

Prevarication: Mutual Fund Statistical Studies that Distort Investors Perceptions

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Abstract

A mutual fund analysis of Callan data found that buying last year's winners gave less growth than simply diversifying the portfolio each year. The mutual fund analysis implied that using relative strength to make purchases was suboptimal. However, the same study with repeated with dramatically different conclusion. Buying last year's leaders gives the investor a tremendous lead. Why the difference? First, the original study timed only the investment of new money so once new money was invested the strategy was 'buy and hold' rather than the reinvestment of the entire portfolio. Second, the original study included two different asset classes: stocks and bonds. The bond class is extremely influential. It is like a confounder; it distorts the data. If you do the same study using only equity classes, buying last year's leader works even better.

Introduction

Several large members of the \$11 trillion mutual fund industry have used statistics to distort investors' perceptions. In this paper we will touch on two examples of prevarication that are commonly found, and may be familiar to the reader: the "Evils of Market Timing" and "Chasing Performance vs. a Diversified Strategy or Diversification May Increase your Returns". Beside the learning experience, the truth may lead to better investment decisions.

1. Evils of Market Timing

A quick Google will find hundreds of references to the evils of market timing. A study by ING (2006) found that an investor that misses the best days will significantly reduce his/her investment return.

Table 1 "Missing the market's best days can be a costly mistake." ING, Stay Focused (12/31/96 – 12/29/2006)

| Investment policy | Return/yr | Invest \$10K |
|----------------------|-----------|--------------|
| Stay Fully Invested | 8.42% | \$22,400 |
| Missing 10 best days | 3.41% | \$13,980 |
| Missing 15 best days | 1.44% | \$11,536 |
| Missing 20 best days | -0.38% | \$ 9,629 |

Many professional investment advisors (see Van Kampen), planners and brokers, along with the majority of investors, see statistics like this and quickly abandon any thought of attempting any form of market timing.

So where is the prevarication? Remember, prevarication is telling a half-truth – omitting something relevant. See Schield (2005). There are two relevant omissions in the results presented in Table 1.

The first omission is failing to study the opposite question: What happens if you avoided the markets worst (largest % losers) days?

Table 2. "Missing the market's worst days can be a rewarding experience." (12/31/96 – 12/29/2006)

| Investment policy | Return/yr | Invest \$10K |
|---------------------|-----------|--------------|
| Stay Fully Invested | 8.42% | \$22,400 |
| Miss 10 worst days | 24.17% | \$70,200 |

Armed with this additional information, now having the total picture of what happens if you miss the best days versus the worst days, suddenly the upside potential is far greater than the downside. Investors rarely see this side of the coin. But I would be guilty of prevarication, if I left you with just this data.

The second omission is neglecting to mention that with both studies **it is "impossible" to do either.**

The chance of missing just the 10 best days out of any 10 year period is about one chance in $4E+35$. And of course the same probability holds true for missing the 10 worst days out of any 10 year period.

It is virtually impossible to put this small probability into any sort of perspective, but let me try. The chance of purchasing a winning lotto ticket in Colorado, where you must pick six of 40 numbers, is one in 4.2 million ($4.2E+6$). The chance of winning six different lottos (different lotto days or states) is about one in $2.5E+37$. The chance of missing just the 10 best – or worst – days in a ten year period is slightly better than the chance of winning each of six different Lottos. Impossible!

Why the prevarication? Several reasons;

- Mutual funds earn four to five times more if you remain invested in one of their equity or bond funds, than if you move your money into a money market fund during a declining market.
- Selling of fund shares to move to a new fund (occurs on a buy or sell signal) incurs internal expenses (relatively small) but that lowers the investment return for the fund. Remember the higher the return, the more money the fund company can attract and the more fees it can earn.
- Maybe the industry is actually concerned about individuals practicing market timing. Emotional market timing typically is to the detriment of the investor. That cannot be said about many market timing programs that are disciplined.

Figure 1: The Callan Periodic Table

| ANNUAL RETURNS 1985-2004 | | BEST-TO WORST-PERFORMING INDICES SINCE 1985 | | | | | | | | | | | | | | | | | | | |
|---------------------------|--------|---|---------|--------|--------|---------|--------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|--------|--------|
| COMPARISON OF KEY INDICES | | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| MSCI EAFE Index | 69.44% | 24.63% | 29.47% | 23.47% | 36.40% | 8.96% | 51.19% | 29.14% | 32.36% | 7.78% | 38.13% | 43.09% | 36.33% | 42.16% | 43.09% | 22.85% | 14.03% | 14.03% | 10.25% | 48.34% | 22.25% |
| S&P MidCap 400 Index | 35.59% | 21.67% | 6.50% | 28.27% | 35.55% | 0.20% | 50.10% | 18.41% | 23.77% | 3.13% | 37.58% | 22.96% | 33.36% | 28.58% | 28.25% | 17.51% | 8.44% | 8.44% | -11.43% | 47.25% | 20.42% |
| S&P 500 Index | 33.31% | 18.56% | 5.10% | 25.02% | 31.69% | -3.10% | 46.05% | 11.91% | 18.91% | 1.32% | 36.98% | 22.00% | 32.25% | 20.00% | 26.96% | 11.63% | 2.49% | 2.49% | -14.51% | 46.03% | 18.33% |
| MSCI EAFE Index | 31.57% | 16.21% | 3.68% | 21.67% | 26.13% | -5.12% | 41.70% | 10.52% | 18.61% | -0.64% | 31.04% | 21.37% | 31.79% | 19.11% | 21.26% | 6.08% | -0.60% | -0.60% | -15.94% | 38.97% | 16.48% |
| Russell 2000 Index | 31.05% | 15.26% | 2.76% | 20.87% | 20.17% | -6.85% | 38.37% | 7.77% | 13.95% | -1.54% | 30.95% | 19.20% | 29.98% | 14.67% | 14.67% | -3.02% | 9.23% | 9.23% | -20.48% | 35.62% | 15.71% |
| Russell 2000 Value | 31.01% | 14.50% | -2.04% | 20.37% | 16.26% | -17.41% | 30.47% | 7.62% | 13.37% | -1.82% | 28.44% | 16.49% | 22.36% | 22.36% | 8.69% | -9.10% | -11.71% | -11.71% | -20.85% | 31.75% | 14.31% |
| Russell 2000 Growth | 30.97% | 7.41% | -7.11% | 16.61% | 14.53% | -19.51% | 22.56% | 7.40% | 10.08% | -2.43% | 25.75% | 11.26% | 12.93% | 12.93% | 1.23% | 12.72% | -11.88% | -11.88% | -22.10% | 28.69% | 10.88% |
| BARRA 500 Index | 29.68% | 5.68% | -8.00% | 11.35% | 12.43% | -21.77% | 16.00% | 5.07% | 9.75% | -2.92% | 18.47% | 6.05% | 9.65% | -2.55% | -2.55% | -22.08% | -12.73% | -12.73% | -23.59% | 25.66% | 6.13% |
| LB Aggregate Bond | 22.71% | 3.58% | -10.48% | 7.86% | 10.54% | -23.45% | 12.13% | -12.17% | 1.66% | -3.58% | 11.21% | 3.63% | 1.78% | -6.45% | -1.49% | -22.43% | -21.44% | -21.44% | -30.26% | 4.10% | 4.34% |

■ S&P 500 Index measures the performance of large-capitalization U.S. stocks.
■ S&P MidCap 400 Index measures the performance of 400 medium-capitalization stocks.
■ S&P/BARRA 500 Growth Index measures the performance of the growth style of investing in large-cap U.S. stocks and the Far East.
■ S&P/BARRA 500 Value Index measures the performance of the value style of investing in large-cap U.S. stocks.
■ Russell 2000 Index measures the performance of small-capitalization U.S. stocks.
■ Russell 2000 Value Index measures the performance of the value style of investing in small-cap U.S. stocks.
■ Russell 2000 Growth Index measures the performance of the growth style of investing in small-cap U.S. stocks.
■ MSCI EAFE Index measures the performance of the developed stock markets of Europe, Australia, Asia, and the Far East.
■ Lehman Brothers Aggregate Bond Index U.S. government, corporate, and mortgage-backed securities with maturities up to 30 years.



FOR INVESTORS

Figure 2: Fidelity Commentary: Mistake to try to time the market



Market Timing (continued)

Can one successfully ‘time the market’?

I believe the answer is yes. Successful market timing practitioners follow a system rather than their emotions. Jesse Livermore, a famous old trader, who made and lost millions in the stock market, once said: “There are only two emotions in the market – hope and fear. The problem is you hope when you should fear, and you fear when you should hope.”

Understanding the market’s direction is critical if you want to improve your investment performance. Every rising bull market is followed by a declining bear market. Markets spend 2/3rds of their time rising and only 1/3 declining. Therefore, the average investor will spend almost 50% of their investment time, just getting back to break even.

A recent example: the S&P 500 Index is made up a cross section of Americas largest companies, and is used as a standard benchmark in measuring portfolio returns. For 10 ¼ years, from 12/31/1989 to 3/31/2000 the S&P 500 rose +324%, a handsome return. For the following 3 years, the Index fell -43%, a terrible bear market from 3/31/2000-3/31/2003. A rising bull market than followed that, from 3/30/2003-8/30/2007, where the S&P 500 rose over 72%, but it only has gotten back to its old peak reached in 3/31/2000.

The total period encompasses 17½ years: 10¼ years of gains or 58% of the time, while the remaining 42% was spent just getting back to your old highs. Obviously if you can avoid a good portion of any decline, more of your investment time is spent making money rather spinning your wheels in trying to get back to break even.

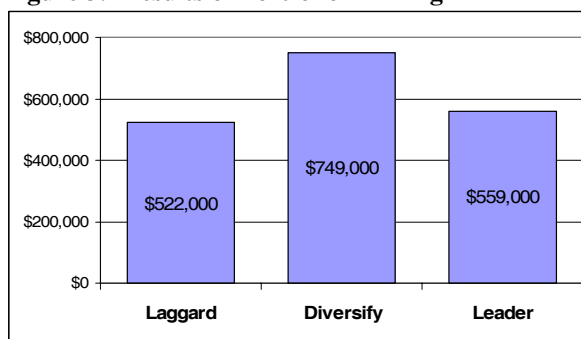
2. “Chasing Performance vs. a Diversified Strategy” or “Diversification May Increase Your Returns”

Both are popular headlines for a common mutual fund handout to investors. The handout consists of two parts: the front page is a comparison of key indices, year by year, ranked from Best-to-Worst-Performing Indices. The front page of the handout is shown in Figure 1 as published by Fidelity (2004).

This is just an example, many others can be found by other fund companies.

The second page of the handout (Figure 2) contains the following chart (Figure 3) and language.

Figure 3: Results of Portfolio “Timing”



“This chart demonstrates both the potential benefit of diversification and why it may be a mistake to try to time the market. The chart reflects the 20-year period from 12/31/84 to 12/31/04.

- The first bar is a hypothetical investment of \$10,000 at the beginning of each year into the worst-performing index of the previous year.
- The second bar illustrates a hypothetical investment of \$10,000 at the beginning of each year into the best-performing index of the previous year.
- The third bar shows a hypothetical \$10,000 investment at the beginning of each year, split evenly among all indices.

By spreading investments over all asset classes, our hypothetical investor would have accrued \$749,467. That’s \$227,045 more than if this investor had chased the lowest-returning index and \$189,763 more than if he or she had chased the highest-returning index.

The message is clear: while there are no guarantees, diversification may provide better returns with less risk over time.”

Sounds great, impressive numbers, so where is the prevarication? I count four areas of prevarication:

1. ‘a mistake to try to time the market’
2. ‘provide better returns with less risk’
3. Chart/study does not show the results of an actual rotational strategy of *all the money* into the leaders or laggards.
4. Including one bond class with 7 equity classes distorts the conclusions.

Prevarication #1: ‘mistake to time the market’.

In the study, there was no market timing. In each of the three examples the investor was fully invested at all times. Market timing involves exiting the market, it is the opposite of staying fully invested all the time, which this study did. A more accurate label would be “this chart demonstrates being fully invested all the time.”

Going back to the previous study, “the evils of Market timing’, this is just an example of a mutual fund company trying to capitalize on that common but misplaced emotional believe that market timing is bad.

Prevarication #2: ‘Better returns with less risk’

Nowhere on the handout are there any statistics on risk to substantiate the claim of “less risk”. Normal industry measurements of risk like beta, standard deviation, maximum drawdown, length of drawdown, time to recover, etc, are not found any place in the handout.

It appears the claim is simply based on the fact if you didn’t diversify, you made a smaller return and therefore that is a ‘risk’. A smaller return versus a larger return by itself is not a valid industry measurement of risk.

Prevarication #3: Chart/study does not show the results of an entire-portfolio rotational strategy.

The reader of the handout is led to believe the results shown reflect either the strategy of *rebalancing the entire portfolio* to chase performance (owning the leaders) or to invest in last year’s laggards (owning the worst performing index) in hopes of a rebound.

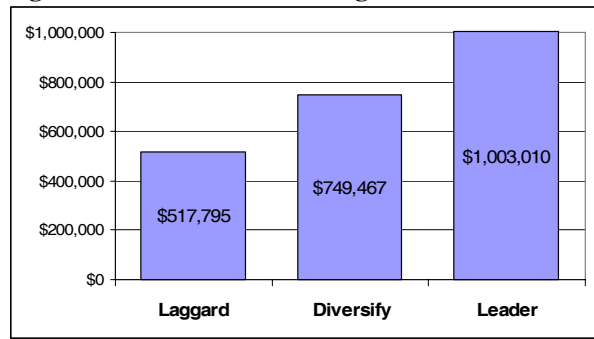
Neither is the case. The examples show the results of each year buying last year’s best (or worst) performing index *with just the new money* and then holding that index for the remaining years of the study. The next year the same process is repeated, buying last year’s best (or worst) performing index *with just the new money* and then holding that index for the remaining years. And repeated for each following year.

A better description of this investment strategy is “Buy and Hold” where only the “Buy” is based on the previous year’s results and once bought each investment is held for the duration of the study.

Every financial advisor we spoke with *mistakenly presumed* that the study reflected a true rotation of the entire portfolio like the titles imply. A true rotational strategy would, in the case of the best performing example, own last year’s best performing index for the current year, and then in the next year, *all the money* (the initial investment plus any gains or less any losses) would all be rolled into the previous year’s best performing index. The same process would be followed for the worst-performing index. That study would show the real effects, positive or negative of ‘chasing returns’. And maybe that is why they didn’t do the study that way.

Using the same investment process, starting with \$10,000 and adding \$10,000 per year but following a true rotational strategy *for the entire portfolio*, the results shown in Figure 4 are dramatically different:

Figure 4: Results of Reinvesting the Entire Portfolio



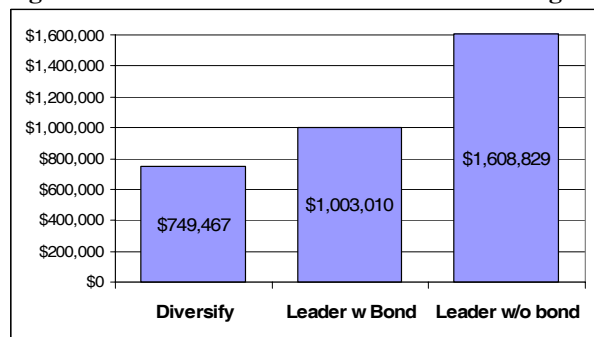
- Worst-performing Index grows to \$517,795 (still the worst performer).
- Diversified: own all indices equally still grows to \$749,467,
- But the Best-Performing Index grows to an impressive \$1,003,010.

Doing the study correctly clearly shows that there is persistence in performance. In other words, momentum from the prior year does carry over into the following year. Last year’s leader has a tendency to be above average in the following year, and last year’s laggard tends to be below average. Does this occur every year? No, but over a 20 year period one can see a clear pattern of persistence in performance.

Prevarication 4: Including one bond class with seven equity classes distorts the conclusions.

The study includes one bond class and seven different equity classes. Bonds and equities are quite different investment instruments, virtually at different ends of the investment spectrum. You get a totally different set of results by omitting the bonds and just leaving the study with equities only.

Figure 5: Results of Different Investment Strategies



The following results show the effect of practicing a pure equity rotational policy for the entire portfolio (like the one above), after omitting the one bond index.

- The Best Performing Index over the same 20 year period grows to a very impressive \$1,608,829.

Omitting the bond index increased the size of the portfolio by about 60%.

Before going into lessons learned, I need to point out that Diversification is a solid concept and should not be ignored. It wouldn't be prudent to place all one's hard earned assets into a single index.

3. Lessons Learned

What lessons can we learn from these studies?

- There is persistence in performance. As the study shows it will carry over into the following year, but as the mutual funds studies show performance in any given year does not carry over into the long term.
- Build a diversified portfolio by overweighting the leaders. Persistence in performance also occurs in the top one, two, three and four positions, according to our studies.
- Avoid the laggards or at least underweight them in your portfolio for better performance.

Author

Marshall Schield is a founder and Director of Research for STIR Research. Built on over 40 years of market experience, stirresearch.net provides flexible research with four goals: (1) to produce an absolute return each year, (2) to outperform the benchmarks over a full market cycle (both a rising bull market and a falling bear market), (3) to take less risk than the benchmark. This means less volatility, lower beta, lower standard deviation, smaller investment losses, shorter time of draw-down's, and quicker recoveries, and (4) in striving to accomplish all of the above, to increase alpha: a higher return after adjusting for the risk taken. He can be reached at mls@StirResearch.net.

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