

Hot Hands, Cold Hands: Does Past Performance Predict Future Returns?

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Mutual fund performance persistence is a topic of great importance to financial planners, investment advisors and other managers who use mutual funds as a vehicle for investing clients' assets. As one key component of the fund selection process, most individual investors and their advisors spend a significant amount of time studying the past performance of the funds in which they are considering investment. The performance persistence question simply asks, "If mutual fund performance does not persist, can there be any possible justification for including past performance as a key criterion for selecting mutual funds?"

Given the extremely broad appeal of mutual funds to U.S. investors and their advisors, the performance persistence issue is a critical concern. According to the Investment Company Institute (ICI), U.S.

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Executive Summary

- Most individual investors and their advisors spend a significant amount of time studying the past performance of the mutual funds in which they are considering investment. The performance persistence question simply asks, "If mutual fund performance does not persist, can there be any possible justification for including past performance as a key criterion for selecting mutual funds?" This paper presents an overview of major performance persistence studies published during the last 15 years. The most important implication from performance persistence studies is that the historical performance of mutual funds contains useful information about future performance, at least for one-year holding periods. Winners in one year tend to remain winners in the following year and losers have an even stronger ten-

dency to remain losers.

- The studies consistently find that investment strategies based on investing in portfolios of fund winners outperform the average fund as well as portfolios consisting of fund losers.
- The studies also demonstrate that performance is more persistent within categories than relative to the overall market. International equity funds also show strong short-term persistence.
- Evidence for longer-term performance persistence, such as two to four years, is much less clear, though generally it's not as strong as short-term persistence.
- There is some suggestion that persistence may be sensitive to the period tested. Thus, findings of persistence need to be interpreted with caution, and should not be the sole or even the most important criterion for selecting a mutual fund.

investment companies managed a record \$8.6 trillion at the end of 2004, an increase of \$800 billion over 2003. Mutual fund assets comprised nearly 95 percent of total investment company assets at \$8.1 trillion, dwarfing the dollar amount of assets invested in other forms of investment companies such as closed-end and exchange-traded funds. A total of \$1.6 trillion are invested in mutual funds through

work retirement plans, according to ICI, and is \$1.5 trillion is held in individual retirement accounts.¹

The ICI data also note that 54 million U.S. households own mutual funds and 71 percent of these investors rely on professional investment advice to select funds for investing. Among investors owning fund shares outside of defined contribution plans, more than 80 percent own funds

through professional financial advisors, and nearly half of these investors own funds solely through advisors. These statistics demonstrate that private client investment managers have a potentially large role to play in helping current and prospective clients select mutual funds for their retirement and other long-term investment goals.²

A number of significant studies have been published since 1992 that cast some light on the issue of mutual fund performance persistence. Studies by Grinblatt and Titman (1992); Hendricks, Patel and Zeckhauser (1993); Goetzmann and Ibbotson (1994); Brown and Goetzmann (1995); Malkiel (1995); Elton, Gruber, and Blake (1996); Carhart (1997); and Droms and Walker (2001a, 2001b) have tested the persistence of mutual fund total returns over periods ranging from 10 to 31 years. Blake and Morey (2000) address the use of Morningstar ratings as predictors of future mutual fund performance. A summary of

these studies appears in Table 1. This paper presents an overview of these studies published since 1992 and synthesizes “lessons learned” from their results that can be used by practitioners to structure mutual fund investment portfolios for clients.

Tests for Portfolio Alpha

Many of the tests of mutual fund performance persistence test for the persistence of risk-adjusted performance, most often via tests of persistence of portfolio *alpha*.

Alpha for a mutual fund is a measure of the return on the fund over the return predicted by capital asset pricing theory as a function of the systematic risk of the fund and the return on the market. Statistically, alpha is computed by fitting a regression line relating the return on the fund to the return on an appropriate market index, such as the stock market in general (say the S&P 500 Index) or a style-based benchmark (such as an index of value stocks or

an index of growth stocks). The return measure normally used is the *excess return* of the fund compared with the excess return on the index, where excess return is calculated as the return on the fund or index minus the risk-free rate of return. Alpha is the intercept of this regression line, and thus measures the excess return earned by the fund when the excess return on the index is zero. For the vast majority of equity mutual funds, alpha is not statistically different from zero. Funds with positive alphas that are significantly greater than zero are judged to be outperforming the market. Tests for persistence of alpha thus test for persistence of performance above or below that predicted by the riskiness of the fund.

Winner-Winner, Winner-Loser Persistence Tests

Tests of performance persistence commonly employ standard regression analysis, such as the regression methodology devel-

Table 1: Summary of Persistence Studies

Authors(s) and Date	Type of Test	Number of Funds	Time Period	Results
Grinblatt and Titman (1992)	Alpha persistence; multiple benchmarks	279 U.S. equity funds	1974–1984	Performance persists
Hendricks, Patel, Zeckhauser (1993)	Alpha persistence; multiple benchmarks	165 growth-oriented, no-load, U.S. equity funds	1974–1988	Short-term persists; strong “cold hands” persistence
Goetzmann and Ibbotson (1994)	Winner/loser; raw returns, alpha, style subgroups	276 U.S. and international equity funds	1976–1988	Winners and losers likely to repeat
Brown and Goetzmann (1995)	Alpha persistence	All U.S. equity [372 (1976) to 829 (1988)]	1976–1988	Persistent poor performance; Strong relative performance
Malkiel (1995)	Alpha persistence; investing in winners	All diversified U.S. equity [210 (1971) to 684 (1994)]	1971–1994	Funds lag benchmarks; Strong 1970s, weak 1980s
Elton, Gruber, and Blake (1996)	Alpha persistence; investing in winners	188 U.S. equity funds	1977–1993	Performance persists; past winners outperform
Carhart (1997)	Alpha persistence; investing in winners	All diversified U.S. equity funds (1,892)	1962–1993	Persistence due to common factors in stock returns and expenses
Blake and Morey (2000)	Morningstar ratings as predictors	Five open US equity style groups (635)	1992–1997	Low ratings predict poor performance
Droms and Walker (2001)	Raw returns; turnover; expense ratios	151 U.S. equity in continuous operation	1971–1990	Short-term performance persists
Droms and Walker (2001)	Alpha persistence; investing in winners	All int’l equity [11 (1977) to 473 (1996)]	1977–1996	Short-term performance persists
Carhart, Carpenter, Lynch and Musto (2002)	Alpha persistence	All diversified U.S. equity funds [Total 2,071 funds: 465 (1972) to 1,370 (1995)]	1962–1995	Persistence exists but mainly due to expenses. Survivor bias weakens result
Jan and Hung (2004)	Alpha persistence	CRSP survivor-bias free data: total 3,316 over 40 years	1961–2000	Both short-run and long-run performance persists
Bollen and Busse (2004)	Alpha persistence	All U.S. equity “max cap gain,” “growth” and “gr and inc” funds extant in 1985 (230 funds)	1985–1995 (new funds after 1985 not added)	Short-term performance persists, but may not be economically significant

oped by Grinnblatt and Titman (1992) to test for the relationship of performance in one period to performance in successive periods. Persistence tests published during the last ten years also commonly apply the successive “winner-winner, winner-loser” methodology developed by Goetzmann and Ibbotson (1994), Brown and Goetzmann (1995), and Malkiel (1995). Using this methodology, funds are rank ordered by one-year total returns, with the 50 percent of the funds showing the highest returns labeled “winners” and the 50 percent of the funds with the lowest returns labeled “losers.” Funds that ceased operations in the subsequent year are labeled “gone.” Two-by-three tables are then constructed to identify winners and losers in year one and then winners, losers, or gone in successive years. Statistical tests are used to test whether the number of funds with persistent performance (that is, the number of winner-winner and loser-loser pairs) is significantly greater than what would be predicted by chance.

Survivor Bias

Survivor bias is an important issue for all tests of performance persistence. Survivor bias stems from the problem of dealing with failed or merged funds during the period under study. Consider, for example, the impact of constructing a database of mutual fund returns for the 1995–2004 period by starting with a 2004 data set and selecting all funds listed in 2004 that have been in operation since 1995. That data set would exclude all funds that ceased operations or merged into other funds during the ten-year period. Since funds commonly cease operations due to poor performance, this data set would exclude many funds that would fall into the “loser” category and possibly result in a finding that winners persist when, in fact, the real story is that losers go out of business.

In a comprehensive analysis of survivor bias, Brown, Goetzmann, Ibbotson, and Ross (1992) demonstrate via a Monte Carlo simulation that even in the absence

of true persistence, it is possible that survivor bias can generate the appearance that winners persist. Studies published after 1992 generally have implemented techniques to deal with survivor bias and hence should be considered a more reliable estimator of actual persistence than studies before 1992 that did not adjust for survivor bias. Awareness of and adjustment for potential survivor bias have become sufficiently common that Hendricks, Patel, and Zeckhauser’s analysis in the *Journal of Finance* (1993) concluded that “survivorship bias is probably not an important issue for performance studies with typical mutual fund samples.”

Persistence Test Results

The sample of papers reviewed for this survey includes every article published since 1990 in the three most highly ranked academic finance journals (*Journal of Finance*, *Journal of Financial Economics*, and *Review of Financial Studies*). In addition, every article referenced in the two most recent articles in these top-tier journals (*Review of Financial Studies* 2002 and 2004) that deals directly with performance persistence is included in this study. Many other articles that have appeared since 1990 in academic finance journals outside of these three journals also are included. Hence, one may reasonably assert that although some “small stones” in journals ranked below the top tier may have been left unturned, no stone in the three top-tier finance journals has been overlooked by this survey.

Now we’ll summarize the findings of the key articles.

Grinnblatt and Titman (1992) test performance persistence relative to multiple portfolio benchmarks that were formed on the basis of the characteristics of the funds tested. They test for positive alphas measured against a multiple (eight portfolio groups) portfolio benchmark for 279 U.S. equity funds over the 1974–1984 period. They find evidence that “differences in performance between funds persist over time

and that this persistence is consistent with the ability of fund managers to earn abnormal returns.” They conclude that their results indicate positive persistence in mutual fund performance. Although they note that their results are consistent with persistent differences in fees and transaction cost across funds, cost differences are not the sole explanation for performance persistence and that “Irrespective of the source or sources of persistence that we find in this paper, we can assert that past performance of a fund provides useful information for investors who are considering an investment in mutual funds.”

Hendricks, Patel, and Zeckhauser (HPZ) (1993) examine performance persistence in a sample of 165 growth-oriented, no-load U.S. equity funds over the 1974–1988 period. Their tests test for positive alphas and persistence of alphas compared with market benchmarks and Grinnblatt and Titman’s eight-portfolio benchmark group. They find that the relative performance of growth funds persists in the near term, with the strongest evidence for a one-year time horizon: “No-load, growth-oriented mutual funds that performed well relative to their brethren in the most recent year continue to be superior performers in the near term (one to eight quarters).” Furthermore, they find that portfolios of recent poor performers do significantly worse than standard benchmarks and that portfolios of recent top performers do better, although not significantly so.

Most interestingly, HPZ group their funds into eight groups (“octile ranks”) based on performance; that is, the highest ranked octile contains the one-eighth of the sample with the highest returns and the lowest octile contains the one-eighth of the sample with the lowest returns. They find that the “mean excess return increases monotonically with the octile ranks” in holding periods subsequent to the ranking period and that the [Sharpe] “ratio of mean excess return to standard deviation also increases monotonically with octile ranks.” They also find that “Jensen’s alpha rises monotonically with octile rank, independ-

ent of the benchmark,” indicating that risk-adjusted return increases consistently with increases in raw returns. In addition, their data show that the difference in risk-adjusted performance between the top and bottom octile portfolios is six to eight percent a year. They conclude that “a strategy of selecting, every quarter, the top performers based on the last four quarters (such as the top octile) can significantly outperform the average mutual fund, albeit doing only marginally better than some benchmark indexes.”

HPZ also offer some interesting observations on “icy hands, the evil counterpart of hot hands.” Their data show that “funds that perform poorly in the most recent year continue to be inferior in the near term. Indeed, they are more inferior than hot hands are superior.”

Goetzmann and Ibbotson (1994), in tests of 276 U.S. and international equity funds in continuous operation from 1976 to 1988, find strong evidence that past mutual fund performance predicts future performance. Their data suggest that both “winners” (funds with returns above the median) and “losers” (funds with returns below the median) are likely to repeat, even when performance is adjusted for relative risk. They conclude that “past returns and relative rankings are useful in predicting future returns and rankings” and that “this appears to be true for raw returns, Jensen risk-adjusted alpha measures, and for style-categorized subgroups.”

Persistence Stronger Within Subcategories

Brown and Goetzmann (1995), using a sample of all U.S. equity funds in operation from 1976 to 1988 (from 372 funds in 1976 to 829 funds in 1988), find that “relative risk-adjusted performance of mutual funds persists; however, persistence is mostly due to funds that lag the S&P 500.” The implication of their results for investors is that “the persistence phenomenon is a useful indicator of which funds to avoid.” One important new idea that emerged from Brown and Goetzmann was their observa-

tion that fund performance persistence within subcategories is stronger than among funds in the aggregate, and that investors should focus on performance within categories more than on performance relative to a general benchmark. They conclude that there exists “clear evidence of relative performance persistence,” and that “investors can use historical data to beat the pack.” But evidence that historical information can be used to earn returns in excess of benchmarks (such as the S&P 500) is weaker and depends on the period of analysis.

Malkiel (1995) develops a 21-year data set free of survivor bias consisting of all diversified U.S. equity funds in existence from 1971 (210 funds) to 1991 (684 funds). He tests for persistence of alpha and also tests strategies of investing in the previous year’s winners. He finds that funds, in the aggregate, have underperformed benchmark portfolios even before deduction of expenses, and that while considerable performance persistence existed during the 1970s, there was no consistency of performance during the 1980s: “there seems to be considerable persistence to returns during the 1970s. Hot hands (winning followed by winning) occur much more often than a win followed by a loss. The null hypothesis of no winning persistence is rejected in all but two of the years covered. Similarly, the data indicate a ‘cold hand’ phenomenon as well. Losing in the initial period is more likely to be followed by losing in the subsequent period. Over the whole period, winners tend to repeat almost 2/3 of the time...The relationship is considerably weaker during the 1980s.”

Malkiel also finds that investing in winning funds of the previous year to be quite effective, at least during the 1970s: “the strategy of being invested in... top funds of previous years performed extremely well [from] 1973 to 1977...even better during 1978 to 1981...however, the strategy failed to produce excess returns during the next decade.” Malkiel concludes, “This study of mutual funds does not provide any reason to abandon the belief that securities mar-

kets are remarkably efficient. Most investors would be considerably better off by purchasing a low expense index fund, than by trying to select an active fund manager who appears to possess a ‘hot hand.’”

The Malkiel results are intriguing in that they show that persistence, or the lack thereof, may vary across time periods. Although year-to-year performance was persistent in the 1970s, performance was not persistent during the 1980s. A later paper by Droms and Walker (2001a) reports the same phenomenon. They hypothesize that these results may be related to the small-stock effect in that small-market-capitalization stocks outperformed the S&P 500 during 1971–1980, but underperformed the S&P 500 during 1981–1990. Since most equity mutual funds hold portfolios with average market capitalizations smaller than the average market capitalizations of the S&P 500, the stronger results in the 1970s may well be due to the persistence of superior performance by smaller-capitalization mutual funds.

These results also support the position that persistence should be measured within investment style subcategories rather than relative to a general benchmark. During periods when small-cap stock funds in general outperform large-cap stock funds, performance persistence may appear stronger than it actually is simply because small-cap funds as a class persist in outperforming the S&P 500. The appropriate question that should be tested is whether high performance small-cap funds persist in outperforming other small cap funds rather than whether they persist in outperforming the S&P 500.

Elton, Gruber, and Blake (1996), using 1977–93 performance data for a sample of 188 U.S. equity funds, test for persistence of alpha and test investment strategies based on past performance. They find that risk-adjusted performance tends to persist and that funds that did well in the past tend to do well in the future. Using Jensen’s alpha as a measure of risk-adjusted

performance, their study shows that one-year alphas provide information about future performance and that portfolios based on past performance significantly outperform equally weighted portfolios of funds. They conclude that “using risk-adjusted returns to rank funds, we find that past performance is predictive of future risk-adjusted performance in both the short run and longer run.” They also found that by forming optimal mutual fund portfolios using modern portfolio theory optimization techniques, they were able to construct a portfolio of mutual funds that “significantly outperforms a rule based on past rank alone.”

Carhart (1997) develops a 31-year data set free of survivor bias consisting of performance data on 1,892 diversified U.S. equity funds for the period 1962 to 1993. He tests for persistence of alpha and tests investment strategies based on past performance. His results demonstrate that common factors in stock returns and investment expenses almost completely explain persistence in equity mutual funds’ mean and risk-adjusted returns. His results do not support the existence of skilled or informed mutual fund managers, although he does find significant performance persistence, particularly as related to strong underperformance by the worst-return mutual funds, and suggests that investors “Avoid funds with persistently poor past performance.” His data also show that “Funds with high returns last year have higher-than-average expected returns next year.” Finally, his results show that “The investment costs of expense ratios, transaction costs, and load fees all have a direct, negative impact on performance.”

Blake and Morey (2000), using 1992–97 performance data, address the use of Morningstar ratings as predictors of mutual fund performance. Their results show that low Morningstar ratings are reliable predictors of poor future performance, but they find only weak statistical evidence that Morningstar’s highest-rated funds outperform the next-to-highest and median-rated funds. Their final conclusion is that

Morningstar ratings do only slightly better than alternative predictors in forecasting future mutual fund performance.

No Long-Term Persistence

Droms and Walker (2001a) test persistence of mutual fund returns, turnover rates, and expense ratios for a sample of 151 U.S. equity mutual funds that were in continuous operation over the entire 20-year period from 1971 to 1990. Their tests for long-term performance persistence (first ten years compared with second ten years) did not find any statistically significant evidence of long-term performance persistence. Droms and Walker also test for persistence of returns above the median fund and above the Standard & Poor’s 500 Index and find no evidence of long-term performance persistence above the median fund or above the S&P 500 index. But their tests of short-term performance persistence do find statistically significant short-term performance persistence for periods of one-, two-, and three- years. As noted earlier, consistent with the Malkiel results, Droms and Walker find short-term performance persistence to be stronger in the 1970s than in the 1980s and they hypothesize that these results may be related to the small-stock effect.

Droms and Walker (2001b) test for performance persistence of international mutual funds. Persistence tests are applied to a database consisting of all international equity mutual funds in existence over the 20-year period from 1977 to 1996. Including all funds minimizes survivor bias. The number of funds varies from a low of 11 in 1977 to a high of 473 in 1996, reflecting the extremely rapid growth of international funds over this period. The results show that mutual fund performance does persist over one-year periods, but does not persist over longer periods (two-, three-, and four-year lags). They also test investment strategies of investing in the ten best-performing international funds at the end of each year and rebalancing this portfolio at the end of each year versus investing in the ten worst-

performing funds at the end of each year. They find the performance difference between the best and worst portfolios to be rather large (approximately 3 percent a year in tests applied to two different data sources), but not statistically significant at the .05 level using standard t-tests for differences between the mean returns.

Carhart, Carpenter, Lynch, and Musto (2002) focus on mutual fund survivorship and the impact of survivorship bias on mutual fund performance studies. The results of their study that are relevant to performance persistence show that “survivor conditioning weakens evidence of performance persistence.” Their data set consists of all diversified U.S. equity funds minus sector and balanced funds over the 1962 to 1995 period [a revised and extended version of the data set employed in Carhart (1997)]. They test a total of 2,071 funds, of which 1,346 were still operating at the end of 1995 ($N = 465$ in 1962 to $N = 1,370$ in 1995). They find that the funds in their sample “disappear primarily because of multi-year poor performance.” They report “evidence of performance persistence in our sample and, consistent with the presence of a multi-period survival rule, we find that the persistence is weakened by survivor bias.” But they caution that “the evidence favoring persistence does not necessarily support the existence of skilled or informed portfolio managers,” and that Carhart’s 1997 paper demonstrates that “persistence is mostly explained by investment expenses.”

Long-Run Persistence?

Jan and Hung (2004) test for performance persistence using a very large sample of funds over a 40-year period. They use the January 1961 through June 2000 monthly equity fund returns from the CRSP Survivor-Bias Free U.S. Mutual Fund Database. For the entire period, this sample consists of returns on a total of 3,316 funds, including 1,068 aggressive growth funds, 1,021 growth and income funds, and 1,227 growth funds. They use the Carhart (1997)

model to adjust for risk, with risk-adjusted performance based on the intercept (Jensen's alpha) of Carhart's model. Their results confirm that "mutual funds with strong short- and long-run performance have strong subsequent-year performance. They note that their "findings are in keeping with several earlier studies of short-run persistence, such as Carhart (1997), Elton, Gruber, and Blake (1996), Goetzmann and Ibbotson (1994), and Hendricks, Patel, and Zeckhauser (1993)." Finally, they "conclude that investors can benefit from selecting mutual funds on the basis of both short- and long-run performance."

Bollen and Busse (2004), using daily mutual fund returns and quarterly measurement periods, conclude that "superior performance is a short-lived phenomenon that is observable only when funds are evaluated several times a year." Their sample consists of 236 U.S. equity mutual funds in existence in 1985 that had an investment objective of "maximum capital gains," "growth," or "growth and income." Performance is measured over the 1985 to 1995 period. They rank funds quarterly by abnormal returns and measure the performance of each decile in the following quarter. They find that "the average abnormal return of the top decile in the post-ranking quarter is 39 basis points. The post-ranking abnormal return disappears when funds are evaluated over longer time periods." They conclude that their "results suggest that superior performance is a short-lived phenomenon that is observable only when funds are evaluated several times a year."

The thrust of the Bollen and Busse results is that the slight performance persistence observed is likely to be too small to exploit profitably for most investors. They conclude that the economic significance of the post-ranking abnormal returns is questionable: "After taking into account transaction costs and taxes, investors may generate superior returns by following a naïve buy-and-hold approach rather than a performance-chasing strategy, even if short-term performance is predictable."

Performance Persistence Inferences

A number of conclusions, or at least inferences, can be drawn from the review of the foregoing performance persistence studies. Chief among these are:

Past performance counts. The studies reviewed present generally consistent evidence that past performance persists, at least in the short run. The studies find with remarkable consistency that superior performance in one year is predictive of superior performance in the following year. Furthermore, studies that test investment strategies of investing in the previous year's superior performing funds find that the superior performing funds outperform the funds in aggregate in the following year and that they substantially outperform portfolio of inferior-performing funds. In short, hot hands persist, albeit for short periods.

Poor past performance counts more than good past performance. Persistence of the "cold hand" phenomenon is the strongest and most consistent conclusion found in all of the major studies: poor past performance is a strong predictor of future poor performance. The contrarian investment strategy of investing in last year's poor performing funds with the expectation of a rebound in performance is shown to be a poor strategy.

Within-category performance is more persistent than performance relative to overall market. Mutual fund performance should be evaluated relative to a style-based benchmark rather than relative to the market in general when evaluating performance or performance persistence. It is quite likely, for example, that a superior-performing large-cap value fund would underperform the stock market in general in a year in which growth stocks outperform value stocks, even if the value fund consistently outperforms the average large-cap value fund. While performance relative to a style-based benchmark appears to represent "absolute" outperformance, the flip side of this observation is that much of the

observed persistence in equity fund performance relative to the overall market may be an artifact of asset class or style persistence.

Short-term performance persistence is much stronger than long-term persistence. The evidence is less clear on long-term performance as compared with short-term performance. The studies differ on whether performance persists in the long term, although the balance of the evidence leans in the direction of much weaker persistence or no persistence over longer periods.

International equity funds show very strong short-term performance persistence but no longer-term persistence. The one study specifically testing persistence of international equity funds finds highly significant performance persistence in for one-year holding periods, but no evidence of persistence for holding periods of two, three, or four years.

Findings of persistence may be sensitive to the period tested. The Brown and Goetzmann (1995), Malkiel (1995), and Droms and Walker (2001a) papers all find that performance persistence was much stronger during the 1970s than the 1980s. Droms and Walker hypothesize that these results may be related to the small-stock effect since small stocks outperformed the S&P 500 during 1971–1980 but underperformed the S&P 500 during 1981–1990. Because most equity mutual funds hold portfolios with average market capitalizations smaller than the average market capitalizations of the S&P 500, the stronger results in the 1970s may well be due to the persistence of superior performance by smaller-capitalization mutual funds. Regardless of the source of this phenomenon, evidence of persistence should be interpreted with some caution given the risk that persistence may be sensitive to a particular market environment.

Morningstar within-category ratings provide useful information for selecting mutual funds based on past performance. Morningstar star ratings for mutual funds are based solely on past perform-

ance. The Blake and Morey study of Morningstar ratings finds strong evidence that low Morningstar ratings are reliable predictors of future relative performance. They also find that four- and five-star rated funds outperform median funds in subsequent holding periods.

Implications for Mutual Fund Selection

The most important implication from performance persistence studies is that the historical performance of mutual funds contains useful information about future performance, at least for one-year holding periods. This is not to say that historical performance should be the sole or even primary criterion for selecting mutual funds, but it does recognize that past performance provides significant information about likely future performance. Winners in one year tend to remain winners in the following year and losers have an even stronger tendency to remain losers. In addition, the studies consistently find that investment strategies based on investing in portfolios of fund winners outperform the average fund as well as portfolios consisting of fund losers. These results tell us that historical performance can provide a useful screen to identify likely candidates for future investment as well as a list of likely candidates for avoidance or for sale if already held.

The results also demonstrate that performance should be judged against style-based market benchmark indexes. Combining these results with the Morningstar results tells us that the Morningstar star system, based on style-based comparisons, is a useful system to develop likely candidates for investment or avoidance. And, in fact, the results indicate that any screening system based on fund performance relative to an appropriate style-based index should provide useful lists of candidates for investment across the various investment styles.

Finally, the results demonstrate that sub-par performance in one year is an important red flag that, at a minimum, should alert mutual fund investors to the possibil-

ity of selling an underperforming fund. But since even those funds with excellent long-term performance almost always experience one or more years of sub-par performance, one-year of below-average performance should not be the sole or even the most important criterion for selling a fund, but at a minimum it should serve to raise a warning flag and identify funds that should be reviewed for appropriateness.

In summary, past performance, especially poor past performance, provides useful information about expected future performance, but clearly should not be the sole or even most important criterion for selecting a mutual fund. One year of poor performance is not necessarily a good reason to sell a fund, but it should motivate further review of the underlying reason for poor performance. Morningstar four- and five-star ratings contain valuable information, but one- and two-star ratings may well provide more reliable information about expected future (poor) performance.



Endnotes

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2. Investment Company Institute, 2005 *Mutual Fund Factbook*.

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