Investment Lessons from Mutual Fund Performance

2013 report

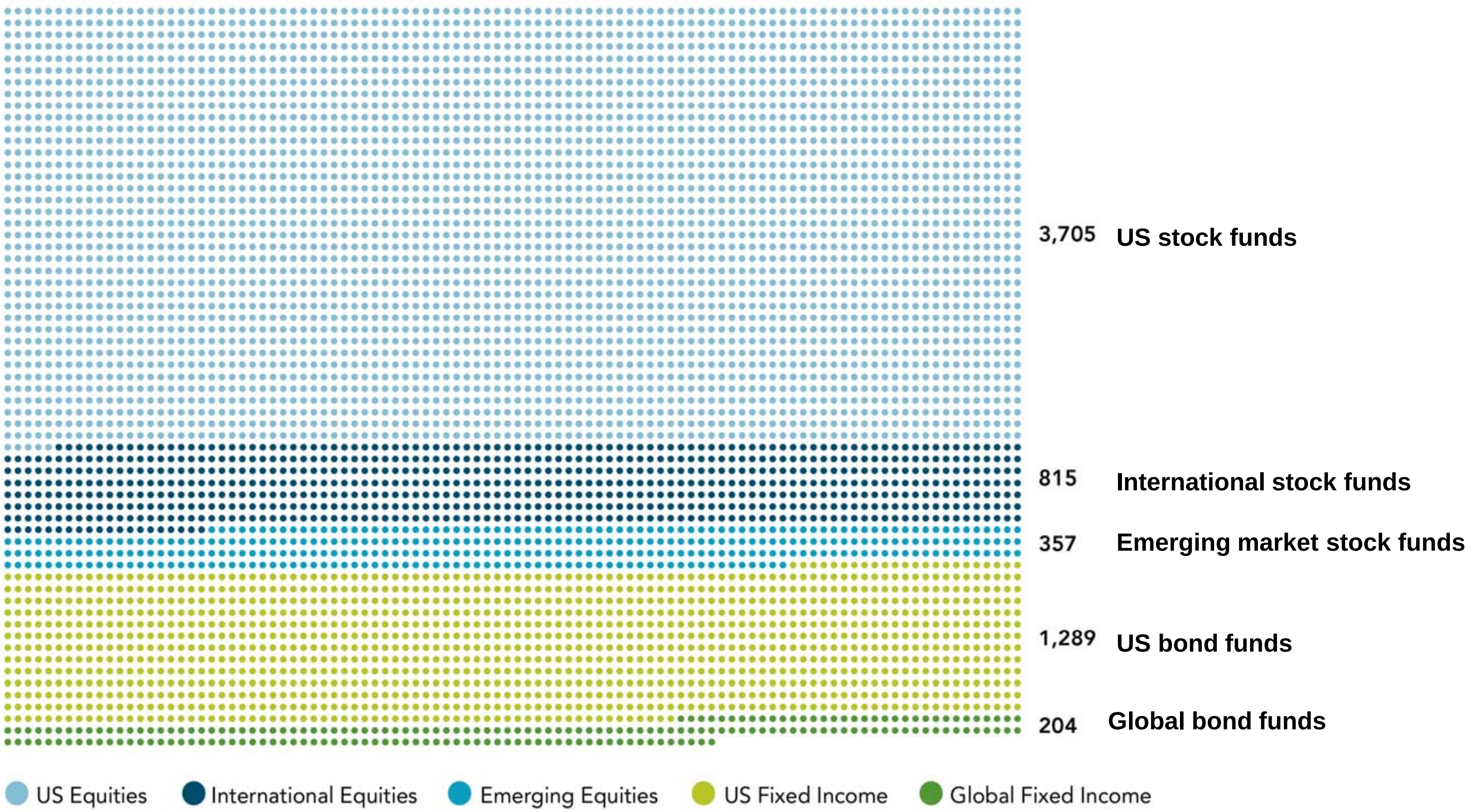
Lessons

- **Investing is not about chasing past success.** Successful mutual fund investing is not simply a matter of choosing a fund that has a winning track record, despite financial media features on top-performing funds and their star managers.
- **The quest for outperformance faces high hurdles.** Fierce competition by investors to buy bargain stocks and bonds and sell/avoid overpriced stocks and bonds makes it difficult for funds to outperform their benchmarks.
- **Most funds underperform.**
    - High fund management costs drag performance down unless offset by great stock/bond picking and timing.
    - Excessive stock turnover (short holding periods) can translate to higher transaction costs and raise prices for large purchases and lower prices for large sales.
- **Persistent success is unreliable.** Even if you are able to identify a fund that beats its benchmark, the odds that superior performance will persist are low. The question of whether a fund manager is skillful or lucky is always present.
- **There is a better way.** Focus on fund costs, tax efficiency, attention to fundamental drivers of performance (or risk factors), and strategies rather than past performance.

The US Mutual Fund Industry

Number of stock (equities) and bond (fixed income) funds, 2012

- Professional managers of 4,577 stock funds and 1,493 bond funds are in constant search of mispriced securities. Identifying which manager will outperform in advance is the challenge.

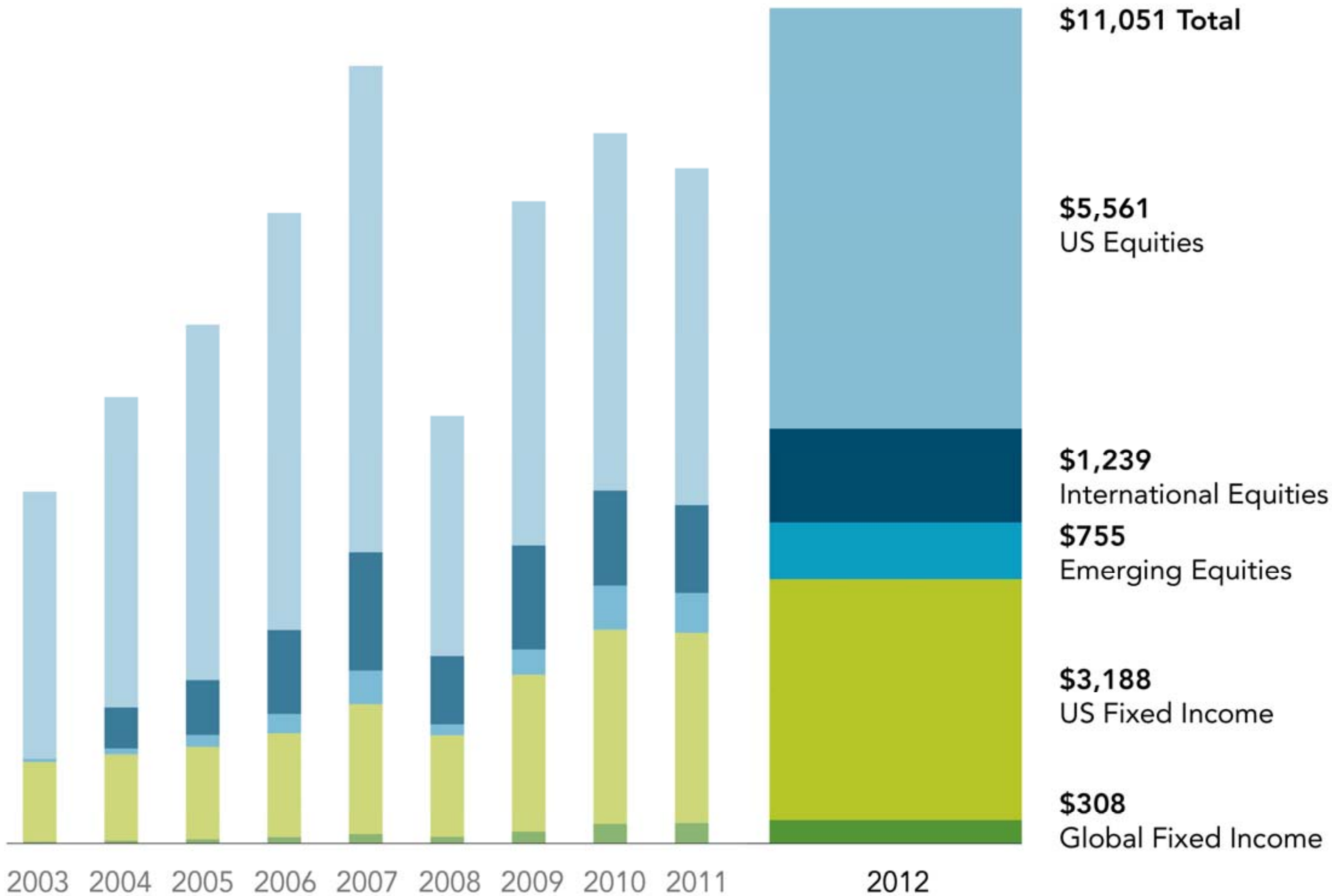


Number of funds as of December 2012. International equities include all non–US developed funds. Global fixed includes all non-US funds in both developed and emerging markets. See Data Appendix for more information. Source: CRSP data provided by the Center for Research in Security Prices, University of Chicago. Past performance is no guarantee of future results.

The US Mutual Fund Industry

Assets under management (in USD billions), 2003–2012

- With over $11 trillion under management, the US fund industry competes fiercely for investor capital.



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 for more information. Data provided by the CRSP Mutual Fund Database. Source: CRSP data provided by the Center for Research in Security Prices, University of Chicago. Past performance is no guarantee of future results.

Competition forces stock funds to close/merge; a minority outperforms

Performance periods ending December 31, 2012—stock funds

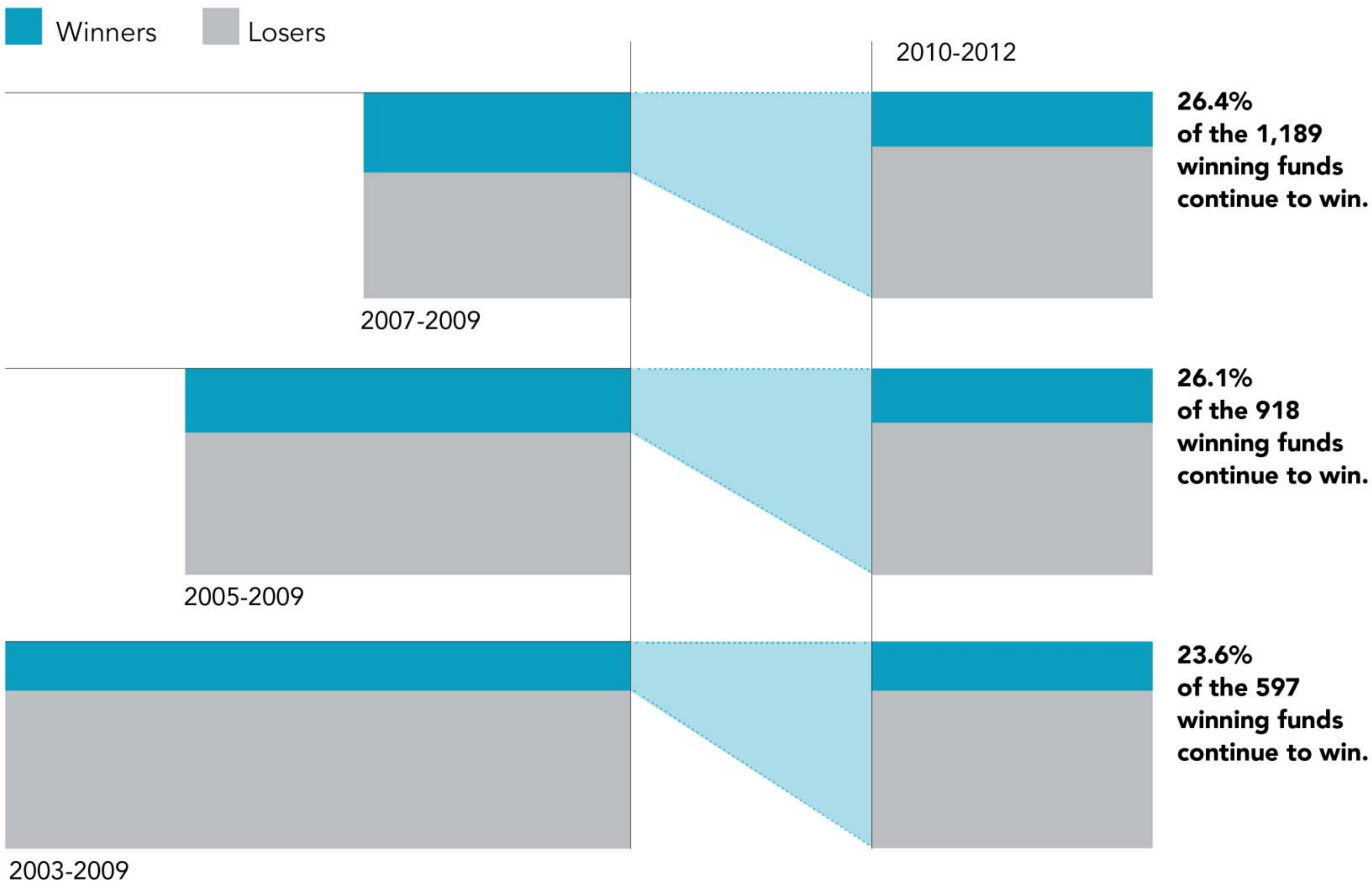
- Fund survival rates decline over time.
- Funds succeeding in outperforming their benchmarks index also decline over time.

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 survived and beat their respective benchmarks over the period. See Data Appendix for more information. Data provided by the CRSP Mutual Fund Database. Source: CRSP data provided by the Center for Research in Security Prices, University of Chicago. Past performance is no guarantee of future results.

Luck or skill? Winning stock funds are hard to identify in advance

Past performance vs. subsequent performance—stock funds

- Starting in 2007, 2005, and 2003, a minority beat their benchmarks (descending blue areas in right box) over the next three, five, and seven years, respectively. Of those, only about 1 in 4 continued to win over the three years of 2010–2012 (blue areas in left box).



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. See Data Appendix for more information. Data provided by the CRSP Mutual Fund Database. Source: CRSP data provided by the Center for Research in Security Prices, University of Chicago. Past performance is no guarantee of future results.

Bond fund outperformance is hard to come by

Performance periods ending December 31, 2012—bond funds

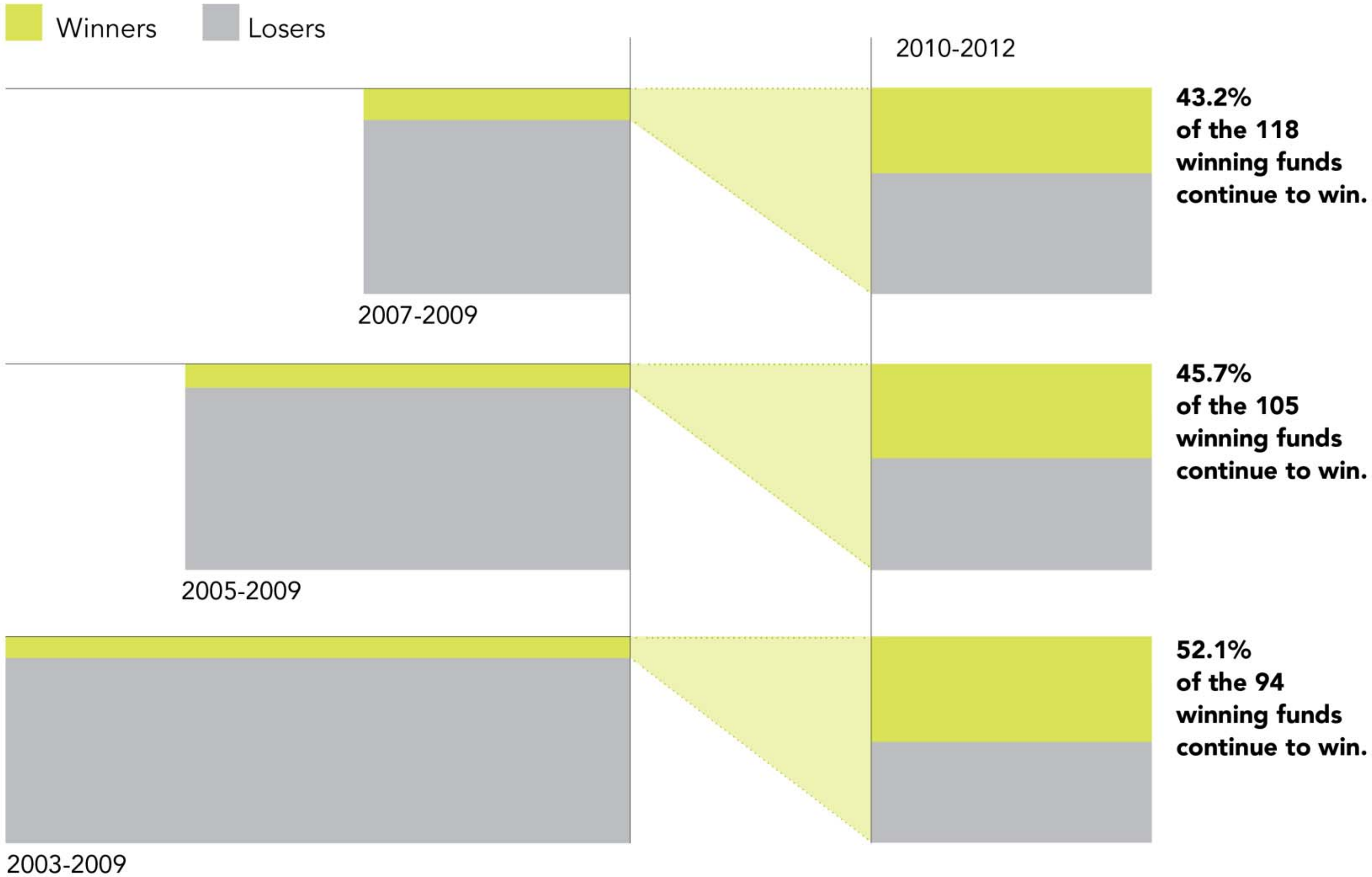
- Only 23% and 15% survived and outperformed in the five-year and ten-year periods ending in 2012 . . . tough odds to pick a long-term winner.

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. See Data Appendix for more information. Data provided by the CRSP Mutual Fund Database. Source: CRSP data provided by the Center for Research in Security Prices, University of Chicago. Past performance is no guarantee of future results.

Do Bond Fund Winners Keep Winning?

Past performance over 3, 5, 7 years on left vs. 3-year performance on right

- Starting in 2007 even fewer bond than stock funds beat their benchmarks (green area in right box) over the next three years and, of those, 43% continued to win over the three years of 2010–2012 (green area in left box) as shown in top level below.



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High Costs Make Stock Fund Outperformance Difficult

Winners and losers based on expense ratios (%)

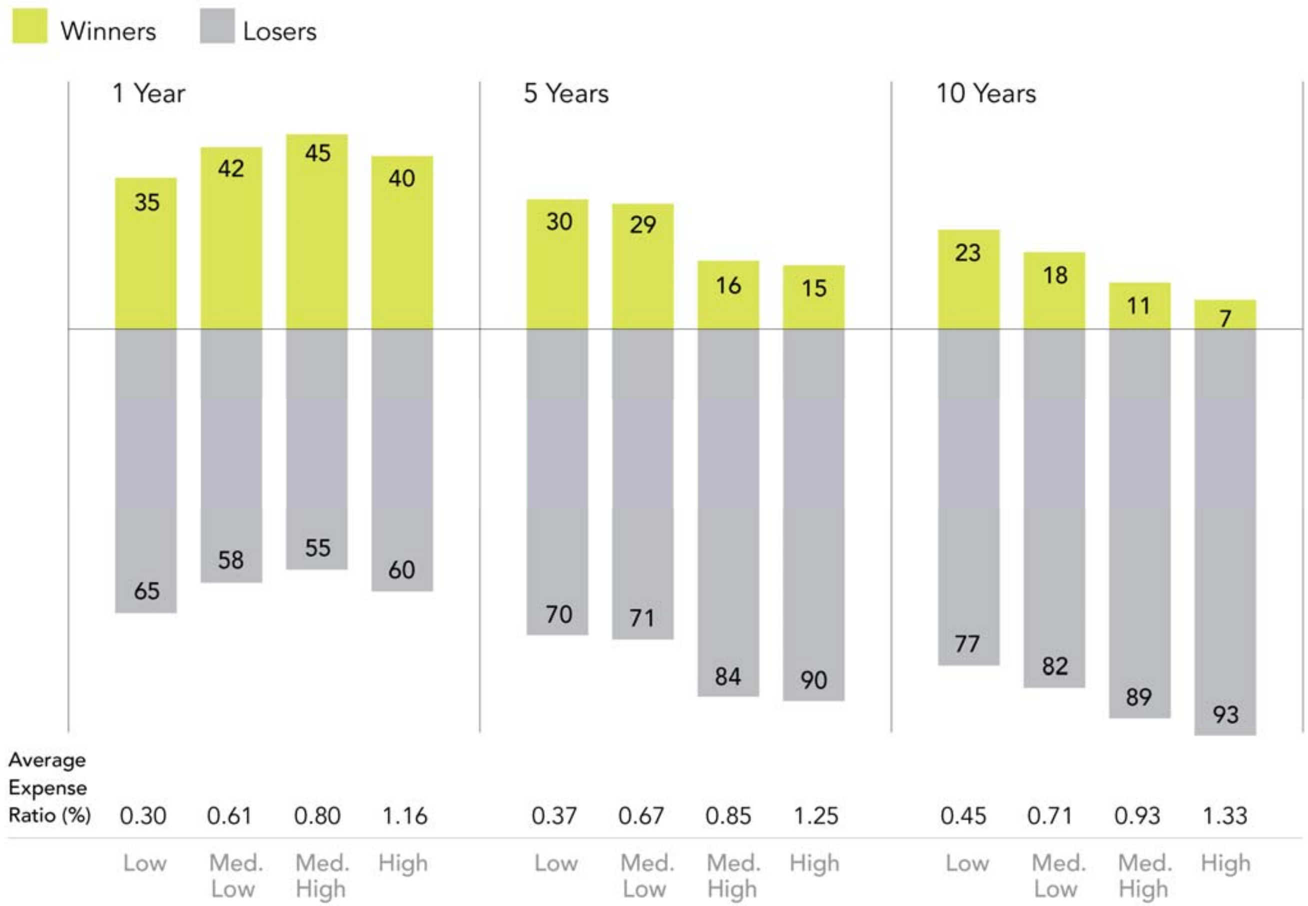
- Low-cost funds during the five years of 2008–2012 (middle section of chart below).
  - 31% of low-cost funds (expense ratio of .56% on average) outperformed their benchmarks.
  - 17% of high-cost funds (expense ratio of 1.76% on average) outperformed their benchmarks.

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. See Data Appendix for more information. Data provided by the CRSP Mutual Fund Database. Source: CRSP data provided by the Center for Research in Security Prices, University of Chicago. Past performance is no guarantee of future results.

High Costs Make Bond Fund Outperformance Difficult

Winners and losers based on expense ratios (%)

- Low-cost funds during the five years of 2008–2012 (middle section of chart below).
  - 30% of low-cost funds (expense ratio of .37% on average) outperformed their benchmarks.
  - 15% of high-cost funds (expense ratio of 1.25% on average) outperformed their benchmarks.



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High Trading Costs Make Outperformance Difficult

Winners and losers based on turnover (%)—equity funds

The percentage of holdings changing in a year are directly related to turnover and trading costs. In the five- and ten-year periods below, as turnover increases, the number of winning funds declines.

- Turnover of 25% translates to a holding period of 4 years (1/.25) whereas a holding period of 200% translates to a holding period of a half year (1/2.0).

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. See Data Appendix for more information. Data provided by the CRSP Mutual Fund Database. Source: CRSP data provided by the Center for Research in Security Prices, University of Chicago. Past performance is no guarantee of future results.

Data Appendix

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.

Research conducted by Dimensional Fund Advisors LP. 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 benchmarks. Loser funds are funds that did not survive the period or whose cumulative return did not exceed their respective benchmarks.

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.

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

Mutual fund investment values will fluctuate, and shares, when redeemed, may be worth more or less than original cost. Diversification neither assures a profit nor guarantees against a loss in a declining market.
Past performance is no guarantee of future results.