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PY531

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POTUS Tweets and Markets

When setting out to begin this project, I knew that I wanted to focus it around politics in

some form, as I have been very interested in Big Data and politics for some time. I had read

many articles about the influence of elections, campaigns and high-ranking political leaders on

the market and thought this might be an interesting foray into a research project. Donald

Trump has become well known for his break from tradition and formality and unpredictable

behavior. Despite his raucous nature, investors have begun to claim that they can predict the

stock market based upon his word. Particularly after Mr. Trump's election win in November,

there has been a general feeling that one of the few things predictable about him is his ability

to issue slander against a company or person – usually in the form of a poorly formulated

Tweet. After a bit of investigating myself, I decided to look further into the issue and attempt to

prove, or disprove, a causation between Donald Trump's Tweets for or against certain

companies and the respective stock price.

I was able to identify roughly thirty companies that Trump had tweeted about in the last

three years and narrowed this number to twelve after selecting those that were more recent

and were very clearly negative. Conveniently, the companies had quite a range in size and

scope, making it easy to look at an overall picture after individual analysis. I began by looking at

each company's stock price on the day of the tweet and then measuring the percent change in

value after two days and again after the "present day," which I defined to be April 10th.

My hypothesis was that a strongly negative tweet from the president or presidential candidate would have a brief and immediately negative impact on the stock price but would eventually even out to have no discernable effect. The result I found was quite interesting. After taking the mean of the percent change of all twelve companies, I found that the average percent change in stock price increased by 0.71% after the first two days. Obviously this was not a large increase, but it was certainly different than what I had expected. I ran a two tailed T-test on the mean values, with a null hypothesis of 0, and found that the p-value was greater than 5%, and thus was unable to safely reject the null hypothesis. Given that the null hypothesis is a 0% change for a two tailed test, I was however able to conclude that Trump's tweets did not have a discernable effect in the short term.

On the longer term, I did not expect any change to occur on the average. I assumed that after an extended period of time, more than two weeks or so, the many other factors determining stock price would weigh in and wash out whatever residual effect was left from the tweet. The average change in stock price to the present day turned out to be 12.45% - again surprising, but perhaps not significant. After running the T-test again and finding critical values, I found that the result was in fact significant on the 5% percent confidence level. Thus, if anything, Mr. Trump's tweets seem to have a positive effect on the company in the long run. In order to visualize this result, I decided to create a type of "index" akin to the S&P500 or the Dow Jones.

I wanted to view how the Trump-effected companies would stack up against the S&P500, as it hold the generally accepted title of the most accurate representation of the state of the US' economy. On my first run through, I viewed only the summed stock prices and the S&P500. As expected, the value outperformed the Standard and Poor's, but I knew that the

data was misleading alone. The Standard and Poor's index's companies based on their market

capitalization, not simply the value of their stock. Thus, after much tinkering around in

Mathematica, I was able to plot the results of my two index's against the S&P500:

Figure 1 – Plot of Percent Change in Three Market Indexes

Where "Stock" represents the value of the sum of all the stocks, and "The Donald Index"

represents that value of the sum of all twelve firm's market caps. Again, the index

outperformed the S&P500, but I still had my concerns.

The S&P is so highly regarded due to its incorporation of 500 firms, thus covering a large

array of companies, large, small and in-between. The index receives criticism for not weighting

the companies and thus having potential to bury the data of smaller firms that have a lesser

effect on the index. Being that my index includes only twelve companies, this effect is amplified

to a much greater extent. In order to counter the imbalance, I decided to create a third index

that weighted each company equally based on their market capitalization. I did this by taking

each firm's percentage of the total market cap and multiplying by the respective stock value.

The final result was quite extreme, with the index outperforming all previous measures. The

final index may be seen in Figure 2, depicted in purple and named "Donny's Index."

Figure 2 – Plot of Percent Change in Four Market Indexes
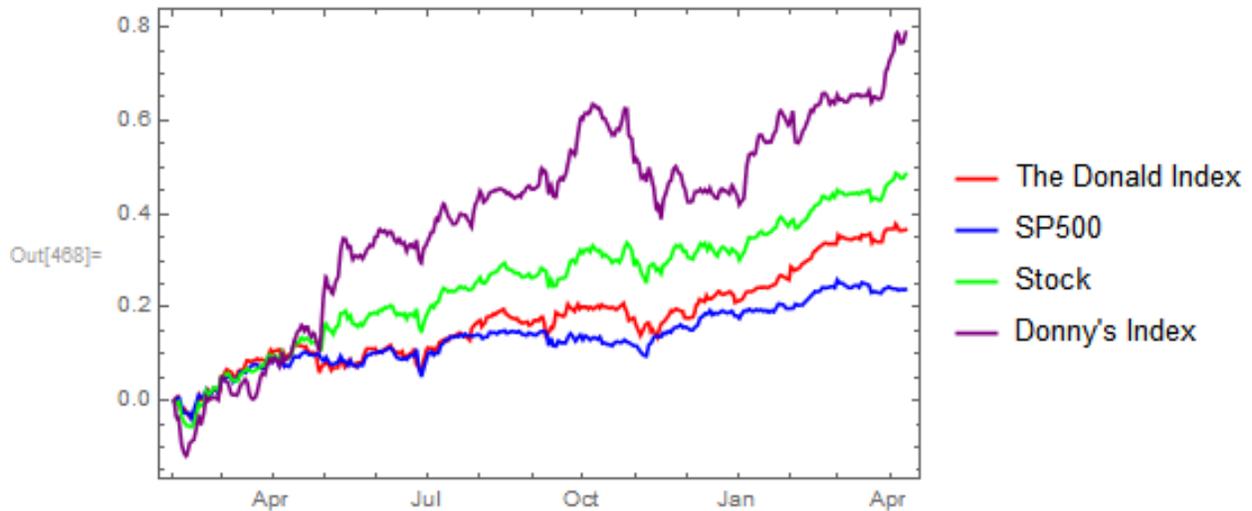
After obtaining relatively conclusive results from the previously done t-test on stock values, and then further plotting the results of three different market indexes against the renowned S&P500, I am comfortable in stating that Donald Trump likely boosts a company's performance after negatively tweeting about them. Of course, the boosted performance could come from a number of other factors, but the evidence certainly points in this direction. After further consideration, perhaps I should not be very surprised by this result. After all, when a company receives a harsh tweet, they have a very public opportunity for rebuttal. I viewed all twelve firm's responses to the initial tweet, and every company issued a positive statement soon after, with many giving a clear promise towards success in the near future. Perhaps investor's viewed these renewed commitments to success as a safe bet given that the firm had been in the limelight of failure in the president's eyes. Again, I cannot determine the true details for sure, but I am intrigued nonetheless. I have learned a lot about financial markets during this project and essentially taught myself Mathematica in the process. My newfound skills and knowledge are now a permanence in my life and I am happy to have had this experience.