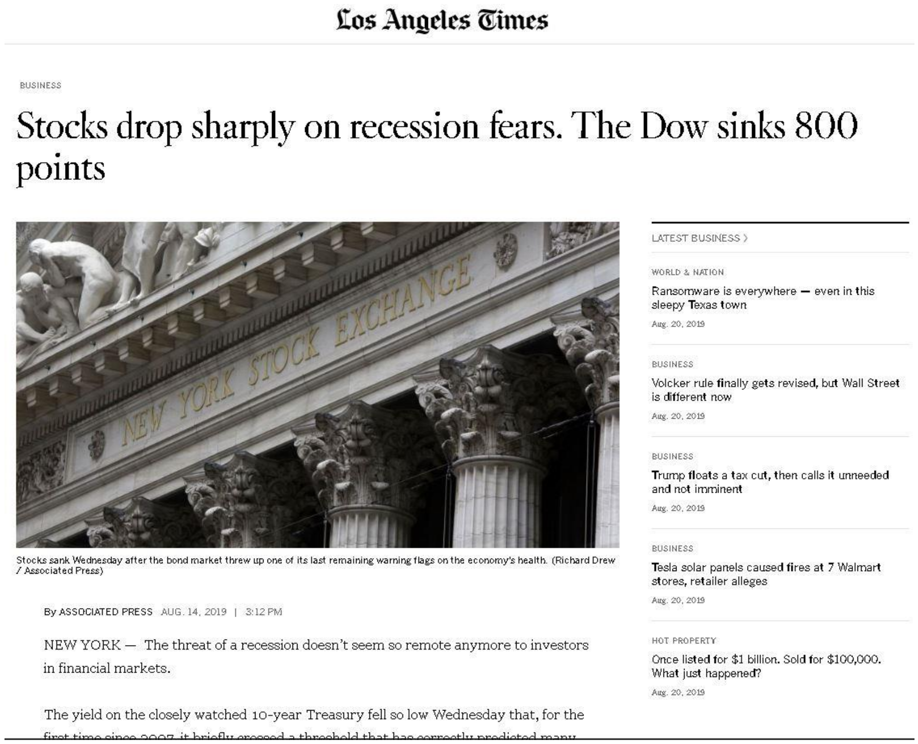
Stocks had another huge dive yesterday. In fact, it was the biggest drop of this year, so I thought I'd post this chart I made which explored whether you should "Buy the dip?". Put another way, after a really bad day, do stock markets tend to go up the next day?


Los Angeles Times

BUSINESS

Stocks drop sharply on recession fears. The Dow sinks 800 points

Stocks sank Wednesday after the bond market threw up one of its last remaining warning flags on the economy's health. (Richard Drew / Associated Press)

By ASSOCIATED PRESS AUG. 14, 2019 | 3:12 PM

NEW YORK — The threat of a recession doesn't seem so remote anymore to investors in financial markets.

The yield on the closely watched 10-year Treasury fell so low Wednesday that, for the

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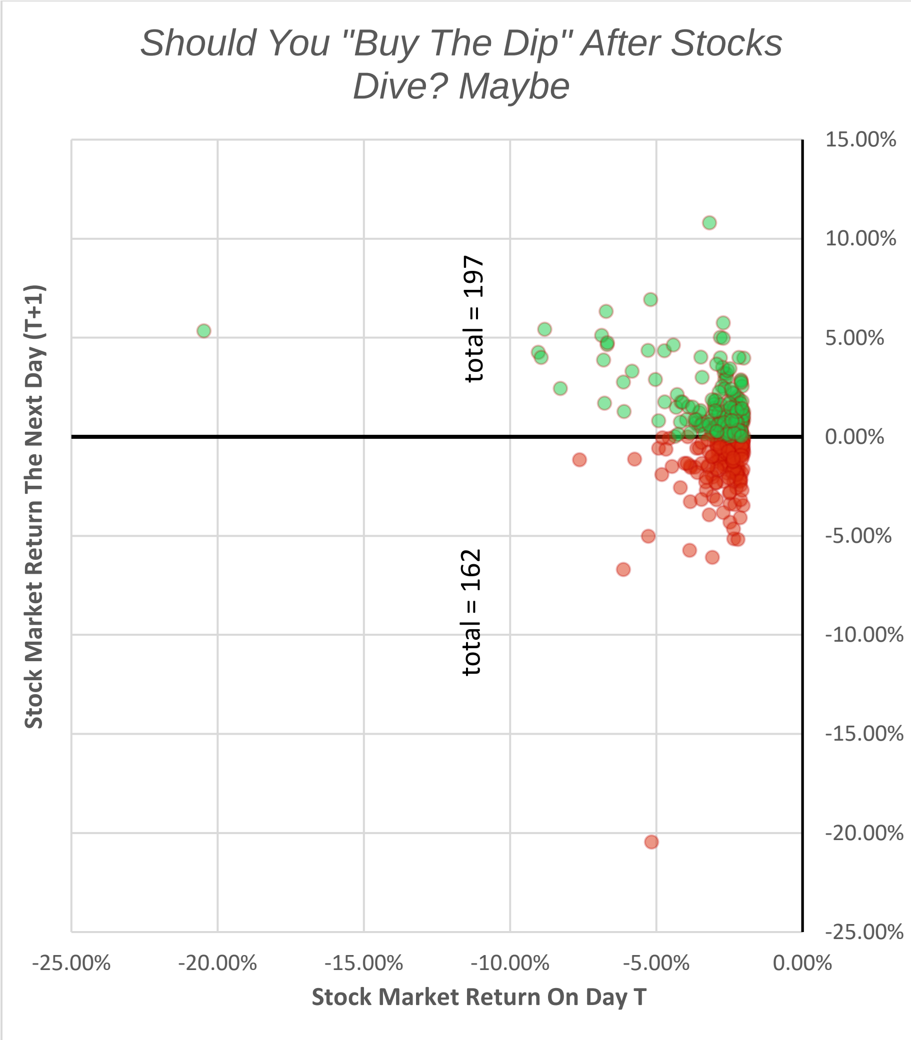
Here are the recent dips that the market has experienced, the biggest one happening on August 14th.



X-axis is every single day in the last 62 years where the US stock market has fallen 2% or more. On the vertical axis is what happened the very next day. So anything above the middle line is when a bad day was followed by a positive day, and anything below the line is when a bad day was followed by... another bad day.

Date	Close	Stock Market Return on Day T	Percent Change(T+1)
8/19/1957	44.91	-2.01%	0.85%
9/23/1957	42.69	-2.29%	0.68%
10/10/1957	40.96	-2.45%	-0.05%
10/21/1957	39.15	-2.93%	-0.43%
11/26/1957	40.09	-2.65%	2.89%
8/10/1959	58.62	-2.09%	1.31%
9/19/1960	53.86	-2.27%	0.28%
4/18/1961	66.2	-3.61%	-0.59%

Basically, 54% of the time stock markets did go up the next day (197 times out of 359). However, the reality is that if you "bought the dip" like this every time it would have only yielded you on average about a +0.1% return, and that doesn't even include trading costs.

Viz Tool: Microsoft Excel

Data Source: S&P 500 Index via Yahoo Finance.

Lets Run a hypothesis test to test the idea that there is a significant difference in the amount of times the market corrects and has positive returns the following day.

Z- Test: One Population Proportion

The following information is provided: The sample size is N = 359N=359, the number of favorable cases is X = 197X=197, and the sample proportion is \bar p = \frac{X}{N} = \frac{ 197}{ 359} = 0.5487$\bar{p}$=NX=359197=0.5487, and the significance level is \alpha = .05α=.05

(1) *Null and Alternative Hypotheses*

The following null and alternative hypotheses need to be tested:

Ho: p =.5
Ha: p ≠.5

This corresponds to a two-tailed test, for which a z-test for one population proportion needs to be used.

(2) *Rejection Region*

Based on the information provided, the significance level is α=.05, and the critical value for a two-tailed test is Z_c=1.96.
The rejection region for this two-tailed test is R={z:|z|>1.96}

(3) *Test Statistics*

The z-statistic is computed as follows:

z = \frac{\bar p - p_0}{\sqrt{p_0(1-p_0)/n}} = \frac{ 0.5487 - .5 }{\sqrt{ .5(1-.5)/359}} = 1.847$z = p_0(1-p_0)/n\bar{p} - p_0 = .5(1-.5)/3590.5487-.5 = 1.847$

(4) Decision about the null hypothesis

Since it is observed that |z| = 1.847 ≤ Z_c=1.96, it is then concluded that *the null hypothesis is not rejected.*

Using the P-value approach: The p-value is p = 0.0647, and since p = 0.0647≥.05, it is concluded that the null hypothesis is not rejected.

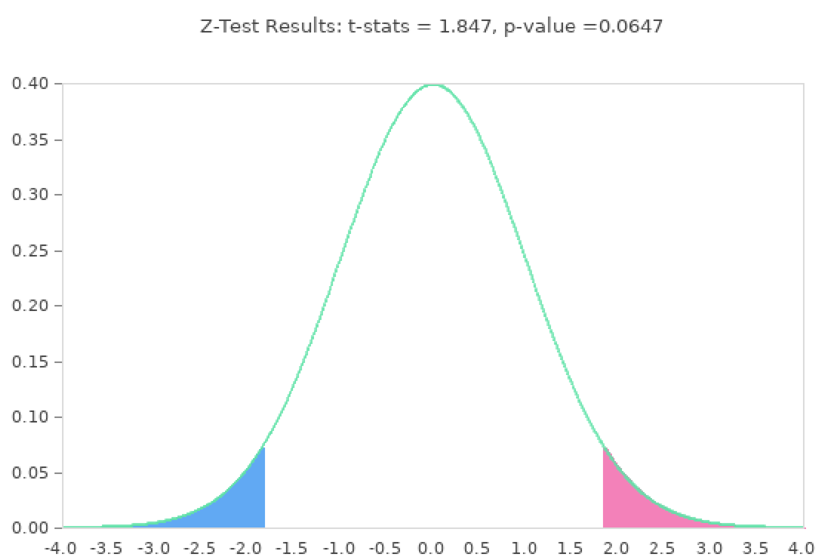
(5) Conclusion

It is concluded that the null hypothesis Ho is *not rejected.* Therefore, there is not enough evidence to claim that the population proportion of stock market raises after a 2% dip is different than a market fall at the α=.05 significance level.

Confidence Interval

The 95% confidence interval for pp is: $0.497 < p < 0.6$.

Graphically



What About the other Way Around? Should you buy the Spike?