

An Active Approach to Indexing

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***Abstract:** Due to the impressive growth and impact of indexing within client portfolios, an overall assessment of its advantages, disadvantages, and future directions is warranted. First, we briefly address why indexing appeals to many advisers. Second, we review the significant operational issues that negatively impact index returns and cost investors billions of dollars a year. Third, we discuss the style purity and subsequent shortcomings of the asset class indexes that are used by many advisers to complement a client's portfolio. Finally, we discuss future directions for index funds and their role in helping create individualized portfolios.*

Introduction

From its origin as an investment vehicle that was once awarded the “Dubious Achievement Award” from *Pension & Investments*, index funds have now forged an indelible imprint in the investment landscape and have developed into an imposing watermark for investment outperformance. Although it is difficult to arrive at an exact number, the amount of assets in index funds is large by any measure. As of 2004, more than \$746 billion were in indexed mutual funds representing over 12.5% of all mutual fund assets. In 1993, exchange-traded funds represented \$811 million in invested assets. Today, that number is closer to \$246.5 billion. The largest equity mutual fund, Vanguard's S&P 500 Index Fund Investors Share, has more than \$74 billion under management. Standard & Poor's estimates that the amount of assets indexed to the S&P 500 are more than \$1 trillion.

Indexing has also taken a significant foothold among institutional investors. As of 2004, pure index investments accounted for more than \$873 billion of the invested assets for the largest 1,000 pension funds. This represents over 16% of their \$5.35 trillion in assets. Including enhanced index products brings the total to more than \$1 trillion dollars in indexed funds or roughly 20% of all assets. Needless to say the growth of \$6 million from the first institutional account in 1971 to its current state is evidence of its acceptance and significant role in the investment landscape.

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As of June 2005, there were 695 index mutual funds and 165 exchange-traded funds within the Morningstar universe. Due to the continual growth of indexing strategies within advisory practices, an overall assessment of its advantages, disadvantages, and future directions is warranted. First, we briefly address why indexing may appeal to many advisers. Second, we review the significant operational issues that negatively impact index returns and cost investors billions of dollars a year. Third, we discuss the style purity and subsequent shortcomings of the asset class indexes that are used by many advisers to complement a client's portfolio. Finally, we discuss possible future directions for index funds and their significance for advisers who use them in constructing client portfolios.

Benefits

In 2003, a survey of financial advisers and other financial professionals revealed from most to least important the reasons they utilized index funds.¹ Results indicate, in order of importance, that advisers utilize index funds because they

- provide diversification
- lower costs
- target the desired market
- provide a benchmark to measure performance
- are less risky
- provide superior returns

These reasons are still very consistent with the advantages early indexers provided.²

Interestingly, even though the survey indicated that superior returns were the least rated reason for utilizing index funds, research has consistently documented the underperformance of active managers relative to their corresponding index.³ Although the focus of this paper is not to continue the passive versus active management debate, it is clear to see why index funds may be viewed as a favorable investment vehicle by individual and institutional investors. At the same time, however, indexing has some significant flaws that advisers should seriously consider before utilizing them in a client's portfolio. To get a better understanding of these issues we will first discuss some basic details with regard to constructing and managing an index fund.

Construction and Rebalancing

The management of an index fund is relatively straightforward. A full-replication strategy requires the portfolio manager to mirror the index and rebalance the fund to match the reconstitution frequencies and proportions of the index publisher. Initially, executing a full-replication strategy was not a major concern. Early indexes were used because the publishers made them inexpensive to license. Early indexers could not have foreseen such an explosion in asset growth. Eventually, however, as the popularity of index funds grew and to the detriment of index fund performance, astute investors began to successfully anticipate the stocks that were going to be added or deleted from an index fund.⁴

Since index funds are supposed to replicate the performance of an underlying index, a manager is not expected to pursue returns through stock picking or timing skills. A more relevant way to track a manager's performance is to consider the amount by which he or she deviates from the actual index. "Tracking error" is the term used to measure this. These deviations are caused by investor cash flows, bid-ask spreads, treatment of dividends, volatility, and changes in the index composition. Although these market frictions and fund fees will naturally dictate a certain amount of tracking error, an index fund is not expected to deviate much. The largest indexer, Barclays Global Investors, historically has a tracking error of just 2.8 basis points.⁵ For large pension funds, tracking error in excess of 10 to 15 basis points per year is undesirable. Hence, a fund manager has great motivation to assure its investors that it is closely tracking a corresponding index.

In an effort to reduce tracking error, index funds encounter their largest degree of expenses. Major index publishers preannounce their index changes to allow fund managers sufficient time to prepare for the transactions. Fund managers, however, are obligated to wait for the date when the index is changed before they can trade their positions. The rebalancing procedures are very different for the various index publishers. We will briefly outline two of the most popular indexes and their rebalancing process. The indexes chosen for this exercise

are intended to demonstrate key points and are not a recommendation for or against their purchase.

The Russell 2000 is a widely used proxy for small-cap stocks. It represents the smallest 2000 stocks of the Russell 3000 index and rebalances once a year. Rebalancing to the index is fairly predictable since it is largely based on the market capitalization of stocks at the end of May. The index reconstitutes on the last Friday in June. As early as March, however, large institutions begin to anticipate changes to the index and purchase those stocks. In addition, investment newsletters are dedicated to identifying potential candidates for inclusion or removal.

The S&P 500 is a broader-based index than the Russell 2000. Changes to the S&P 500 are the responsibility of a committee. Unlike the Russell 2000, membership in the S&P 500 does not fully depend on company size. Inclusion criteria are dependent on a company having sufficient liquidity, meeting public float and market capitalization requirements, profitability, and a leadership role in its industry that is also a significant segment of the U.S. economy. Contrary to popular belief and compared to other broad-based indexes, the S&P 500 is a subjective index. Usually changes to the index are initiated by deletions to the index caused by mergers, bankruptcy, or because a company is no longer considered to be representative of the overall economy.

Since there must be 500 stocks in the index, deletions are paired with additions. These changes occur to the S&P 500 quite frequently. From 1995 through 2000 the S&P announced 235 changes to its index. Before 1989, changes were announced at the close of the trading day before the change became effective. Changes to the index are now pre-announced to accommodate index funds and avoid excessive order imbalances.

The Cost of Tracking

Although preannouncements by indexers are made to facilitate index fund trading, they come at the individual investor's expense. Preannouncements coupled with the need to minimize tracking error are akin to a \$1 trillion active fund manager preannouncing his or her trades and providing the exact time when they will occur.

This transparency allows arbitrageurs to take long positions on stocks entering an index and concurrently short positions on stocks leaving an index before the funds can make changes to their portfolio. The arbitrageurs unwind their positions once the index fund managers have made their changes. This results in artificially inflating or deflating stock prices based on their role in the index reconstitution process.

There is a growing body of literature documenting temporary abnormal return patterns for selected stocks in the periods surrounding changes in the S&P 500.⁶ Investigations also detail more pronounced effects for the Russell 2000.⁷ Index managers predictably wait until the day index changes are official because their greater risk is maximizing their fund's tracking error to the underlying index. These studies consistently show that arbitrageurs are able to extract positive returns via various trading strategies at the expense of index fund investors.

This extreme attention to tracking error carries considerable opportunity costs. The price investors pay to avoid deviations from the index has been estimated at 1.3% to 1.84% annually for the Russell 2000 index and about .03% to .10% for the S&P 500.⁸ This equates to about \$3.75 billion to \$6 billion a year in losses that index investors needlessly suffer. In essence, having a fund designed to fully track an index is very expensive and not in the adviser's best interest for his or her client's portfolio.

Many of the same studies that cite the abnormal returns generated by arbitrageurs also point out ways to mitigate investor losses that arise from blindly mirroring indexes. An early trading strategy for the S&P 500 would essentially eliminate an unnecessary loss of about .19% per year in opportunity costs associated with tracking error.⁹ This equates to about \$2 billion a year. Although the tracking error for such a strategy would have been higher, the resulting correlation between a hypothetical fund that utilizes this early trading strategy and the S&P 500 was .9998. The standard deviations for the monthly returns were 4.2541% for the early trading strategy and 4.2528% for the S&P 500. Similar trading strategies have been outlined in detail for the Russell 2000.¹⁰

Other potential remedies that may mitigate the sig-

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nificant opportunity costs investors incur with index funds include reducing the predictability of index changes and lengthening the frequency of rebalancing by the index publishers. These alternatives would reduce arbitrage opportunities and transaction costs. As long as the primary risk in an indexing strategy is to minimize tracking error, arbitrageurs will continue to profit at the expense of mutual fund investors. Essentially, an S&P 500 index investor is paying arbitrageurs an invisible expense ratio of about 19 basis points a year for minimizing their fund's tracking error. This is double what an investor pays for the management of a large-cap index fund. A small-cap index investor can pay up to seven times more in fees to arbitrageurs than to his or her index fund manager. Hence, the cost of avoiding tracking error is significantly greater than the cost of managing an index fund.

The importance of minimizing tracking error is a function of ensuring that the index fund manager is replicating an underlying index. This, however, is not a realistic concern for investment advisers, and certainly not at the above price. Individual investors most likely care about capturing market rates of return among specified asset classes within a diversified portfolio. Their intentions are not to mirror an index publisher's list of stocks. Thus, making investors pay billions of dollars a year in opportunity costs in an effort to minimize tracking error is cause for great concern. This increased cost to investors can only be exacerbated by the dramatic proliferation of exchange-traded funds and new money inflows. The misalignment of risks between the index fund families and their investors needs to be addressed. Although advisers do not manage the index mutual funds, they can advocate for their clients by addressing these issues with index mutual fund families. As we have exhibited, the cost of complacency is very expensive.

Asset-Class Purity

Asset-class purity is another area where index funds have major drawbacks. This shortcoming, however, is not due to market forces but rather the index family's construction rules. Many fund families offer similar types of

index funds, such as "small-cap value," that are structured to provide investors with asset-class returns. Research has identified where the return characteristics of size and style (i.e., value and growth) are more concentrated in the stock market.¹¹ However, the portfolio construction rules used to capture the intended returns are very different among the index fund providers. We will address the construction and returns differences for the S&P and the Russell family of funds because they license a majority of the index funds.

The S&P and the Russell families use different methods to determine size and style factors. After the Frank Russell Company ranks the largest 3000 stocks, they are subdivided into the large-cap Russell 1000 Index and the small-cap Russell 2000 Index. This division between stocks is exhaustive and mutually exclusive. To capture the differences between growth and value, the Russell indexes rank the stocks based on their long-term growth forecasts and price-to-book values. All stocks are assigned to at least one style, and about 30% of the stocks are assigned to both. This overlap may potentially mute the effects of style differences.

The S&P 500 was created before the other subindexes and was initially intended to be representative of the U.S. economy. The S&P MidCap 400, and Small-Cap 600 were later combined with the S&P 500 to form the S&P 1500. The growth and value styles are ranked using price-to-book factors. Unlike the Russell 2000, the S&P separates stocks fairly evenly between value and growth. Although this allows for mutually exclusive style factors, separating value and growth stocks in half will also dilute these indexes with style-neutral stocks. Hence, advisers may not be achieving their desired value or growth tilts for a client's portfolio.

The return implications for the varied construction rules designed to capture the same asset-class returns are significant. From 1995 to 2004, the cumulative return difference between the S&P and the Russell small-cap indexes was more than 50 percentage points (252% versus 198%, respectively). In 2000, the S&P SmallCap returned 11.8% versus -3.03% for the Russell 2000. Large discrepancies between growth and value styles are

also observed. From 1990-2004, the Russell large-cap value index on a cumulative basis outperformed the equivalent S&P index by 79 percentage points (451% versus 372%, respectively). However, during the same time period the S&P's LargeCap Growth Index on a cumulative basis outperformed Russell's by over 60 percentage points (351% versus 290%, respectively). Similar return differences are observed within the value and growth small-cap indexes of the two companies.

Although the stated purpose of asset-class index funds are to capture the returns within their respective styles, advisers indifferent to their choice of size and style-based indexes may be incorrectly allocating their client's portfolio. Instead of capturing the size and style returns that are available in the entire stock market, index funds are focused on asset-class returns relative to their own family universe. For example, the Russell 2000 may be a good proxy for small-cap stocks relative to the Russell 3000, but it may not be very accurate in fully capturing the small-cap returns relative to the entire stock market.

Table 1 presents the returns of the Russell 2000 small-cap index compared to the different deciles of the Center for Research in Security Prices (CRSP) Universe Index, a proxy for the entire U.S. equity market. Deciles 1-2 represent the largest 20% of stocks ranked by market cap. Deciles 9-10 represent the smallest 20%. By segmenting the stock market into size deciles, we can assess the degree to which index funds tracking the Russell 2000 are capturing small-cap asset-class returns.

On an annualized basis, the Russell 2000 returned 11.1% versus 13.0% for the CRSP 6-7-8 and 14.9% for the CRSP 9-10. Further analysis demonstrates that in the years that small-cap beat large-cap stocks, investors would have needed to track the CRSP 9-10 to fully capture those small-cap premiums. Investors wanting to take less investment risk would still have been better tracking the CRSP 6-7-8 than the Russell 2000. Historically, passive investors wanting to capture small-cap returns would not have been successful selecting a small-cap index fund that tracks the Russell 2000. The returns for the Russell 2000

TABLE 1

Returns among the Different Deciles of Stocks and the Russell 2000

	CRSP 1-2 Index	CRSP 3-5 Index	Russell 2000 Index	CRSP 6-7-8 Index	CRSP 9-10 Index
1990	-2.52	-10.55	-19.52	-17.79	-27.41
1991	31.23	41.94	46.04	48.55	50.26
1992	6.93	16.16	18.42	17.53	27.67
1993	8.57	16.24	18.89	18.04	20.19
1994	1.03	-2.71	-1.82	-1.4	-3.19
1995	38.56	33.87	28.45	29.52	33.3
1996	22.92	17.01	16.54	18.07	19.06
1997	34.01	23.26	22.38	27.93	24.08
1998	31.34	6.01	-2.56	0.41	-7.94
1999	24.04	31.62	21.26	32.78	32.19
2000	-12.05	-7.41	-3.03	-10.83	-13.36
2001	-14.27	-3.11	2.49	12.71	34.22
2002	-21.72	-18.43	-20.48	-21.6	-14.11
2003	27.53	41.69	47.25	50.98	78.39
2004	9.84	18.53	18.32	20.69	16.75
Annualized return	10.73	12.07	11.09	13.00	14.94
Annual standard deviation	19.3	19.13	20.31	21.94	27.67

Source: CRSP and Thompson Financial [AU: CAN YOU PROVIDE MORE INFORMATION ABOUT WHERE THIS CAME FROM, I.E. WEB SITES, A FINANCIAL REPORT, ETC.]

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index seem more in line with mid-cap returns. Although the Russell 2000 was structured to represent the small-cap subset of the Russell 3000, returns indicate that the Russell 2000 is not an accurate proxy for small-cap returns within the entire universe of stocks.

The way index funds determine their value and growth constituents is also not very precise. By including the same stocks into value and growth categories, index funds dilute the specific value and growth effects of those styles when they are in favor.¹² In order to capture more specific asset-class returns, style-neutral stocks should be excluded from both style designations. In addition, index funds should also identify where the maximum exposures to style asset classes are located within the entire stock market and target those stocks for inclusion.

To measure the degree to which investment instruments are exposed to the value and growth asset classes, the Russell indexes are compared to the Fama-French (FF) value, growth, and style-neutral small-cap indexes. The FF indexes represent an example of a set of indexes created to more precisely capture the effect of the size and

style factors across the entire stock market. The style-neutral index refers to a list of stocks that are neither growth nor value oriented.¹³

Table 2 presents yearly and annualized returns from 1990-2004 for the Russell 2000 small-cap value and growth indexes compared to the FF indexes. On an annualized basis, the Russell small-cap growth and the small-cap value indexes underperformed their corresponding FF indexes by over 1.5% (9.05% versus 7.5%) and by over 2.8% (16.91% versus 14.03%) respectively. The small-cap value index performance was more in line with the returns present in the FF style-neutral index (14.03% versus 14.94%). These results provide further evidence that the Russell indexes are not as precise in getting the corresponding asset-class returns within the entire stock market. Hence, if investors want more style purity, index fund providers need to progress beyond simply carving up the market into selected pockets.

Index funds would better serve their investors by capturing more precisely the corresponding returns of an asset class. If an investor is willing to invest in a certain

TABLE 2

Returns among the Different FF and Russell Indexes

	F/F Small Growth Index	Russell 2000 Growth Index	Russell 2000 Value Index	F/F Small Neutral Index	F/F Small Value Index
1990	-17.74	-17.42	-21.77	-17.65	-25.13
1991	54.73	51.19	41.72	47.04	40.56
1992	5.82	7.77	29.15	22.4	34.76
1993	12.64	13.37	23.85	18.41	29.41
1994	-4.36	-2.42	-1.54	-1.41	3.21
1995	35.13	31.02	25.75	27.95	27.69
1996	12.36	11.26	21.37	22.24	20.71
1997	15.29	12.94	31.8	32.01	37.29
1998	3.04	1.24	-6.44	-4.19	-8.63
1999	54.75	43.1	-1.49	11.37	5.59
2000	-24.15	-22.44	22.8	4.67	-0.8
2001	0.16	-9.23	14.02	26.2	40.24
2002	-30.87	-30.27	-11.42	-13.57	-12.41
2003	53.2	48.53	46.02	51.56	74.69
2004	12.54	14.31	22.25	22.48	26.59
Annualized return	9.05	7.50	14.03	14.94	16.91
Annual standard deviation	27.32	25.06	19.92	20.21	25.85

Source: CRSP and Thompson Financial

asset class, then index funds are expected to provide those specific returns. Although this may come at an increased investment risk, this extra risk is the investor's preference and can be diversified within a multiple asset-class portfolio. When an index fund takes on less size or style exposure than the total market provides, investors lose out through lower returns. Research has shown that asset-class funds can be successfully structured to capture the returns within fairly illiquid sections in the market.¹⁴

New Directions for Your Practice

Even though indexing has many daunting challenges ahead, it will remain a very popular investment strategy as long as active managers underperform their respective benchmarks. However, index funds should continue to integrate financial research and wealth management developments into new investment instruments. With the increasing sophistication of investment options and technology, the development of an index fund constructed to an investor's risk profile would be a natural extension. Similar investment vehicles are now available for clients within a separately managed account platform.

Currently, adherence to trading rules based on size and style factors have significant impact on fund turnover and related expenses for asset-class index funds.¹⁵ For example, small-cap and value index funds face a tax disadvantage over large-cap index funds because when a stock no longer fits the index parameters, the fund will most likely be selling the position at a gain. A marketwide index fund would not need to change positions based on valuation or market cap metrics. However, marketwide index funds do not provide sufficient asset class representation because they closely track the large-cap blend asset class.

Advisers could avoid the need to purchase the component asset-class funds by being able to choose an index fund based on stated exposures to the various asset classes. Although it may not be realistic for a fund family to provide such individualized products on a mass scale, index families can create core funds based on a spectrum of size and style exposures. Advisers will be able to more precisely create portfolios according to their

clients' specific risk profiles by adjusting size and style preferences to asset classes within the entire market. In addition, this will relieve the fund company of needing to slavishly track a subset of an arbitrarily selected group of stocks. Viewing portfolio construction through these lenses would be more efficient.

We have presented various issues related to index fund investing. Although indexing is a very popular investment strategy, index funds must continue to improve and address some significant issues. Some of these, such as tracking error, are due to the strategy's popularity and subsequent market frictions. Other factors, such as inexact style purity, are due to a family's index construction rules and its relative view of the market. As evidenced by the rapid growth of indexing, these issues are not in the investing public's attention or they are being ignored. Although these deficiencies are not malicious like the mutual fund trading scandals, the costs to investors are staggering. With the development of new index products designed to capture many speculative investment strategies, index fund families would better serve advisers by developing instruments that can help them more accurately and efficiently structure client investment portfolios. Ultimately, an investment client may not be concerned with mimicking an arbitrary index. Most likely, a client's focus is on achieving a personal benchmark. ■

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