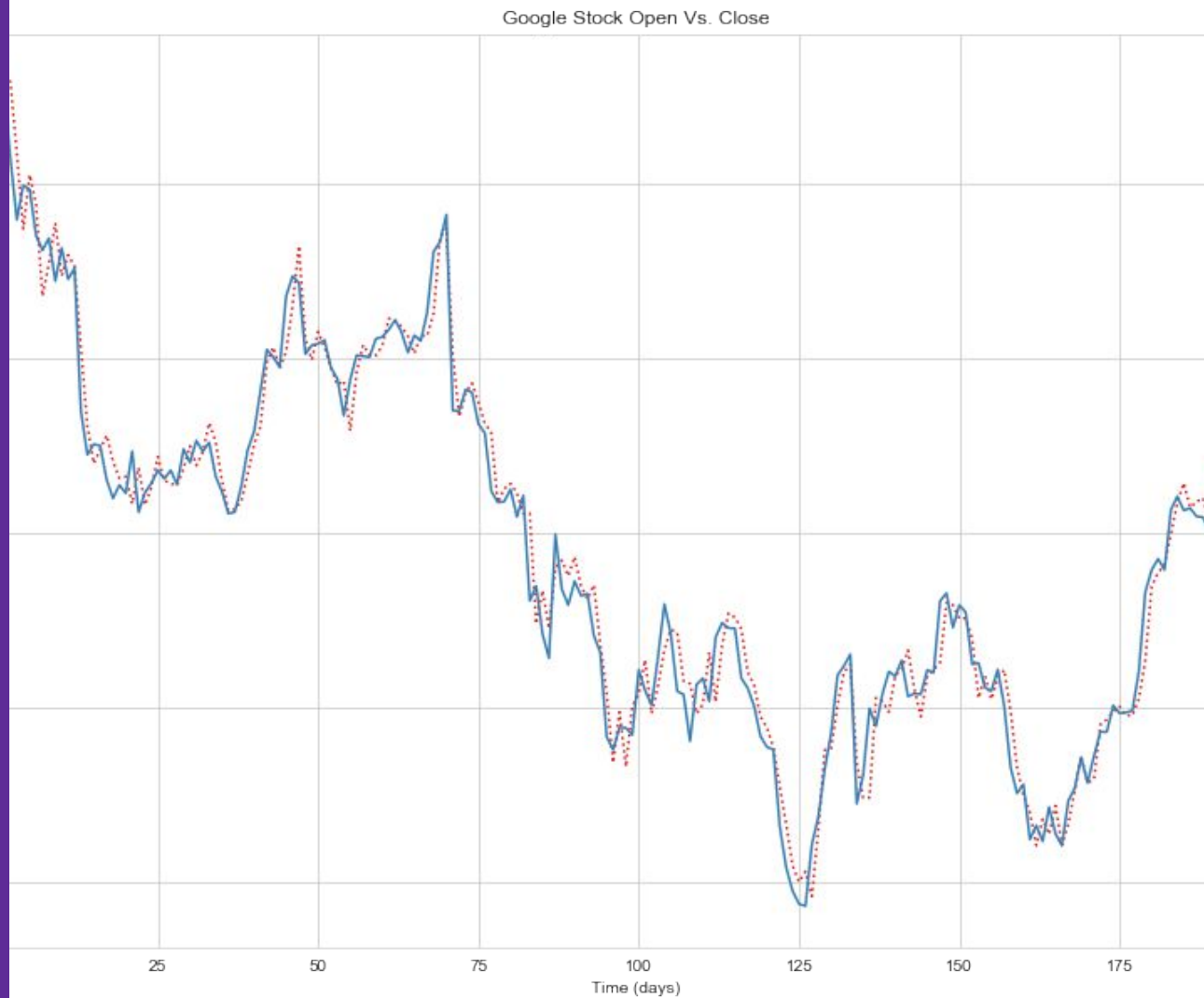
Deep Learning and NYSE Prices

Modeling next day prices for a single stock

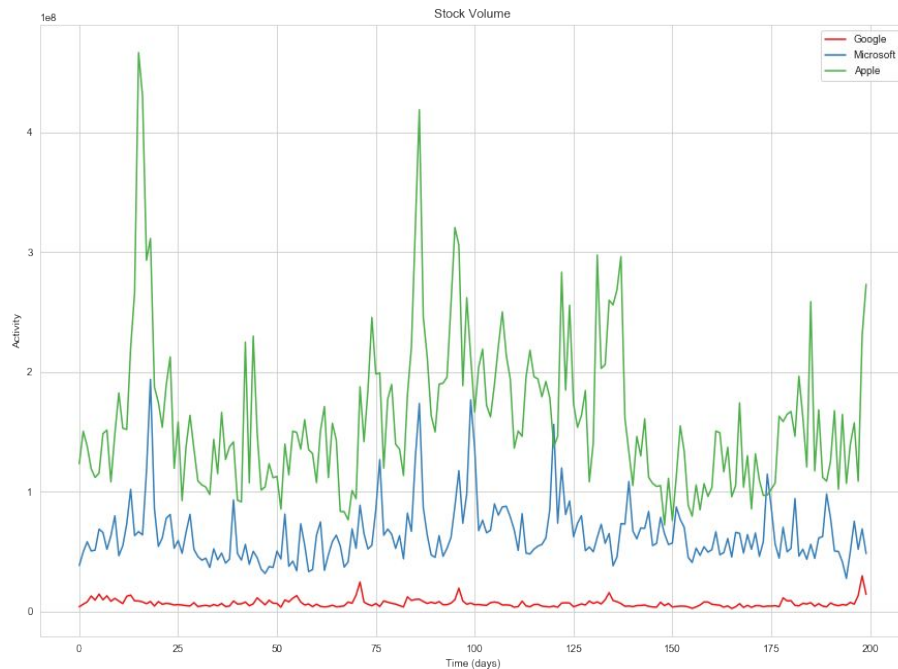
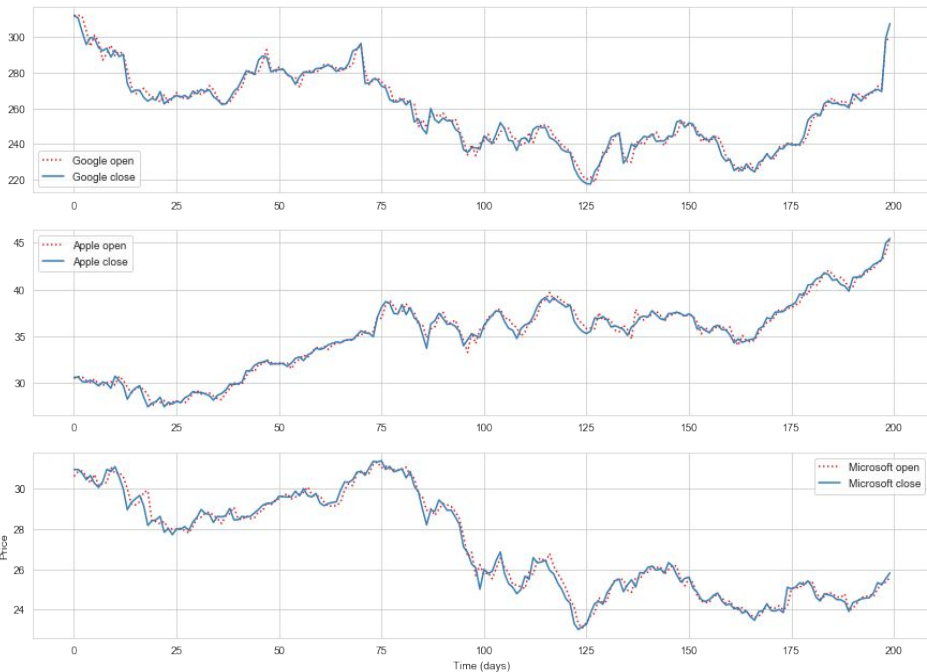


The Data and the Question

- New York Stock Exchange (NYSE) historical prices and other fundamental data points of the S&P 500 from 2010 to the end of 2016
- Using price data to predict the stock price for the following day using Machine learning

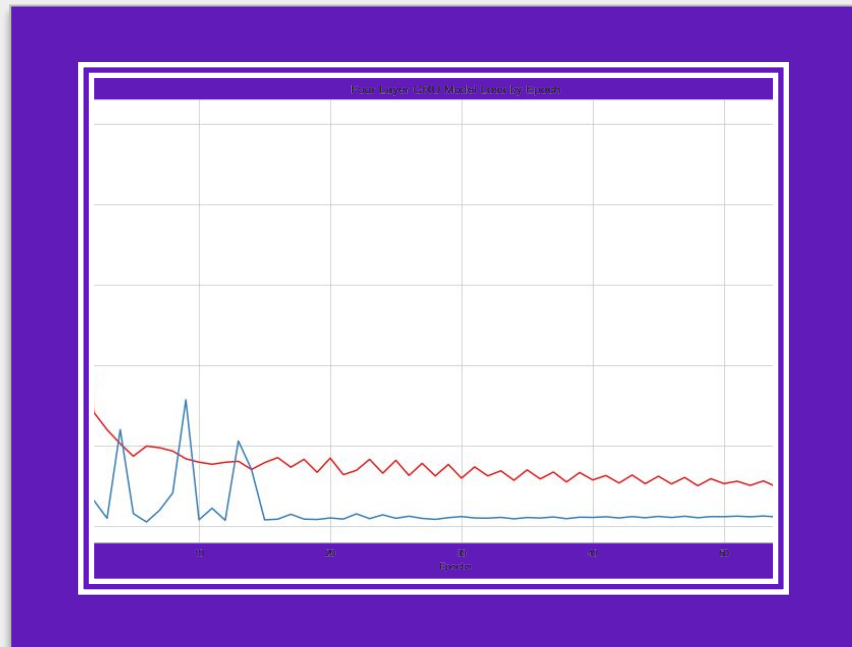


The Competitive Landscape



Tested 5 Models with Various Complexity

- Single Layer LSTM
- Two Layer LSTM
- Two Layer GRU
- Four Layer GRU
- Four Layer GRU with explicit activation functions



Management Recommendations

- Final GRU Model had the most potential for modeling future prices
- Model isn't a magic predictor but could rather be used to identify a number of possible price movement paths based on the current state of the stock prices
- Model does not have the capability to incorporate extraneous market shocks which would ultimately result in a complete model failure

Questions?



Possible Future Work and Analysis

- **Additional validation could be included in the model by employing k-fold validation**
- **Running a greater number of epochs in the models**
- **Further Model parameter tuning**
- **Explore the impact of the other FAANG companies on Google prices**