Executive summary. Since the origin of modern portfolio theory and indexing as an investment strategy, empirical evidence has supported the notion that a low-cost index fund is difficult to beat consistently over time. Yet despite both the theory and the evidence, most mutual fund performance ratings have given index funds an “average” rating. This paper addresses two questions surrounding mutual fund rating systems. First, we examine why index funds tend to receive an average rating on the basis of relative quantitative metrics. Second, we analyze whether a given performance rating offers actionable information: Specifically, we look at whether higher-rated funds can be expected to outperform lower-rated funds in the future. We conclude that investors should expect an average rating for index funds when relative quantitative metrics are used. This is because the natural distribution of the actively managed fund universe around a benchmark dictates that an appropriately constructed and managed index fund should fall near the centre of that distribution. We also found that a given rating offers little information about expected future relative performance; in fact, our analysis reveals that higher-rated funds are no more likely to outperform a given benchmark than lower-rated funds and that the value of indexing stems in large part from low operating costs and the zero-sum game.
The theory of indexing as an investment strategy is powerful in its simplicity and effectiveness (Sharpe, 1991; Philips et al., 2013), but most mutual fund performance ratings score index funds as average. (As of December 2012, 43% of all stock and bond index mutual funds had a 3-star rating on a 5-star scale, according to Morningstar, Inc.) Indeed, it’s not uncommon for clients to question why an average-rated index fund should be given preference as a portfolio option over potentially higher-rated actively managed funds. Such questions provided the catalyst for this paper’s study.

We focus on this question in the first part of this analysis. We then examine whether a higher or lower rating offers actionable results. In other words, does investing in higher-rated funds (or avoiding lower-rated funds) lead to outperformance? For this analysis, we referred to Morningstar’s rating system, since it is the most widely used rating system in the financial services industry and has the most readily available and reliable data.1 Finally, we look at costs as a potentially more meaningful metric for selecting investments.

Indexing as an ‘average’ investment strategy

In their quest to outperform a given benchmark, active fund managers typically incur significant costs, which must then be overcome to deliver that outperformance to the fund’s shareholders.2 In addition, managers face the cold reality that outperformance is a zero-sum game: For every buyer of a security, there must be a seller; that is, for every belief that a security will outperform, there is a counter view that it will underperform. The net result is that for any given period, the returns of active managers form a distribution around the return of the benchmark (represented by the blue curve in Figure 1). However, the constant drag of transaction, management and other costs pushes a majority of portfolios to the losing side of the benchmark (represented by the brown curve in Figure 1). Because an index fund seeks to track a benchmark with very little cost drag, the index fund should consistently generate returns very close to that of the benchmark return and, by extension, fall near the centre of that performance distribution (shown in Figure 1 by the dark-brown line). This is why low-cost, tax-efficient indexing strategies have been so difficult to consistently beat over time.3 For example, Philips et al. (2013) showed that after accounting for funds that merged or liquidated, 79% of Canadian large-cap actively managed funds underperformed their prospectus benchmark for the ten years ended December 31, 2012. Low-cost index funds that efficiently tracked similar benchmarks over that same time period would therefore be expected to outperform a similar percentage of funds.

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1 There are many rating systems in the industry, each of which uses quantitative and/or qualitative metrics to evaluate funds. Although each model has specific differences, most models are likely more similar than different. The Morningstar Rating™ measures how funds have performed on a risk-adjusted basis against their category peers. Morningstar rates all funds in a category based on risk-adjusted return, and the funds with the highest scores receive the most stars. Morningstar calculates ratings for three-, five- and ten-year periods; the overall Morningstar Rating is then based on a weighted average of the available time-period ratings. Morningstar Ratings are subject to change every month. For further details, see http://corporate.morningstar.com/CA/documents/MethodologyDocuments/FactSheets/MorningstarRating_FactSheet_E.pdf.

2 For example, according to Morningstar, the average asset-weighted expense ratio for Canadian actively managed portfolios as of 2012 ranged from a high of 222 basis points for Canadian equity funds to a low of 137 basis points for Canadian fixed income funds. On the other hand, indexed portfolios ranged from a high of 110 basis points for international equity funds to 75 basis points for fixed income funds.

3 A Morningstar report (2009; see also Mamudi, 2009) found that less than 40% of actively managed funds beat their respective Morningstar indexes after adjusting for risk, style and size biases over the previous three, five and ten years.
Therefore, it seems curious that when index funds are evaluated using common rating systems, the funds typically are rated as falling in the middle of the pack. However, this seemingly counterintuitive logic can be addressed with the understanding that because all active managers combine to form a distribution around a benchmark (see Figure 1), the benchmark should be rated as average simply because it falls near the middle of the distribution at all times. The funds that outperform the benchmark will be highly rated, while those that underperform the benchmark will be given a low rating. The benchmark, by definition, must then be rated as average.

By extension, a portion of the fund universe should outperform an index fund, just as a portion of the fund universe should underperform an index fund. For example, Figure 2 shows the three-year annualized range of excess returns for large-, mid- and small-cap Canadian active equity funds.

While a lack of historical data prevents us from showing index funds on this chart and index funds may differ in their expenses and implementation efficiency, the performance distribution of index funds would be expected to be much tighter than that of actively managed funds. Most important, the index funds should be close to the x-axis, representing returns very similar to the benchmark. Because of this, we would expect most index funds to be rated as average because they represent the very benchmark that active managers strive to beat.

Notes on risk: Past performance is no guarantee of future results. All investments, including a portfolio’s current and future holdings, are subject to risk. Investments in bond funds are subject to interest rate, credit and inflation risk. Investors in any bond fund should anticipate fluctuations in price, especially for longer-term issues and in environments of rising interest rates. Diversification does not ensure a profit or protect against a loss in a declining market.
In addition to the distributional effect of the fund universe, the methodology of many rating systems further ensures that index funds will receive a middle-of-the-pack rating. Again looking at Morningstar’s star methodology, three-year performance has a greater impact than five- or ten-year performance (and if longer-term performance is unavailable, then ratings are based entirely on three-year performance). This is important because the methodology inherently rewards short-term results at the expense of longer-term performance. With the focus on shorter-term performance, we would expect to see significant volatility with respect to funds’ ratings, primarily because a three-year performance window is narrow enough to permit the portfolio decisions of active managers to outweigh any potential cost disadvantages. Over longer periods costs have a greater influence on the distribution of relative performance. As a result, as the evaluation period extends, we would expect index funds to be rated more favourably as costs and the zero-sum game overshadow near-term performance.

Star rating and performance predictability

A natural result of the performance distribution is that investors would rather invest in winning funds than losing funds. And it’s during the selection process for these winning funds that investors often turn to rating systems. Such systems rate the available funds based on one or more performance metrics that categorize fund results as ranging from poor to exceptional. Of course, while we used Morningstar’s system for this paper’s study, Morningstar (2008) clearly states that “the star rating isn’t a complete solution but rather an aid that helps you to narrow the field and improve your chances for success.” That said, the natural use of such a tool is to build a portfolio of highly rated funds with the expectation that such a process will ultimately lead to outperformance relative to a given benchmark.

The question, therefore, is whether such rating systems provide any tangible performance information to investors going forward. This question is not new, and the predictive power of the Morningstar Rating system has been explored before—see, for example, Huebscher (2009), Morey (2005), Morey and Gottesman (2006) and Antypas et al. (2009). Each of these studies evaluated whether any information could be gleaned from performance following a given star rating. While some of the studies found that higher-rated funds do outperform lower-rated funds, others found that this could not

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4 In the case of Morningstar, funds are rated on trailing risk-adjusted performance whereby it is assumed that, all else being equal, investors prefer higher returns to lower returns and lower risk to higher risk. Morningstar changed its methodology in June 2002 to account for this utility function in addition to market-risk factors such as size and style biases of managers (Morningstar, 2002). Before June 30, 2002, Morningstar rated funds’ risk-adjusted excess returns versus broad benchmarks such as the U.S. stock market, the U.S. bond market, or the international stock market. However, such a methodology does not account for additional broad risk factors such as growth/value or large/small.

5 Morningstar also regularly evaluates the performance of its rating system. For example, in its December 2008 evaluation, Morningstar found that following an initial rating in December 2003, on average, 5-star funds beat 4-star funds, 4 beat 3 and so on, whether on the bases of annual returns, ensuing star ratings or batting averages (a measure of what percentage of funds beat their peer-group averages) over the five years ended December 2008. For additional details, see Morningstar (2008).
be proven to any degree of significance, and still others found no actionable information. One common theme in most of the studies is the difficulty active managers face in simply outperforming a benchmark over time, regardless of their prior performance.

Our analysis—results of which are shown in Figure 3—looked at excess returns versus a relevant style benchmark (Canadian large-, mid- and small-capitalization equity mutual funds) over the three-year period following a given rating. We used a three-year period for two primary reasons: (1) Morningstar requires at least three years of performance data to generate a rating and (2) investment committees typically use a three-year window to evaluate the performance of their portfolio managers. We used style benchmarks instead of the broad market because evaluating performance relative to the broad market would not account for style biases and/or risk-factor bets (Philips and Kinniry, 2009).

Figure 3 shows that, on average, approximately 30% of funds with 5-star ratings outperformed their style benchmarks for the 36 months following the rating, while approximately 28% of funds with 1-star ratings outperformed their style benchmarks for that period. The figure also shows the average 36-month excess returns (versus the funds’ style benchmarks) over time, based on the median fund in each rating bucket. The average excess returns across all buckets were significantly negative. Clearly, regardless of whether we look at the likelihood of outperforming or the magnitude of excess returns, investors, on average, have not benefited from basing their investment decisions solely on historical quantitative performance metrics.
Figure 4 expands the averages to show the probability that for any month from January 31, 2001, through December 31, 2012, a randomly selected fund from a given bucket will generate positive excess returns versus its style benchmark over the 36-month period after receiving its star rating. For example, the left-most points intersecting the y-axis represent the percentage of funds with a given star rating on January 31, 2001, that subsequently generated positive excess returns versus their style benchmarks in the next 36-month period (ended January 31, 2004). Over that time period, 73% of 5-star-rated funds on January 31, 2001, generated positive excess returns versus their style benchmarks. For the same period, 72% of 4-star funds, 62% of 3-star funds and 50% of 1-star funds generated positive excess returns. Of course, the results for 2001 were notable in that it took until the end of the 2000’s for a majority of funds within one or more ratings buckets to again outperform their benchmark.

Several additional points are worth mentioning regarding Figure 4. First, there was no systematic outperformance by funds rated 4 or 5 stars or underperformance by funds rated 1 or 2 stars. In fact, there was tremendous volatility with respect to leadership in any given period. Second, higher ratings in no way ensured that investors would increase their odds of outperforming a style benchmark in subsequent years. In fact, more often than not, all five of the buckets saw probabilities of less than 50%, meaning that investors had less than a 50–50 shot of picking a fund that would outperform regardless of its rating at the time of the selection. Finally, due to the methodology changes, we would expect less-dramatic shifts in average results after June 2002 because the influences of the primary risk factors have been largely removed from the ratings. However, due to limited observations before the methodology change, this is not something we can conclusively confirm.
Relevance of this analysis to bond funds

We also replicated our analysis for the universe of intermediate-term, diversified bond funds (both active and passive—see Figure 6) with results differing somewhat from those of equity funds. Broadly, we found that bond fund investors may be able to glean more information regarding future relative performance than stock fund investors. For example, Figure 6 shows that, in general, the median excess returns decreased as the star rating decreased. 5-star funds generally outperformed 4-star funds, 4-star funds outperformed 3-star funds and so on. The dynamic we observe here can be explained to a great degree by the impact of costs. Historically, the range of returns across bond portfolios has been much smaller than the range of returns across stock portfolios. As a result, costs have tended to affect the distribution of bond returns to a greater extent than the distribution of stock returns. In addition, because excess returns for bond managers are almost completely dependent on duration positioning and because yield changes are notoriously difficult to predict, it can be extremely hard for active bond managers to consistently outperform enough to overcome high fees. Therefore, the higher the fees, the greater the likelihood that bond funds will underperform. As a result, performance-based rating systems have tended to reward lower-cost bond funds and punish higher-cost bond funds to a much greater extent than equity funds.

Figure 6. Median excess returns for Canadian fixed income funds versus benchmark for 36 months following Morningstar Rating: January 31, 2001, through December 31, 2012

Notes: Fund returns include both live and dead funds. To be included, a fund had to have a Morningstar Rating and 36 months of continuous performance following the rating date. Fund returns are net of expenses, but not of any loads.

Sources: Vanguard calculations, using fund data provided by Morningstar, Inc., and index data provided by Barclays. The Canadian bond market is represented by the Barclays Canadian Issues 300MM Index.
In addition to analyzing the probability that an investor would pick a winning fund, we also looked at the median excess returns of the funds in each bucket. Here the reasoning is that probabilities treat all funds equally—yet, in fact, outperforming by 0.01% is not equivalent to underperforming by –1.00%. Figure 5 plots median excess returns generated by funds in each bucket using the same methodology as in Figure 4. The figure can be interpreted to mean that at any point in time, 50% of the funds generated an excess return greater than the median and 50% generated an excess return less than the median. If the median excess return is less than 0%, then, intuitively, more than 50% of the funds underperformed the benchmark and vice versa. Figure 5 again demonstrates that little performance information can be gleaned from one rating versus another (the median 5-star funds’ excess return was not consistently higher than the median 1-star funds’ excess return). And, recalling Figure 3, we again point out that, on average, the subsequent excess returns were negative, regardless of the initial star rating.

One important implication of the observed lack of performance persistence is that funds are likely to jump from one ranking to another over time.6 This is demonstrated in Figure 7, which shows the likelihood that a stock fund with a given rating will still have that rating at the end of the next 12 months. We found that most funds had less than a 50% chance of earning the same rating just 12 months following the initial rating. Only 5-star funds had a greater than 50% chance of maintaining their rating, albeit by a slim margin. And, of note, all funds showed a similar 40%–50% probability of maintaining their rating, further confirming that sustainable outperformance is difficult. This means that investors who focus on investing only in highly rated funds may find themselves continuously buying and selling funds as ratings change. Such turnover could lead to higher costs and lower returns as investors are continuously chasing yesterday’s winner.

Figure 7. Percentage of time that a stock fund maintained its rating for at least 12 months

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

The role of costs

To this point, we have demonstrated the inherent challenge to investors of any rating system that focuses on quantitative metrics as the sole factor in performance evaluation. Instead, investors may look to costs as perhaps a more reliable indicator of relative subsequent performance.7 Figure 8 shows the relationship between expense ratios and excess returns over the ten years ended December 31, 2012. Specifically, the figure shows the 10-year annualized excess returns of each fund relative to its style benchmark. To demonstrate the impact of costs, we show a fund’s excess return relative to its expense ratio. The red line in each style box represents a trend line that plots the overall relationship between expenses and excess returns for the funds in that style box. This analysis makes clear that higher costs have historically tended to lead to lower relative returns. For investors, the clear implication has been that focusing on low-cost funds has potentially increased the probability of outperforming higher-cost portfolios.

6 For an evaluation of alpha persistence in small-cap funds, see Davis et al. (2007).
7 Morningstar (2008) found that when a cost factor is included in an analysis of subsequent performance, the predictive power of the rating system is improved.
Conclusion

This analysis has demonstrated why investors should not be surprised by an “average” rating for index funds when performance is based on short-term quantitative results relative to a benchmark. The natural distribution of the actively managed fund universe around a benchmark dictates that an appropriately constructed and managed index fund will fall near the centre of that distribution. We have also demonstrated the difficulty in predicting mutual fund performance based on these relative performance ratings. As this analysis has shown, quantitatively based rating systems do a tremendous job of explaining past performance, but generally offer little insight into future performance.

It should also be noted that investors looking to use a given star rating as the sole criterion for selecting funds are picking funds focused on near-term quantitative metrics. This potentially leaves them all the more exposed to the risk that the funds they choose will underperform. By focusing only on the highest star ratings, they may overlook other, more qualitative aspects, such as the fund manager, the parent team and cost—aspects that, in combination, may yield better overall results to investors in the long run.

A direct implication of the lack of persistence in relative fund performance, combined with the power of costs, is that indexing is a powerful strategy for producing consistent, competitive results. Indeed, if there is no surefire way to pick a consistently winning fund, and, as we have shown here, an investor is likely to pay more in expenses for an actively managed fund than an index fund, indexing would seem to be a more prudent strategy.
References


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