**R**

The following lines of code are examples of my experiments. You are free to take them to test and experiment on your own. I am not responsible for errors in the code and the use you make of it.

This set of R applications is one of my favorites. The Forecast R package is awesome, and the question is obvious: can we predict the stock market using it? (obviously, I am one among many naïve people that previously attempted this). The short answer is no, not really. Forecast will issue a prediction based on that after trends and seasonality all other changes are at random. Many changes in the stock price data cannot be explained that way and the example provided illustrates this. However, as a practitioner and investor myself, sometimes I see that the prediction happens to match the real price evolution (within statistical bounds) and sometimes it is not. And here it comes the interesting part, it is thinking about the match and/or mismatch that can yield attractive ideas

Running the script is simple. I do it from Anaconda Navigator and Rstudio. The script, accomplishes two main goals:

1. Prepare the data. This is the main task. There are many gaps in stock market price data, like weekends and vacations. These are dealt by removing Saturdays and Sundays and filling out the rest. Also, the time series analysis uses an index, not the data dates. The user must provide the start of the index and how many trading days do really exist in the data; these in turn should mimic as close as possible the real data. Since data is divided in two groups, 5 year and 2 year, check that the variables in lines 29 and 33 match the final dates as closely as possible.
2. Run various tools of the Forecast T analysis package.

There are a lot of almost compulsory checks of the data along the run. These are kind of boring there I put them to check that the time series are implemented correctly. This is the point 1) above.

The example provided follows the SPY for 5 years from 2014 to 2018 (included). This data was captured of yahoo/finance. The question is: how predictable was the recovery of the market during the end of 2018 up to Q1 2019?

The script provides a few outputs. Two of them are saved here.

The ‘Fan’ plots predict a recovery; there is an ‘up’ tendency, in both 5 and 2 yr. analysis. The trend is moderate but up. However, the probability of a downturn is not excluded since there is statistical room for it. The Fan shades were made to encompass 1 and 2 Standard deviations (approximately).

When comparing the recovery of SPY with the real behavior of the index, we can see that the recovery was better than the better scenario of all predictions. In other words, it exceeded 2 standard deviations including the trend provided by the Forecast. This is an interesting observation. Now, what this means? Why this happens? And most importantly, when it ends, are questions that are not for this forum.