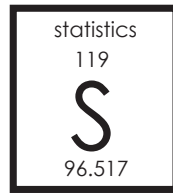




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ASSESSING OF THE FUTURE PERFORMANCE OF THE S&P 500 LOSERS

A RESEARCH ARTICLE

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Abstract

Should you bet on the previous year's losers of the Standard and Poor's 500 index? In this paper, we empirically investigate this simple contrarian trading strategy. Contrarian trading strategies have been well studied in the academic literature, but few provide an empirical assessment of the performance of this trading strategy. For 2001-2014, we present graphical and statistical evidence to determine if, on average, betting on the previous year's losers outperforms the index for different investment horizons.

Introduction

A contrarian trading (investing) strategy can be described as making investments that are counter to recent market trends and different from the “heard” consensus. When applied to equities (stocks), a contrarian believes that negative outlooks are incorrect, stock prices are artificially too low, and stock prices will eventually rise to at least a fair market value (similarly for stocks that with positive outlooks may have prices that are too high in comparison to a fair market value). The contrarian buys these stocks at low or “cheap” prices, betting the stock prices will rise and lead to returns that exceed the performance of a benchmark index.

The standard benchmark index is the Standard and Poor’s 500 (hereafter, the S&P 500). The S&P 500 in a stock market index is comprised of 500 large companies that are trading on the NYSE or NASDAQ stock exchanges. The companies that comprise the index are called constituents, and change over time. That is, companies enter and exit the index each year. For example, in 2013, eighteen companies were removed from the index and the same number of companies entered into the index. In this paper, we investigate the future performance of the worst performing companies of the S&P 500.

Contrarian trading strategies can be used by more than just day traders and managers of actively managed portfolios. Long-term investors and managers of passively managed portfolios often sell stocks at the end of each year (e.g. tax reasons or portfolio window dressing). The cash generated by the sales will need to be reinvested at some point, likely at the beginning of the next year. For all market participants, the beginning of each new year brings the opportunity to buy stocks. Which stocks should investors buy? A simple contrarian trading strategy for the new year: buy last year’s worst performing stocks (on a year-over-year basis). Appearing in both the *Wall Street Journal* and *Barron’s*, Bary (2013) proposes this simple contrarian trading (investing) strategy.

Contrarian trading strategies are well studied in the academic literature. The quintessential work of De Bondt and Thaler (1985) answers the question, “Does the Stock Market Overreact?” by investigating winner and loser price reversals, and comparing the future performance of portfolios comprised of only winners or only losers. De Bondt and Thaler (1986) consider the seasonality of short-term price reversals for losers, and De Bondt and Thaler (1989) give an excellent overview of the literature on short-term price reversals. De Bondt and Chen (2004) focus on style momentum differences between winner and loser portfolios. Wongchoti and Pyun (2005) account for trading volume in the future performance of winners and losers. However, none of these excellent papers directly investigate the future performance of the worst performing companies of the S&P 500.

Bary (2013) examines the future performance of the previous year’s ten worst performing S&P 500 stocks (hereafter, the losers). He presents simple statistics showing that the 2009-2011 losers outperform the S&P 500 for the first two weeks of 2010-2012, and shows the 2012 losers outperform the S&P 500 for the first week of 2013. In this paper, we extend this work to consider the future performance of the 2000-2012 losers for investment horizons of two weeks, one month, one quarter, and one year. Rather than relying on simple statistics for conclusions, we employ a statistical test to determine if the losers significantly outperform the S&P 500 each year for the different, increasing investment horizons.

Data Collection

First, we obtained the S&P 500 constituent list from COMPUSTAT. We accessed daily-adjusted closing prices from Yahoo Finance to compute continuously compounded returns as needed. For each year, we constructed a list of the S&P 500 constituents (stocks) and calculated the annual return of each stock. This allowed us to identify the losers. For each of the losers, we calculated the forward two-week, one-month, one-quarter, and one-year returns (as well as the corresponding S&P 500 returns). Computations were done using the R software.

Exhibit 1 summarizes the results of our investigation. For each year (x-axis) and investment horizon (the different panels), the returns of the previous year's losers are plotted (y-axis). We also show the mean return of the losers (i.e. the mean of a portfolio comprised of equally weighted losers) and the corresponding S&P 500 return. Note the returns are continuously compounded, so returns of less than -1 (or -100%) are mathematically possible and realized in some cases.

Using Exhibit 1, we are able to confirm the two-week performance results reported by Bary (2013). Extending this work, we can visually assess the performance for other years (i.e. groups of losers) and investment horizons. On average, the losers visually appear to outperform the S&P 500 in 2001, 2003, and 2009. These years immediately follow years of volatility and significant downturns in the S&P 500 and overall economy (2000, 2002, and 2008). During these bad years, the losers visually appear to perform worse than the S&P 500.

It is also worth noting that the variation in the loser returns increases with the investment horizon (as you might expect), and the average performance of the losers is increasingly different from the S&P 500 as the investment horizon increases. This is especially true for periods of high volatility (2000-2003 and 2007-2009). In general, for better or worse, the longer an investor holds the losers, the more their performance deviates from the standard benchmark index.

Statistical Testing

While Exhibit 1 does provide insight into the future performance of the losers, it does not statistically prove that the losers outperform the S&P 500. To address this, we use a one-sample T-test on the differences of the loser returns and corresponding S&P 500 return. Let μ_D be the population mean difference between the loser returns and the S&P 500 return. For each year and investment horizon, we do the following hypothesis test.

$$H_a: \mu_D > 0$$

Exhibit 2 gives the p-values for each hypothesis test (emboldened p-values indicate significance at the 0.05 level). For years and investment horizons that are significant, we also provide a confidence interval for the population mean difference between the loser returns and the S&P 500 return.

We identify only four years when the losers statistically (significantly) outperform the S&P 500 over a two-week investment horizon: 2001, 2003, 2010, and 2012. These years are also significant for longer investment horizons. Generally, this is consistent with the visual observations from Exhibit 1. Interestingly, 2009 is not significant (due to the volatility in the losers' returns), even though visually, it appears it may be. For the first two weeks of 2013, there is no evidence the losers outperform the

S&P 500 as suggested by Bary (2013).

Conclusions

Should you bet on the previous year's S&P 500 losers for any length of time? In general, our investigation does not support this approach. There is a lack of empirical and statistical evidence supporting this trading (investing) strategy as a general investing thesis. Although, there are years when the losers outperform the S&P 500. These years follow periods of extreme market volatility and economic tribulation.

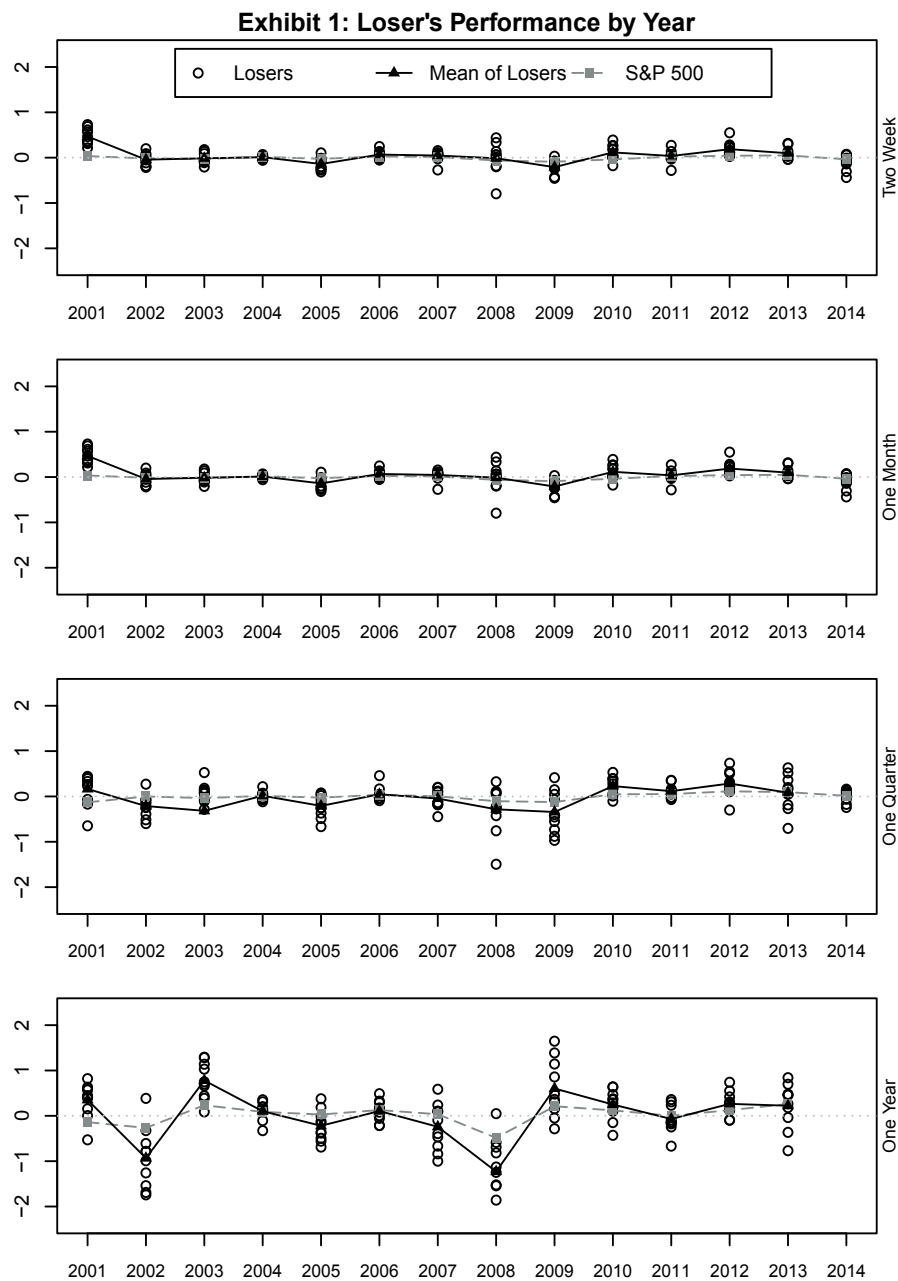


Exhibit 2: P-values for Hypothesis Tests

| | | Investment Horizon | | | |
|------|------|--|--|---|--|
| | | Two Weeks | One Month | One Quarter | One Year |
| Year | 2001 | 0.0012 (0.1315, 0.4411) | 0.0001 (0.2864, 0.5561) | 0.0202 (0.0143, 0.5049) | 0.0032 (0.1617, 0.7342) |
| | 2002 | 0.1497 | 0.7829 | 0.9933 | 0.9968 |
| | 2003 | 0.0107 (0.0171, 0.1671) | 0.3663 | 0.7508 | 0.0005 (0.3060, 0.8609) |
| | 2004 | 0.9887 | 0.4947 | 0.3569 | 0.209 |
| | 2005 | 0.9956 | 0.9856 | 0.9793 | 0.9775 |
| | 2006 | 0.0819 | 0.076 | 0.4158 | 0.6163 |
| | 2007 | 0.2184 | 0.2062 | 0.7562 | 0.9391 |
| | 2008 | 0.9998 | 0.3265 | 0.8456 | 0.9905 |
| | 2009 | 0.2841 | 0.8665 | 0.6516 | 0.0716 |
| | 2010 | 0.0043 (0.0327, 0.1697) | 0.0054 (0.0544, 0.3163) | 0.0036 (0.0715, 0.3420) | 0.1044 |
| | 2011 | 0.4068 | 0.3729 | 0.1016 | 0.7559 |
| | 2012 | 0.0018 (0.0423, 0.1591) | 0.0077 (0.0349, 0.2535) | 0.0429 (-0.0296, 0.3722) | 0.0662 |
| | 2013 | 0.3217 | 0.1175 | 0.5376 | 0.5378 |
| | 2014 | 0.2918 | 0.6142 | 0.3784 | |

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