The bumpy road to outperformance

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Executive summary. Considerable research shows that on average, actively managed equity mutual funds underperform their respective benchmarks. However, many investors remain drawn to active management because even a small amount of outperformance can have a meaningful impact on the value of their portfolios over time. These alpha-seeking investors may spend significant time and effort trying to identify potential winning managers.

The challenge of selecting managers can overshadow a less talked-about but equally important factor in active management success: an awareness of the inconsistency inherent in excess returns.[1] This is a particularly pertinent issue for any investors or investment committees who use historical returns as a primary basis for hiring and firing managers.

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1 We define excess returns as the difference between a fund's returns and the returns of a relevant Morningstar style-box benchmark.

In this paper, we confirm prior research indicating that only a minority of active managers outperform relevant style benchmarks, and then address the inconsistency in excess returns generated by even the most successful managers. Looking at the 15-year records of all the actively managed U.S. domestic equity funds that existed at the start of 1998, we find that not only are long-term outperformers rare, accounting for only 18% of those funds, but they also experience numerous and often extended periods of underperformance. Indeed, nearly every one of the successful funds underperformed in at least five of the 15 years through December 2012. Furthermore, two-thirds of them experienced at least three *consecutive* years of underperformance during that span.

We conclude from this analysis that investors pursuing outperformance not only have to identify winning managers, but historically have had to be very patient with those managers to collect on their success.

Studies published over two decades have demonstrated that the average actively managed fund lags its benchmark once costs are factored in.[2] At the same time, some managers have beaten the odds and outperformed over long periods, creating additional wealth for their investors.

For example, our research shows that over the 15 years through December 2012, the median *outperforming* equity manager produced excess returns (net of fees) averaging 1.1 percentage points annually. If we compare a hypothetical $10,000 investment in the median outperforming equity fund and its corresponding benchmark, the fund would have generated $5,410 more than the benchmark over 15 years (with ending portfolio values of $24,900 and $19,490, respectively).[3] Such an impact can be quite significant for investors, but it can be challenging to achieve. In this paper we explore why this is the case.

Long-term outperformance is rare

To quantify historical outperformance, we examined all of the 1,540 actively managed U.S. domestic equity mutual funds that were available to investors at the beginning of 1998. We analyzed the performance of these funds over the subsequent 15 calendar years.[4]

We first calculated the percentage of funds that survived the period and then the portion that also beat their respective style-box benchmarks. **Figure 1** illustrates the results, showing that of the 1,540 original funds, only 55% survived the entire 15-year period; the rest—nearly 700 funds—were merged or

Notes about risk and performance data: All investments are subject to risk, including the possible loss of the money you invest. Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

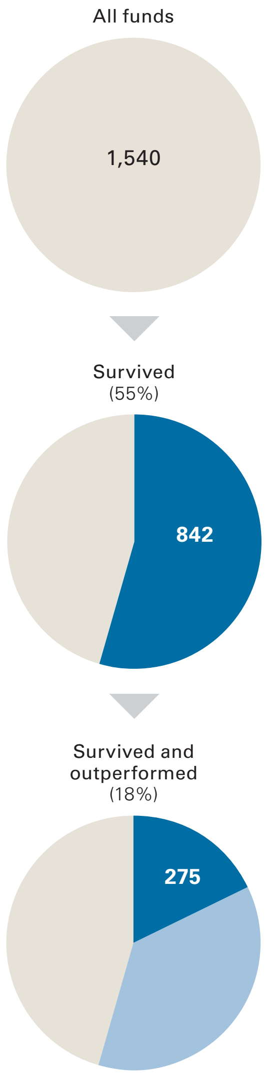
2 See, for example, Sharpe (1991) and Philips et al. (2013).

3 This hypothetical example does not represent the return on any particular investment.

4 We performed this analysis over time periods of various lengths and found similar results.

Figure 1. A small portion of active funds survived *and* outperformed over 15 years

The fate of 1,540 actively managed U.S. equity funds, 1998–2012



Note: The funds' returns were measured against the benchmarks listed on this page.

Source: Vanguard calculations using data from Morningstar.

Indexes used in our calculations

To measure the funds' performance against market benchmarks, we chose indexes appropriate to their Morningstar style boxes. When determining which index to use, we selected ones we deemed to fairly represent the characteristics of the relevant market, given the available choices during the period from January 1998 through December 2012. The indexes used for each style group are:

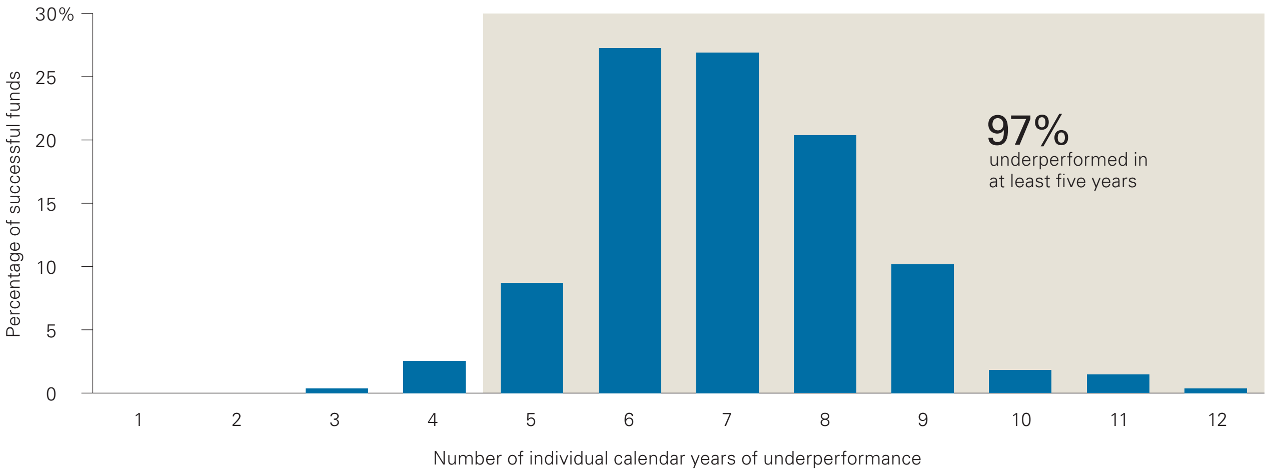
Large blend—Standard & Poor's 500 Index through November 2002, MSCI US Prime Market 750 Index thereafter. **Large value—**S&P 500 Value Index through November 2002, MSCI US Prime Market 750 Value Index thereafter. **Large growth—**S&P 500 Growth Index through November 2002, MSCI US Prime Market 750 Growth Index thereafter.

Medium blend—S&P MidCap 400 Index through November 2002, MSCI US Mid Cap 450 Index thereafter. **Medium value—**S&P MidCap 400 Value Index through November 2002, MSCI US Mid Cap 450 Value Index thereafter. **Medium growth—**S&P MidCap 400 Growth Index through November 2002, MSCI US Mid Cap 450 Growth Index thereafter.

Small blend—S&P Small Cap 600 Index through November 2002, MSCI US Small Cap 1750 Index thereafter. **Small value—**S&P Small Cap 600 Value Index through November 2002, MSCI US Small Cap 1750 Value Index thereafter. **Small growth—**S&P Small Cap 600 Growth Index through November 2002, MSCI US Small Cap 1750 Growth Index thereafter.

Figure 2. Even successful funds experienced multiple periods of underperformance

Distribution of the 275 successful funds by total calendar years of underperformance, 1998–2012



Note: Successful funds are those that survived for the 15 years and also outperformed their style benchmarks. The funds' returns were measured against the benchmarks listed on page 3.

Source: Vanguard calculations using data from Morningstar.

liquidated.[5] Furthermore, only 18% of the initial 1,540 funds both survived the full period *and* outperformed their style benchmarks. These findings are consistent with previous research—achieving outperformance is tough.[6]

Positive excess returns are inconsistent

As our results confirmed that successful active managers, although rare, have the potential to significantly enhance portfolio returns, we wanted to better understand the performance of that winning 18%. Some investors assume that if they are able to select a talented manager, a relatively smooth stream of excess returns awaits.

To test this assumption, we looked closely at the records of those 275 funds that both survived and outperformed their style benchmark over the 15 years through December 2012. We examined the yearly returns for each fund and aggregated the results, focusing on two dimensions:

1. The number of individual years of underperformance.
2. The portion of funds that avoided having three consecutive years of underperformance.

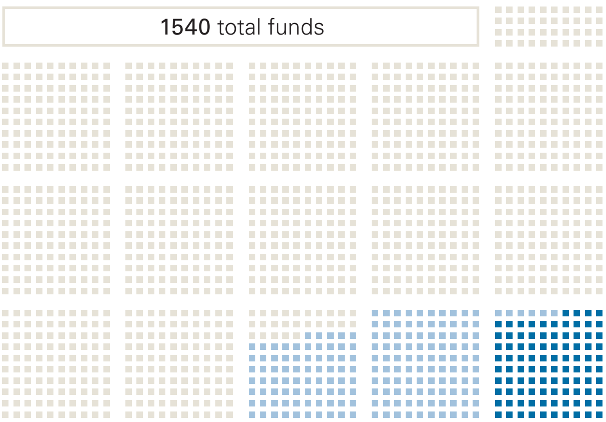
We found that almost all of the outperforming funds—267, or 97%—experienced at least five individual calendar years in which they lagged their style benchmarks. In fact, more than 60% had seven or more years of underperformance. The results are depicted in **Figure 2**, which shows the distribution of outperforming funds according to their number of individual years of underperformance.

5 See Schlanger and Philips (2013) for an in-depth discussion of mutual fund survivorship and the poor performance of funds subsequently merged or liquidated.

6 See Philips et al. (2013).

Figure 3. Few funds avoided three consecutive years of underperformance

Even among successful funds, two-thirds suffered such spells



Note: The funds' returns were measured against the benchmarks listed on page 3. Returns cover the period 1998–2012.

Source: Vanguard calculations using data from Morningstar.

Portfolio construction in light of our research

An investor's level of comfort with the inconsistency of excess returns and degree of desire for the potential to outperform are critical considerations when building a portfolio. Based on these considerations, portfolio strategies ranging from 100% passive to 100% active may be appropriate. For many investors, a combination of the two can be a reasonable solution.

For investors who want the chance to beat market benchmarks, a portfolio that uses broad-market index funds as the "core" and selected actively managed funds as "satellites" can moderate exposure to volatile relative returns while maintaining the potential for outperformance. See Philips et al. (2012) and Wallick et al. (2010) for further analysis and discussion about combining active and passive strategies in a portfolio.

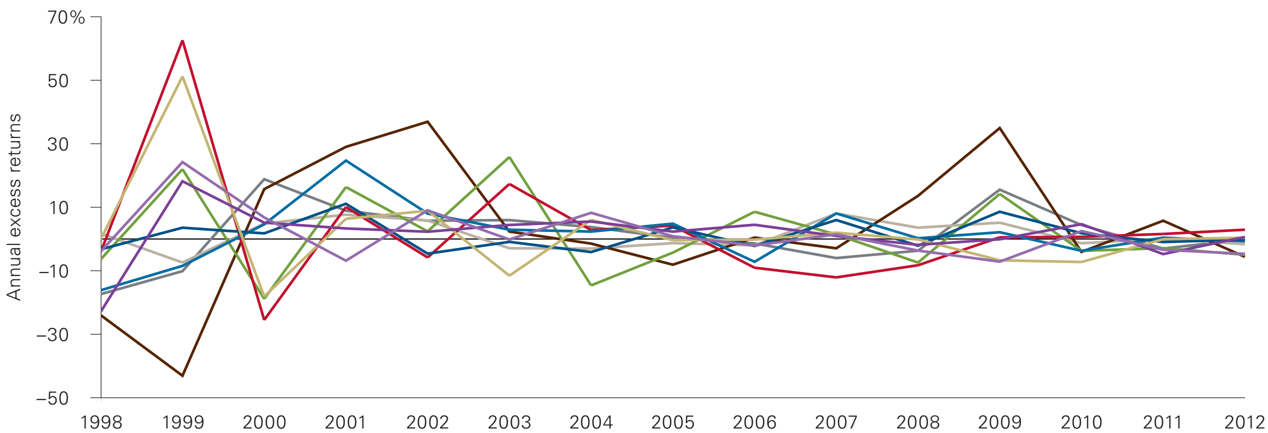
Next, we focused on consecutive years of underperformance. For many investors, three consecutive years of underperformance represents a breakpoint after which they will divest the fund. This can occur either for an explicit reason (for example, a requirement in an investment policy statement) or for psychological reasons (for example, an assumption that three years of underperformance indicates an unskilled manager). In **Figure 3** we show the portion of the original 1,540 funds that survived for 15 years, beat their benchmarks, *and* avoided three consecutive years of underperformance. The results are pronounced: Only 94—or 6%—of the initial 1,540 funds met these criteria. Stated differently, during this period, two-thirds of the outperforming funds experienced *at least* three consecutive years of underperformance.

Standardized performance reporting, which displays a single annualized return for a multiyear investment period, may mask these spells of underperformance. When investors simply see an average annualized 10- or 15-year rate of return, they may not be fully aware of the highs and lows that occurred along the path to that average.

In **Figure 4**, on page 6, we examine the relative performance of ten actively managed funds with annualized excess returns matching the median for

Figure 4. Yearly excess returns for ten median outperforming funds, 1998–2012

'Excess' returns were often negative: A jolting ride for investors



Note: The ten funds had annualized excess returns closely matching the median for all 275 successful funds: 1.1 percentage points above the relevant benchmark. Fund returns were measured against the benchmarks listed on page 3.

Source: Vanguard calculations using data from Morningstar.

the successful group: 1.1 percentage points annually over 15 years. The chart tracks the ten funds' calendar-year returns relative to their style benchmarks. It is clear that the ride was bumpy for investors in these funds. The random pattern of excess returns among the ten funds also highlights the challenge of "timing" managers, a strategy in which investors readily move from one fund manager to another in an attempt to improve performance. Manager timing can be very tempting to investors focused on short-term performance, but it's a strategy that prior research has shown to be generally unsuccessful.[7]

Conclusion

In this paper we examined the performance of all the actively managed U.S. domestic equity funds available to investors at the beginning of 1998. Assessing their fate over the 15 years through December 2012, we found that not only was the aggregate number of successful managers low, but the portion of those winning managers that were able to avoid short-term periods of underperformance was even lower. Indeed, only 6% of the initial 1,540 funds survived, outperformed, *and* avoided three consecutive years of underperformance.

Furthermore, our analysis illustrated that nearly all the funds that beat their benchmarks over that 15-year period suffered at least five individual years of underperformance. Our findings strongly suggest that investors should refrain from using short-term performance as the primary criterion for divesting (or investing in) an active mutual fund.

Short-term underperformance will likely accompany an active fund that achieves long-term outperformance. As a result, for those investors interested in pursuing active management, it is important to understand that to increase the odds of success they must be willing and able to endure numerous and potentially extended periods during which their fund will lag its benchmark.

7 See Goyal and Wahal (2008) for further analysis and discussion.

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