

Is it smart to buy the day after a large stock gain?

Thinkful Data Science Bootcamp

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9/20/2018

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Background

- Stocks generally follow the overall market based on their "beta score", which represents how proportionally they follow the market.
- A stock typically breaks pace with the market when there is news related to the company.
- However, once the news break, the stock experiences an immediate movement and there is very little time to take action.



Problem

- Our firm would like to understand how long the effects of positive news lasts, and if it is a good bet to buy a stock the day following an unusually positive movement.

Hypothesis & Experiment Design

- **Hypothesis** A stock which trades significantly higher due to positive news will continue to outperform the market over the next 30 trading days.
- **Experiment**
 - Data pre-collected: Daily performance for Dow 30 components dating back to 1982
 - Control Group: Entire population of data.
 - Test Group: Events where a stock significantly outperformed the market the prior day. (≥ 5 points)

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Analysis & Benchmark

- **Analysis** Determine if there is a difference in how stocks performed over the next month in the Control Group vs the Test Group. Look at the results across all stocks.
- **Benchmark** Perform t-test on two samples to determine if the test group outperforms the control group with 95% confidence.
- **Test the Results:** Once a conclusion is made, test the results with a different test sample of stocks chosen at random.

Conclusion

If yesterday outperformed by 5 or more points, statistically likely to see positive boost over next 30 days.

Results when Yesterday Outperformed Market by ≥ 5 points

Test Count: 1447

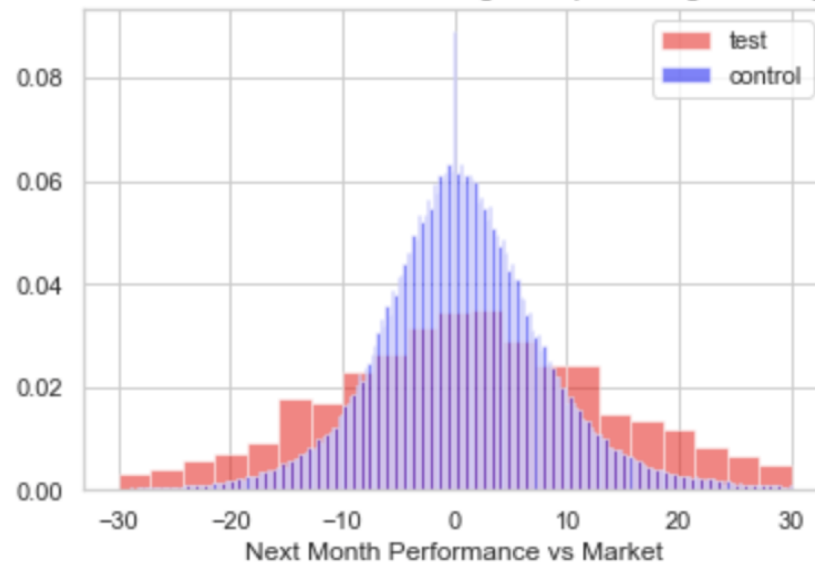
Control Count: 298037

Test Outperform over Next month: 2.1315272978576365

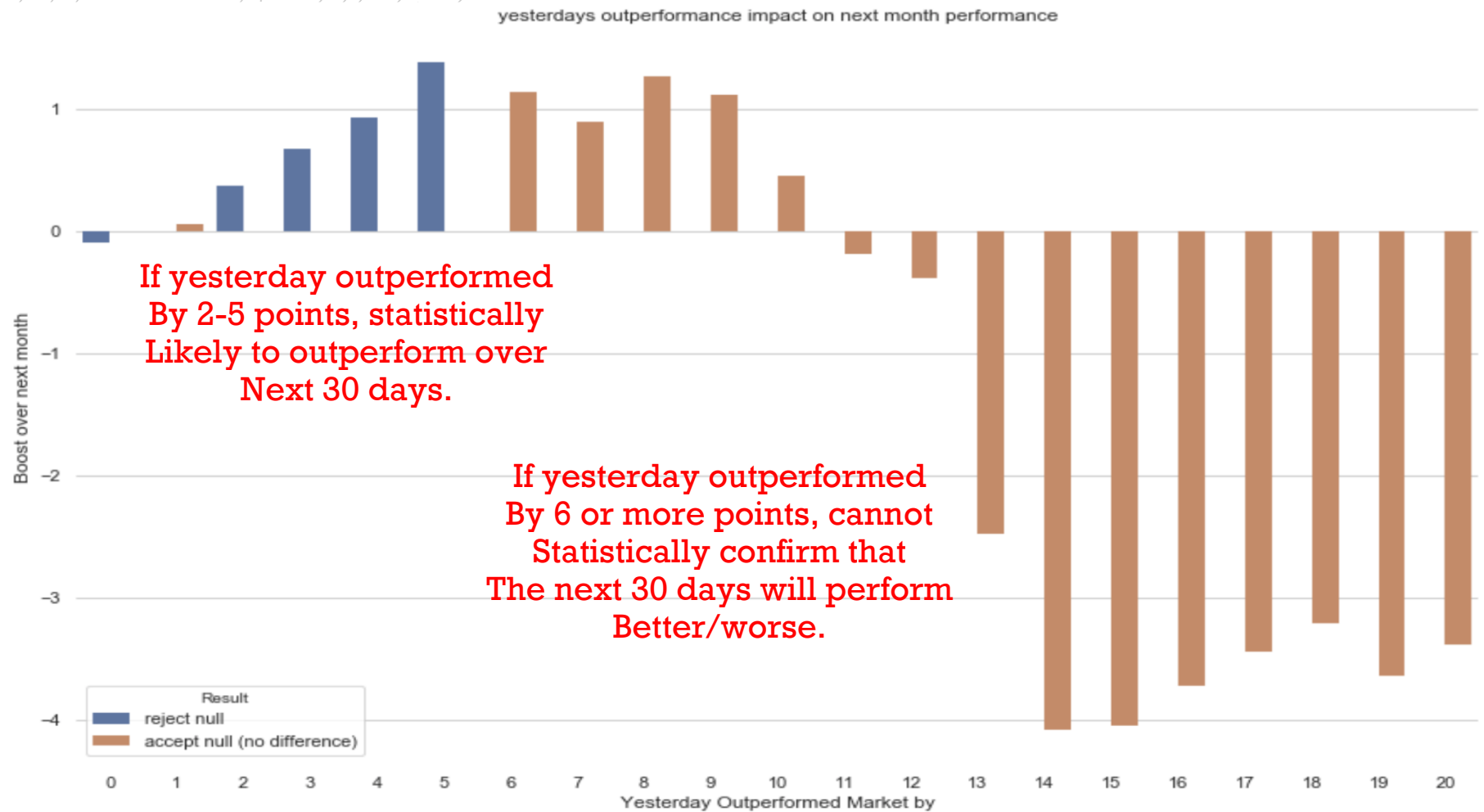
Control Outperform over Next month: 0.7547772256464803

Ttest_indResult(statistic=3.5286854224887927, pvalue=0.00043)

Performance over next month after a gain outperforming market by 5%



Yesterday's Performance is best indicator when it outperformed market by 2-5 points



Side Unrelated Project: Does Day of Week Impact Daily Performance?

