

Vanguard®

The case for indexing: Canada

Vanguard research

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Executive summary. An index is a group of securities chosen to represent a broad market or a component market. By reflecting a particular market's performance, an index provides investors with a benchmark for that market. An indexed investment strategy, such as an index mutual fund or an index-based exchange-traded fund (ETF), seeks to track the performance of an index by assembling a portfolio that invests in the same securities that compose the index, or in a sampling of those securities. By investing in a broad-market index, such as one designed to reflect the performance of the overall Canadian stock market, an investor can participate, at low cost, in the aggregate performance of that market at all times.

Historically, indexed investment strategies have performed favourably in relation to actively managed strategies as a result of indexing's low cost, broad diversification and minimal cash drag. Combined, these factors represent a significant hurdle that an active manager must overcome

Authors
Christopher B. Philips, CFA
David J. Walker, CFA
Francis M. Kinniry Jr., CFA

just to break even with a low-cost index strategy over time, in any market. Of course, skilled active managers can and do overcome these hurdles, but as our research and other empirical evidence suggest, the likelihood of outperformance dwindles over time as the compounding of these costs becomes more difficult to surmount.

Since the 1990s, indexing has gained traction globally, fuelled by increasing investor interest and acceptance of the concept. This paper expands on Vanguard's library of indexing research by evaluating the performance of actively managed funds domiciled and invested in Canada.¹ Because the effectiveness of indexing as an investment strategy increases as the investing time period lengthens, we anticipate that the results of our analysis will strengthen as the historical record grows over time. First we provide some evidence of the difficulty of active management. We then discuss the "zero-sum game" and the importance of costs, followed by an examination of the impact of shorter-term market dynamics. We conclude with a discussion of several additional advantages of indexing.

Notes on risk: Past performance is not a guarantee of future results. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index. Investments are subject to market risk. Investments in bond funds and ETFs are subject to interest rate, credit, and inflation risk. ETF shares can be bought and sold only through a broker (who will charge a commission) and cannot be redeemed with the issuing fund. The market price of ETF shares may be more or less than net asset value. Prices of mid- and small-cap stocks often fluctuate more than those of large-company stocks. Foreign investing involves additional risks, including currency fluctuations and political uncertainty.

¹ All fund data in this report were provided by Morningstar, Inc. All returns and values are denominated in Canadian dollars. Fund returns include reinvestment of all distributions and do not take into account sales, redemption, distribution or optional charges or income taxes that would have reduced returns.

What is indexing?

An index is a group of securities chosen to represent a broad market or a portion of the market. A conventional pooled index fund or ETF seeks to track the returns of that market or market segment by assembling a portfolio that invests in all the securities in the index, or a sampling of them, in proportions that match the securities' market value. In fact, market indexes should accurately reflect the market—or market portion—that they are intended to measure. As a result, the best index is not necessarily the one that provides the highest return, but the one that most accurately measures the performance of the investing style (such as value or growth) or market (such as a country or region) that it is intended to track.

Importance of market-cap weighting

The vast majority of indexes globally are weighted according to *market capitalization*, which refers to a company's value as reflected by the current market price per share of its stock and the number of shares outstanding:

$$\text{Market cap} = \text{price per share} \times \text{number of shares outstanding.}$$

Market-cap-weighted indexes reflect the consensus estimate of each company's value at any given moment. In any open market, new information—economic, financial or company-specific—affects the price of one or more securities and is reflected instantaneously in the index via a change in its market capitalization. Thus, a continuously updated market index gives an indication of how well a market is performing and of the market's structural and risk characteristics at any given point in time.

Since current prices (and, hence, company values) are set based on current and expected events, cap-weighted indexes represent the expected, theoretically efficient portfolio of securities in a given asset class. In addition, market-cap-weighted indexes are continuously reweighted, and turnover is limited to changes in the constituents or in their shares outstanding due to corporate events such as share buybacks or issuances.

Portfolios that are not market-cap-weighted will not reflect the average return of investors in that market. Such portfolios are therefore not truly indexed, and may be considered either actively managed or governed by a rules-based strategy designed to deliver a return that differs from the market's. Both active managers and those who oversee rules-based passive strategies believe that they possess information not represented in the market cap of a specific stock. For example, an active manager may view a company as overvalued, or a passive manager may design a program to invest only in stocks that pay the highest dividends. Each believes his or her strategy to be a formula for success relative to the benchmark; however, these strategies also introduce idiosyncratic (uncompensated) risk to the portfolio. Investment strategies not indexed to a market-cap-weighted benchmark can therefore be viewed as taking specific bets against the index, and should be evaluated based on the quality and success of those bets.

Recognizing that market-cap-weighted indexes represent the most relevant proxy for a given market, this analysis focuses on such benchmarks and index funds that track them.

Figure 1. Relative performance of Canadian actively managed funds

Equity fund returns: 5 years

	Value	Blend	Growth
Large	100%	86%	91%
	-1.21%	-2.40%	-2.36%
Medium	100%	98%	96%
	-8.16%	-5.95%	-5.23%
Small	94%	86%	71%
	-7.74%	-4.10%	-3.99%

Equity fund returns: 10 years

	Value	Blend	Growth
Large		61%	
		0.81%	
Medium		89%	
		-3.88%	
Small		82%	
		-2.89%	

Fixed income fund returns: 5 years

	Short	Intermediate
	83%	98%
	-0.61%	-1.17%

Fixed income fund returns: 10 years

	Short	Intermediate
	67%	84%
	-1.17%	-0.76%

- Percentage *underperforming* benchmark, adjusted for survivorship bias
- Median fund excess return, survivors only

Notes: For the “Equity fund returns: 10 years,” there were too few funds across the nine style boxes with ten years of return history. As a result, we combined blend, growth and value styles and evaluated all large-cap funds against the MSCI large-cap benchmark, mid-cap funds against the MSCI mid-cap benchmark and small-cap funds against the MSCI small-cap benchmark (see Sources, below, for specific index names). Currently, no distinction is made between corporate, government or securitized funds within the Morningstar Canadian Fixed Income Fund universe. To account for survivorship bias, we identified funds that were in existence at the start of the period and were either liquidated or merged during the stated period. Those funds were added to the base sample to compute the percentage of all funds that underperformed the benchmark. Excess returns represent the median monthly return across all funds in a given style box less the benchmark return. Monthly differences are then compounded over the period.

Sources: Vanguard calculations, using data from Morningstar, Inc., MSCI and Citigroup. Equity benchmarks are represented by the following MSCI Canada indexes: Large blend—MSCI Large Cap Index; Large value—MSCI Large Cap Value Index; Large growth—MSCI Large Cap Growth Index; Mid-cap blend—MSCI Mid Cap Index; Mid-cap growth—MSCI Mid Cap Growth Index; Mid-cap value—MSCI Mid Cap Value Index; Small-cap blend—MSCI Small Cap Index; Small growth—MSCI Small Cap Growth Index; Small value—MSCI Small Cap Value Index. Bond benchmarks are represented by the following Citigroup indexes: Short—Citigroup Canadian GBI 1–3 Year Index; Intermediate—Citigroup Canadian GBI 5–7 Year Index. All returns in Canadian dollars as of 31 December 2010.

Difficulties of active management

It is clear that over the past decade, Canadian actively managed funds have fared poorly, on average, versus index benchmarks, which by definition are costless. **Figure 1** shows the relative performance of actively managed funds when evaluated against their representative MSCI benchmark, after accounting for funds that merged or liquidated during the observed time period (to eliminate survivorship bias).

Underperformance has been consistent

It’s important to note that this relative underperformance has been consistent across asset classes (both equities and fixed income), sub-asset classes (large-cap, mid-cap, small-cap, growth and

value equity funds, as well as short- and intermediate- duration fixed income funds) and time period. Of particular interest are the results in so-called inefficient sectors such as mid- and small-cap stocks, in which a significant majority of actively managed funds have underperformed their MSCI benchmarks. The inefficiency of given markets is a concept often used in discussing the benefits of active management, but as we show here, actively managed small-cap funds have not been able to capitalize on that inefficiency, if it exists. We found similar results in our analyses of actively managed U.S. and European portfolios investing in other “inefficient” areas of the global market such as emerging markets and high-yield bonds: The majority underperformed their benchmarks.

The importance of style-box analysis

Rather than evaluate actively managed Canadian equity funds versus the whole Canadian stock market (represented by a benchmark such as the MSCI Canada Index or the S&P/TSX Composite Index), we assessed the funds within their appropriate categories: large-cap, mid-cap and small-cap; growth, blend and value. The rationale for this is simple: Comparing all funds versus a broad-market benchmark results in a mismatch of risk factors. For example, a small-cap manager might outperform the broad market simply because small-cap stocks in general did so, and not because of a specific skill or management technique. Comparing a small-cap manager against a small-cap benchmark permits a more reasonable evaluation of outperformance.

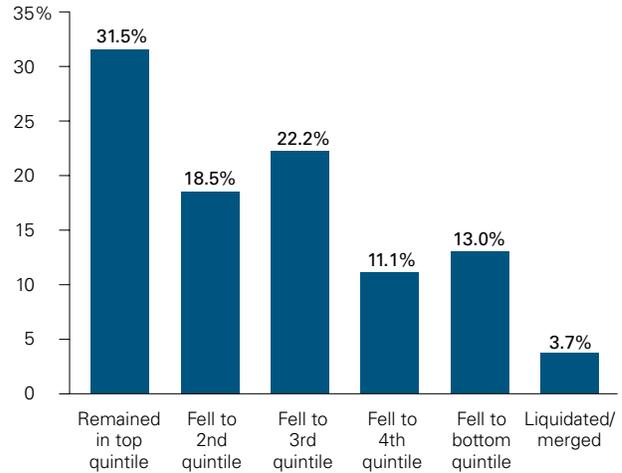
Figure 1 also reveals the excess return—the difference from the benchmark return—of the median (50th percentile) fund in the Morningstar fund database. We show excess returns to give a more accurate sense of overall performance; otherwise, an active manager who underperforms by 10% has achieved a result as significant as one who underperforms by 0.01%. In most instances, the excess returns are significantly negative. We examine the performance of those funds in particular in a later section.

How consistent are the winners?

Of course, Figure 1 also clearly shows that, since 100% of actively managed funds did not underperform, a pool of funds did in fact outperform their benchmarks. Including those winning funds in a portfolio could obviously lead to superior results relative to the market. A key question therefore is, “How consistent are the winners?” To answer that question, we performed an analysis that ranked all actively managed Canadian equity funds in terms of risk-adjusted return relative to their style benchmarks over the five years ended 31 December 2005. We then tracked the top 20% of those funds over the

Figure 2. Fund leadership is quick to change

Subsequent five-year ranking (ended 31 December 2010) for funds ranked in top quintile over five years ended 31 December 2005



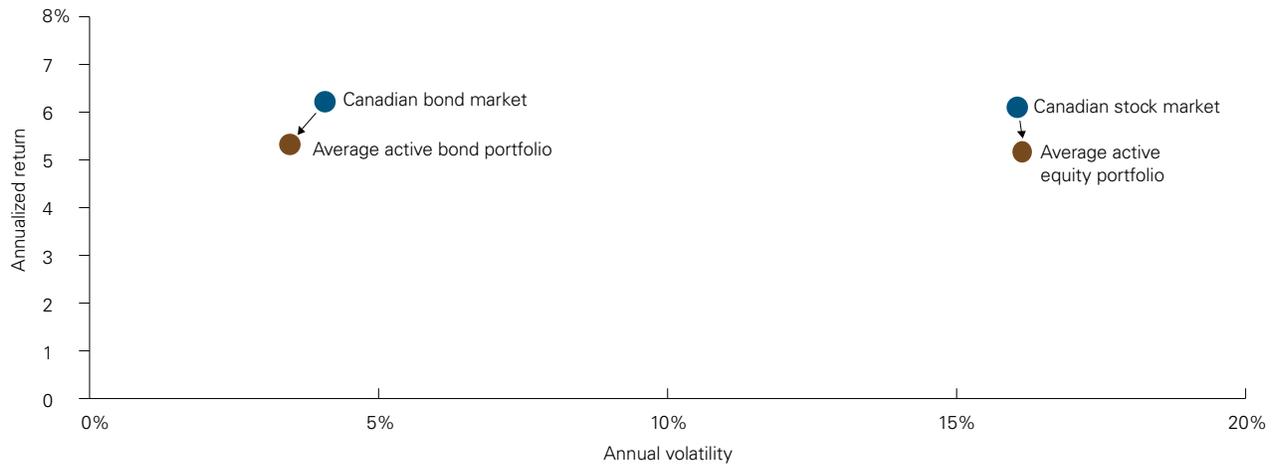
Notes: This figure ranks all active Canadian equity funds covering the nine Morningstar style categories based on their risk-adjusted excess returns relative to their peer group (Morningstar category) during the five years ended 31 December 2005. For ease of presentation, we show only results for the top quintile (20%) of funds. There were 265 total funds, 54 of which fell into the top risk-adjusted return quintile as of 2005. Funds included here are from the following Canadian Morningstar categories: Canadian Equity, Canadian Small/Mid Cap Equity, Canadian Focused Equity and Canadian Focused Small/Mid Cap Equity.

Sources: Vanguard and Morningstar, Inc.

next five years to see how consistently they performed. If the funds displayed consistent performance, we would expect a significant majority to remain in the top 20%. A random outcome would show the funds evenly dispersed across all quintiles. **Figure 2** displays the results.

The results of our analysis are telling. Only 31% of funds remained in the top quintile for the subsequent 5-year period. In fact, of the former top performers, 50% fell to the bottom three quintiles five years later. Another way to look at it is that, of the 265 funds available to investors in 2005, only 17 (6.4%) achieved top-quintile risk-adjusted returns over both five-year periods ended 31 December 2005, and 31 December 2010.

Figure 3. Portfolios of Canadian actively managed funds can lower returns and increase volatility



Notes: This hypothetical illustration does not represent the return on any particular investment. The Canadian equity portfolio was constructed by dividing the stock allocation into large-cap (75%), mid-cap (15%) and small-cap (10%), approximating the historical weights for the Canadian stock market (since 2001). The equity funds included here are from the following Canadian Morningstar categories: Canadian Equity, Canadian Small/Mid Cap Equity, Canadian Focused Equity and Canadian Focused Small/Mid Cap Equity. The Canadian stock market is represented by the S&P/TSX Composite Index. The fixed income portfolio was constructed by dividing the Canadian bond market into short-term (25%), intermediate-term (45%) and long-term (30%) sectors. The fixed income funds included were from the Morningstar category Canada Fixed Income Funds. The Canadian bond market was represented by the Citigroup World Government Bond Index. All returns are in Canadian dollars.

Sources: Vanguard calculations, using fund data provided by Morningstar, Inc. Data include liquidated and merged funds and cover the period 1 January 2001, through 31 December 2010.

Volatility in outperformance and market leadership.

This volatility with respect to outperformance and market leadership is one reason that changing managers in response to poor performance can lead to further disappointment. For example, a well-publicized study by Goyal and Wahal (2008) demonstrated how U.S. institutional pension plans that replaced underperforming managers with outperforming managers experienced performance results far different than expected. The authors evaluated the performance of both the hired and fired managers before and after the termination date. They found that, following termination, the fired managers actually outperformed the managers hired to replace them by 49 basis points the first year, 88 basis points over the first two years, and 103 basis points over the first three years.²

Ultimately, while the objective is outperformance, the risk of active management is underperformance. Figure 1 clearly illustrates this risk regarding specific market segments. But relative to the overall market, some might argue that a carefully selected portfolio of actively managed funds could offer an advantage by combining managers across different styles. **Figure 3** demonstrates the effect of constructing a hypothetical portfolio of actively managed funds. For this analysis we calculated the median monthly fund returns for large-, mid-, and small-cap equity funds as well as short-, intermediate-, and long-term bond funds. We then constructed a portfolio that was representative of the market in terms of the percentage allocated to each bucket. The “average active bond portfolio” and “average active equity portfolio” in Figure 3 represent the annualized performance of the median portfolio of funds across the analysis period.

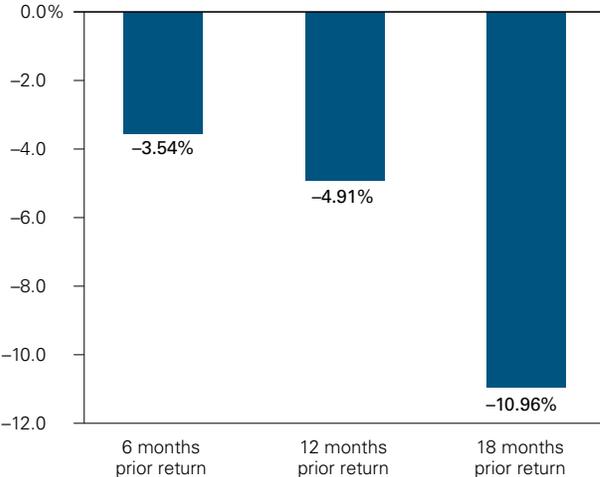
² For more information, see Goyal and Wahal (2008).

Two points are worth mentioning. The most obvious is that the median portfolio of actively managed funds underperformed the respective Canadian stock and bond market indexes. This can be confirmed simply by comparing these results to Figure 1. But perhaps more interesting is that on the equity side, the median actively managed portfolio not only underperformed the Canadian stock market, but did so with higher volatility. In other words, not only was performance poor, but investors had to take on more risk to achieve that poor performance. That said, the increase in volatility relative to the market was not significant, a likely result of the use of averages. In practice, however, investors need to fill their strategic allocation by picking a fund, with the risk being that the fund may underperform and have higher volatility than the market.

Underperformance can lead to fund termination.

Of course, the portfolios represented in Figure 3 are neither practical nor investable. Indeed, one of the single largest risks of active management is that although there may be periods in which the active approach wins on average, an investor or advisor cannot buy the active universe. In fact, he or she must select one or more managers from those available. While we have shown that selecting managers based on past performance does not always work out as anticipated, it's also critical to understand that significant underperformance going forward is a distinct possibility. In this analysis, we also hypothesized that significant underperformance likely leads to a higher probability of a fund liquidating or merging with another fund, which may necessitate a new manager search with the inherent risks.

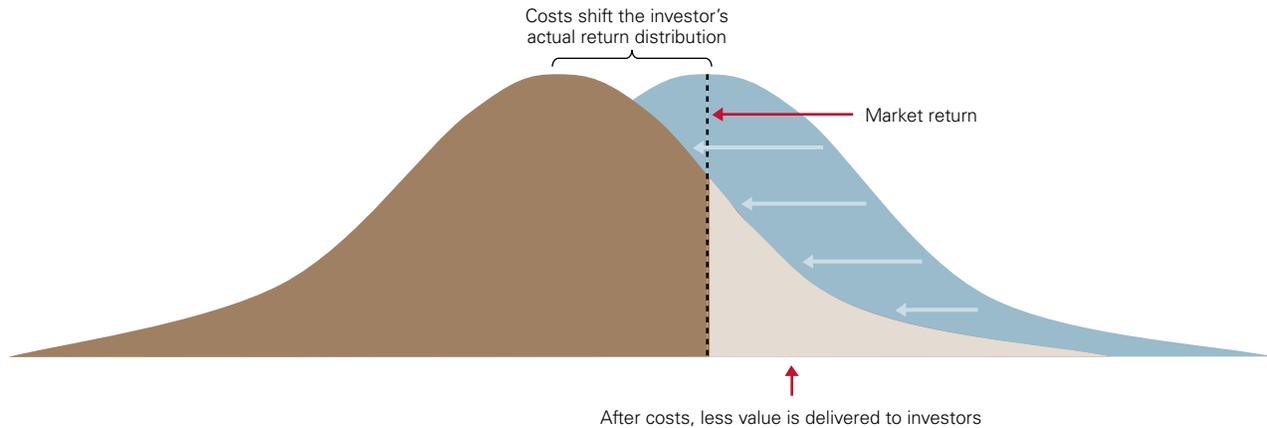
Figure 4. Cumulative excess returns for liquidated/merged Canadian funds prior to termination date



Notes: Excess returns are relative to style benchmark. Returns represent the median across the terminated funds and underperforming funds. For the 6 months prior to the termination date, 46% of the terminated funds outperformed; 33% outperformed in the 12 months prior to termination; and 17% outperformed in the 18 months prior to termination. Funds included here are from the following Canadian Morningstar categories: Canadian Equity, Canadian Small/Mid Cap Equity, Canadian Focused Equity, Canadian Focused Small/Mid Cap Equity and Canada Fixed Income Funds. Data covers the period 1 January 2001 through 31 December 2010. Sources: Vanguard calculations, using data from Morningstar, Inc., and MSCI.

To gauge the relationship between underperformance and a fund's termination, we evaluated the performance of all those funds identified by Morningstar as either being liquidated or merged into another fund. We measured their net excess returns versus a representative benchmark for the 6, 12, and 18 months prior to the end of the return series. **Figure 4** presents the results. Clearly, a possible cause of the closure of these funds was relative underperformance. As a result, investors selecting active management not only have to be concerned with underperformance and potentially higher volatility but underperformance that may lead to fund liquidation and the possibility that a new manager search may result in the selection of another poor-performing fund.

Figure 5. Conceptualizing the zero-sum game



Notes: For illustrative purposes only. This illustration does not represent the return on any particular investment.
Source: Vanguard.

Why does indexing work?

To understand the concept of indexing, it's useful to envision the market as a whole, where outperformance is often referred to as a "zero-sum game." The concept of a zero-sum game starts with the understanding that at any given point in time, the holdings of all investors in a particular market aggregate to form that market (Sharpe, 1991). Because all investors' holdings are represented, if one investor's positions outperform the aggregate market over a particular period, another investor's positions must underperform, such that the asset-weighted performance of all investors sums to equal the performance of the market.³ The aggregation of all investors' returns can be thought of as a bell curve (see Figure 5), with the market return as the mean.

Of course, the zero-sum concept holds for any market, such as country-specific stock and bond markets, or even specialized markets such as real estate or commodities. In Figure 5, the market is represented by the blue curve, with the market return as the black vertical dashed line. Over any period, the asset-weighted excess performance to the right of the market return in Figure 5 equals the

inverse of the asset-weighted excess performance to the left of the market return, such that the sum of the two equals the market return. However, in reality, investors are exposed to costs such as commissions, management fees, taxes, bid-ask spreads, administrative costs, and market impact, all of which combine to reduce realized returns over time.

The aggregate result of these costs shifts the curve in Figure 5 to the left. We represent the adjustment for costs with the brown-shaded distribution, which shows the impact of management expenses and transaction costs. Although a portion of the after-cost, asset-weighted performance continues to lie to the right of the market return, represented by the light brown region, a much larger portion of the brown curve is now to the left of the black dashed line, meaning that, after costs, most of the investors' asset-weighted performance falls short of the aggregate market return. By minimizing costs, therefore, investors can help ensure that their net return is closer to the market return, on average, giving them a greater chance of outperforming a majority of the higher-cost investors in similarly positioned funds.

³ Asset weighting gives proportional weight to each holding, based on the holding's market capitalization. Compared to equal weighting, which helps ensure against any one security dominating the results but also implicitly makes relatively large bets on smaller constituents, dollar weighting more accurately reflects the aggregate equity and bond markets.

Figure 6. Asset-weighted expense ratios of Canadian active and index mutual funds

	Actively managed funds	Index funds	Difference
Canadian equity funds	223.32 bps	79.13 bps	144.19 bps
Canadian bond funds	129.81 bps	68.59 bps	61.23 bps

Source: Vanguard calculations using asset-weighted management expense ratios compiled from prospectuses by Morningstar, Inc. Data may reflect pre-HST MERs and, thus, post-HST MERs would have been higher. MERs may not reflect management fee waivers or operating expense absorptions. Data may include sector ETFs and leveraged ETFs, which usually have higher MERs than all-market index funds. Data as of 31 December 2010. MER is calculated as the total fees and expenses charged over the previous 12-month period.

Cost comparisons are for illustrative purposes only and are not meant to be all-inclusive. MER is expressed as an annual percentage of fund assets. It is composed of the base management fee plus certain operating expenses, such as administrative costs, plus applicable taxes. Different components contribute to the respective MER calculations for actively managed funds and index funds. Transaction costs associated with the issue, exchange, sale, and redemption of funds are not included. Trading, portfolio rebalancing and optional costs, and income taxes payable by any unit-holder, are also not included. There may be significant differences between the investments that are not discussed here.

For example, investors whose fund has stated expenses totalling 50 basis points—a cost hurdle substantially below Canadian equity funds’ average expense ratio of 223 basis points (see **Figure 6**)—stand a greater chance of outperforming a majority of the higher-cost investors in similarly positioned funds. This principle is just as relevant in markets often thought to be less “efficient,” such as small-cap or international equities (Waring and Siegel, 2005).

The indexing cost advantage

Compared with index funds, actively managed mutual funds typically have higher management fees coupled with higher transaction costs. Figure 6 shows the average dollar-weighted expense ratios for actively managed equity and bond mutual funds. As of 31 December 2010, investors in actively managed equity Canadian mutual funds were paying an average of approximately 144 basis points *more* in expenses per year than investors in index funds. Active management’s higher fees often result from a portion of the management fee that must cover the research process. Higher transaction costs are attributable to the generally higher turnover associated with active management’s attempt to outperform the market. Why is this important? A shareholder’s net return equals the gross return less management expenses and transaction costs. The lower the cost drag, the greater the net return. Over time, lower costs can mean outperformance relative to similar higher-cost funds.

Index funds generally operate with lower costs, regardless of asset class or sub-asset class. Index funds derive their low-cost structure from their low management fees and low turnover. Turnover, or the buying and selling of securities within a fund, results in transaction costs such as commissions, bid-ask spreads, market impact, and opportunity cost. These costs, although incurred by every fund, are generally opaque, but are realized in net returns. A mutual fund with abnormally high turnover would thus likely incur large trading costs. All else equal, the impact of these costs would reduce total returns realized by the investors in the fund.

A mutual fund’s expense ratio, however, is visible and represents shareholder payments to fund managers. Because costs eat into returns, reported expenses may be a valuable tool when evaluating fund returns. Research bears this out. For example, Financial Research Corporation (2002) evaluated the predictive value of different fund metrics, including a fund’s past performance, Morningstar rating, alpha, and beta.⁴ In the study, a fund’s expense ratio was the most reliable predictor of its future performance, with low-cost funds delivering above-average performances in all of the periods examined. A fund’s expense ratio is a valuable tool for selecting an investment, because the expense ratio is one of the few performance factors that are known in advance.

4 *Alpha*: A portfolio’s risk-adjusted excess return versus its effective benchmark.

Beta: A measure of the magnitude of a portfolio’s past share-price fluctuations in relation to the ups and downs of the overall market (or appropriate market index).

Figure 7 provides evidence for the inverse relationship between investment performance and cost within the Canadian mutual fund universe. Specifically, the figure shows the ten-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.

Impact of market cycles

Traditionally, to illustrate the relative performance of indexing and active strategies, point-in-time statistics such as those presented in Figure 1 are used. However, alternative analyses can enhance the discussion, potentially leading to a more robust answer regarding relative performance. Over time, the actual percentage of active funds underperforming a particular index will vary, occasionally significantly; historically, however, the long-term return distribution of active managers has been skewed toward underperformance of the broad market, largely due to the cumulative effect of costs.

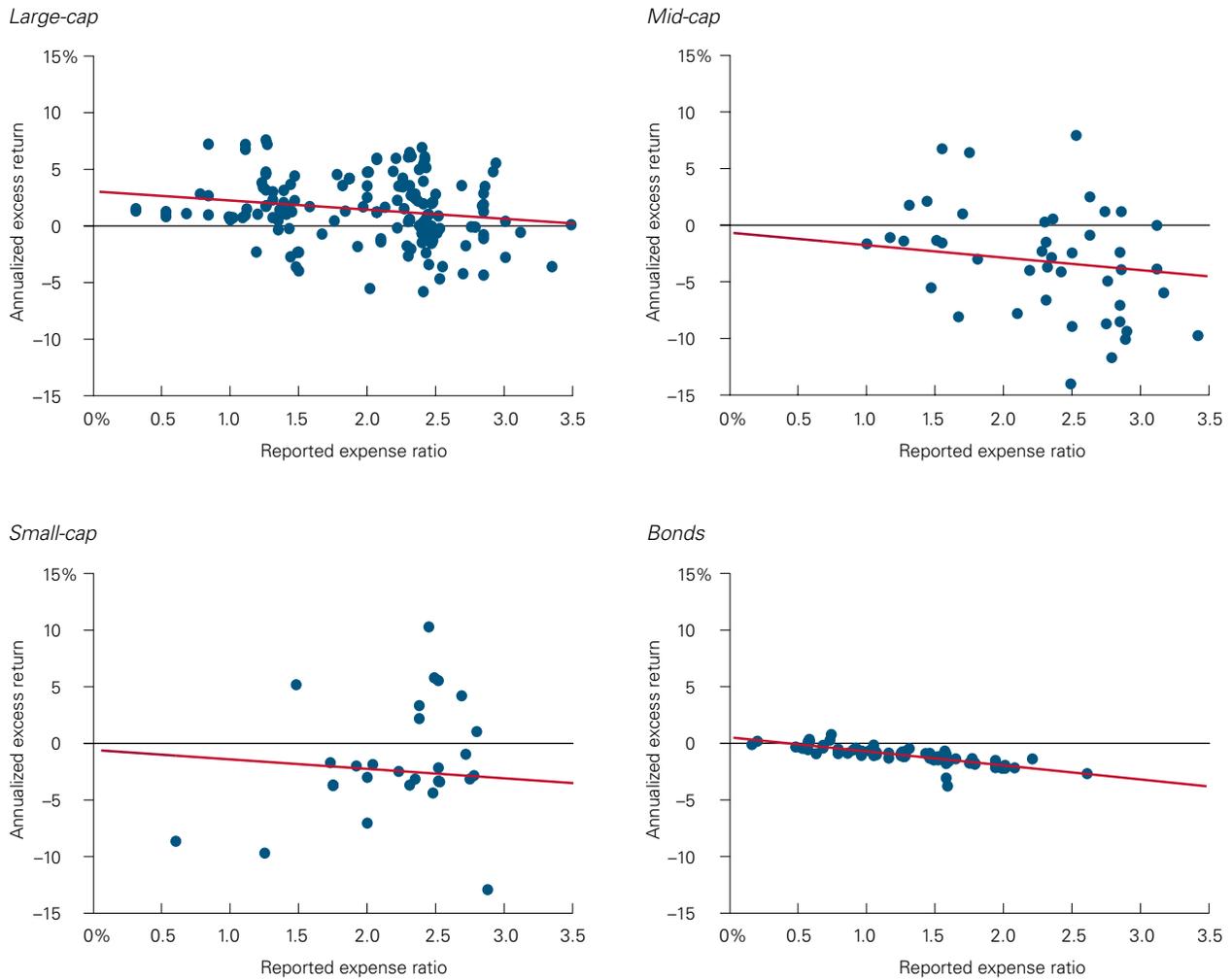
Although the likelihood of outperforming the market decreases over time, actively managed funds do offer the opportunity to add value at any point. Figure 8, on page 12, shortens the observation window to one-year periods to evaluate active managers' ability to win "at any point." It's clear from the data presented that over very short periods, significant volatility can enter the index/active debate. For example, after two years during which a significant majority of actively managed funds outperformed their style benchmark, Canadian funds ran into eight

consecutive years of underperformance. Of interest is the cause for the dramatic shift in outperformance—analysis that is beyond the scope of this paper.

Another traditional view has been that actively managed funds can generally outperform a given index during bear markets, thereby protecting investors better than a similar index fund could. To examine that supposition, we looked at the impact of bull and bear markets on the relative performance of actively managed funds (see Figure 9, on page 13). Again, the inconsistency of results was apparent, underscoring that we should not assume that, compared with an "active" investor, an index investor is at an immediate disadvantage during a bear market, despite the opportunity for the active manager to add value.

Of course, it is interesting that a smaller percentage of actively managed funds underperformed during bear markets; however, investors should also be aware that to win over time, a manager must accurately time the start and end of the bear market and must accurately select winning stocks during each period. In addition, it's important to remember that bear markets are typically shorter in duration than bull markets, so that winning during a bear market may not overcome consistent underperformance during a bull market that lasts longer on average. The bull market results in Figure 9 appear to confirm the challenges associated with correctly identifying a bear market, subsequently investing in the bear market to take advantage of the poor market performance, and then ultimately repositioning the portfolio to take advantage of the subsequent bull market. Combining these results with those from Figure 1 demonstrates the challenges for long-term investors who elect active management.

Figure 7. Inverse relationship between expenses and excess returns among Canadian mutual funds:
Ten years ended 31 December 2010



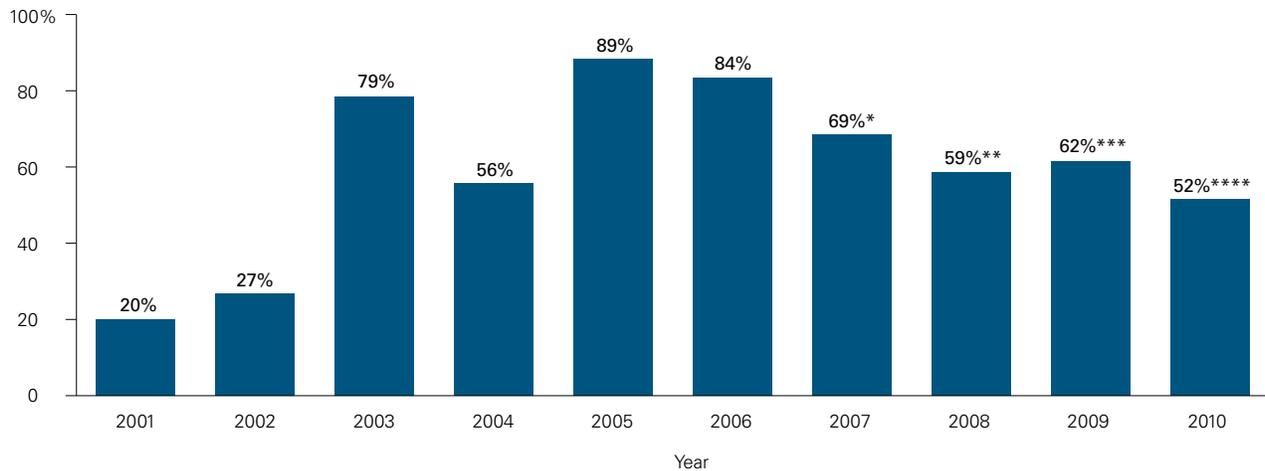
Notes: Each plotted point represents a fund within the specific size, style and asset group. Each fund is plotted to compare its expense ratio (x-axis) with its ten-year annualized excess return relative to the benchmark (y-axis). The straight line in each component group represents the linear regression, or the best-fit trend line—that is, the general relationship of expenses to returns within each asset group. The scales are standardized to show the slopes' relationship to each other, with expenses ranging from 0% to 3% and returns ranging from -15% to 15%. Some funds' expense ratios and returns go beyond the scales and are not shown. Equity benchmarks are represented by the following indexes: Large Cap—MSCI Canada Large Cap Index; Mid Cap—MSCI Canada Mid Cap Index; Small Cap—MSCI Canada Small Cap Index; Bonds—Citigroup Canadian GBI 5-7 Year Bond Index. Excess returns represent the median monthly return across all funds in a given style box less the benchmark return. Monthly differences are then compounded over the 10-year period.

For illustrative purposes only. This illustration does not represent the return on any particular investment.

Sources: Vanguard calculations, using data from Morningstar, Inc., MSCI and Citigroup.

Figure 8. Actively managed Canadian funds have not shown consistency year over year

Percentage of active funds underperforming style benchmark



*1 fund liquidated or merged over this period
**12 funds liquidated or merged over this period
***54 funds liquidated or merged over this period
****15 funds liquidated or merged over this period

Notes: To account for survivorship bias, we identified funds that were in existence at the start of the period and were either liquidated or merged during the stated period. Those funds were added to the base sample to compute the percentage of all funds that underperformed the benchmark. Funds included here are from the following Canadian Morningstar categories: Canadian Equity, Canadian Small/Mid Cap Equity, Canadian Focused Equity, Canadian Focused Small/Mid Cap Equity and Canada Fixed Income Funds. For illustrative purposes only. This illustration does not represent the return on any particular investment.

Sources: Vanguard calculations using data from Morningstar, Inc., and MSCI.

Additional benefits of indexing

Asset allocation

Although active managers must manage a portfolio by incorporating characteristics and/or securities that differ from those of a benchmark if they are to try to outperform it, investors primarily interested in obtaining the market return or in reducing a fund's volatility around a benchmark should strongly consider indexing. Historically, broad diversification and style consistency have helped to provide returns more similar to those of the targeted benchmark. As a result, index funds and ETFs play an important role in the portfolio construction process. An indexed mandate also allows greater control of a portfolio's risks. For example, filling a recommended equity allocation with a concentrated, actively managed fund may lead to portfolio characteristics that will differ at

any given point in time from the risk-and return characteristics of the equity market (see, for example, Figure 3).

Diversification

Index funds typically are more diversified than actively managed funds, a by-product of the way indexes are constructed. Except for index funds that track narrow market segments, most index funds must hold a broad range of securities to accurately track their target benchmarks, whether by replicating them outright or by a sampling method. The broad range of securities dampens the risk associated with specific securities and removes a component of return volatility. Actively managed funds, on the other hand, tend to hold fewer securities with varying degrees of return correlation.

Style consistency

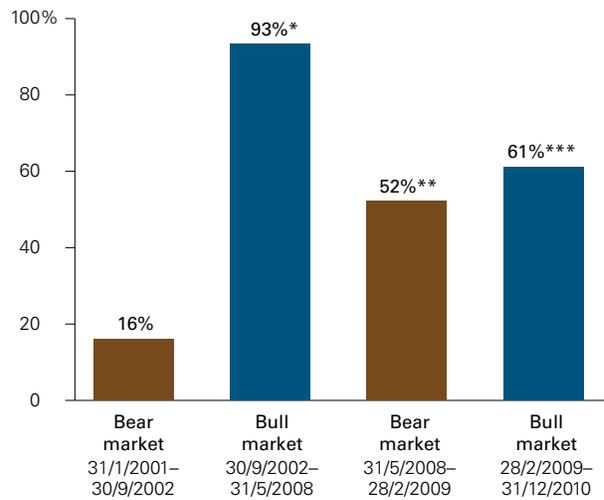
An index fund maintains its style consistency by attempting to closely track the characteristics of the index. An investor who desires exposure to a particular market and selects an index fund that tracks that market is virtually assured of a consistent allocation. An active manager may have a broader mandate, causing the fund to be a “moving target” from a style viewpoint. Many active managers can choose to vary their investments among small-, medium-, or large-cap stocks, betting on whichever segment is expected to perform best. Even if a manager has a well-defined mandate, the decision to hold more or less of a security than the index will lead to performance differences.

Conclusion

Since its beginnings in the early 1970s, indexing has grown rapidly across the global investment community because it provides a simplified, efficient investment vehicle with the potential to increase shareholder wealth across a broad range of asset classes and sub-asset classes. Primarily because of their higher-cost structure, and the reality of the zero-sum game, actively managed investments have generally underperformed costless, unmanaged benchmarks. Although active management offers the hope of outperformance, the reality is that costs are generally higher, outperformance is fleeting, and the probabilities of replicable outperformance dwindle with time.

Figure 9. Actively managed Canadian funds have not shown consistency across market cycles

Percentage of active funds underperforming style benchmark during bull/bear market cycles



*2 funds liquidated or merged over this period

**16 funds liquidated or merged over this period

***66 funds liquidated or merged over this period

Notes: To account for survivorship bias, we identified funds that were in existence at the start of the period and were either liquidated or merged during the stated period. Those funds were added to the base sample to compute the percentage of all funds that underperformed the benchmark. Funds included here are from the following Canadian Morningstar categories: Canadian Equity, Canadian Small/Mid Cap Equity, Canadian Focused Equity, Canadian Focused Small/Mid Cap Equity and Canada Fixed Income Funds. For illustrative purposes only. This illustration does not represent the return on any particular investment.

Sources: Vanguard calculations, using data from Morningstar, Inc., and MSCI.

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