

## Mastering Index Investing

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One of Frontier Capital Management's key investment principles is that index investing is the most efficient way of accessing asset class returns. This research note highlights some of the advantages of index investing and then looks in more detail at the range of index investment techniques available.

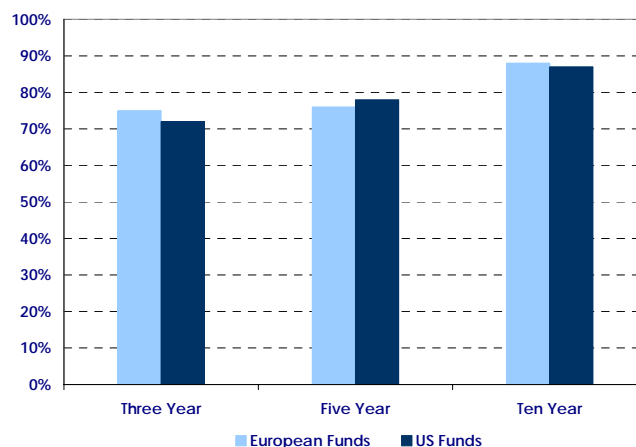
The use of index investing has increased in recent years due in part to its greater transparency and lower costs relative to active management. These lower costs, combined with the difficulty of forecasting future security values, mean that the majority of index investing strategies outperform actively managed funds over longer periods of time. Moreover, the variability from returns of actively managed funds is large, which means that the impact of selecting the 'wrong' fund in terms of the magnitude of potential underperformance can be high.

This recent growth in index invested assets has facilitated the development of new techniques to replicate indices, some of which are likely to be unknown to many investors. The choice of which indexing technique to use depends upon many factors, such as the size of investors' portfolios and their liquidity requirements. However, in all cases investors should keep two key objectives in mind: minimising tracking error and minimising cost. Some of the new index investing techniques offer improved tracking accuracy and lower costs.

### The Relative Merits of Index Investing Strategies

Much has been written about the benefits of index investing strategies relative to active fund management.<sup>1</sup> Over longer time periods most index investing strategies provide superior net performance. Research by Vanguard suggests that over 70 per cent of mutual funds are outperformed by their indices over a three year period, with this rising to just under 90 per cent after ten years (see chart below).<sup>2</sup>

**Active Funds Outperformed by Index**



Source: Vanguard (2004)

<sup>1</sup> For an overview see Malkiel (1996).

<sup>2</sup> At the lower end of estimates, latest data from S&P suggests that 60 per cent of active global funds were outperformed by their benchmark over the past three years and 65 per cent over the past five years.

Lower costs and the difficulty of predicting future security values are the main reasons for this superior performance. The cost savings of index investing occur across many fronts. With actively managed investments, not only do investors have to pay higher management fees but there are also significant 'hidden' costs resulting from being 'active'. These hidden costs include greater trading commissions, bid-offer spreads, and market impact costs; and all of these are greater for active funds rather than index investments because of higher turnover (see table below).

	Large Cap	Small Cap & Foreign	Emerging Mkts
Expense Ratio	1.3%	1.6%	2.0%
Commissions	0.3%	0.5%	1.0%
Bid-Offer Spread	0.3%	1.0%	3.0%
Impact Costs	0.3%	1.0%	3.0%
<b>Total Active Costs</b>	<b>2.2%</b>	<b>4.1%</b>	<b>9.0%</b>
Total Index Costs	0.2%	0.6%	1.5%
<b>Indexing Advantage</b>	<b>2.0%</b>	<b>3.5%</b>	<b>7.5%</b>

Source: Bernstein (2000)

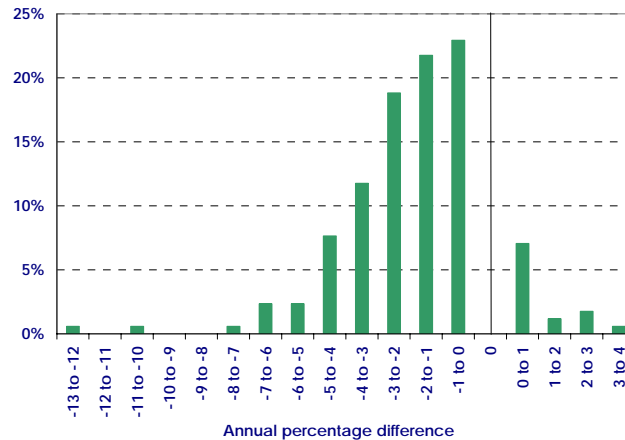
Even with higher costs however, there will always be some actively managed funds outperforming index investments at any one moment in time. One difficulty for investors lies in predicting which actively managed funds will outperform index funds. A number of academic studies have examined the predictability of active funds' returns and unfortunately for investors they generally conclude that the past performance of actively managed funds does not provide a good prediction of their future performance.<sup>3</sup> Even with expert advice, many investors are unlikely to predict those actively managed funds that will outperform in a particular period.

A further disadvantage of pursuing actively managed investments is that the cost of selecting the 'wrong' active fund is high in terms of the magnitude of possible underperformance relative to an index benchmark. Data from McGuigan (2006) for the 20 years to 2003 suggests that the average annual underperformance of large cap US mutual funds versus their index is roughly 2 percentage points (see chart below). His research found that the proportion of actively managed funds that underperformed by a certain amount was always greater than the proportion outperforming by the same amount, illustrating the high cost involved in selecting the 'wrong' active fund.<sup>4</sup>

<sup>3</sup> For an example see Carhart (1997).

<sup>4</sup> After controlling for survivorship bias the underperformance of actively managed funds may be even greater. Research commissioned by David Swensen, the Chief Investment Officer of the Yale University Endowment, found that the 10-year after tax shortfall for US mutual funds is 4.5 per cent annually relative to the returns that would have been achieved from an index fund.

### Relative Performance of Large Cap Funds Verses Index Funds



Source: McGuigan (2006)

A number of active managers respond to the fear of underperformance by ‘hugging’ their benchmark, in effect becoming closet index investors although with higher costs. Cremers and Petajisto (2006) found that 30 per cent of all assets under ‘active’ management in the US in 2003 were actually index tracking and that these closet indexers underperformed by -1.4 to -1.8 per cent annually reflecting higher fees and costs.

Despite their limitations, actively managed investments may still have some role to play when considering portfolios within a core-satellite framework. Burton Malkiel – author of *‘A Random Walk Down Wall Street’*, Professor at Princeton University and long-time advocate of index investing – believes that the core of investor’s portfolios should be in low cost diversified index strategies while up to 20 per cent could be included in alternative satellite investments for which index investments do not exist. According to Malkiel, these alternative satellite investments could include managed funds providing they are largely uncorrelated with markets and are competitively priced.

### Different Methods of Index Investing

The growing popularity of index investing has contributed to the increasing number of techniques available to replicate an index. To capture the full benefits of index investing investors need to concentrate on minimising tracking error and costs while balancing other requirements such as leverage and liquidity. Many of the latest techniques may provide benefits in these areas.

The characteristics of some of the principal index investing techniques are briefly discussed below.

### ***Direct Investing***

Direct investing is one of the oldest methods used for index investment. For direct investing those assets comprising a benchmark are simply purchased and their relative weights adjusted periodically. Direct ownership has the potential advantage of low tracking error and the possibility of investing in a wide variety of assets. However, for diversified portfolios direct ownership involves significant costs and as a result it is often not achievable for many investors.

### ***General Index Tracker Funds***

Index tracker funds are the most common method that retail investors use for index investing. They are investment funds that attempt to track an index by either holding all of the securities in the index (in the same proportions as the index) or by statistical sampling methods. The principal advantage of index tracker funds relative to direct ownership is that they can provide the same diversification but with modest initial investments. However, for some investors the Index Tracker Fund will not provide an exact exposure to a desired asset, if for example exposure to alternative assets or unusual regions is desired (for which Index Tracker Funds may not exist). In addition there is the possibility of index tracking error, and for some asset classes Index Tracker Funds may be less liquid than direct holdings. Finally some index tracker funds charge high fees so investors must monitor this closely.

### ***Exchange Traded Index Funds***

Exchange Traded Index Funds (ETFs) are a form of index tracker fund that are traded on stock exchanges. In addition to the advantages mentioned above, ETFs are typically more liquid than Index Tracker Funds and for this reason they are becoming a very popular method for index investing.

However, as ETFs are a form of Index Tracker Fund there is still the possibility of index tracking error, and they do not cover the full spectrum of assets so that an exact desired asset exposure may not be achievable. In addition, foreign investors potentially suffer dividend withholding tax on ETFs listed in US. As the ETF is traded against the net asset value of the fund, an ETF is also exposed to two layers of commissions, bid-offer spread, and market impact costs: first when the fund trades the underlying securities; and second when investors trade the ETF. A Salomon Smith Barney study estimated the bid/offer spread done on ETFs at 33bps for domestic funds and 87bps for international funds.

### ***Derivatives***

Derivatives such as Futures, Forwards, Swaps and Options are increasingly being used for index investing. They generally have lower commission costs, allow easy diversification (which can involve holding just a few contracts instead of hundreds of stocks). Over the counter derivatives can also be customised for a more exact asset exposure, helping to minimise tracking error.

The main disadvantage of using derivatives is that they often require large initial investments, making them unsuitable for most investors. In addition, derivatives must also be rolled frequently, and for OTC derivatives they also have a counter party credit risk. Nevertheless, because of their significant cost savings the use of derivatives has been increasing.

A summary of the characteristics of the different index investing techniques is presented in the table below.

	<i>Direct Ownership</i>	<i>General Index Tracker Fund</i>	<i>ETF</i>	<i>Derivatives</i>			
				<i>Futures</i>	<i>Forwards</i>	<i>Swaps</i>	<i>Options</i>
<i>Tracking error</i>	Low	Med	Med	Low	Low	Low	Low
<i>Availability to Investors</i>	Med	High	High	Med	Low	Low	Med
<i>Commission costs</i>	High	Med	Med	Low	Low	Low	Low
<i>Customisation to desired assets</i>	High	Med	Med	Med	High	High	Med
<i>Liquidity</i>	High	Med	High	High	High	High	Med

## Summary

Over longer periods of time the majority index investments tend to outperform actively managed funds due to the lower costs of index investing and the difficulty of predicting future security values. In addition, the cost of selecting the 'wrong' active fund can be significant in terms of the magnitude of the possible underperformance.

As more investors choose index investing, the range of methods available for index replication grows. The choice of which method to adopt will depend upon a number of factors. At Frontier we believe that minimising tracking error and costs are two of the most important ingredients in achieving superior long-term net performance, and we aim to deliver this to our investors in a fund with high transparency and liquidity.

Should you wish to obtain any further information on index investing or to learn about the range of Frontier's products please visit our website at [www.FrontierCM.com](http://www.FrontierCM.com) or contact Michael Azlen at [Azlen@FrontierCM.com](mailto:Azlen@FrontierCM.com)

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