Investing as a zero-sum game

Adviser brief

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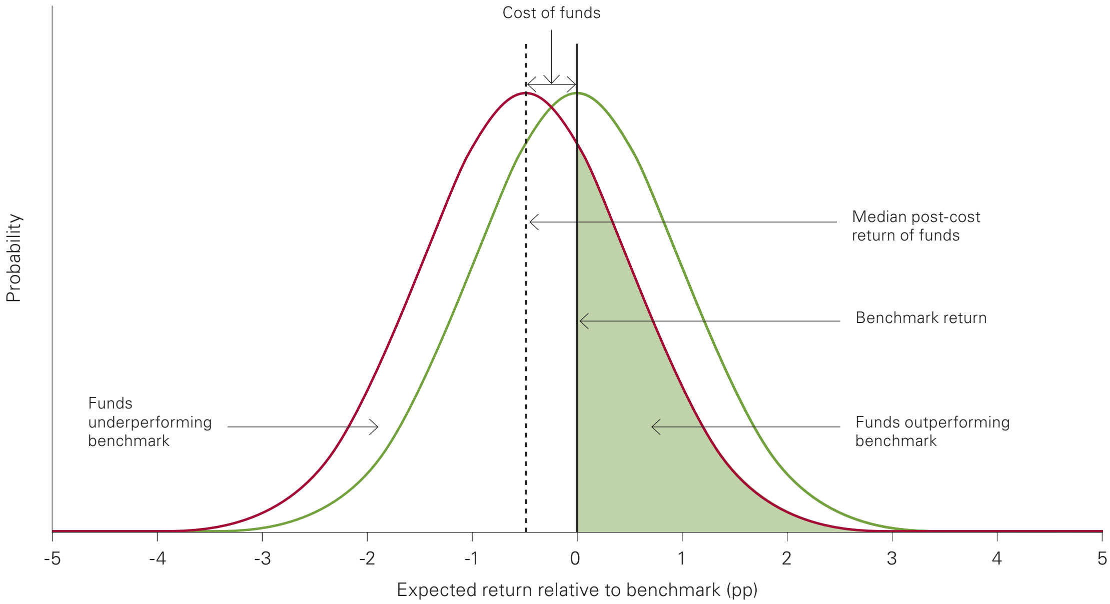
Understanding the zero-sum game

The concept of a zero-sum game starts with the understanding that at any one time, the holdings of all investors in a particular market make up that market.[1] 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. Another way of stating this is that the asset-weighted performance of all investors, both positive and negative, will equal the overall performance of the market.

The total of all investors' returns can be represented as a bell curve, with the market return as the average. In Figure 1, the market is represented by the green curve, with the market return as the black vertical line.

Over any given period, the asset-weighted excess performance to the right of the market return in Figure 1 (the outperforming investments) equals the inverse of the asset-weighted excess performance to the left of the market return (the underperformers). The sum of the two equals the market return.

Figure 1. The zero-sum game



Source: The Vanguard Group, Inc.

1 Sharpe, 1991

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The role of costs

In reality, however, investors pay costs, such as commissions, management fees, taxes, bid-offer spreads and administrative costs, all of which combine to reduce realised returns over time. The aggregate result of these costs shifts the curve to the left.

Although a portion of the after-cost, asset-weighted performance continues to lie to the right of the market return, represented by the green region in Figure 1, a much larger portion of the red curve is now to the left of the solid black line. So, after costs, most of the asset-weighted performance of investors now falls short of the aggregate market return.

Cost is one of the very few things that investors can control. By keeping costs low investors can help ensure that their return is closer to the market return, on average, giving them a greater chance of outperforming similarly positioned investors who incur higher costs.

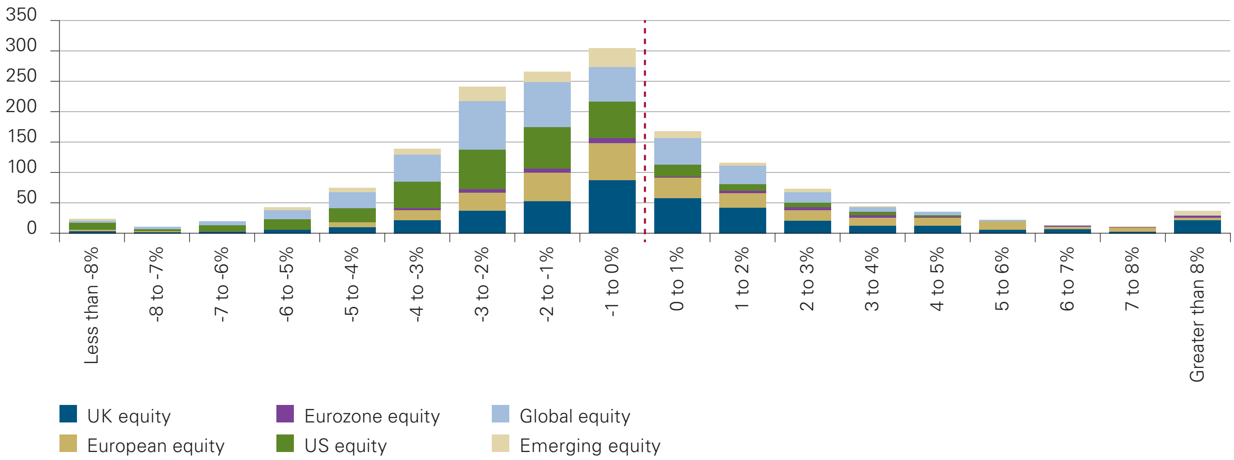
Putting theory into practice

Figure 3 shows the actual distributions of a range of actively managed equity fund categories over five years to 31 December 2012. Although funds account for only a portion of the markets, the chart shows a result that the zero-sum game theory would predict:

1. The returns of the aggregate actively managed fund universe form a bell curve.
2. Returns are widely distributed around the average, illustrating the wide range of potential outcomes inherent in active management and the variance in costs.
3. The distributions are centred to the left of the benchmark return, clearly showing the impact of costs.

Figure 3. Active equity funds' return distributions

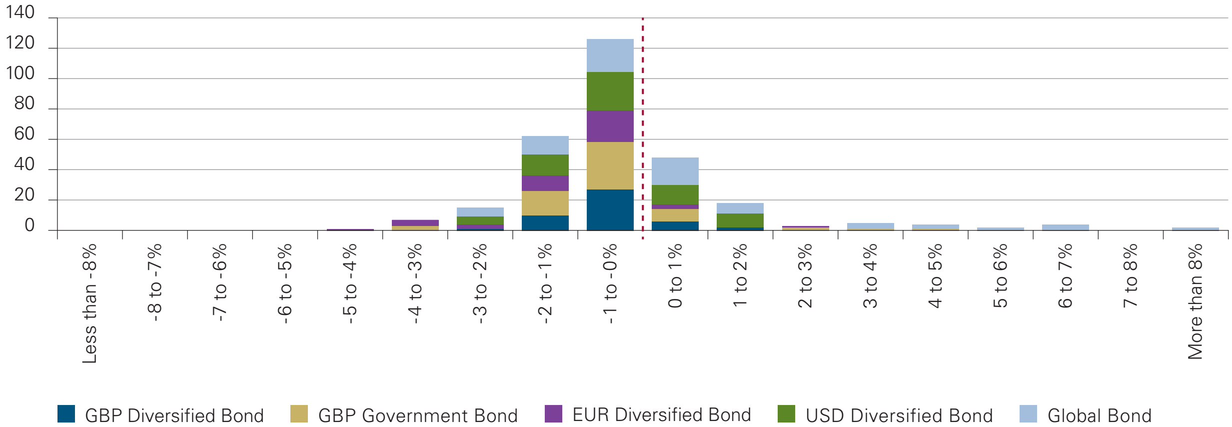
5 years



Sources: Vanguard calculations, using data from Morningstar, Inc., FTSE , MSCI and Barclays. Included funds are from the following Morningstar categories: UK equity – flex cap, large-cap blend, large-cap growth, large-cap value, small-cap; Europe equity – large-cap blend, large-cap growth, large-cap value, flexcap, small-cap; Euro zone equity – flex-cap, large-cap, small-cap; Global – large-cap blend, large-cap growth, large-cap value, flex-cap, small-cap; US equity – large-cap blend, large-cap growth, large-cap value, flex-cap, small-cap; Emerging markets equity – emerging markets. Performance is for periods ending on 31 December 2012. Basis of performance calculation is net of fees, income reinvested, closing NAV prices. Benchmarks are specified in the fund prospectuses.

Figure 4. Active bond funds' return distributions

5 years



Sources: Vanguard calculations, using data from Morningstar, Inc., FTSE, MSCI and Barclays. Included funds are from the following Morningstar categories: Europe bond – EUR diversified; US bond – USD diversified; Global bond – global; UK bonds – UK diversified, UK government. Performance is for periods ending on 31 December 2012. Basis of performance calculation is net of fees, income reinvested, closing NAV prices. Benchmarks are specified in the fund prospectuses.

The zero-sum game and bond markets

The same zero-sum dynamic also appears to affect actively managed bond funds. Figure 4 provides the evidence for this, comparing actively managed bond funds against their respective benchmark indices over five years.

Conclusion

Investment markets are effectively a zero-sum game, with every outperforming pound being balanced by a pound that lags the benchmark. The unpredictable nature of markets and the lack of performance persistency among funds[1] mean that selecting an investment that outperforms consistently is extremely difficult. Moreover, the chances of success are further reduced by the impact of costs. This impact is likely to be magnified by frequent trading in pursuit of the latest top-performing fund or asset class.

Index funds typically carry lower charges than their active counterparts. At the same time, the distribution of returns from index funds tends to be narrower, with fewer instances of significant out- or underperformance. Considering all of these factors, we believe that setting a long-term asset allocation based on pre-agreed investment goals, and achieving this allocation through low-cost funds, is likely to be the most successful approach for the vast majority of investors.

1 See our adviser brief 'Can active funds deliver persistent performance?', March 2013

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