# TABLE OF CONTENTS

Summary .................................................................................................................. 3

Introduction ............................................................................................................ 3

Treatment of Fees .................................................................................................. 4

An Index is Not the Market .................................................................................... 4

Confusing the Index with Investments that Track the Index ............................. 6

Transaction Costs .................................................................................................. 7

Bid-Ask Spreads ..................................................................................................... 7

Tracking Error is Real .............................................................................................. 8

Other Analytical Considerations in Passive vs. Active Studies ......................... 10

  Benchmark Misuse ............................................................................................... 10

  Narrow Universe ................................................................................................. 11

  End Date Bias .................................................................................................... 11

  Recognition of Risk ........................................................................................... 11

Should Passive Investing Play a Larger Role? ..................................................... 12

Conclusions ........................................................................................................... 12

Appendix ............................................................................................................... 14
Summary

Active and passive investing strategies are both used in the management of investment accounts. For example, large defined benefit pension plan managers in Canada utilize both active and passive asset selection strategies in the management of pension assets. The proportion with which either investing strategy is used by a given manager or advisor can vary, and will be determined by his or her client’s specific circumstances and objectives.

Despite the utility of both investing strategies, there remains an ample supply of literature in the marketplace that purports to show that passive strategies are superior to active strategies. This study attempts to clarify and counter some popular misperceptions, so that investors can be better informed in their consideration of active and passive strategies in the building of their portfolios.

The Report concludes that:

- there is room for both active and passive investment strategies in capital markets and in individual portfolios;
- when judging costs of active and passive strategies through comparisons of MERs on alternative products it is important to account for differences in the services provided by these products;
- the performance of passive investing should not be confused with the performance of the underlying index – costs will modify returns, and tracking errors, up or down, can be significant;
- studies that purport to show the enduring advantages of one strategy over the other must be read with caution – they can be subject to a number of analytical weaknesses including benchmark misuse, narrow universe, end date bias, different services included in the returns and lack of recognition of risk; and
- the right investment strategy for an investor should be individualized to his / her own investment objectives, risk preference and time horizon.

Introduction

Passive investment management involves managing a portfolio to replicate the performance of a particular index. Passive strategies are most commonly associated with index mutual funds and exchange traded funds (ETFs).

Active investment management involves managing a portfolio to outperform, or decrease the volatility profile of, an index. This is achieved through the Portfolio Manager’s active choice of a collection of investments that differs from the underlying index. Often this is done through stock selection (i.e., picking individual stocks that are expected to outperform based on fundamental or technical analysis) or tactical asset allocation (i.e., picking broader asset classes, sectors, countries, currencies, and so forth that are expected to outperform based on views of the economy and financial markets).
Proponents of passive investing often cite the Efficient Markets Hypothesis as a theoretical rationale for their preference for passive over active strategies. Developed by Eugene Fama in the mid-1960s, and later popularized by Burton Malkiel in the 1970s, the Efficient Markets Hypothesis views markets as efficient processors of all available information relevant to stock pricing and concludes that markets therefore cannot be reliably and systematically beaten by stock pickers. While efficient markets theorists would accept that active investors can at times beat markets, they would say that on average their performance will be equal to, or lower than (due to transaction costs, wages, etc.) that of the index. The implication is that passive investment management, which is assumed to be less costly and subject to small tracking error, will on average outperform active investment management.

Other research, however, has not supported this view. In fact, recent published research comes to the opposite conclusion - that active investing is predictive of fund performance, and that funds with the highest measures of active investment significantly outperform their benchmarks, both before and after expenses, and they exhibit strong performance persistence.

There remains, nevertheless, an ample supply of commercial literature in the marketplace that purports to show that passive strategies are superior to active strategies. This literature, despite the analytical weaknesses that it often contains, receives wide play in the popular media in support of product choices for retail investors, choices that may be unwarranted. This report attempts to shine a light on the common analytical weaknesses of this literature so that readers can come to more informed conclusions about active and passive investing and their respective roles in the construction of portfolios.

**Treatment of Fees**

One common misperception about the relative costs of active and passive instruments arises from the direct comparison of Management Expense Ratios (MERs) on actively-managed mutual funds with those on passively-managed exchange traded funds (ETFs). These direct comparisons are invalid cost comparisons as they fail to adjust for differences in services provided. For example, the mutual fund MER typically embeds the cost of advice whereas the ETF MER has no advice component.

Since the mutual fund MER generally embeds a full percentage point for dealer/advisor compensation which is not included in the ETF MER, the MER differential overstates the cost advantage of ETFs by up to 100 basis points. Other considerations, noted below, narrow the true cost of ownership differential between mutual funds and ETFs even further.

**An Index is Not the Market**

There are many index providers offering a wide range of indexes to the market. Indexes are available for broad markets, market segments, sectors, etc., and are
constructed using a variety of methods including market cap weighting, price weighting, equal weighting, fundamental, leveraged and inverse indexing.

Chart 1 shows 20 indexes of the U.S. equity market produced by five different index providers.

**Chart 1 - Sample US Equity Indices – Very Similar But Which One is the Market?**

<table>
<thead>
<tr>
<th>Full Name</th>
<th>Abbreviation</th>
<th>Focus</th>
<th># of Stocks Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI Broad Market</td>
<td>MSCI USA</td>
<td>Broad</td>
<td>Market cap</td>
</tr>
<tr>
<td>MSCI USA BM</td>
<td>MSCI US BM</td>
<td>Broad</td>
<td>Market cap</td>
</tr>
<tr>
<td>MSCI US Investable Market 2500</td>
<td>MSCI US IM2500</td>
<td>Broad</td>
<td>Market cap</td>
</tr>
<tr>
<td>MSCI US Prime Market 750</td>
<td>MSCI US P750</td>
<td>Broad</td>
<td>Market cap</td>
</tr>
<tr>
<td>MSCI US Large Cap 900</td>
<td>MSCI US LC300</td>
<td>Large/Mid</td>
<td>Market cap</td>
</tr>
<tr>
<td>NYSE Arca Composite Index</td>
<td>NYSE Comp</td>
<td>Broad</td>
<td>Market cap</td>
</tr>
<tr>
<td>NYSE US 100 PR</td>
<td>NYSE US 100</td>
<td>&gt;2000</td>
<td>Market cap</td>
</tr>
<tr>
<td>Dow Jones Industrial Average</td>
<td>DJIA</td>
<td>Large Cap</td>
<td>Price</td>
</tr>
<tr>
<td>Dow Jones US Large Cap</td>
<td>DJ US LC</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>Dow Jones Composite Average</td>
<td>DJ Comp</td>
<td>Large Cap</td>
<td>Price</td>
</tr>
<tr>
<td>Wilshire 5000</td>
<td>Wilshire 5000</td>
<td>Broad</td>
<td>Market cap</td>
</tr>
<tr>
<td>Wilshire 2500</td>
<td>Wilshire 2500</td>
<td>Broad</td>
<td>Market cap</td>
</tr>
<tr>
<td>Russell 1000</td>
<td>Russell 1000</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>Russell 3000</td>
<td>Russell 3000</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>Russell Top 200</td>
<td>Russell Top 200</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>Russell Top 50</td>
<td>Russell Top 50</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>S&amp;P 500</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>S&amp;P 1500</td>
<td>S&amp;P Comp 1500</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>S&amp;P 100</td>
<td>S&amp;P 100</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
<tr>
<td>S&amp;P 900</td>
<td>S&amp;P 900</td>
<td>Large Cap</td>
<td>Market cap</td>
</tr>
</tbody>
</table>

An index is not the market

If it were possible to achieve the performance of one of these indexes, which one should an investor choose? Does it matter?

Chart 2 suggests that it does. The above-noted indexes are rated from best to worst in performance in each of the years over the last decade. The difference in performance between the best performing index and the worst performing index over these years ranged from a low of 5.9% in 2006 to a high of 21.4% in 2000 and 2003. The average best to worst performance differential over the decade was 13.2%. Clearly, indexing to the U.S. equity market can produce a wide variety of outcomes for the investor depending upon which index is chosen.

While the same can be said for actively-managed mutual funds, of which there are numerous funds available managed to the widest range of investment universes and styles in the market, the key takeaway is that with such a wide variety of returns year over year, it is important for investors to seek advice when constructing portfolios – regardless of whether it is a passive or active investment product. Where advice is included, it should be similarly factored in when comparing the true cost of ownership of active and passive investments.
Active and Passive Investing

**Chart 2 - US Equity Indices - Despite Similarity, Returns Vary Significantly**

<table>
<thead>
<tr>
<th>Year</th>
<th>DJ Comp</th>
<th>DJA</th>
<th>S&amp;P 100</th>
<th>Russell 500</th>
<th>Russell 1000</th>
<th>NYSE Comp</th>
<th>NYSE US 100</th>
<th>NYSE Comp</th>
<th>NYSE US 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>-1.8%</td>
<td>-4.9%</td>
<td>-0.4%</td>
<td>18.0%</td>
<td>12.5%</td>
<td>21.0%</td>
<td>12.5%</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td>2001</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2002</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2003</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2004</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2005</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2006</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2007</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2008</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2009</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
</tbody>
</table>

**Source:** Index returns from Ibbotson Associates, except NYSE US 100 returns (2000-2002) from Bloomberg. MSCI US Broad Market and Russell Top 50 returns are provided following their inceptions in 2003 and 2005, respectively. Returns are 1-year total returns, in Canadian dollars, as of December 31 of each year.

Confusing the Index with Investments that Track the Index

One of the most common weaknesses of studies evaluating active vs. passive strategies is in comparing the performance of the active investment to an index rather than to an investment tracking the index. The two are not the same. Investors cannot purchase an index. They can only purchase an investment that attempts to perform like an index.

Returns on passive investments will differ from their underlying index due to a number of factors:

- **Transaction Costs** to purchase the investment product such as commissions paid to a broker to buy an ETF;
- **Bid/Ask Spread** for ETFs (the spread between the price at which the ETF is sold on the exchange and the price at which it is purchased); and
Tracking Error

This is a function of:

- The annual MER charged by the ETF; and
- How effective the manager is in replicating the index returns when implementing the indexing strategy.

Transaction Costs

As noted earlier, unlike most mutual funds in Canada, ETFs that are purchased through an advisor do not include the advisor compensation in the product’s MER. Not only should this advisor compensation be considered in the total cost of the ETF (approximately 100 basis points), so too should the cost of purchasing the product.

Specifically, where ETFs are purchased and sold through a brokerage account, transaction costs will apply to each transaction. While transaction costs vary among providers, fees at discount brokers are set at different levels depending upon the amount of assets held with the broker. A representative rate in the direct brokerage market currently is $9.99 per trade. For a $5,000 ETF purchase this would represent approximately 20 basis points, and 40 basis points for a round trip purchase and sale. These fees are more significant for smaller and more frequent trades.

Bid-Ask Spreads

For an ETF there is an additional element of transaction cost that does not factor into the ownership cost for a mutual fund, and is not required to be disclosed to the purchaser - the bid/ask spread in the market.

Results published in Business Week in 2007 showed bid/ask spreads for U.S. listed ETFs based on their daily volume. For the most frequently-traded ETFs the bid/ask spreads were as low as 2 basis points. Most ETFs, however, are less liquid with wider bid/ask spreads. The overall average bid/ask spread in the Business Week article across the 520 ETFs included in the study was 20 basis points.

The average cost differential between actively-managed mutual funds and ETFs, narrowed above by 100 basis points for advice and 40 basis points for transaction costs, should be narrowed by at least a further 10 basis points (i.e., half of the average bid/ask spread for a one-sided trade), or a multiple of this depending on the number of times the asset is traded.

As with transaction costs, the significance of the frequency of trades is not to be overlooked. John Bogle writes in a 2007 Business Week article that “Trading in the major-sector ETFs is also remarkably high. The shares typically turn over at an average annual rate of 200% per year (an average holding period of just six months)”. Contrast this with holding periods for U.S. mutual funds, reported for example by U.S. Research firm Dalbar Inc., to be in the range of 3 to 4 years over the last 20 years.
Active and Passive Investing

It is true that the latter point is dependent on the investor, and that an investor who chooses to buy and hold an ETF will not be subject to these high transaction costs. To the extent, however, that ETFs are sold without advice, which is the implication of comparing ETF MERs and mutual fund MERs, then the above result may come into play. It is well documented, for example, that investment decisions of non-advised investors are very often driven by short-term biases. Investors often cycle between being over-cautious and under-cautious, and without the moderating influence of an advisor, very often choose to transact too frequently and at precisely the wrong times.11

Chart 3 - The Bid-Ask Spread – The investor’s personal tracking error

Tracking Error is Real

Tracking error, defined as the difference in total return of the product (e.g. ETF) and the index it is trying to replicate can arise from a number of factors:

- The management expenses (MER) of the ETF.
- The costs and performance differences arising from implementing a portfolio. Products (such as ETFs) that attempt to perform like an index require re-weighting or optimization as the underlying securities in the index change in price or as they are added/deleted from the index. The portfolio manager of an ETF can use a variety of strategies to perform like an index. For example, the manager can invest directly in all the securities of the underlying index, invest in a basket of securities that best ‘represent’ the index, invest in derivatives to replicate the index, or a combination of all of these methods. The frequency and success of these strategies will determine how closely the portfolio can track the index.

Tracking Error does not include the other costs of ownership to the investor. Recall that the dealer/advisor compensation is not included in the ETF MER so this should be considered in the total cost of ownership as well as the commissions and bid/ask spreads described earlier.
Tracking error is very real and can be quite large – in some cases several times the typical expense ratio of an actively managed fund.

Morgan Stanley provided an analysis of tracking error for U.S.-listed ETFs in 2009. They studied 563 U.S.-listed ETFs in 11 market segments. Their results are captured in Chart 4 of this Report. For 2009, Morgan Stanley reports that the average tracking error for U.S.-listed ETFs was 125 basis points ranging from a low of 0 basis points to a high of 1709 basis points.

The above tracking errors and their averages are reported as absolute numbers. Tracking error, of course, can be positive or negative – adding or subtracting from the performance of the underlying fund. It is noted that 83% of the tracking errors in the Morgan Stanley analysis were negative, reducing the performance of the instrument. When actual rather than absolute errors are used for the computation of averages, the average of positive and negative tracking errors for U.S. ETFs in 2009 was negative 89 basis points.

Clearly, passive investors are not necessarily getting index returns. Using the above estimates of 1.0% for advice, 0.9% for average tracking error, 0.2% for transaction costs and 0.1% for bid / ask spread, Chart 5 illustrates that an ETF can on average underperform the index return by 2.2%.
Other Analytical Considerations in Passive vs. Active Studies

Studies that purport to show the enduring advantages of one strategy over the other must be read with caution as they are often subject to other known weaknesses. These include: benchmark misuse, generalization from a narrow universe, end date bias, and failure to recognize differences in risk across different mandates.

Benchmark Misuse

Almost without exception, the study of relative returns to active investment strategies has been subject to the improper use of benchmarks. Researchers writing these reports typically assign broad market benchmarks to all managers after the fact, rather than using the actual benchmark for each fund. As a result, active manager performance is frequently compared against the wrong benchmark, and the conclusions drawn from the analysis are consequently of limited value to investors.

As a case in point, the 2009 Standard & Poor’s Indices Versus Active Funds Scorecard (SPIVA Canada Report) compares the performance of funds within a very broad category against a single S&P benchmark. For example, funds within the Global Equity category are compared to the S&P Developed Large MidCap Index despite the fact that this category contains very different types of funds. It is very unlikely that all the funds in this category which include Global Equity Funds, Global Dividend Funds,
Global Infrastructure Funds, Fund-of-Funds, Global SRI Funds, and Global Specialty Funds would be aiming to beat the S&P Developed Large MidCap Index.

Narrow Universe

The observation that passive management has outperformed active management in a single or limited number of asset classes does not imply the same is true for all asset classes. The 2009 SPIVA Canada Report covers 8 CIFSC fund categories out of a total of 46 categories, covering 34.1% of total assets (see Chart 6).

End Date Bias

The observation that passive management has outperformed active management over a limited time period does not imply the same is true for all time periods. In reality, the relative success of both active and passive strategies fluctuates through time. Analysts who generalize from underperformance relative to a specific time frame may be guilty of ‘end date bias’ in their analysis.

Recognition of Risk

Actively-managed investment products offer a diversity of risk profiles, an advantage not measured in performance relative to an index. Chart 7 shows the minimum and maximum five year fund betas for eight fund categories covered in the SPIVA Canada Report along with the available ETFs in the respective categories. The diversity of risk levels found in each category illustrates the range of opportunities these products represent for matching the risk preferences of individual investors. Different funds will target different risk profiles. Without adjusting for risk, strict performance measures will tend to punish some funds and reward others unfairly (see Chart 7).
Should Passive Investing Play a Larger Role?

It is important to remember that passive investing cannot exist on its own. Price formation in markets occurs as a result of the interaction of individual active decision makers buying and selling the underlying assets. Passive investment follows as a form of ‘free-rider’ on the price formation of efficient markets. There is a role for both asset selection strategies in the management of institutional and retail portfolios - neither should be viewed or promoted as an optimal strategy for investors in general.

Conclusions

Studies which purport to show the advantages of passive investing over active investing must be read with some degree of caution. This paper has attempted to illustrate some of the most common analytical weaknesses of recent published works which have been widely used for the promotion of passive over active investment vehicles. Both have roles to play in capital markets and the portfolios of investors.

When studies are designed to properly account for the factors highlighted in this paper, systematic cost advantages for either active or passive strategies disappear.

A number of conclusions flow from these observations:

- there is room for both active and passive investment strategies in capital markets and in individual portfolios;
Active and Passive Investing

- when judging costs of active and passive strategies through comparisons of MERs on alternative products it is important to account for differences in the services provided by these products;
- the performance of passive investing should not be confused with the performance of the underlying index – costs will modify returns and tracking errors, up or down, can be significant;
- studies that purport to show the enduring advantages of one strategy over the other must be read with caution - they can be subject to a number of analytical weaknesses including benchmark misuse, narrow universe, end date bias, different services included in the returns and lack of recognition of risk; and
- the right investment strategy for an investor should be individualized to his / her own investment objectives, risk preference and time horizon.

Research shows that Canadians overwhelmingly choose to work with advisors in choosing the right investment strategy\textsuperscript{13}, and that investing with advice yields substantial, quantifiable benefits relative to investing without advice\textsuperscript{14}.
Endnotes:

3. A review of this literature is provided in *Active Investing and Index Investing*, Dutch Fund and Asset Management Association, May 2010.
5. A full review of the pricing structure of Canadian mutual funds is found in "Understanding MERs", The Investment Funds Institute of Canada, April 2011.
6. Discount brokerages may charge higher per trade transaction fees for smaller accounts. One brokerage, for example, charges $19.99 per trade for clients with combined account assets of less than $50,000 (up to 1,000 shares and 2 cents per share thereafter). For these clients, a $5,000 ETF purchase would represent approximately 40 basis points, and 80 basis points for a round trip purchase and sale.
7. The annual investment limit, for example, for a TFSA.
8. “Focus on ETFs”, *Business Week*, October 15, 2007 [http://www.businessweek.com/magazine/content/07_42/b4054402.htm](http://www.businessweek.com/magazine/content/07_42/b4054402.htm).
9. “What’s wrong with ETFs?” *Business Week*, April 30, 2007 [http://www.businessweek.com/magazine/content/07_18/b4032089.htm](http://www.businessweek.com/magazine/content/07_18/b4032089.htm).