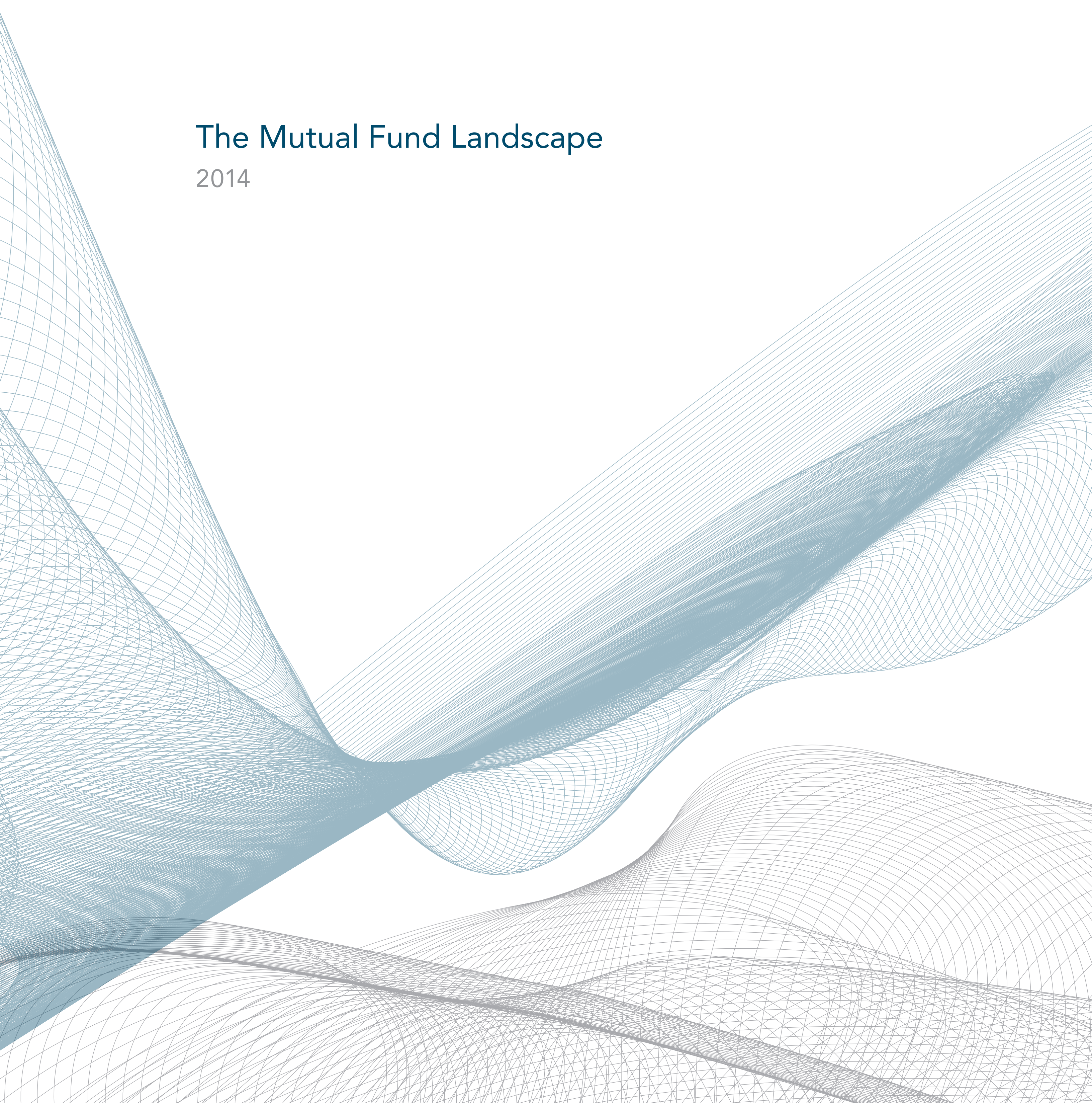
Dimensional

The Mutual Fund Landscape

2014



THE US MUTUAL FUND INDUSTRY COMPRISES A LARGE UNIVERSE OF FUNDS COVERING SECURITIES MARKETS AROUND THE WORLD. THESE FUNDS REFLECT DIVERSE PHILOSOPHIES AND APPROACHES.

HOW HAS THE INDUSTRY PERFORMED AS A WHOLE? WHAT SHOULD INVESTORS THINK ABOUT WHEN SELECTING FUNDS?

RESEARCH PROVIDES INSIGHT.

Surveying the landscape

Weighing in at over $9.1 trillion in 2013, the US mutual fund industry is large—and intensely competitive.

Mutual funds are a popular way to invest, offering shareholders professional management and the convenience of daily pricing, market liquidity, periodic reporting, and access to many investment styles and strategies.

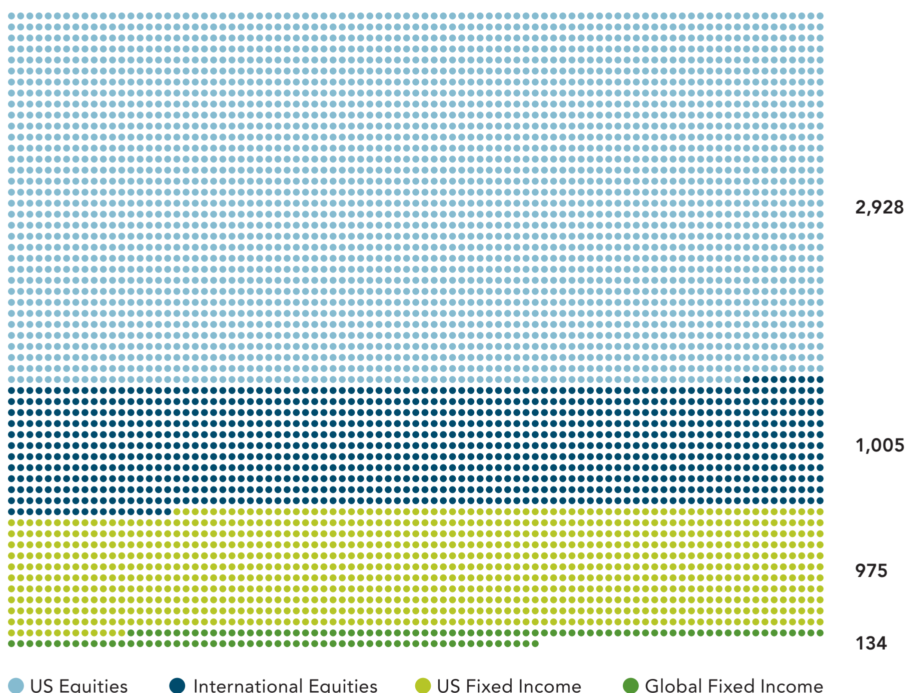
Exhibit 1.1 offers a snapshot of the US mutual fund industry in 2013, showing a category breakdown of US-domiciled equity and fixed income funds in operation at year-end. The industry has experienced strong growth in recent years. Since 2004, assets under management have grown 124%, and the number of funds has increased 31%. In 2013, over 5,000 US-based funds collectively managed about $9.1 trillion in shareholder wealth.

The sheer size of the industry both highlights its importance as a primary vehicle to connect investors with the financial markets and illustrates the intense competition among fund managers for investor capital.

Exhibit 1.2 (next page) shows the growth of wealth by fund category over the past decade. The chart suggests that in aggregate, mutual funds have rewarded investors with long-term capital appreciation. However, each category encompasses a wide range of outcomes for individual funds.

Funds differ in philosophies, approaches, and styles; these characteristics contribute

Exhibit 1.1 **The US Mutual Fund Industry**
Number of equity and fixed income funds, 2013



Number of funds as of December 2013. International equities and global fixed income include non-US developed and emerging markets funds in their respective categories.

See Data appendix for more information.

to fund performance and, ultimately, to the investor's experience. But selecting a successful fund manager is harder than it appears. The data shows that few mutual funds have delivered benchmark-beating returns over time. And although it is easy to find managers with impressive track records, past outperformance is rarely a reliable indicator of future performance.

The main reason is market competition. Each day, the global financial markets process millions of trades worth hundreds of billions of dollars. This trading aggregates vast amounts of dispersed information into prices, driving them toward fair value.

This is good news for long-term investors. Though the price of a stock or bond may not always be perfect, investors can regard that price as the best estimate of actual value. But fair pricing works against fund managers and other market participants who believe they can identify "mispriced" securities and convert their knowledge into higher returns.

With the market's pricing power at work, fund managers have few opportunities to gain an informational advantage, and most funds that search for mispriced securities face a steep uphill climb.

Let's consider some of these challenges in more detail.

Exhibit 1.2 **Growth of Wealth**
$1 invested by fund category, 2004-2013

Growth of wealth computed from 2004 to 2013 using the asset-weighted average fund returns in each asset class. In US dollars.

Past performance is no guarantee of future results.

See Data appendix for more information.

A case of disappearing funds

The size and complexity of the mutual fund landscape masks the fact that many funds disappear each year, often as a result of poor investment performance.

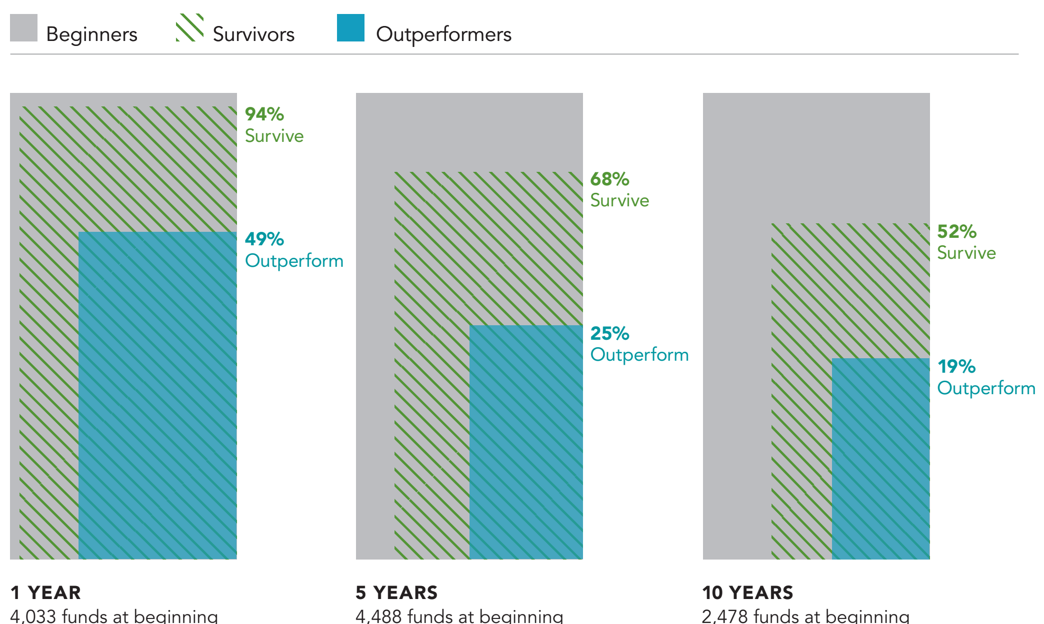
The large gray boxes in Exhibits 2.1 and 2.2 (next page) represent the number of US-domiciled equity and fixed income funds in operation during the past one, five, and 10 years. These funds compose the beginning universe of each period. For example, an investor trying to select a mutual fund at the start of 2012 could have chosen from more than 4,000 equity funds and more than 1,100 bond funds.

How many of the funds that began each period still existed at the end of 2013? The striped areas show the proportions that survived. During the one-year period, 6% of equity funds and 5% of fixed income funds ceased to operate. Over time, fund survival rates dropped sharply. In equities, the five- and 10-year survival rates were just 68% and 52%, respectively. The numbers were only slightly better in fixed income, with 76% of funds making it five years and 57% surviving 10 years.

Investors may be surprised by how many mutual funds become obsolete over time. Funds tend to disappear quietly, and underperforming funds—especially those that do not survive and are no longer available for investment—receive little attention.

Non-surviving funds tend to be poor performers. Certainly, investors would like to identify obsolete funds in advance and avoid them. But the reality is that

Exhibit 2.1 **Survivorship and Outperformance — Equity Funds**
Performance periods ending December 31, 2013



Beginning sample includes funds as of the beginning of the one-, five-, and 10-year periods ending in 2013. The number of beginners is indicated below the period label.

Survivors are funds that were still in existence as of December 2013. Non-survivors include funds that were either liquidated or merged.

Outperformers (winners) are funds that survived and beat their respective benchmarks over the period.

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See Data appendix for more information.

everyone must 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 likely have a more ambitious goal than to just pick a fund that survives. Most people are on a hunt for funds that will outperform a benchmark. What were their chances of picking an outperforming, or "winning" fund?

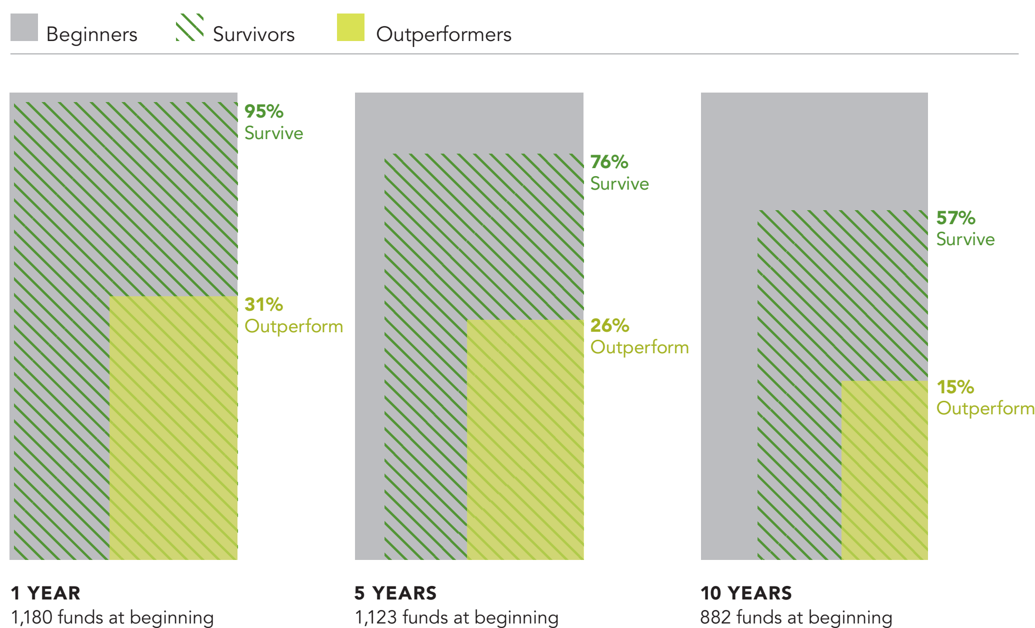
The blue and yellow shaded areas show the proportion of equity and fixed income funds that outperformed their respective benchmarks. These funds are certainly in the minority. Over both short and long time horizons—and for both equities and bonds—the deck is stacked against the investor seeking outperformance.

In 2013, only 49% of equity and 31% of fixed income funds survived and outperformed their benchmarks for the one-year period. While a year of data does not provide much information, fund performance results are even worse over longer horizons. Only about one in four equity and fixed income funds survived to provide benchmark-beating performance over the five years through 2013. Over 10 years, the ratio dropped to about one in five among equity funds and one in six among fixed income 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 about one in four equity and fixed income funds survived and outperformed over the five-year period ending in 2013.

Exhibit 2.2 **Survivorship and Outperformance — Fixed Income Funds**
Performance periods ending December 31, 2013



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 inform their search—some investors may resort to using track records as a guide to selecting funds, reasoning that a manager's past outperformance is likely to continue in the future.

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

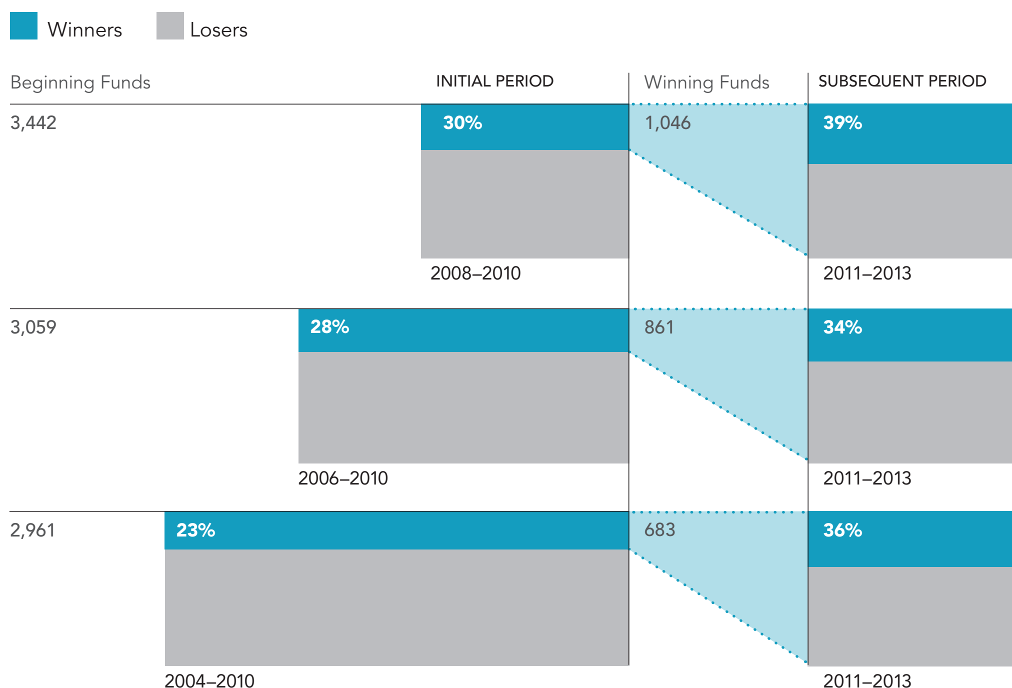
Exhibits 3.1 and 3.2 (next page) illustrate the lack of persistence in outperformance. Three-, five-, and seven-year mutual fund track records are evaluated through the end of 2010, and funds that beat their respective benchmarks are re-evaluated in the subsequent three-year period ending December 2013.

Less than a third of the beginning funds outperformed in the initial periods—and subsequent performance was not much better. For example, only 39% of the equity funds with past outperformance during the initial three-year period (2008–2010) continued to beat their benchmarks in the subsequent three-year period (2011–2013).

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 third beat their benchmarks in the subsequent period.

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 no more than 16%

Exhibit 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 2010.

The graph shows the proportion of funds that outperformed and underperformed their respective benchmarks (i.e., winners and losers) during the initial periods.

Winning funds were re-evaluated in the subsequent period from 2011 to 2013, with the graph showing the proportion of outperformance and underperformance among past winners. (Fund counts and percentages may not correspond due to rounding.)

Past performance is no guarantee of future results.

See Data appendix for more information.

of the beginning funds showing benchmark-beating returns during the initial three-, five-, and seven-year performance periods.

Only about half of the three- and five-year past winners continued to outperform in the subsequent three years, and 61% of the seven-year winners outperformed.

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 quickly reflected in market prices, 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 using track records alone. 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.

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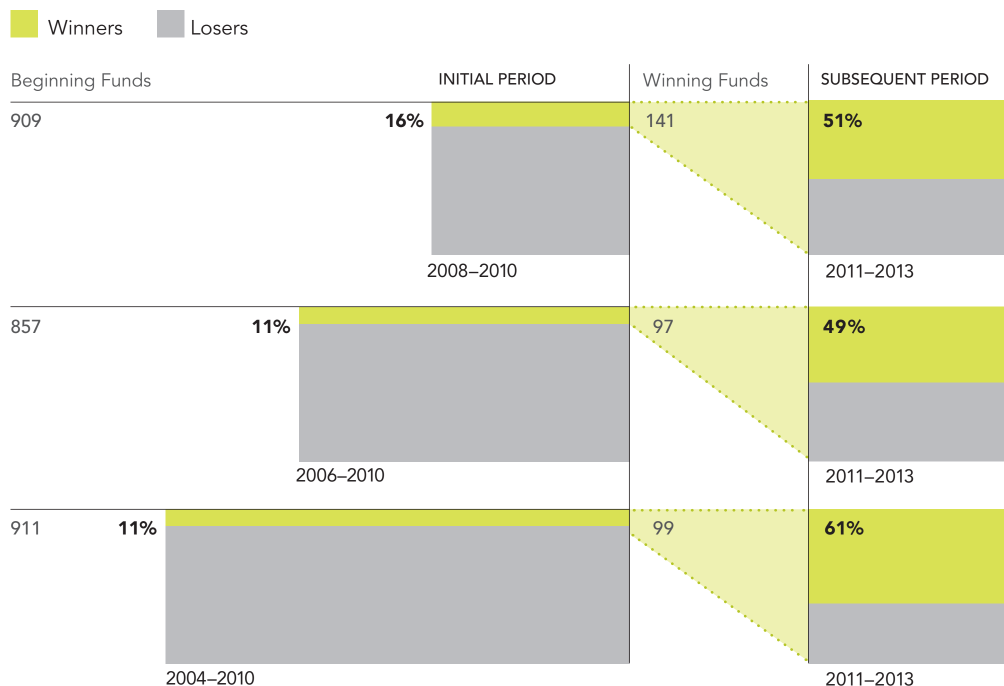
Exhibit 3.2 **Do Winners Keep Winning? — Fixed Income Funds**

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, including trading costs, 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 Exhibits 4.1 and 4.2 (next page), equity and fixed income funds in existence at the beginning of the one-, five-, and 10-year periods are ranked by quartiles based on their average expense ratio. Fund expense ratios range broadly. For the one-year period ending in 2013, the average expense ratio was 1.1% for equities and 0.7% for fixed income.

Exhibit 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 2013.

Funds are ranked by 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 for more information.

In 2013, funds in the lowest quartile cost equity investors an average of 0.47%. The most expensive quartile, at 1.66%, had an average cost that was more than three times higher. The range is just as wide in fixed income, with the lowest quartile charging 0.27% vs. 1.13% for the highest quartile in 2013.

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

Especially for longer horizons, the cost hurdle becomes too high for most funds to overcome. Over 10 years, 25% of the lower-cost equity funds outperformed, vs. only 9% of the higher-cost equity funds. Similarly, for fixed income, only 22% of the lower-cost funds and 6% of the higher-cost funds outperformed.

The data suggests that high fees can contribute to 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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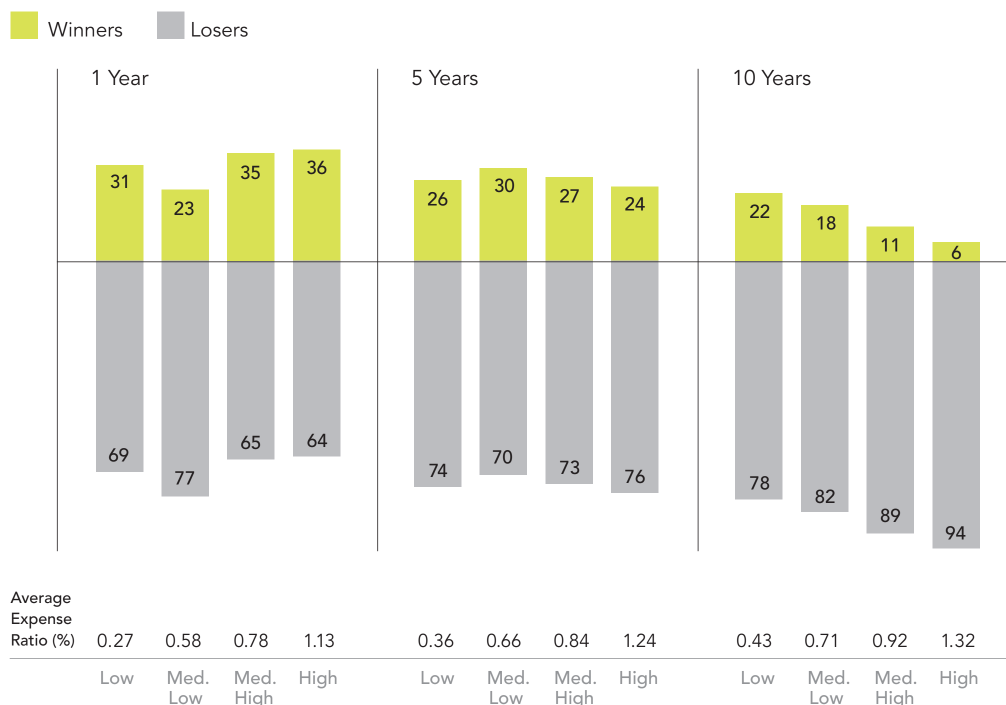
Exhibits 4.2 **High Costs Make Outperformance Difficult — Fixed Income Funds**
Winners and losers based on expense ratios (%)



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.

Among equity funds, portfolio turnover can offer a rough proxy for trading costs.[2] 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 Exhibit 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 (2013), funds in the lowest quartile averaged 13% turnover. The average turnover for the highest quartile was 159%, more than 12 times higher.

The data shows that higher turnover is a drag on performance: Funds with high turnover have much lower rates of outperformance over longer investment horizons. For the lowest-turnover group, 30% of funds managed to beat their benchmarks over the five-year period. This fraction dropped to just 16% for the funds with the highest turnover.

Exhibit 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 2013.

Funds are ranked by 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.

Past performance is no guarantee of future results.

See Data appendix for more information.

SUMMARY

This analysis of US mutual fund performance illustrates the obstacles confronting investors seeking outperforming funds.

For the periods examined, the research shows that:

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

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 outperform their benchmarks.

Although the odds are stacked against them, 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 performance to high fees, high turnover, and other costs of owning the mutual funds.

The underperformance of most US mutual funds highlights an important investment principle: The capital markets do a good job of pricing securities, which makes beating benchmarks (and other investors) quite difficult. Moreover, when fund managers charge high fees and trade frequently, they must overcome high cost 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. They should also consider a mutual fund's total costs, including trading costs, which may be affected by the manager's approach.

Data appendix

US-domiciled mutual fund data is from the CRSP Survivor-Bias-Free US 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 4.93%, 0.01% to 4.74%, and 0.02% to 4.44%, respectively. For fixed income funds, ranges over the same periods are 0.02% to 3.27%, 0.01% to 2.53%, and 0.05% to 2.43%, respectively.

Portfolio turnover ranges: Ranges for equity fund turnover over the one-, five-, and 10-year periods are 1% to 1,315%, 1% to 3,452%, and 1% to 3,552%, respectively.

Benchmark data provided by Barclays, MSCI, and Russell. Barclays data provided by Barclays Bank PLC. MSCI data © MSCI 2014, all rights reserved. Russell data © Russell Investment Group 1995–2014, all rights reserved.

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

ENDNOTES

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

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