

SP500 forecast

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Introduction

The purpose of this analysis is to determine if the SP500 Index (Index) is overpriced, as of August 2015, and complete some forecasting analysis.

A forecast of the Index. The Index data was downloaded from Yahoo Finance in August after it had significant drops. Consumer Price Index data was used to deflate the Index's historical price. This data can be downloaded from [here](#).

In conclusion, it seems that the Index is currently overpriced.

Analysis steps

- The data was downloaded
- Historical data was visualized
- Historical data adjusted by the CPI and then was visualized
- Forecasts were completed

SP500 Open Price by Month

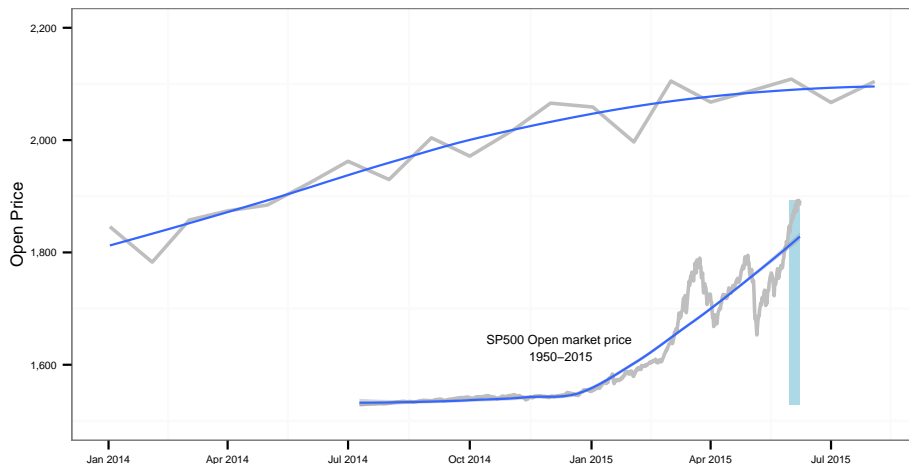


Figure 1: Open market price trend Jan 2014 - Jul 2015

SP500 Open Price adjusted with CPI by Month

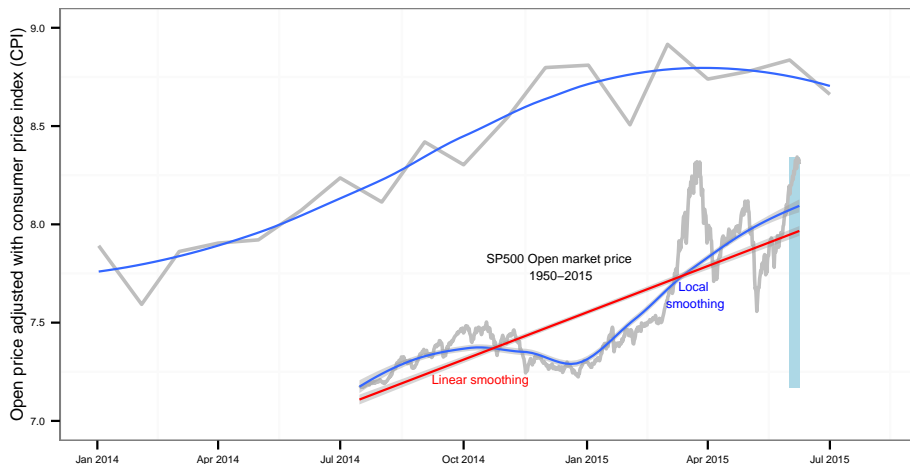


Figure 2: CPI adjusted open market price trend Jan 2014 - Jul 2015

Forecast graphs 1

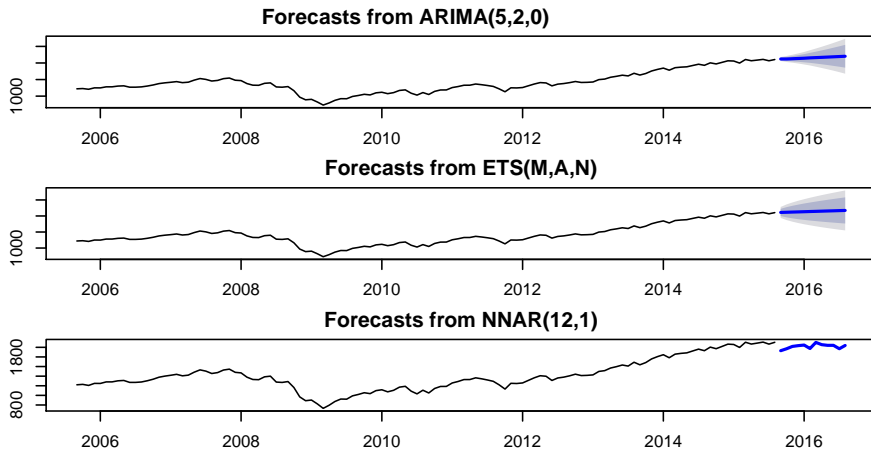
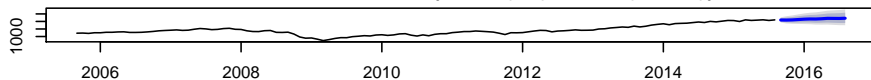


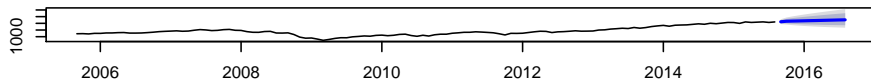
Figure 3:

Forecast graphs 2

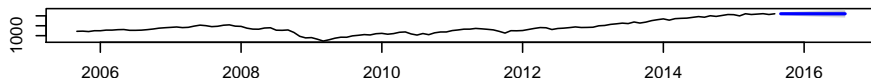
Forecasts from TBATS(0.002, {2,3}, 0.999, {<12,5>})



Forecasts from BATS(0, {0,0}, 1, -)



Forecasts from HoltWinters



Forecasts from Linear regression model

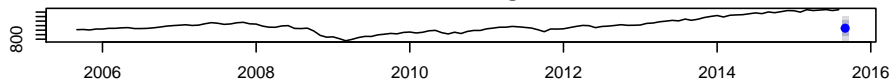


Figure 4: Forecasts

Forecast table

	Model	ME	RMSE	MAE	MPE	MAPE
1	naive	25	202	154	0.53	12
2	theta	22	211	154	1.03	12
3	exp	14	222	162	-0.05	12
4	arima	23	255	180	1.74	14
5	sts	6	287	194	-0.43	15
6	neural	593	2,529	735	55.12	67

Table 1: Measure each model's accuracy

Forecast graphs 3

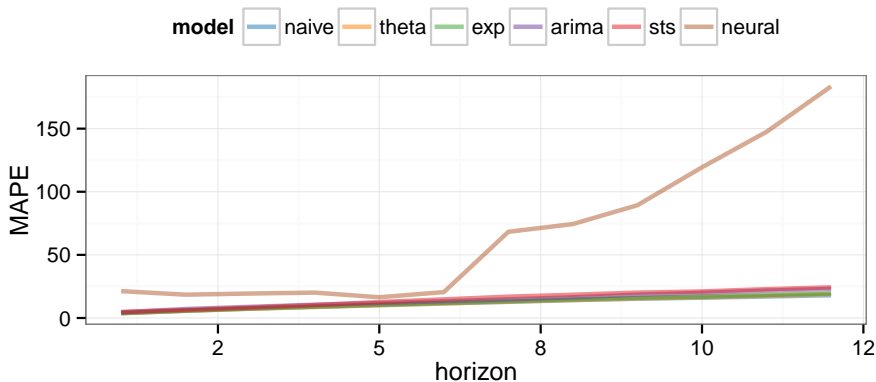


Figure 5:

Disclaimer:

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The analysis was completed on Tue Sep 08 9:49:44 PM 2015 in 4 seconds.