

# HOW TO BEAT THE AVERAGE PROFESSIONAL INVESTOR

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A lot of attention, money, and brain-power are devoted to “beating the market.” Certainly some people have done it. In this memo, I try to demonstrate the odds against beating the market and why one might be satisfied to match the market performance. Specifically, this memo addresses the following questions:

- What is the market? What is an index? What is an index fund?
- What are passive and active management?
- Do professional money managers “beat the market?”
- Should we expect them to?
- Should we rely on the good track record of some managers who have beaten the market as proof of their skill.

## Description of the Market and Indices

The US stock market is now comprised of over 5,000 stocks. The market for all of these stocks is the stock market. Stocks tend to move together. Consequently, we can get a picture of how the stock market is doing by looking at an index. An index is a basket of stocks constructed to represent the whole market or a subset of it. The evening news and the daily papers usually quote the Dow Jones Industrial Average which measures the performance of a basket of 30 stocks. Investment professionals prefer the S&P 500 Index. The market value of these 500 stocks cover about 80% of the value of all US stocks. Professional investors pay more attention to the S&P 500 because it is more representative of the economy<sup>1</sup>. There are many indices. For example there are indices to measure the performance of stocks with large market values and indices to measure the performance of stocks with small market values. Some indices measure specific industries.

An index fund is a portfolio designed to track an index. For example, Vanguard offers a mutual fund designed to track the S&P 500 index. It does not take much skill to create an index fund. One just buys the stocks in the index in proportion to their weight in the index. For example, at the end of October 1995, the largest stock in the S&P 500 was General Electric which represented 2.48% of the index. The smallest stock was Morrison Knudson which represented 0.005% of the index. Since it doesn't take much skill to create an index, one can index inexpensively. The expense charged by Vanguard for its index fund is about 0.2% annually compared to more than 1% for the typical equity mutual fund.

## Active vs. Passive Management

Investors pay higher fees to managers who claim to offer better performance. Managers try to achieve better performance through “active” management. Active management involves buying stocks in anticipation of their outperforming the market. As their name suggests, active managers engage in a higher degree of trading than passive managers who buy and hold.

Active managers must make up both for the higher fees they charge and for the higher trading costs they incur. Trading costs include commissions paid to brokers and the spread between the bid and ask price. The bid is the price at which a stock can be sold and is lower than the ask which is the price at which a

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<sup>1</sup> The S&P 500 is more representative than the Dow because it contains more stocks. It is constructed differently. Bigger stocks receive more weight in the S&P 500. In the Dow a stock with a price of 90 will receive twice as much weight as a stock with a price of 45, even if the latter is bigger because it has many more shares outstanding.

stock can be bought. For example, a stock might be 50 bid and 50 1/8 ask. If you bought the stock and immediately sold it, you'd lose 1/8 even if there were no commissions. This is a significant cost which never shows on a confirm or statement.

### Why the Market Will Beat the Average Professional

It is natural to expect professional money managers and mutual funds to beat the market. They're experts paid to do just that. As I will explain, there are reasons why the market usually beats the average manager.

The investment business is different from other advisory businesses. **It is close to a zero-sum game, a very important point.** For the most part, investment professionals are the market. Their clients own most of the stocks and do most of the trading. When a manager overweights a stock - that is owns a stock in a greater proportion than its weight in the market - a different manager must be underweighted. For every winning bet, there is a losing bet. On average everyone is the market. So on average everyone should perform in line with the market. However, there is a twist. This would be true if there were no trading costs. As we discussed, there are trading costs which drags down average performance. Therefore, we would expect the average manager to underperform the market even before management fees.

### Performance of the Average Professional

Let's look at some actual data. According to Morningstar, a leading provider of information on mutual funds, there were 198 funds (from a universe of 7051) that met the following criteria: (1) domestic equity; (2) invest in the large stocks; (3) with performance from 1985 through December 1995, (4) not index funds. Funds meeting these criteria should be comparable to the S&P 500 which is dominated by the performance of large companies.

I compared the performance of these 198 funds to the performance of the Vanguard S&P 500 Index fund<sup>1</sup> for each calendar year from 1985 through 1995. If professional managers could beat the market, then we'd expect more than half of them (more than 99) of them to beat the index fund. If the managers make up the market, then we'd expect about half of them to beat the index fund. Given higher fees for active management and the costs of trading, we might expect fewer than half of the managers to beat the index fund and for them to underperform it. The Table 1 shows the results.

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<sup>1</sup> I compared the managers to an index fund to create a more realistic comparison. The index fund incurs transaction costs and other expenses. It tends to underperform slightly the index, thus making it easier for managers to beat. Also, one can actually invest in the index fund.

Year	Return of the Index Fund	Average Return of the 198 Funds	+/- the Index Fund	Number Beating the Index Fund	Percent Beating the Index Fund
1985	31.23	28.38	-2.85	63	32%
1986	18.06	15.58	-2.48	67	34%
1987	4.71	2.96	-1.75	69	35%
1988	16.22	13.71	-2.51	69	35%
1989	31.37	25.86	-5.51	44	22%
1990	-3.33	-4.04	-0.71	94	47%
1991	30.22	33.08	2.86	104	53%
1992	7.42	7.01	-0.41	85	43%
1993	9.89	11.58	1.69	118	60%
1994	1.18	-1.54	-2.72	47	24%
1995	37.45	31.26	-6.19	26	13%
<b>Average</b>	16.00	14.20	-1.80	71	36%
<b>Growth of \$100 from 1985 - 1995</b>	\$511.86	\$430.86	-\$81.00	NA	NA

The index fund beat the average manager in 9 of the 11 years. On average only 36% of the managers beat the index fund in any year. The return to the index fund was 16.0% per year versus 14.%. This is pretty strong evidence that the average manager has not beaten the index. An investor earning average performance on a \$100 had \$81.00 less after ten years than an investor earning index fund performance<sup>1</sup>.

Furthermore, my analysis suffers from “survivorship bias”. Over time, badly performing funds go out of business while the better performing funds survive. My analysis is biased because I am excluding the funds that went out of business between 1985 and 1995. These funds probably did worse than the ones in my study. They would have brought down the performance of the average manager making the average manager look worse.<sup>2</sup>

### The Best Performing Funds

Perhaps I’ve convinced you that an index fund will beat the average fund. There’s no law that says you have to invest in the average fund. I am certain that some managers will beat the market. The challenge is to predict who will do so in the future.

First let me demonstrate that through pure luck, we would expect some managers to establish excellent track records. Imagine that beating the index in any year is a 50/50 proposition - like the toss of a fair coin. 321 funds met the following criteria: (1) domestic equity; (2) invest in the large stocks; (3) with performance from 1990 through December 1995, (4) not index funds. , we’d expect about 161 to have beaten the market in 1990. We’d expect about half of those (80) to have beaten the market in 1990 and in 1991. The following table shows how many funds actually beat the market each and every year through 1994. Assuming a 50/50 chance of beating the market, it also shows how many funds we would have expected to have done so.

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<sup>1</sup> This is before taxes. For taxable investors, a passive strategy has tax advantages over an active strategy. See the article by the author in the January 1996 issue of the AALJ Journal.

<sup>2</sup> An article “Returns from Investing in Equity Mutual Funds 1971 to 1991” by Burton Malkiel in The Journal of Finance describes strong evidence of survivorship bias. Of the mutual funds existing in 1982, he finds that 17.8% failed to survive through 1991. Non-survivors underperformed the survivors by between 2.8% and 8.9% in the years from 1982 through 1990.

<b>Year</b>	<b>Actually Beat the Index Fund Each and Every Year From the Year Shown Through 1994</b>	<b>Expected to Have Done So Given a 50/50 Chance</b>
<b>1990</b>	159	161
<b>1991</b>	94	80
<b>1992</b>	30	40
<b>1993</b>	20	20
<b>1994</b>	6	10

Only six funds<sup>1</sup> beat the index fund every year for 5 years. This result is consistent with managers having a (random) 45% chance of beating the market. If there were a 50/50 chance of beating the market, we'd have expected 10 funds to have achieved this.

Look at this another way. If we asked 321 people to flip coins with a 50/50 chance of turning up heads, then we'd expect about 10 people to flip heads five times in a row. We would not expect these 10 to have a better chance of turning up a head on the sixth flip than any of the other people.

The existence of a few funds with outstanding track records should not surprise us. We should expect this. However, this does not mean we should expect these funds to perform well in the future.

To illustrate this point, let's compare the six funds with the index. Table 3 shows the performance of each from 1990 through 1994. The funds are sorted by their performance over the 5 years ending 1994. The index fund is included for reference.

<b>Fund Name</b>	<b>Return 1990</b>	<b>Return 1991</b>	<b>Return 1992</b>	<b>Return 1993</b>	<b>Return 1994</b>	<b>Annual Return 1990-1994</b>	<b>Return 1995</b>
<b>Fidelity Destiny II</b>	-2.5	41.4	15.5	26.8	4.5	16.1	36.0
<b>Fidelity Destiny I</b>	-3.2	39.0	15.1	26.4	4.4	15.4	37.0
<b>Fidelity Adv Growth Opport A</b>	-1.7	42.7	15.0	22.2	2.9	15.2	33.0
<b>Harbor Capital Appreciation</b>	-1.8	54.8	10.0	12.1	3.4	14.1	37.8
<b>Mairs &amp; Power Growth</b>	3.6	42.1	7.8	12.9	5.6	13.6	47.7
<b>Fidelity Disciplined Equity</b>	-0.8	36.0	13.2	13.9	3.0	12.4	29.0
<b>Vanguard Index 500</b>	-3.3	30.2	7.4	9.9	1.2	8.5	37.5

Imagine someone telling you of a fund which has beaten the market by an average of 4% per year over the last five years. This fund also beat the market in every year, even 1990, which was down. Sounds very good. Not only is the overall performance great, it has consistently outperformed the index. At the end of 1994, these funds would have been very seductive investments looking ahead to 1995.

I emphasize that just by chance, we'd expect a few managers to demonstrate outstanding performance records. In fact, this will not be rare. We've seen six funds out of 321 do it. At any given point, there should always be funds with records like these. There are thousands of funds out there, not 321. The

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<sup>1</sup> Many people's favorite fund, Fidelity Magellan, failed our screen because it underperformed the index fund in 1990, 1992, and 1994. Also, the median market capitalization of the stocks in Magellan is significantly smaller than that of the S&P 500 which causes Morningstar to classify Magellan as investing in medium sized stocks, not large stocks.

anecdotal evidence of funds beating the market gives us a false sense that there are people who can beat the market out of skill. Investors who purchase based on performance, are likely to end up buying these funds. Remember, past performance is no indicator of future performance.

Look at Table 3 again to see how the six funds fared in 1995. Only two of the six funds beat the index fund. And it they were the ones with the weaker records from 1990 - 1994. It seems random.<sup>1</sup>

### Why Beating the Market Is Luck

So even a stellar track record is insufficient to predict future superior performance. What is the structure of the investment market that would create an environment in which it seems as though it is only through luck that someone beats the market?

One explanation is based on the universal access to information and cheap computing power by so many intelligent people. Information is immediately incorporated into stock prices making it impossible to profit excessively. I add that this environment is not changing. Computers and communications are getting cheaper every day.

If it were easy to beat the market, people would have incentives to become money managers and charge people fees for their abilities. As more people did this the opportunities for beating the market would disappear since it is a zero sum game. As we've discussed, there is survivorship bias. The stock market weeds out those who cannot perform by taking away their money. We're left with a more competitive environment with fewer opportunities for outperformance. The irony is that managers fail to beat the market because there are so many intelligent ones, not because they lack intelligence.

Why do you hear so much more about active management than passive? I'll explain the forces underlying this asymmetric distribution of information. There's a lot more money in selling active management than passive management. The management fees are about at least five time higher for an active funds than a passive fund. This excludes the brokers who prefer the commissions generated by active managers and the loads that are paid to brokers to sell active funds. The financial press can sell a lot more copy pushing the latest, hottest investment.

On the other side, it doesn't pay for an index fund to advertise. These funds work because their expenses are low. An index fund is a commodity. If two mutual funds both invest in exactly the same fashion, investors would choose the one with the lowest expenses. Thus, if an index fund advertises the benefits of indexing, it would need to increase its expenses. This would diminish its advantage over other funds, especially over other index funds. The result is you are bombarded with information about active strategies but not about passive ones.

### Conclusion

The purpose of this article is to suggest that you consider using an index fund for your stock investments. The rational side of us would like to think we need evidence of superior quality or performance to induce us to pay more for a service or product. In fact, active management costs more and performs worse. The evidence and arguments why passive management will beat active ones over long periods of time are strong.

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<sup>1</sup> By the way, two of the six had performance back to 1985 and both underperformed the index fund from 1985-1989 and there was no change in the portfolio manager.

I cannot argue that an index fund will beat all active funds. To the contrary, I am sure that some funds will beat the index, especially the shorter the period of time. I am uncertain that it is possible to pick which ones will do well in the future. It is easy to find funds which have done well in the past. The disclosure that past performance are no indication of future performance is made for a reason. We've shown that you should expect great performance records just out of pure luck. Assuming this disclosure is true, we can't use past performance as evidence of future performance. What is the case for active management?

With an index fund you are certain of near (and probably below) market performance at a low fee. With an active fund, you are certain of a higher fee, but your performance relative to the index is uncertain (but probably below). When you buy an active mutual fund you are guaranteeing to pay a higher fee for the hope of beating the market.