Dimensional

The Mutual Fund Landscape

2013

MANY MUTUAL FUND MANAGERS SPEND THEIR TIME AND RESOURCES IN A RACE WITH OTHER MARKET PARTICIPANTS TO IDENTIFY MISPRICING AND TRADE ON IT.

HOW DO MOST OF THEM PERFORM? DO THEIR EFFORTS ADD INVESTMENT VALUE? RESEARCH OFFERS INSIGHT INTO THESE QUESTIONS.

Surveying the landscape

Some people think that successful mutual fund investing is simply a matter of choosing a fund that has a winning track record. The financial media advance this view with features about top-performing funds and their star managers.

With such a large mutual fund universe in the US, investors can review historical returns and easily find a few mutual funds with impressive track records of outperformance. In hindsight, investors may feel that they should have recognized the winners in advance—and some people may decide to start choosing mutual funds based on their past returns.

But selecting a future winner is harder than it appears. The main reason is market competition. Many professional fund managers, along with millions of other market participants around the world, strive daily to identify mispriced securities and convert that knowledge into higher returns.

This intense market competition drives prices toward fair value, which heightens a fund manager's challenge to gain a persistent informational advantage over other market participants. In this fiercely competitive environment, mutual funds that search for mispriced securities face a steep uphill climb.

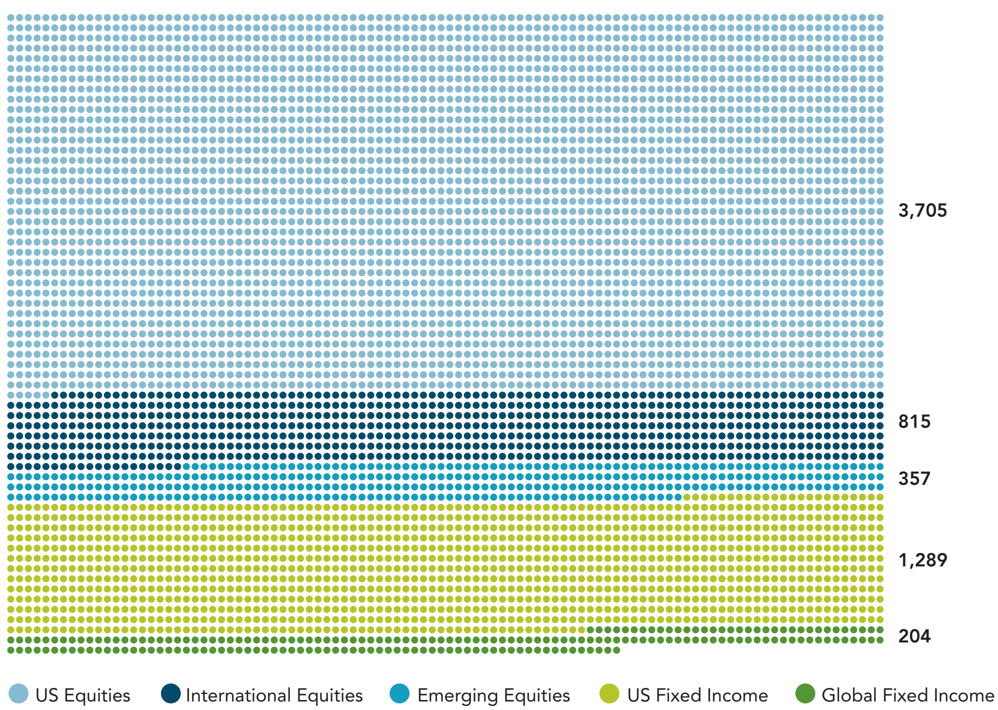
Figure 1.1 The US Mutual Fund Industry
Number of equity and fixed income funds, 2012

Number of funds as of December 2012. Assets under management as of the end of each December from 2003 to 2012.

International equities include all non-US developed funds.

Global fixed includes all non-US funds, both developed and emerging markets.

See Data appendix on page 12 for more information.



Studying the performance of the US mutual fund industry offers insight into a fund manager's struggle to add value consistently. The performance data reveals that few funds have delivered benchmark-beating returns over time, and it quantifies the difficulty of identifying winning fund managers in advance.

Let's consider the data in more detail.

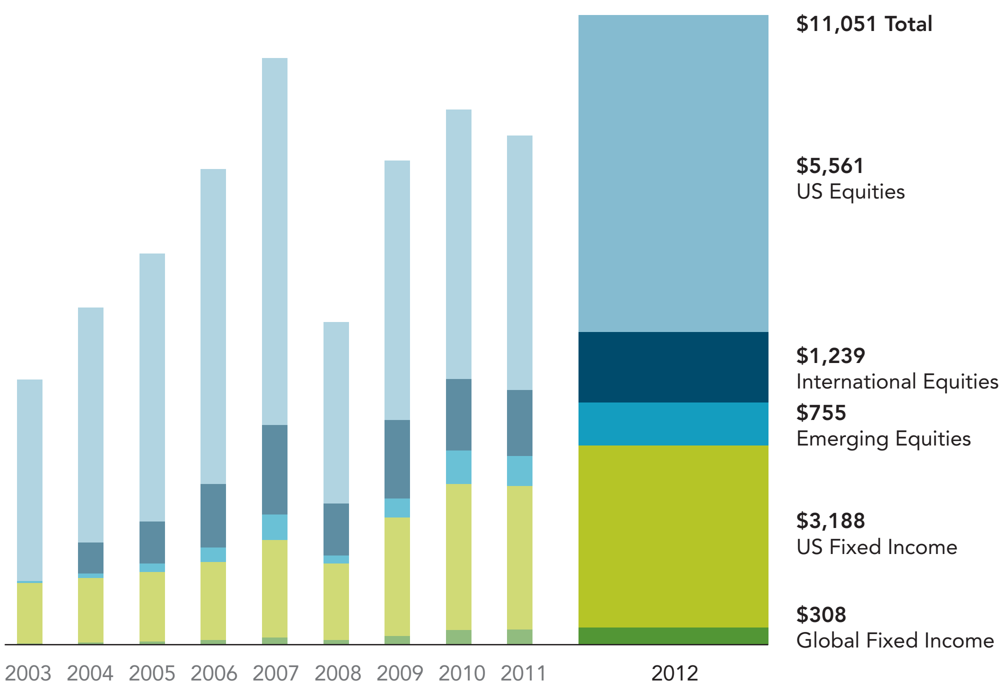
The US mutual fund industry comprises a large universe of funds covering securities markets around the world. These funds reflect diverse investment philosophies and approaches.

Figure 1.1 offers a snapshot of the industry in 2012, showing the number of US-domiciled equity and fixed income funds in operation at year-end. Figure 1.2 graphs the total value of assets under management in each of the past 10 years.

Combined, the figures describe a large and growing industry. The number of funds has increased almost 50% over the past decade, with assets exceeding $11 trillion as of 2012. The sheer size of the mutual fund universe highlights its importance as a conduit between investors and markets, but also illustrates the intense competition among managers for investor capital.

Weighing in at over $11 trillion, the US mutual fund industry is large—and intensely competitive.

Figure 1.2 The US Mutual Fund Industry
Assets under management (in USD billions)



A case of disappearing funds

The rising fund count and annual growth in assets mask the fact that many funds disappear each year, often as a result of poor investment performance.

The large gray boxes in Figures 2.1 and 2.2 represent the number of US-domiciled equity and fixed income funds in operation during the past one, five, and 10 years. These funds compose the beginning universe of each period. For example, an investor trying to select a mutual fund five years ago, at the start of 2008, could have chosen from more than 3,000 equity funds and more than 800 bond funds.

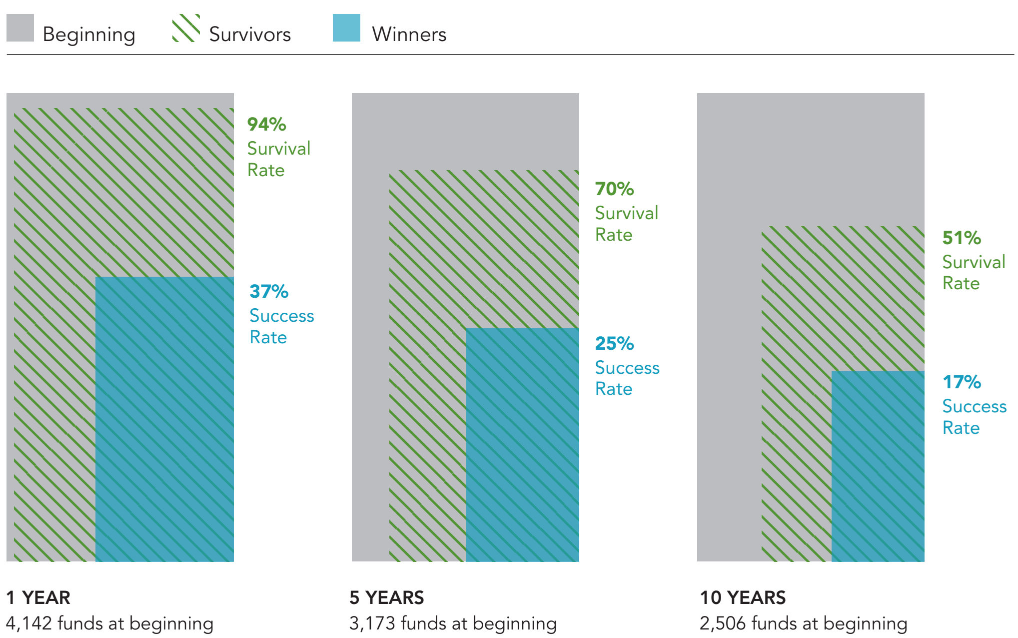
How many of these funds were still alive at the end of 2012? The striped areas show the proportion of the beginning funds that survived. During the one-year period, 6% of equity funds and 4% of fixed income funds closed up shop.

Over time, survival rates dropped sharply. In equities, the five- and 10-year survival rates were just 70% and 51%, respectively. The numbers were only slightly better in fixed income, with 75% of funds making it five years and 57% surviving 10 years.

Many investors are not aware of the poor survival rates of mutual funds. Funds tend to disappear quietly. The financial media devotes little attention to underperforming funds, especially ones that did not survive and are no longer available for investment.

Analysis shows that disappearing funds tend to be poor performers. Certainly, investors would like to identify dropout funds in advance and avoid them. But the reality is that everyone must

Figure 2.1 Survivorship and Outperformance — Equity Funds
Performance periods ending December 31, 2012



Beginning sample includes funds as of the beginning of the one-, five-, and 10-year periods ending in 2012. The number of funds as of the beginning of each sample time period is indicated below the period label.

Survivors are funds that are still in existence as of December 2012.

Winners are funds that survive and beat their respective benchmarks over the period.

Past performance is no guarantee of future results.

See Data appendix on page 12 for more information.

choose from a universe that includes funds that will not survive the period. Consequently, an accurate depiction of the fund selection challenge requires performance data from both surviving and non-surviving funds.

But investors want to do more than just pick a fund that survives. Most people are on a hunt for funds that will outperform a benchmark. What were the chances of picking a winning fund?

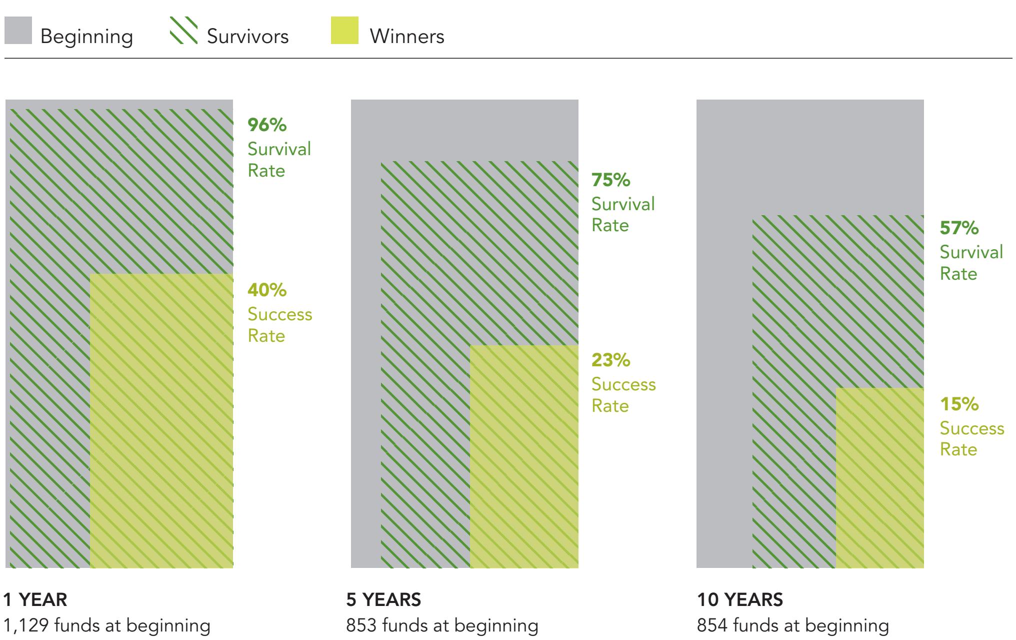
The blue and yellow shaded areas show the proportion of equity and fixed income funds that outperformed their respective benchmarks. These funds are certainly in the minority. Over both short and long time horizons—and for both equities and bonds—the deck is stacked against the investor seeking outperformance.

In 2012, 37% of equity and 40% of fixed income funds survived and outperformed their benchmark for the one-year period. The numbers are even worse for longer horizons. About one in four funds survived to provide benchmark-beating performance over the five years through 2012. Over 10 years, the figure dropped to one in six funds.

In the fiercely competitive mutual fund industry, many funds don't survive, but many more crop up to take their place. The free exit and entry supports a vast price discovery effort among managers, with the evidence suggesting reasonably fair market prices.

Outperformance is hard to come by. Only one in four funds survived and outperformed over the five-year period ending in 2012.

Figure 2.2 Survivorship and Outperformance — Fixed Income Funds
Performance periods ending December 31, 2012



The search for winners

The competitive landscape makes the search for future winners a formidable challenge. Confronted with so many fund choices—and lacking an investment philosophy to guide their search—some investors resort to picking funds that have strong track records, reasoning that past outperformers will continue to outpace their benchmarks.

Does this assumption pay off? The research offers strong evidence to the contrary.

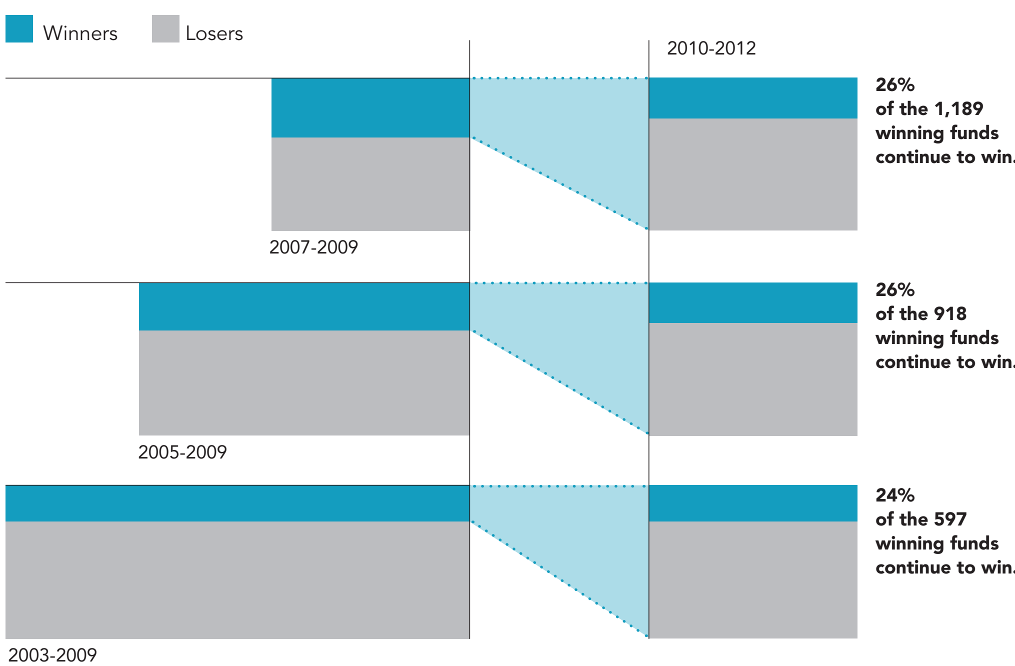
Figures 3.1 and 3.2 illustrate the lack of persistence in outperformance. Three-, five-, and seven-year mutual fund track records are evaluated as of December 2009.

Funds that beat their respective benchmarks are reevaluated in the subsequent three-year period ending December 2012.

Only about a quarter of the equity funds with past outperformance during the initial three-year period (2007–2009) continued to beat their benchmarks in the subsequent three-year period (2010–2012).

Longer track records do little to help investors identify future outperforming funds. The results for funds with good five- and seven-year track records were similar—only about a quarter beat their benchmarks in the subsequent period.

Figure 3.1 Do Winners Keep Winning? — Equity Funds
Past performance vs. subsequent performance



The sample includes funds at the beginning of the three-, five-, and seven-year periods, ending in December 2009.

The graph shows the proportion of funds that outperform and underperform their respective benchmarks.

Winner funds are reevaluated in the subsequent period from 2010 to 2012, with the graph showing the proportion of outperformance and underperformance among past winners.

Past performance is no guarantee of future results.

See Data appendix on page 12 for more information.

Track records for fixed income funds do not provide insight into future outperformance, either. The number of bond funds with good track records is sparse, with only about 100 funds showing benchmark-beating returns during the initial three-, five-, and seven-year performance periods. Only about half of these past winners continued to outperform in the subsequent three years.

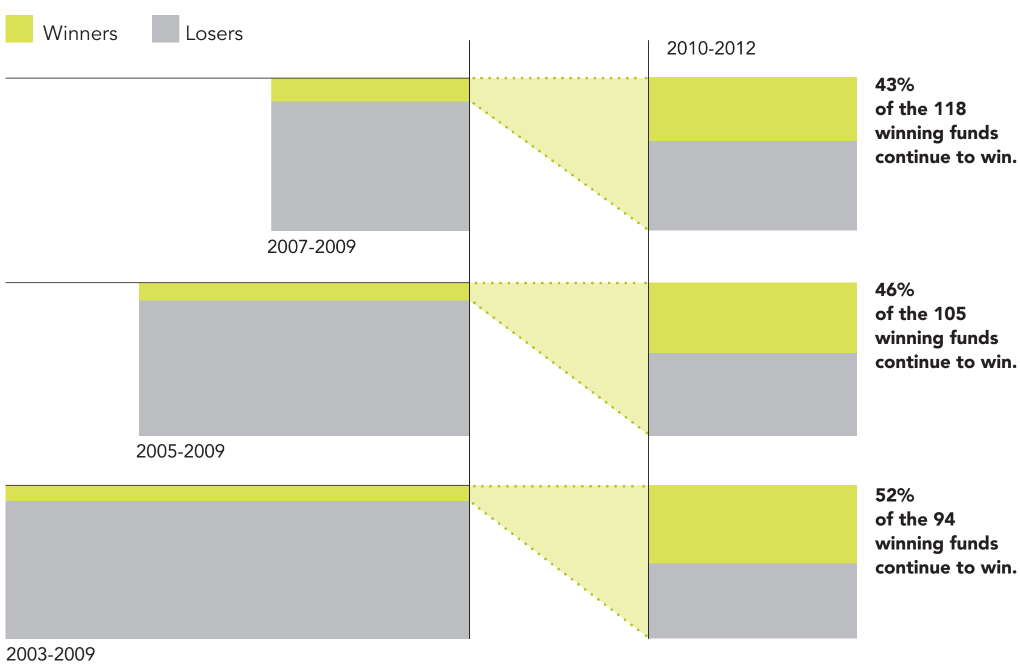
The results for both winning equity and fixed income funds show that past outperformance is no guarantee of future outperformance. Many equity and bond funds, even those with good track records, are likely to underperform their benchmarks.

This lack of persistence among winners suggests that gaining a consistent informational advantage is very difficult. Many smart professionals are striving to gather morsels of information to help them identify pricing mistakes. But this competition means that public information is reflected in market prices quickly, leaving few opportunities to exploit the knowledge for profit.

Some fund managers might be better than others, but they are hard to identify in advance. Stock and bond returns contain a lot of noise, and impressive track records often result from good luck. The assumption that past outperformance will continue often proves faulty, leading many investors to disappointment.

Many equity and bond funds, even those with good track records, are likely to underperform their benchmarks.

Figure 3.2 Do Winners Keep Winning? — Fixed Income Funds
Past performance vs. subsequent performance



The impact of costs

If competition drives prices to fair value, one might wonder why underperformance is so common. A major factor is mutual fund costs. Costs reduce an investor's net return and represent a hurdle for a fund. Before a fund can outperform, it must first add enough value to cover its costs.

All mutual funds incur costs. Some costs, such as expense ratios, are easily observed, while others are more difficult to measure. The question is not whether investors must bear some costs, but whether the costs are reasonable and indicative of the value added by a fund manager's decisions.

The data shows that many mutual funds are expensive to own and do not offer higher value for the higher costs incurred. Let's consider how one type of explicit cost—expense ratios—can impact fund performance.

In Figures 4.1 and 4.2, equity and fixed income funds in existence at the beginning of the one-, five-, and 10-year periods are ranked into quartiles based on their average expense ratio. Fund expense ratios range broadly. For the one-year period (2012), the median expense ratio was 1.1% for equities and 0.7% for fixed income.

Figure 4.1 High Costs Make Outperformance Difficult — Equity Funds
Winners and losers based on expense ratios (%)

The sample includes funds at the beginning of the one-, five-, and 10-year periods ending in 2012.

Funds are ranked into quartiles based on average expense ratio over the sample period, and performance is compared to their respective benchmarks.

The chart shows the proportion of winner and loser funds within each expense ratio quartile.

Past performance is no guarantee of future results.

See Data appendix on page 12 for more information.

In 2012, funds in the lowest quartile cost equity investors an average of 0.48%. The most expensive quartile, at 1.66%, had an average cost that was three times higher. The range is just as wide in fixed income, with the lowest quartile charging 0.30% vs. 1.16% for the highest quartile.

Are investors receiving a better experience from higher-cost funds? The charts suggest otherwise.

Especially over longer horizons, the cost hurdle becomes too high for most funds to overcome. Over the five-year period, 31% of the low-cost equity funds outperformed, vs. 17% of the high-cost funds. For 10 years, 21% of the low-cost funds outperformed, vs. only 10% of the high-cost funds.

The fixed income experience was similar. For the five-year period, 30% of the low-cost bond funds outperformed, vs. 15% of the high-cost funds. The pattern was even stronger in the 10-year numbers.

High fees have a draining effect on performance, and the data suggests that high fees help predict underperformance. The higher a fund's costs, the higher its return must be to stay competitive. Investors may be able to reduce the odds of picking a persistent loser by avoiding funds with high expense ratios.

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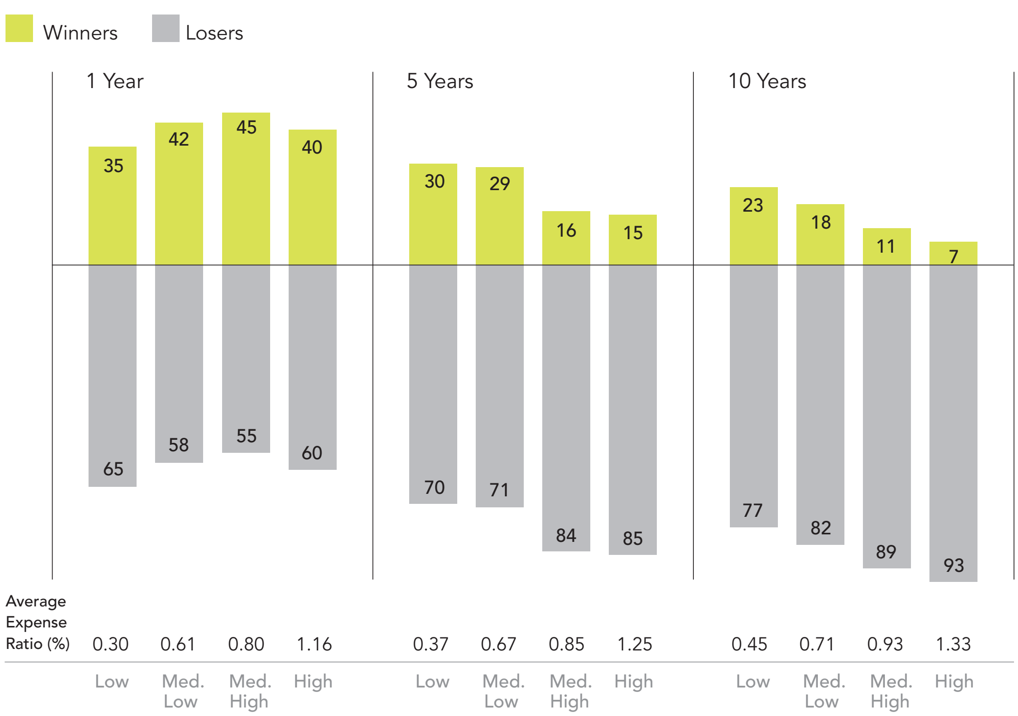
Figure 4.2 High Costs Make Outperformance Difficult — Fixed Income Funds

Winners and losers based on expense ratios (%)



The impact of costly turnover

Pay attention to trading costs—they can detract significantly from returns.

Other activities can add substantially to a mutual fund's overall cost burden. Equity trading costs, such as brokerage fees, bid-ask spreads,[1] and price impact, can be just as large as a fund's expense ratio. Trading costs are difficult to observe and measure, but they impact a fund's return nonetheless—and the higher these costs, the higher the outperformance hurdle.

In equity funds, portfolio turnover can offer a rough proxy for trading costs. Managers who trade frequently in their attempts to add value typically incur greater turnover and higher trading costs. Although turnover is just one way to approximate trading costs, the data shows that funds with higher turnover are more likely to underperform their benchmarks.

In Figure 5, equity funds existing at the beginning of the one-, five-, and 10-year periods are placed in quartiles based on their average turnover. Turnover varies dramatically across equity funds, reflecting many different management styles. For the most recent one-year period (2012), funds in the lowest quartile averaged 14.6% turnover. The average turnover for the highest quartile was 167.5%, more than 10 times higher.

The data shows that higher turnover is a drag on performance: Funds with more turnover have much lower rates of outperformance over longer investment horizons. For the lowest turnover group, 36% of funds managed to beat their benchmarks over the five-year period. This fraction dropped to just 12% for the funds with the highest turnover.

Figure 5 High Trading Costs Make Outperformance Difficult — Equity Funds
Winners and losers based on turnover (%)

The sample includes equity funds at the beginning of the one-, five, and 10-year periods ending in 2012.

Funds are ranked into quartiles based on average turnover during the sample period, and performance is compared to their respective benchmarks.

The chart shows the proportion of winner and loser funds within each turnover quartile.

Fixed income funds are excluded from the analysis because turnover is not a good proxy for fixed income trading costs.

Past performance is no guarantee of future results.

See Data appendix on page 12 for more information.

INVESTMENT LESSONS

This analysis of US mutual fund industry performance casts doubt on the ability of investors to form a winning long-term strategy by picking outperforming funds based on past returns. It also raises questions about the effectiveness of investment strategies that attempt to add value by identifying mispriced securities.

For the periods examined, mutual funds failed to deliver on most investors' expectations.

- **Outperforming funds were in the minority.**
- **Strong track records failed to persist.**
- **High costs and excessive turnover may have contributed to underperformance.**

Despite this evidence, many investors continue searching for winning mutual funds and look to past performance as the main criterion for evaluating a manager's future potential. In their pursuit of returns, many investors surrender value to the high costs of owning the mutual funds.

These results are consistent with a market equilibrium view of investing. Intense market competition drives securities prices to fair value, making it difficult to persistently add value by identifying mispriced securities. Despite the best efforts of many professionals working in the industry, the vast majority of funds fail to deliver on the promise of outperformance.

The strong evidence of underperformance among US mutual funds points to an important guiding investment principle: The capital markets do a good job of pricing securities, which makes beating benchmarks (and other investors) quite difficult. Moreover, fund managers face additional barriers as they try to outperform the market.

Choosing a long-term winner involves more than seeking out funds with a successful track record, as past performance offers no guarantee of a successful investment outcome in the future. Investors should consider other variables, including a mutual fund's underlying market philosophy, investment objectives, and strategy. Also consider a mutual fund's total costs, including trading costs, which may be impacted by the manager's approach.

Data appendix

Mutual fund data is from the CRSP Mutual Fund Database, provided by the Center for Research in Security Prices, University of Chicago.

Certain types of equity and fixed income funds were excluded from the performance study. For equities, sector funds and funds with a narrow investment focus, such as real estate and gold, were excluded. Money market funds, municipal bond funds, and asset-backed security funds were excluded from fixed income.

Funds are identified using Lipper fund classification codes and are matched to their respective benchmarks at the beginning of the sample periods. Winner funds are those whose cumulative return over the period exceeded that of their respective benchmark. Loser funds are funds that did not survive the period or whose cumulative return did not exceed their respective benchmark.

Expense ratio ranges — The ranges of expense ratios for equity funds over the one-, five-, and 10-year periods are 0.02% to 4.95%, 0.01% to 4.47%, and 0.02% to 4.43%, respectively. For fixed income funds, ranges over the same periods are 0.02% to 2.61%, 0.03% to 2.56%, and 0.10% to 2.32%, respectively.

Portfolio turnover ranges — Ranges for equity fund turnover over the one-, five-, and 10-year periods are 1% to 1,135%, 1% to 5,062%, and 1% to 2,447%, respectively.

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Benchmark indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio.

ENDNOTE

1. Bid-ask spread is the difference between the highest price that a buyer is willing to pay for an asset and the lowest price for which a seller is willing to sell it.

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Past performance is no guarantee of future results.