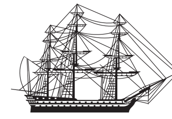

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The case for low-cost index-fund investing

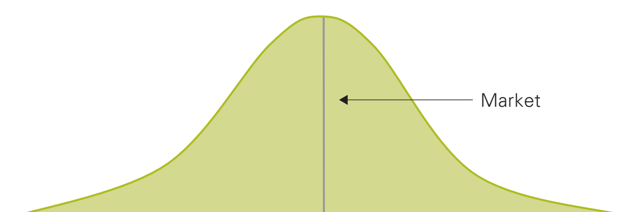
Advisor brief

September 2016

The central concept underlying the case for index-fund investing is that of the zero-sum game. This theory states that, at any given time, the market consists of all the holdings of all investors, and that the total market return is equal to the asset-weighted return of all investors. As a result, for every invested pound that outperforms the total market over a given period, there must by definition be another pound that underperforms.[1]

Figure 1 illustrates the concept of the zero-sum game. The total of all investors' returns form a bell curve, with the market return as the average. Note that this concept does not depend on any degree of market efficiency; the zero-sum game applies to markets thought to be less efficient (such as small-cap and emerging market equities) as readily as to those widely regarded as efficient (Waring and Siegel, 2005).

Figure 1. Market participants' asset-weighted returns from a bell curve around market's return



Source: Vanguard.

Some investors may still find active management appealing, as it seemingly provides an even-odds chance of outperforming. However, the costs of investing make outperforming the market significantly more difficult than the gross-return distribution would imply.

Effect of costs

The zero-sum game discussed here describes a theoretical cost-free market. In reality, however, investors are subject to costs. These costs include management fees, bid-ask spreads, administrative costs, commissions, market impact and, where applicable, taxes – all of which can be significant and reduce investors' net returns over time. The impact of these costs shifts the return distribution to the left.

Figure 2 shows two different investments compared to the market. The first is an investment with low costs, represented by the red line. The second is a high-cost investment, represented by the green line. As the figure shows, although both investments move the return curve to the left – meaning fewer assets outperform – the high-cost investment moves the return curve much farther to the left, making outperformance compared to both the market and the low-cost investment much less likely. In other words, after accounting for costs, the total performance of investors is less than zero sum. As costs increase, the performance deficit becomes larger, and the likelihood of underperformance increases until significant underperformance becomes as likely, or more likely, than even minor outperformance.

1 This brief references the research paper 'The case for low-cost index fund investing' by Garrett L. Harbron, Daren R. Roberts and Peter Westaway, issued by Vanguard Asset Management, September 2016. The full research paper is available on the financial adviser website.

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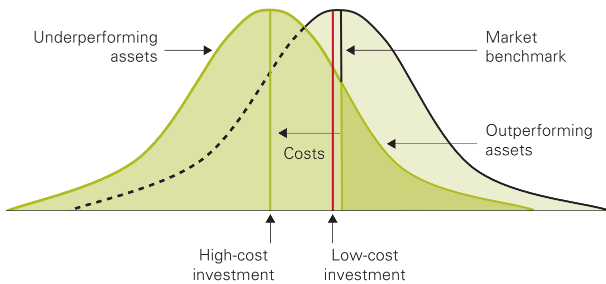
Figure 2. Market participant returns after adjusting for costs



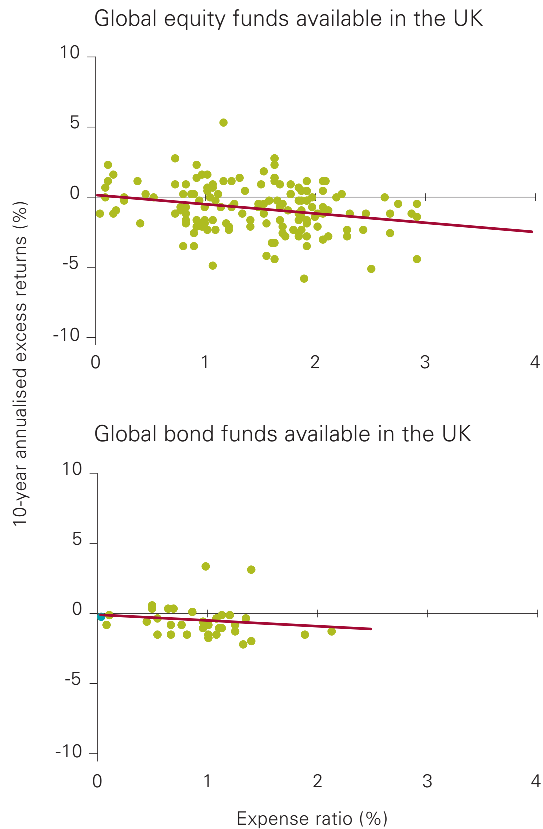
Source: Vanguard.

To find out the impact of costs on net returns, we looked at the relationship between excess returns and expense ratios across both bond and equity funds over a ten-year period. Figure 3 shows that higher expense ratios are generally associated with lower excess returns. The red line on each chart in the figure represents the simple regression line and signifies the trend. These regression lines are downward-sloping for both categories of funds. For investors, the clear implication is that by focusing on low-cost funds (both active and passive), the probability of outperforming higher-cost portfolios increases. You can see a more detailed version of these charts with more categories in the full white paper.

Costs play a crucial role in investor success. Whether invested in an actively managed fund or an index fund, each basis point an investor pays in costs is a basis point less that the investor receives in returns. Since excess returns are a zero-sum game, as cost drag increases, the likelihood that the manager will be able to overcome this drag diminishes. As such, most investors' best chance at maximising net returns over the long term lies in minimising costs. In most markets, index funds have a significant cost advantage over actively managed funds. Therefore, we believe that most investors are best served by investing in low-cost index funds over their higher-priced, actively managed counterparts.

For the above reasons, we expect the case for low-cost index fund investing to hold over the long term. Like any investment strategy, however, the real-world application of index investing can be more complex than the theory would suggest. This is especially true when trying to measure indexing's track record versus that of active management. Various circumstances, including survivorship bias, which we discuss below, can result in data that at times show active management outperforming indexing while, at other times, show indexing outperforming active management by more than would be expected. You can read about further circumstances that may also have this effect in the full white paper.

Figure 3. Higher expense ratios were associated with lower excess returns for UK funds (as of December 2015)



Notes: Past performance is no guarantee of future results. All data as at 31 December 2015. Index funds are shown in blue, where applicable. Each plotted point represents an equity or bond mutual fund available in the UK within the specific identified Morningstar size, style, and asset group. Each fund is plotted to represent the relationship of its expense ratio (x-axis) versus its ten-year annualised excess return relative to its stated benchmark (y-axis). The straight line represents the linear regression, or the best-fit trend line – that is, the general relationship of expenses to returns within each asset group. The scales are standardised to show the slopes' relationship to each other, with expenses ranging from 0% to 4% and returns ranging from -10% to 10%. Some funds' expense ratios and returns may go beyond the scales and are not shown. Please see the white paper for the full set of data.

Sources: Vanguard calculations, based on data from Morningstar, Inc.

Survivorship bias can skew results

Survivorship bias is introduced when funds are merged into other funds or liquidated, and so are not represented throughout the full time period examined. Because such funds tend to be underperformers, this skews the average results upward for the surviving funds, causing them to appear to perform better relative to a benchmark.[2]

However, the average experience of investors – some of whom invested in the underperforming fund before it was liquidated or merged – may be much different. Figure 4 shows the impact of survivorship bias on the apparent relative performance of actively managed funds versus their prospectus benchmarks. The majority of active funds underperformed in most of the asset classes we examined, and this underperformance became more pronounced as the time period lengthened and survivorship bias was accounted for. Thus, it is important to take survivorship bias into account when comparing the performance of active funds to their benchmarks, especially over longer time periods.

Conclusion

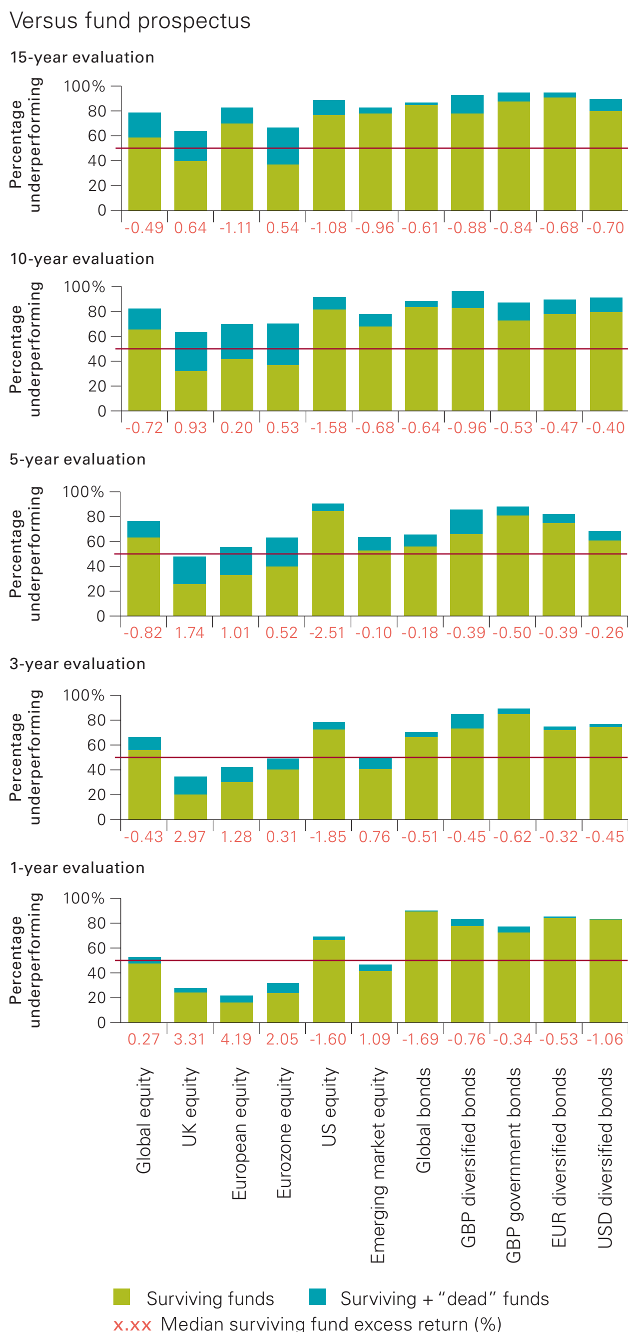
Since its inception, low-cost index investing has proven to be a successful investment strategy over the long term, and has become increasingly popular with investors globally.

The zero-sum game, combined with the drag of costs on performance and the lack of persistent outperformance, creates a high hurdle for active managers in their attempts to outperform the market. This hurdle grows over time and can become insurmountable for the vast majority of active managers. However, as we have discussed, circumstances exist that may make the case for low-cost indexing seem less or more compelling in various situations.

For most investors, we believe the best chance of successfully investing over the long term lies in low-cost, broadly diversified index funds. This is not to say that a red line necessarily exists between actively managed funds and index funds, however. For investors who wish to use active management, we would still highlight the importance of selecting low-cost funds, together with the need for a robust process for identifying manager talent and the patience to endure inevitable periods of underperformance.

2 For a more detailed discussion of the underperformance of closed funds, see Schlanger and Philips (2013).

Figure 4. Percentage of actively managed mutual funds that underperformed versus their benchmarks: Periods ending 31 December 2015



Notes: Data reflect periods ending 31 December 2015. Fund style categories provided by Morningstar; benchmarks reflect those identified in each fund's prospectus. "Dead" funds are those that were merged or liquidated during the period. Fund universe includes funds available for sale in the UK, filtered according to the description above, from the following Morningstar categories: UK equity – flex cap, large-cap blend, large-cap growth, large-cap value, mid-cap, small-cap; Europe equity –Europe OE: flex-cap, large-cap blend, large-cap growth, large-cap value, mid-cap, small-cap; Euro zone equity – flex-cap, large-cap, mid-cap, small-cap; Global – flex-cap, large-cap blend, large-cap growth, large-cap value, mid-cap, small-cap; US equity –flex-cap, large-cap blend, large-cap growth, large-cap value, mid-cap, small-cap; Emerging markets equity – emerging markets; Europe bond – EUR diversified; US bond – USD diversified; Global bond – global un-hedged bond; UK bonds – UK diversified, UK government. Fund performance is shown in GBP terms, net of fees, gross of withholding tax, with income reinvested, based on closing NAV prices. Past performance is not a reliable indicator of future results. Please see the white paper for the full set of data.

Sources: Vanguard calculations, based on data from Morningstar, Inc.

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