First draft: September 2015

Current version: February 2016

The Harm in Selecting Funds That Have Recently Outperformed

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Abstract

In this paper, we empirically investigate the performance of commonly used fund manager selection strategies which involve hiring outperforming managers and firing underperforming managers using U.S. mutual fund data. Based on portfolios constructed using typical 3-year holding and evaluation periods, we find that the excess return to investors who chose funds with poor recent performance is higher than the excess return to investors who chose funds with great recent performance. Our results pose a challenge for asset owners. If the results are accepted at face value, then if past performance is used at all for hiring and firing managers it is the best performing managers that should be replaced with those who have performed more poorly. Despite our findings, a policy of firing successful managers and replacing them with poor performers is not likely to gain widespread acceptance. Instead, the practical implication of our paper is that asset owners should focus on factors other than past performance when selecting managers. We offer possible criteria that could be employed in this context.

Introduction

Dating back to Jensen (1968), the immense literature on investment performance has focused on whether or not managers possess stock picking or market timing talent that allows them to consistently produce positive risk-adjusted performance. The extensive early literature, up through Carhart (1997) and Wermers (2000) found little evidence that managers could consistently outperform the market on a risk-adjusted basis. While this result is depressing to the individuals engaged in manager selection, it is perhaps unsurprising. First of all, smart active managers competing fiercely would suggest few opportunities for a free lunch. Additionally, rational active managers ought to extract the full rent of their talent given that alpha skill is scarce and capital is plenty. Investors would be naïve to expect managers to not charge sufficient fees or attract sufficiently large assets to effectively capture the dollar alphas they generate (see Berk and Green (2004)).

However, the academic discussions of manager skill and measurements of manager outperformance ignore the reality that many trillions of dollars are already delegated through a beauty contest process, which focuses substantially on the recent three-year performance of the manager being examined for hiring or firing. For better or worse, based on December 2015 data from Morningstar Direct, investors choose to allocate twice as many assets towards actively managed funds than passively managed funds. Thus, by revealed preference, they have already made up their minds regarding the both the possibility of and the method for selecting active managers who will outperform. Given modern manager selection heuristics, it is less interesting to ask whether managers can outperform net of fees, it is more interesting to examine whether selecting managers based on recent performances can lead to outperformance for investors.

Because our paper focuses on the implications of modern manager/fund selection heuristic employed by industry practitioners, we define outperformance precisely as excess return over the stated benchmark.[1] We are specifically interested in determining whether the common manager selection methodology based on recent manager excess return over benchmark would lead to future excess return over benchmark for investors.

The large literature on mutual fund flows suggests that investors often employ a simple algorithm—usually they focus only the recent 2-3 year excess return over the stated benchmark. Papers including Chevalier and Ellison (1997), Sirri and Tufano (1998), Wermers (2003), Lamont and Ellison (2008), all report that flows are positively correlated with past performance. Anecdotally, investment consultants and fiduciaries acknowledge that past outperformance is "a" if not "the" dominant manager selection criterion, because it is intuitive and thus defensible to investors. Selecting a manager based on his recent outperformance does seem perfectly rational. Past outperformance, the thinking goes, can either be due to luck or skill. If it is due to luck, hiring or firing based on past performance has no impact. If it is due to skill, moving funds to more successful managers will improve future probability for outperformance. Therefore, relying on past track records may be beneficial, but in any event it will not be harmful.

In addition, from the standpoint of investment consultants and advisors, hiring managers with great recent performance and firing manager with poor recent performance is preferred because doing the opposite would be unacceptable to most investors. Indeed the performance measurement employed is almost exclusively the simple excess return over the

[1] See Hsu, Myers and Whitby (2016) for a discussion of the difference between the practitioner's definition of outperformance versus the extant academic literature's definition of outperformance.

stated benchmark without further risk adjustment because the average investor does not have the knowledge to understand what is meant by risk adjustment and risk models much less why such adjustment would be appropriate[2]. Some argue that in the event of dispute between an investor and his investment advisor, a selection criteria dominated by simple recent performance would be the most defensible.[3] However, putting aside the agency conflict between an investment advisor and his client, the investor, what if managers with better recent outperformance were more likely to *underperform* subsequently over the standard investment evaluation horizon? Intuitively, if there is mean-reversion over the horizon of interest, which is roughly three years for the average institutional investors[4], the

[2] See Cornell and Hsu (2016) for a discussion on the investment ecosystem and the knowledge level of the average individual investors and their fiduciary.

[3] ERISA (1974 Employee Retirement Income Security Act) and UPIA (1994 Uniform Prudent Investor Act) requires that pension fiduciaries follow a "prudent man" approach. The prudent man approach has come to be understood as "the common practice adopted by one's peers". Because firing managers with poor recent performance and hiring managers with good recent performance has become the industry norm, this heuristic is also interpreted as "safe harbor" behavior—what a reasonable prudent man would do. Along this vein, Goyal and Wahal (2008) argue that pension sponsors tend to terminate managers for recent poor performance to avoid headline risk.

[4] From our survey of institutional consultants, performance over the past three years is one of the most important statistic for firing managers and is critical in the hiring decisions as well. This is also consistent with the algorithm behind the Morningstar star rating, which gives the heaviest weight to the past three year performance (see methodology paper: http://corporate.morningstar.com/cf/documents/MethodologyDocuments/MethodologyPapers/MorningstarFundRating_Methodology.pdf). Goyal and Wahal (2008) find evidence that pension sponsors tend to invest with

modern hiring/firing practice could possibly lead to a worse outcome than the apparently paradoxical strategy of investing in managers with poor recent performance and firing the recently successful ones! While such a manager selection strategy may seem daffy, there is method in the madness.

While a contrarian approach to manager selection might seem ridiculous at first blush, a contrarian approach to buying stocks has long been advocated. Beginning with the work of DeBondt and Thaler (1985) and Jegadeesh and Titman (1993), researchers have found that individual stock returns are characterized by short-term momentum followed by long-term reversals. Woolley and Vayanos (2012) argue that that short-term momentum and long-run reversal effects should also appear in mutual fund returns. The Woolley and Vayanos prediction seems intuitive. A manager with strong recent performance, by default, would own some of the best performing stocks. As these winner stocks tend to continue to do well over the immediate short-run, we will measure short-term momentum in managers. However, when long-term stock price mean-reversal hits, the manager performance also mean-reverts. Implicit in this assumption is that most fund managers do not rebalance aggressively and sell their winning positions, which is consistent with the evidence that outperforming managers generally allocate flows to the stocks that they already own in their portfolios[5].

managers with high past three-year performance. An anonymous investment consultant revealed that, "When you get to three years of underperformance, we either fire the manager or be fired ourselves."

[5] Khan, Kogan, and Serafeim (2012) and Lou (2012) provide recent empirical evidence that mutual funds tend to put fresh capital at work in existing positions.

At a deeper level, the thesis that manager performance might be mean-reverting is related to the underlying question of whether manager performance reflects genuine talent, the so-called alpha skill, or whether it reflects the result of an exposure or beta strategy such as buying technology stocks or small cap stocks. The distinction is important because we do not naturally assume that alpha skill would mean-revert whereas many beta returns are empirically documented to be mean-reverting. There is evidence that managers do use systematic exposures to add excess returns. Chen, Jagadeesh and Wermers (2000) report that mutual funds tend to systematically follow certain styles such as holding small stocks. Similarly, Grinblatt, Titman and Wermers (1995) find that the majority of mutual funds tend to actively invest in positive momentum stocks. If momentum premium and small cap premium are mean-reverting, then many mutual fund outperformance would be mean-reverting as well. All of this suggests the possibility that a good recent track record may be a predictor of inferior long-run future performance. Because this hypothesis is of such obvious importance to investors, it is worth a careful empirical examination. This motivates our paper: to investigate the performance of common fund manager selection heuristic which involves hiring recently outperforming managers and firing underperforming managers.

Methodology and Data

To simulate the impact of actual decision making based on track records, we compare the performance of investment policies that involve investing in funds that generate benchmark-adjusted returns (excess return over the fund's stated benchmark) within specific ranges. Specifically, we compare the investment results produced by the

commonly employed "Winner Strategy." Here we define the Winner Strategy as follows. At the beginning of each 3-year period investors purchases equal weights of in funds that rank in the top decile of benchmark-adjusted return. At the end of 3 years, the monies are reallocated again to a new portfolio that is equal weighted once again among the top decile performers. We compare this strategy with a "Median Strategy" that is identical except that the allocation is to funds that rank between the 45th and 55th percentile of benchmark-adjusted return. Finally, we also examine a "Loser Strategy" that is again follows the same procedure but invests in funds that rank in the bottom decile of benchmark-adjusted return. Funds in the "Winner Strategy" bucket would generally be the funds that are selected by wealth management platforms as part of their buy or recommended list and recommended by financial advisors to clients for consideration. Funds in the "Loser Strategy" bucket would generally be funds that are not on any recommended list and are actively being eliminated from client portfolios by financial advisors. These portfolios help us understand just how unhelpful our modern hiring heuristic really is!

To check the robustness of our procedure and results, we also compare the investment performance produced by an unorthodox strategy of investing in funds that underperformed their benchmark by more than 1 percent per year and the even more extreme case of investing in funds that underperformed their benchmark by more than 3 percent per year. These portfolios help us understand the impact of the common manager firing rule. When we fire a manager who has underperformed recently by 3% per annum, are we really eliminating a source of bad future performance from our portfolio? Or have we just fired someone with an investment style that is poised to mean-revert?

More specifically, our empirical analysis proceeds as follows. Every 36 months, beginning in January 1994, we truncate our cross-section of actively managed US Equity Mutual Funds to only those that did not rank in the top decile of expense ratio in the prior year.[6] We know that expensive mutual funds tend to be persistent underperformers due to costs; eliminating them from the universe allows us to more cleanly investigate transient versus persistent underperformance related only to skill and portfolio exposures. Expense ratios and net-of-expense returns on share classes are aggregated to the portfolio level by weighting them by their total net assets as of the end of the previous month.

We calculate the average benchmark-adjusted returns over the past 36-months for each fund in our universe. The benchmark is based on data from Morningstar Direct. If Morningstar Direct has a continuous time-series of 36 monthly returns on both the fund's Primary Prospectus Benchmark Index and the fund's Secondary Prospectus Benchmark Index, then the one that produces lower tracking error volatility is chosen as the benchmark. If Morningstar Direct has a continuous time-series of 36 monthly returns on only one of the two prospectus benchmarks, then that benchmark is chosen.

Next, equal amounts of capital are invested in funds that demonstrate a level of benchmark-adjusted return that is consistent with the aforementioned investment policies. The funds in each portfolio are then held for 36 months. During the 36-month holding period, the portfolios are rebalanced monthly to maintain equal weights across funds; this is done for simplicity rather than realism; this simplifying choice has no meaningful impact on our results or their interpretation. If a fund disappears from our dataset, then the capital

[6] Expense ratios are collected from annual reports.

that was invested in it is equally allocated among the other funds[7]. At the end of the 36-month period, the evaluation process is repeated based on updated information on expenses and benchmark-adjusted returns. The portfolios are reformed based on this updated set of information. The process is repeated through December 2015. For robustness, we also examine the performance of the aforementioned strategies using 24-month holding and evaluation periods.

Empirical Results

TABLE 1 – Performance of Winner, Median, and Loser Strategies (36-Mo Specification)

	Winner Strategy	Median Strategy	Loser Strategy
Raw Return	8.04%	9.77%	10.40%
Sharpe Ratio	0.29	0.48	0.51
CAPM Alpha	-2.87%	0.10%	0.89%
CAPM Alpha t-stat	-1.70	0.17	0.89
Carhart Four-Factor Model Alpha	-2.74%	-0.44%	0.16%
Carhart Four-Factor Model Alpha t-stat	-2.96	-0.89	0.19

[7] Funds can disappear due to closure or merger. The NAV upon closure is an accurate representation of the value of the underlying assets held in the fund, which is then distributed as cash to the fund shareholders.

The results for portfolios using the 36-month holding and evaluation periods are displayed in Table 1. We begin with a comparison of the performance that results from following the commonly used "Winner Strategy" with one that employs a "Median Strategy." Surprisingly, the "Median Strategy" outperforms the "Winner Strategy" across all performance metrics. For example, the Sharpe Ratio of the "Median Strategy" was 0.48 versus 0.29 for the "Winner Strategy" portfolio. This implies that investors can nearly double their mean-variance efficiency by simply switching from a strategy of chasing "Winners" to a strategy of investing in funds that have demonstrated a median level of recent outperformance. Furthermore, the CAPM Alpha generated by the "Median Strategy" portfolio exceeded that of the "Winner Strategy" portfolio by 2.97 percentage points per year. The alpha from the Carhart four-factor model, which controls for the market, size, value, and momentum factors in stock returns, was also meaningfully lower for the "Winner Strategy" portfolio than the "Median Strategy" portfolio[8].

The foregoing results suggest that the outperformance of managers is mean reverting. If that is so, it is possible that past losers may perform the best of all as DeBondt and Thaler found in the case of individual stocks. To test this conjecture, we study the performance of the previously described "Loser Strategy." In line with the conjecture, the performance of the "Loser Strategy" consistently exceeded not only that of the "Winner Strategy" but also that of the "Median Strategy." For example, while the CAPM Alpha generated by the "Median Strategy" exceeded that of the "Winner Strategy" by 2.97

[8] Asset pricing model factors are gathered from Kenneth French's website. Details on the construction of these factors can be found at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/f-f_factors.html. We are grateful to Kenneth French for providing this data.

percentage points per year, the CAPM Alpha generated by the "Loser Strategy" exceeded that of the "Winner Strategy" portfolio by 3.76 percentage points per year. This monotonic phenomena in which the "Loser Strategy" outperforms the "Median Strategy" which outperforms the "Winner Strategy" holds across all the performance metrics, including raw return, Sharpe Ratio, and the t-statistics associated with the alphas. The results presented here are consistent with the findings of Hsu, Myers and Whitby (2016) where they document large return gaps between the dollar weighted returns experienced by investors versus the buy-and-hold returns reported by managers; they suggest that the return gap is driven by the modern manager selection heuristic of buying the hot managers only to experience subsequent underperformance due to manager alpha mean-reversion.

To assess the robustness of our findings and inject more realism into the analysis, we also examine the efficacy of hypothetical "manager firing rules" that are based on the level of underperformance relative to the benchmark index. To do this, we examine the performance of the portfolios that are constructed from funds which have underperformed their benchmarks in the last 3 years by 1% per annum and by 3% per annum. These are funds, which are usually being dropped by investors and their investment advisors. We also examine the performance of the "complement" portfolio, which contains the funds that have not underperformed their benchmarks in the last 3 years by more than 1% (3%) per annum. These are funds which would not be dropped from an investor's portfolio, if they were currently included. Table 2 displays the results for these "Fired" funds versus their counterpart, the "Kept" funds. The "Fired" funds wound up outperforming the "Kept" funds by over 1 percentage point per year based on raw return, CAPM Alpha, and Carhart Four-Factor Model Alpha, as did the portfolio of funds that underperformed their benchmark by

more than 3 percent per year. The Sharpe Ratios on the portfolios indicate that portfolios of funds that underperformed also wound up generating greater mean-variance efficiency than their counterparts.

TABLE 2 – Performance of Additional Strategies (36-Mo Specification)

	<-1% per year Strategy	>=-1% per year strategy	<-3% per year Strategy	>=-3% per year strategy
Raw Return	9.76%	8.73%	9.95%	8.89%
Sharpe Ratio	0.48	0.37	0.48	0.39
CAPM Alpha	0.15%	-1.50%	0.31%	-1.17%
CAPM Alpha t-stat	0.23	-1.77	0.40	-1.70
Carhart Four-Factor Model Alpha	-0.38%	-1.71%	-0.24%	-1.44%
Carhart Four-Factor Model Alpha t-stat	-0.69	-3.41	-0.39	-3.29

To evaluate the impact of the holding period assumptions, we repeat our analysis using 2-year holding and evaluation periods. The findings, presented in Tables 3 and 4, show that our results are little changed by switching to a shorter evaluation interval. Most importantly, the two main phenomena that were observed with the 3-year specification persist with the 2-year specification. First, the "Loser Strategy" outperformed the "Median Strategy" which outperformed the "Winner Strategy". Second, the portfolios comprised of funds that meaningfully underperformed their benchmarks wound up outperforming those

which did not. As was observed with the 3-year specification, these phenomena were consistent across all metrics of performance.

TABLE 3 – Performance of Winner, Median, and Loser Strategies (24-Mo Specification)

	Winner Strategy	Median Strategy	Loser Strategy
Raw Return	8.67%	9.15%	9.87%
Sharpe Ratio	0.32	0.44	0.46
CAPM Alpha	-2.15%	-0.50%	0.11%
CAPM Alpha t-stat	-1.23	-0.89	0.11
Carhart Four-Factor Model Alpha	-2.29%	-0.87%	-0.55%
Carhart Four-Factor Model Alpha t-stat	-2.23	-1.92	-0.64

TABLE 4 – Performance of Additional Strategies (24-Mo Specification)

	<-1% per year Strategy	>=-1% per year strategy	<-3% per year Strategy	>=-3% per year strategy
Raw Return	9.41%	9.09%	9.44%	9.12%
Sharpe Ratio	0.45	0.40	0.45	0.41
CAPM Alpha	-0.28%	-1.03%	-0.28%	-0.92%
CAPM Alpha t-stat	-0.41	-1.22	-0.36	-1.29
Carhart Four-Factor Model Alpha	-0.76%	-1.34%	-0.79%	-1.25%
Carhart Four-Factor Model Alpha t-stat	-1.31	-2.65	-1.20	-2.80

Of course investors do not select managers solely based on their recent performance. Investment consultants and financial advisors also grade investment managers and funds based on various other softer dimensions. These include stewardship, governance, manager tenure, incentive alignment, etc. It is interesting to ask whether these other potentially informative characteristics might be enough to overcome the negative effect of using recent outperformance as a selection criterion. To examine this point, we create a stark example. In our simulation, on each manager selection date, we start with our universe of the top 90% managers by low expense ratio. We then compute for each manager their annualized future outperformance from the selection date to the end of their performance reporting sample. This is clearly perfect foresight. One can imagine that

investors are truly able to identify managers who could provide better performance through analyzing other non-recent-performance-based fund characteristics. We then examine the impact of starting with this universe of funds and additionally screening funds based on recent performance.

TABLE 5. Perfect Foresight Portfolios

	Median of the universe (top 90% of managers by low fees)	Pick top 25% of the best fund by future performance (Equal Weight)	(1) Pick top 25% by future performance (2) then pick recent winners	Loser Portfolio	(1) Pick top 25% by future performance (2) then pick recent losers
Raw Return	9.77%	12.30%	10.64%	10.40%	13.50%
Sharpe Ratio	0.48	0.61	0.43	0.51	0.68
CAPM Alpha	0.10%	2.38%	-0.22%	0.89%	3.80%
CAPM Alpha t-stat	0.17	2.72	-0.14	0.89	2.89
Carhart 4-Factor Model Alpha	-0.44%	1.81%	-0.53%	0.16%	2.86%
Carhart 4-Factor Alpha t-stat	-0.89	2.81	-0.62	0.19	2.58

In Table 5, we see that having future outperformance information (perfect foresight) is incredibly valuable for selecting funds. Compared with the median manager in the universe, a portfolio that allocates equally to the top 25% of managers by future performance every 36 months would outperform by roughly 250 bps per annum (from

9.77% to 12.30%). However, if we further select from these top future performers the top 10% by the past 36-month performance, the performance actually declines by roughly 1.7% (from 12.3% to 10.64%). Mapping to modern manager selection practice, one could imagine a situation where an investment consultant suggests a roster of blue chip managers for her clients to consider. One could even believe that these blue chip managers would indeed outperform if held for the long-term. However, if clients then select from that short list of good managers a handful which have had the best recent performance; this additional step would actually meaningfully detract value. Once again, we see that even if investors start with a select list of good managers, using recent outperformance to further screen managers is a harmful practice.

Investment Implications of the Results

The purpose of our paper was to empirically investigate the performance of commonly used fund manager selection strategies which involve hiring outperforming managers and firing underperforming managers using U.S. mutual fund data. Based on portfolios constructed using typical 3-year holding and evaluation periods, we found that the excess return to investors who chose funds with poor recent performance was higher than the excess return to investors who chose funds with great recent performance. The superior return to investing in "Loser" funds over "Winner" funds is statistically and economically large and is robust to reasonable variation in the evaluation and holding periods as well as to standard risk adjustments. We also find that the standard heuristic which fires managers who have underperformed recently actually eliminates from the investor's portfolio of funds, those that are more likely to outperform,. Finally, we find that

even if investors are able to narrow the field to a short list of managers who outperform in the long-run, using past outperformance to additionally screen managers leads to substantial reduction in performance.

Our study has two important implications for investors. First, a heuristic of hiring recent outperforming managers and firing recent underperforming managers turns out to be 180 degrees wrong. Because of the mean reversion of manager performance, a strategy of hiring managers with mediocre track records outperforms one of hiring past winners and a strategy of hiring past losers turns out to be the best of all. Second, consistent with previous research, it appears superior investment performance is more a function of the systematic exposures (a persistent investment style) that managers embed into the portfolio, not some nebulous talent—elusive and unique alpha skill. This is evidenced by the fact that performance tends to mean revert.

Our results pose a challenge for asset owners. If the results are accepted at face value, then if past performance is used at all for hiring and firing managers it is the best performing managers that should be replaced with those who have performed more poorly. Despite our findings, a policy of firing successful managers and replacing them with poor performers is not likely to gain widespread acceptance. Instead, the practical implication of our paper is that asset owners should focus on factors other than past performance when selecting managers.

Most saliently, as Cornell (2011) argues, the theoretical soundness of the "investment thesis" that drives a fund's portfolio management strategy should be a key criteria for consideration. Recent research has also points to a variety of objective characteristics that that are indicative of manager quality and have some ability to predict

future performance. These characteristics include the presence of performance-linked bonuses in fund manager compensation packages (Ma, Tang, and Gómez (2015)), a high level of fund manager ownership (Khorana, Servaes, and Wedge (2007)), board of director ownership (Cremers, Driessen, Maenhout, and Weinbaum (2009)), a high active share (Cremers and Petajisto (2009), Amihud and Goyenko (2013)), lack of affiliation with an investment bank (Hao and Yan (2012)), outsourced execution of shareholder services (Sorhage (2015)), the presence of a short-term redemption fee (Finke, Nanigian, and Waller (2014)), having Ph.D.s in key portfolio roles (Chaudhuri, Ivkovich, Pollet, and Trzcinka (2013)) and having strong positive firm culture (Heisinger, Hsu and Ware (2015)).

Admittedly, evaluating a manager's strategy ex-ante and taking account of management firms characteristics is more difficult and nebulous than making decisions based on historical performance. Nonetheless, accounting for such factors is better than relying on performance metrics that our research suggests are counterproductive for investors.

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