

Total Cost of Ownership

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Costs matter. Whether you're buying a car or selecting an investment strategy, the costs you expect to pay are likely to be an important factor in making any major financial decision.

People rely on a lot of different information about costs to help inform these decisions. When you buy a car, for example, the sticker price indicates approximately how much you can expect to pay for the car itself. But the costs of car ownership do not end there. Taxes, insurance, fuel, routine maintenance, and unexpected repairs are also important considerations in the overall cost of a car. Some of these costs are easily observed, while others are more difficult to assess. Similarly, when investing in mutual funds, different variables need to be considered to evaluate how cost-effective a strategy may be for a particular investor.

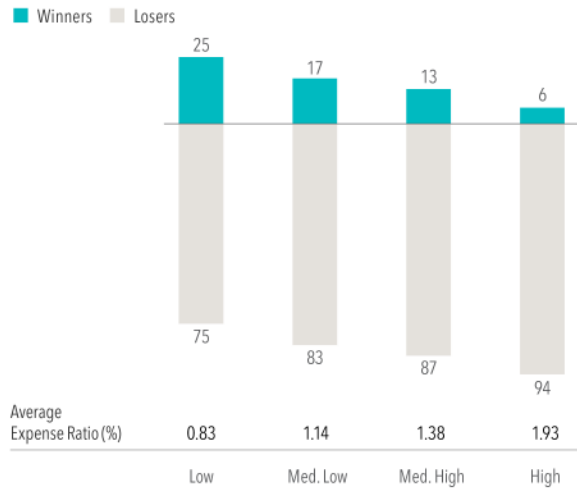
EXPENSE RATIOS

Mutual funds have many costs, all of which affect the net return to investors. One easily observable cost is the expense ratio. Like the sticker price of a car, the expense ratio tells you a lot about what you can expect to pay for an investment strategy. Expense ratios strongly influence fund selection for many investors, and it's easy to see why.

Exhibit 1 illustrates the outperformance rate, or the percentage of funds that beat their category index, for active equity mutual funds over the 15-year period ending December 31, 2017. To see the link between expense ratio and performance, outperformance rates are shown for quartiles of funds sorted by their expense ratio. As the chart shows, while active funds have mostly lagged indices across the board, the outperformance rate has been inversely related to expense ratio. Just 6% of funds in the highest expense ratio quartile beat their index, compared to 25% for the lowest expense ratio group.

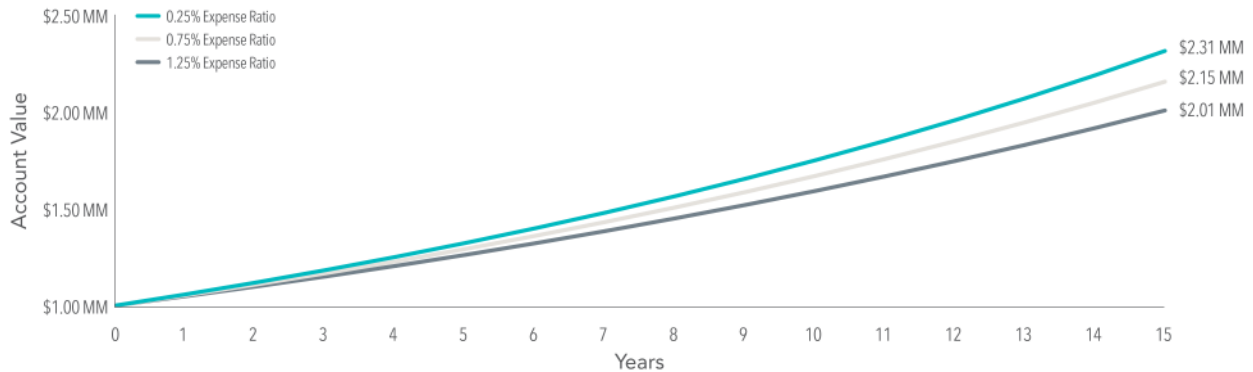
This data indicates that a high expense ratio presents a challenging hurdle for funds to overcome, especially over longer time horizons. From the investor's point of view, an expense ratio of 0.25% vs. 1.25% means savings of \$10,000 per year on every \$1 million invested. As **Exhibit 2** helps to illustrate, those dollars can really add up over time.

Exhibit 1. High Costs Can Reduce Performance, Equity Fund Winners and Losers Based on Expense Ratios (%)



The sample includes funds at the beginning of the 15-year period ending December 31, 2017. Funds are sorted into quartiles within their category based on average expense ratio over the sample period. The chart shows the percentage of winner and loser funds by expense ratio quartile; winners are funds that survived and outperformed their respective Morningstar category benchmark, and losers are funds that either did not survive or did not outperform their respective Morningstar category benchmark. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. Equity fund sample includes the Morningstar historical categories: Diversified Emerging Markets, Europe Stock, Foreign Large Blend, Foreign Large Growth, Foreign Large Value, Foreign Small/Mid Blend, Foreign Small/Mid Growth, Foreign Small/Mid Value, Japan Stock, Large Blend, Large Growth, Large Value, Mid-Cap Blend, Mid-Cap Value, Miscellaneous Region, Pacific/Asia ex-Japan Stock, Small Blend, Small Growth, Small Value, and World Stock. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classifications" at morningstardirect.morningstar.com/clientcomm/Morningstar_Categories_US_April_2016.pdf. Index funds and fund-of-funds are excluded from the sample. The return, expense ratio, and turnover for funds with multiple share classes are taken as the asset-weighted average of the individual share class observations. For additional methodology, please refer to Dimensional Fund Advisors' brochure, Mutual Fund Landscape 2018. Past performance is no guarantee of future results.

Exhibit 2. Hypothetical Growth of \$1 Million at 6%, Less Expenses



For illustrative purposes only and not representative of an actual investment. This hypothetical illustration is intended to show the potential impact of higher expense ratios and does not represent any investor's actual experience. Assumes a starting account balance of \$1 million and a 6% compound annual growth rate less expense ratios of 0.25%, 0.75%, and 1.25% applied over a 15-year time horizon. Performance of a hypothetical investment does not reflect transaction costs, taxes, other potential costs, or returns that any investor would have actually attained and may not reflect the true costs, including management fees of an actual portfolio. Actual results may vary significantly. Changing the assumptions would result in different outcomes. For example, the savings and difference between the ending account balances would be lower if the starting investment amount were lower.

GOING BEYOND THE EXPENSE RATIO

The poor track record of mutual funds with high expense ratios has led many investors to select mutual funds based on expense ratio alone. However, as with a car's sticker price, an expense ratio is not an all-encompassing measure of the cost of ownership. Take, for example, index funds, which often rank near the bottom of their peers on expense ratio.

Index funds are designed to track or match the components of an index formed by an index provider, such as Russell or MSCI. Important decisions in the investment process, such as which securities to include in the index, are outsourced to an index provider and are not within the fund manager's discretion. For example, the prescribed reconstitution schedule for an index, which is the process of deleting or adding certain stocks to the index, may cause index funds to buy stocks when buy demand is high and sell stocks when buy demand is low. This price-insensitive buying and selling may be required so that the index fund can stay true to its investment mandate of tracking an underlying index. This can result in sub-optimal transaction prices for the index fund and diminished overall returns. In other words, for a given amount of trading (or turnover), the cost per unit of trading may be higher for such a strictly regimented approach to investing. Moreover, this cost will not appear explicitly to investors assessing such a fund on expense ratio alone. Further, because indices are reconstituted infrequently (typically once per year), funds seeking to track them may also be forced to buy and sell holdings based on stale eligibility criteria. For example, the characteristics of a stock considered value¹ as of the last reconstitution date may change over time, but between reconstitution dates, those changes would not affect that stock's inclusion or weighting in a value index. That means incoming cash flows to a value index fund could actually be used to purchase stocks that currently look more like growth stocks² and vice versa. Metaphorically, these managers' attention may be more focused on the rear-view mirror than on the road ahead for investors.

For active approaches like stock picking, both the total amount of trading and the cost per trade may be high. If a manager trades excessively or inefficiently, costs like commissions and price impact from trading can eat away at returns. Viewed through the lens of our car analogy, this impact is like the toll on your vehicle from incessantly jamming the brakes or accelerating quickly. Subjecting the car to such treatment may result in added wear and tear and greater fuel consumption, increasing your total cost of ownership. Similarly, excessive trading can lead to negative tax consequences for a fund, which can increase the cost of ownership for investors holding funds in taxable accounts. Such trading costs can be reduced by avoiding unnecessary turnover and seeking to minimize the cost per trade.

In contrast to both highly regimented indexing and high-turnover active strategies, employing a flexible investment approach that reduces the need for immediacy, and thus enables opportunistic execution, is one way to potentially reduce implicit costs. Keeping turnover low, remaining flexible, and transacting only when the potential benefits of a trade outweigh the costs can help keep overall trading costs down and help reduce the total cost of ownership.

CONCLUSION

The total cost of ownership of a mutual fund can be difficult to assess and requires a thorough understanding of costs beyond what an expense ratio can tell investors on its own. We believe investors should look beyond any one cost metric and instead evaluate the total cost of ownership of an investment solution.

Source: Dimensional Fund Advisors LP.

There is no guarantee investment strategies will be successful. Diversification does not eliminate the risk of market loss. Mutual fund investment values will fluctuate and shares, when redeemed, may be worth more or less than original cost. The types of fees and expenses will vary based on investment vehicle. Investments are subject to risk including possible loss of principal.

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1. A stock trading at a low price relative to a measure of fundamental value, such as book value or earnings.
 2. A stock trading at a high price relative to a measure of fundamental value, such as book value or earnings.