

CORRELATION OF STOCK AVERAGES

It is well known that market averages such as the Dow Jones Industrials and the S&P500 tend to move in unison making their combinations and other averages useful in predicting when one is in a bull or bear market. The reason for this correlation between multiple stock averages, and even the somewhat weaker correlation between individual stocks and averages, is not quite clear although it is likely the result of arbitrage operations. We want in this article to investigate this observed correlation between stock averages and indicate how their combined use may be used to generate positive financial returns by staying long during bull markets and short during bear markets.

The original idea of defining bull (upward) and bear (downward) markets using market averages goes back to 1896 when the Wall Street Journal Editor Charles Dow and his partner Edward Jones first introduced a new market average now referred to as the Dow-Jones Industrial Average. This 126 year old average continues to be a major market index. At the moment it consists of thirty prestigious American stocks including Coca Cola, IBM, McDonalds, Apple, Merck, JPMorgan, and Boeing. When the DJI index reaches 20% above its recent significant low one is in a bull market. When the index has fallen by 20% from its recent high one is in a bear market. Using several different market averages in unison makes the criterion for a bull or bear market even stronger.

To see how things stand at the moment, let us look at the last five year price window of the ETFs (exchange traded funds) DIA and SPY. The first maps the S&P500 and the second the Dow-Jones Industrial Average-



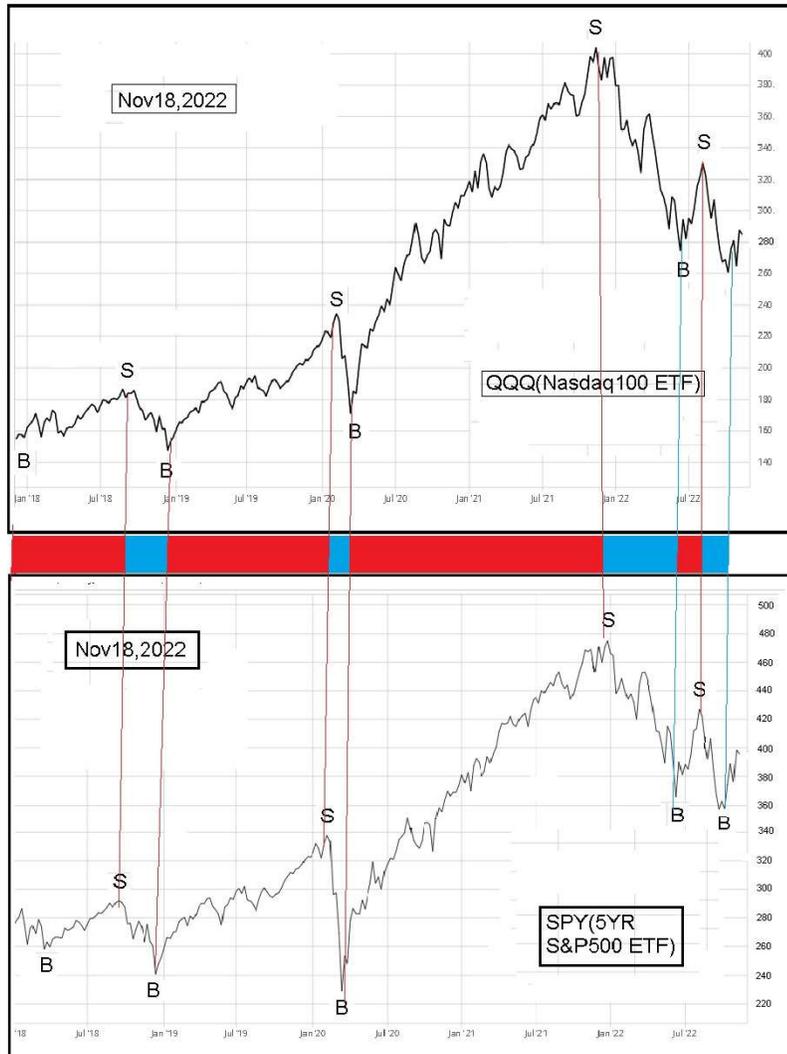
This five year stock data comes from barchart.com. In the graph we have marked what are local highs by S for sell and price bottoms by B for buy. You note the 20% rule for long and sort are a bit too late. Actually one should-

be long when $B < \text{price} < S$

be short when $S < \text{price} < B$

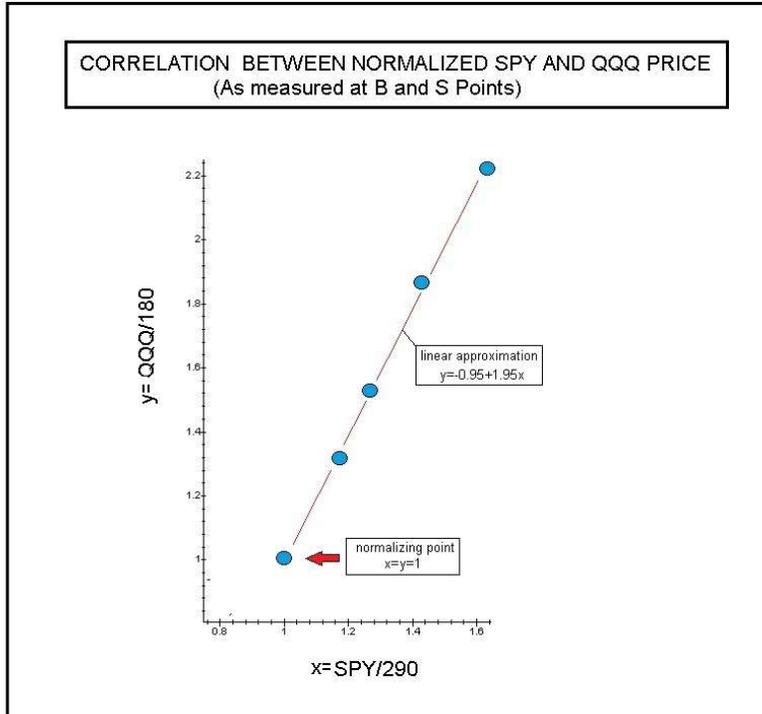
provided that at least two broad indexes satisfy these conditions. Note that the price fluctuations and trends for both DIA and SPY are essentially identical. This implies a good correlation between the two. We will show this fact below by looking simultaneously at SPY and QQQ and drawing a scatter diagram for these.

The two ETFs QQQ and SPY represent essentially the average for the nasdaq 100 and for the S&P500. Here is how the five year graphs for these look on Nov.18,2 022-



Here red indicates the long regions and the light blue the short regions. At the moment QQQ is still in a short region while SPY indicates a buy. Since these are contradictory signals, I would wait a few more days to see if SPY and QQQ can come to an agreement.

To show how good a correlation exists between SPY and QQQ, I have drawn a scatter diagram using normalized $x=y=1$. Picking four more points at different S and B points produces the following-



The correlation between QQQ and SPY is seen to be extremely good. We expect similar excellent correlations among other ETF averages taken two at a time. Additional ETFs expected to have excellent correlation can be confirmed by additional scatter diagrams. Some of the other broad-market indexes include combinations involving IWM, DIA, EFA, and VOO. In my trading, I confine my attention to only the two most active ETF averages SPY and QQQ. They are easy to trade and far less risky than when dealing with an individual stock.

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