Technical Report Writing

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Topic: Stock Market Price Prediction using Machine Learning

Results and Discussion:

When it comes to predicting price direction one day ahead (m = 1), the SVM model is only tenths of a percentage point better than plain random guessing. This has a number of significant ramifications. For starters, it bolsters the Efficient Markets Hypothesis. If there is a model that integrates a variety of historical data formats, as well as some properties such as momentum that economists have shown are present in stock price data, is unable to perform better than a toss a coin This is really solid evidence when it comes to predicting the price direction for the next day, that prices move in a random manner. Prices that already reflect available data will only alter in response to new data, so the price direction for tomorrow will be determined solely by new data that arrives tomorrow. Because all prior data should already be included into the price, a model like ours that analyses solely historical data should not be able to anticipate price direction.

As a result, EMH is supported by our model's difficulties in predicting the next day's stock price.

As the parameter m is increased, certain trends arise. The most noticeable feature is that when m = 5,10,20, the mean and median returns rise, but then fall somewhat when m = 90 and m = 270. Figure 1 depicts the mean prediction accuracy as a function of the parameter m, where mean prediction accuracy is defined as the average of the mean accuracies for all 25 combinations of n1,n2 with

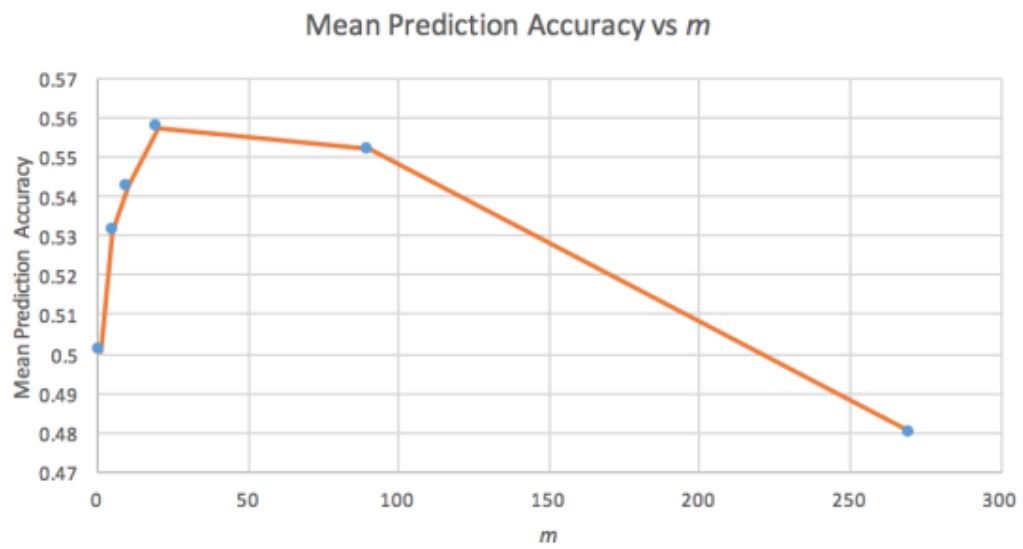a fixed m, where each combination gives the mean accuracy across the 34 stocks.

Figure 1