

Fundamental Indexing

By Bob Marshalla

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Fundamental indexing is a new way to measure market performance and create investment portfolios. It may be the most interesting new idea to come out of the investment world in years. But aside from being a nice idea, why should you care? Because I may well introduce fundamental indexing investment products into our portfolios in the not too distant future. And if it works as advertised, it could make us richer or safer or both!

The concept of fundamental indexing was first unveiled by Rob Arnott¹, a highly respected researcher and money manager and his colleagues a little less than a year ago. It is a way of constructing a market index that does not depend on market prices. Arnott and his associates say it should be considered a replacement for conventional market cap weighted indexes like the S&P 500, and thereby become a new benchmark for comparing equity managers and portfolios performance. But whether this happens in practice or not (I doubt it will), the idea is spawning new theoretical debates and investment products that look quite promising. I happen to be fascinated by the theoretical aspects of this issue. And even more important, we may want to take advantage of these ideas in our investment portfolios before long.

Fundamental indexing may be the most interesting new idea to come out of the investment world in years. It is a way to index that appears to outperform conventional market indexes most of the time.

People in the investment world and academia have long argued about whether active managers can expect to consistently beat the market. While most practitioners continue to pursue active management to a large degree, many who believe markets are extremely efficient have given up on active management and invest in nothing but index funds and passive ETF's. Fundamental indexing presents a

challenge to both camps. If we accept it as a better way to index the market and thereby use it to set new benchmarks for active managers, it presents an even higher hurdle for them to exceed. If, as some prominent indexers contend, it is really just another active quantitative approach, then the indexers should feel challenged because this may be an active approach that can consistently beat the conventional indexes.

Fundamental Indexing Defined

Traditional indices², like the S&P 500, Russell 2000 or EAFE (the foreign stock index) are market capitalization weighted indexes. That means the weight of each company in the index is set to be proportional to its overall market value, which is just the product of the stock's price times its number of shares outstanding. What distinguishes fundamental indexes is that they use other measures of company size to weight the companies in the index. In Arnott's version the weights are based on a combination of company sales, profits³, book value and dividends. The idea is to find some measure of the company's "footprint" in the economy that does not depend on the market's current valuation of the company. It is a "Main Street" measure of size rather than a "Wall Street" measure.

But why should this method of weighting an index be any better than market cap? The rationale underlying fundamental indexing is really quite simple and intuitive, so much so it makes one wonder why no one thought of it sooner. To understand it we need to go through a simple thought experiment. Suppose, as the pure indexers insist, the market is indeed perfectly

efficient. This does not mean – even to the true believers – that every stock is priced just right at any given time. It means that the market prices stocks correctly *on average*. Some stocks are over-priced and some are under-priced relative to their true future economic prospects, but the efficient market proponents believe that no one can consistently tell

The idea is to select the weights of companies in the index by economic measures that do not depend on current market prices. That way, when a stock gets over-valued, you won't automatically give that stock a larger weight in your portfolio.

which are which. In statistical terms, the probability distribution of the errors in pricing has a mean of zero, and where a given stock lies on that distribution is unobservable.

So what does this imply for a market cap weighted index of the market? Since in market cap weighting each company is weighted by its current valuation (i.e., its market price), we are guaranteed that our index will over-weight all of the over-valued stocks and under-weight all of the undervalued stocks **100% of the time!** There is nothing magical about the alternative “economic footprint” method of weighting stocks in fundamental indexing. The rationale is to just find some method to *randomize* the mistakes in over- and under-weighting individual stocks. In fact, just about anything would be better than market cap weighting in this respect, because market cap weighting is wrong 100% of the time. Arnott and his colleagues tried out numerous variations of their

footprint weighting scheme, and found, interestingly, that all of them to be pretty close in terms of performance. They all beat the performance of a traditional cap weighted index by about two percentage points per year. So the basis of the fundamental index definition is not that it uses the right or best method of weighting its components. It's what it is avoiding that makes it the relatively better index.

Before continuing, let's re-cap: The problem with a conventional cap weighted index is that whenever the market overvalues a company by setting its price too high, it will get a larger weight in the index, and vice versa whenever the market happens to undervalue a company. The idea underlying fundamental indexing is to find a weighting scheme that is not dependent on current market prices.

Example

Now let's consider a way over-simplified but concrete example that I am borrowing from a guy named John Mauldin. There are only two stocks in the market. Each one has a true market value of \$100, but the marketplace doesn't know what their true individual fair values are. The market price of one stock is set at \$75, and the other at \$125. So on average, the market has it right, but both individual valuations are wrong. Now suppose we construct a market cap weighted index portfolio and decide to invest \$200 in it. We would therefore allocate \$125, or 63% of our money, to the over-valued stock and \$75, or 38% of our money to the undervalued stock. Now suppose that several years from now the initial pricing errors are finally corrected (and probably replaced by some new errors, but let's hold off on that). The result is both stocks' prices have moved to their true \$100 value,

Excerpt from an interview with Rob Arnott

Litman-Gregory: How did you first arrive at the idea of using alternative weights in an index?

Arnott: *I was frustrated...during the period of the bubble at the way the cap-weighted indexes were pulling people into larger and larger positions, in what I viewed as nonsensical investments -- companies with no earnings, no dividends, barely any book value and no prospects for earning.*

... Ultimately, it just occurred to me that there's absolutely no reason to index to market capitalization. It was that simple. Market capitalization—which is the measure of the total market value of a company's stock—is only loosely related to the size of the company. And there's no reason you couldn't index a portfolio by the size of the company. If you do that, what you've done is to break the link between valuation and the weight in the portfolio.

and the indexer has broken even (making \$25 on one stock and losing \$25 on the other.) But what if we had initially used some other method of weighting the stocks? How about equal weights for each stock, so that we would invest \$100 in each stock. In that case we would have made a \$33 profit on the initially undervalued stock as its price increased by 33% (in moving up from \$75 to \$100 per share), while we would lose only \$20 on the overvalued stock, as its price declined by one 20% (down from \$125 to \$100). All told we would have earned \$13 on our \$200 portfolio for a 6.7% return, which sure beats breaking even!

Backtested Performance of Fundamental Indexes

The real meat in the fundamental indexing research lies in the extensive backtesting that compares the historical performance of alternative indexes in various investment dimensions. In Table 1 we compare the historical market returns and volatilities of two market cap weighted indexes and several variations of fundamental indexes. The fundamental indexes track the 1000 largest companies in the U.S. market as measured by their own size metric. The cap weighted indexes include a “Reference Index” as well

Table 1 - Cap-Weighted and Fundamental Index Return Characteristics, 1962 - 2004

Index	Annualized Return	Volatility	Difference
Cap Weighted Indexes			
S&P 500	10.53%	15.1%	
Reference Index	10.35%	15.2%	
Fundamental Indexes			
Composite Index	12.47%	14.7%	2.12%
Sales	12.91%	15.8%	2.56%
Income	12.61%	14.9%	2.26%
Book Value	12.11%	14.9%	1.76%
Dividends	12.01%	13.6%	1.66%
Employment	12.48%	15.9%	2.13%
Revenue	12.87%	15.9%	2.52%

as the popular S&P 500 index. The Reference Index was created by Arnott and associates to include the exact same companies as are in their fundamental index, thereby enabling purer comparisons of the effects of alternate company size weighting metrics than we would have with the popular benchmarks. Nonetheless, the Reference Index return characteristics are actually quite similar to those of the

more familiar large company indexes, as can be seen in the table for the S&P 500 index.

Among the fundamental indexes listed, the Composite Index is based on a combination of four factors, company sales, cash flow income, book value and dividends, and it is the fundamental index of choice

A fundamental index of the 1,000 largest companies in the U.S. market was found to have outperformed a conventional cap-weighted index like the S&P 500 by about 2 full percentage points per year over the past four decades.

promoted by Arnott and company. We can see in the table that the annualized return of this index over the 43 year period 1962 – 2004 was **2.12%** higher than the return of the cap weighted Reference index. Over a period that long, this is a very large performance advantage. The Composite Reference Index would generate nearly 2.3 times as much wealth over that period as the Reference or S&P 500 indexes.

I mentioned earlier that Arnott and associates had examined various ways of weighting companies in their new indexes. Table 1 shows six of them, including the four composite elements taken individually, plus employment and revenue. We can see they all have pretty close return characteristics. They each outperformed the Reference Index by between 1.66% and 2.56% per year over the forty three year horizon. This amplifies the contention that the precise definition of company size used is not so important as the fact that market valuation (i.e., price) is *not* part of the mix.

The researchers went on to compare the performance of their fundamental indexes to cap- weighted indexes over various other significant investment dimensions, including different time periods, company size ranges, countries, economic sectors and market environments. They were able to show superior performance for fundamental indexes over just about every segment of every dimension tested. The robustness of the results

over these various dimensions contributes greatly to the impressiveness of the research. In the following tables and paragraphs I will breeze through summaries of these findings. If interested, I can provide you with copies and/or references to papers that go into more detail on these and other issues.

Different Time Periods

Investment performance is notoriously dependent on the time period considered. An investment approach that looks good in one time period frequently looks

Further, the idea seems to work most of the time for different sized companies, in different countries and in differing economic environments.

much different in other time periods. Table 2 compares the performance of fundamental and cap weighted performance by decade from the 1960's through the 2000's. Fundamental indexing (the composite index) is shown to outperform the cap weighted reference index in each decade except the

in normal times is that it over-weights the market's over-valued companies would shine in such a market environment.

I have seen a bit more in the way of time dependent findings than shown above. For example, the fundamental index is also shown to have outperformed for each of the one, three, five and ten year periods ending in 2004. Still I'd like to see more analysis on this dimension. The dependence of any supposed investment performance advantage can be very much tied to which time periods are examined, and it often takes a very careful look to uncover anomalies that make a supposed advantage more fleeting or anomalous than it first appears.

Different Company Size Ranges

The fundamental indexes discussed so far have focused on the 1,000 or so largest companies in the market. A logical question is whether there would be similar performance advantages for smaller sized companies. Initial indications are that the answer is yes, and for the same reasons they are found in the larger sized market segments. Table 3 shows

Table 2 - Alternative Index Returns by Decade, 1962 - 2004

Decade	Cap Weighted Reference Index	Fundamental Composite Index	Difference
1960's (1962-1969)	6.80%	7.13%	0.33%
1970's	5.90%	8.63%	2.73%
1980's	17.00%	19.04%	2.04%
1990's	17.94%	16.95%	-0.99%
2000's (2000 - 2004)	-1.73%	7.59%	9.32%

Table 3 - Alternative Index Returns by Company Size, 2000 - 2004

Company Size	Index	Cap Weighted Index	Fundamental Index	Difference
Large Companies	S&P 500	-2.30%	7.57%	9.87%
Mid Range Companies	S&P MidCap	9.53%	16.01%	6.48%
Small Companies	Russell 2000	6.61%	16.53%	9.92%

90's, when it falls about 1 percentage point short (17% per year versus 18%). The explanation for the 90's is not hard to come by. The outrageous tech bubble of the late 90's was within a few months of its all time peak at the end of 1999. This was the all time momentum era, when the more over-valued a company was, the more it would increase in price. So it should not be surprising that an index whose "fault"

comparative performance of some common cap-weighted indexes versus fundamental indexes separately for large, mid and smaller sized company market segments. In each case the fundamental index is seen to outperform by a significant amount.

An important caveat here is that I have only found size-dependent results covering the five year time

period, 2000 to 2004. The fundamental indexes do also outperform for the one and three year periods, as well as the five year period ending in 2004, but we need a far larger array of time periods, both different durations and different starting and ending points, in order to develop confidence in these findings. (The relevant research may well have been done. I am simply reporting that I have not seen it.)

Different Countries

So fundamental indexing looks promising in different time periods and for smaller as well as larger companies. But so far all of this has been strictly based on the United States equity market. Does fundamental indexing work in other countries? Arnott and company examined this question in 23 other

indexes for nine different economic sectors (like financial services, energy, health care and so on). Although I do not have the numbers, he says that a fundamental index was found to add value relative to a cap-weighted index in each one of the nine individual sectors.

Different Market Environments

We have examined fundamental indexing over a number of different investment dimensions, but perhaps the most interesting question is how has it performed in differing market environments? Does it work in both bull and bear markets? During times of an expanding economy as well as during recessions? How about when interest rates are rising versus when

Table 4 - Alternative Index Returns by Country, 1984 - 2004

Country	Cap Weighted Index	Fundamental Index	Difference
Canada	10.39%	14.15%	3.76%
France	11.93%	14.39%	2.46%
Germany	9.90%	12.22%	2.32%
Hong Kong	13.74%	15.69%	1.95%
Japan	-1.32%	2.35%	3.67%
United Kingdom	10.21%	12.96%	2.75%
United States	12.36%	14.74%	2.38%

Table 5 - Alternative Index Returns in Different Market Environments, 1962 - 2004

Market Environment	Cap Weighted Reference Index	Fundamental Composite Index	Difference
Expanding Markets	11.66%	13.40%	1.74%
Recessions	2.46%	6.77%	4.31%
Bull Markets	20.89%	21.26%	0.37%
Bear Markets	-24.89%	-18.09%	6.80%
Rising Interest Rates	18.13%	20.56%	2.43%
Falling Interest Rates	4.73%	6.63%	1.90%

countries and their finding was: "It adds value in all 23. No exceptions." Although I do have access to the numbers for the other countries, I have only displayed the performance results for a half dozen of the larger and more interesting cases in Table 4. The similarity in the amount of value added by country is striking.

Different Economic Sectors

In a recent interview, Rob Arnott says they did similar analyses of the relative performances of alternative

they are falling? The researchers checked all of these questions and again found the results to be hearteningly robust. A sample of these results are shown in Table 5. Over the 43 year period examined, fundamental indexing outperformed traditional cap weighted indexing in each of the six market environments mentioned.

It is interesting that fundamental indexing seems to be weakest during bull markets (i.e., when stock prices

are generally rising) and the strongest during bear markets. At first this may sound disappointing, but on reflection it should be considered a positive. When the market is rising, the fundamental indexes don't offer much of an advantage, but they will be rising in line with the conventional market averages nevertheless. But when markets are declining, this is when we need some kind of advantage or hedge the most, and this is when the fundamental indexes appear to offer their greatest benefits.

One pair of market environments that are missing here, and which I would love to see, are the market cycles favoring growth stocks versus those favoring value stocks. Although I have not seen this data, I strongly suspect we would see a very large advantage to fundamental indexes during value cycles but a disadvantage during growth cycles. After all, by construction, the fundamental indexes have a natural value bias relative to the cap weighted indexes (or as Arnott prefers to put it, the cap weighted indexes have a growth bias). I will have more to say on this later.

To sum up the past few sections, we have examined the back tested results for fundamental indexing over a wide range of investment dimensions – weighting methods, time periods, company size segments, countries, economic sectors and market environments – and we discovered performance advantages for fundamental indexes over almost every segment of every dimension. And although I have focused the discussion on investment returns, the authors examined other performance characteristics as well (e.g., volatilities, Sharpe ratios, alphas and information ratios). For example, they computed the volatilities of returns of each type of index in each segment comparison (review Table 1 for examples). In general they found that the greater investment returns for fundamental indexing did *not* come at the expense of greater volatility; in fact, the fundamental indexes usually displayed *lower* volatilities than their cap weighted cohorts. Significantly this implies there were performance advantages in terms of *risk adjusted returns*, not only in raw returns.

Critique of Fundamental Indexing

The initial research on fundamental indexing certainly looks promising, and it has caused quite a buzz in the investment community. In my opinion it is the most intriguing and challenging new idea to come about in financial economics in many years. But not everyone has rushed to embrace it, especially not those whose

own theories and products are potentially challenged. The efficient markets academics and the index product vendors are two such groups that have been critical. The critiques I have seen seem to have some merit, but it is noteworthy that they are coming from the crowd that has vested interests at risk.

FI Is Active Management

One critique is that a fundamental index is not really a proper index of the market, and that fundamental indexing is therefore just another quantitative active investment approach. There is much that can be said on this issue, but whether it is correct or not is of no concern to me. If it is a good investment approach, that's great. Who cares if we call it passive or active?

FI Is Just a Value and Small Size Biased Index

Another critique, potentially more important, is that a fundamental index is simply a market index with a value and small cap bias relative to its comparable conventional index. Because a fundamental index tends to give lower weights to high PE stocks and

The critics of fundamental indexing come from the proponents of efficient markets theory and traditional index investing.

greater weights to low PE stocks, it will in fact have smaller cap and more value oriented characteristics than a standard cap-weighted index. Adding to the value orientation is the fact that two of the four weighting criteria are dividends and book value, for which high values are among the common definitions of value stocks. These critics contend that if you want to give your portfolio a value and smaller cap bias, there already are many perfectly fine value and small cap indexes and associated products around to invest in. For example, there is the Russell Mid Cap Index and the Russell 1000 Value Index, or if our want to combine value and smaller cap in one, the Russell Mid Cap Value index.

The fundamental index creators counter that whose index is biased is in the eye of the beholder. From their view, the cap-weighted indexes are biased towards growth and larger cap stocks. Moreover the conventional value and smaller cap indexes are quite different in structure than the fundamental indexes. For one, the conventional value indexes completely eliminate an entire segment of growth stocks. You'll never see a Cisco Systems or Genentech holding in a value index. On the other hand, these stocks *will* be present in a fundamental index. It's just that their

weights in the index will be much lower than they would be in a cap-weighted market index. Furthermore, a conventional value index is still cap weighted amongst its member companies. So even if your goal was to focus on owning value companies, a value index's weighting scheme has all the same problems relative to a fundamental index that the overall indices do. It will overweight the relatively over-valued value stocks and under-weight the relatively under-valued value stocks.

FI's Good Performance Is Due to the Current Market's Preference for Small Caps and Value Stocks

A related critique is that the timing of the introduction of fundamental indexing is particularly auspicious. Over the past five years we have experienced tremendous outperformance by value stocks and smaller cap stocks, not only in the U.S., but worldwide. These critics contend that FI would not look so great if it had been introduced at a time when small caps and value stocks were not doing so well.

Questions

Is fundamental indexing a new kind of passive investing or "just another" active investment approach?

Are fundamental indexes biased in favor of value stocks and smaller cap stocks? Or are the conventional indexes biased in favor of growth and larger caps?

Will fundamental indexing look so good if growth stocks come back into favor?

This argument has some merit, but in defense of the FI developers, they have backtested their constructs all the way back to 1962. Further, we have seen this period broken down by decade. We have also seen FI tested separately in differing market environments, like recessions and expansions and bull and bear markets. But still, I would like to see more in the way of backtesting over differing time periods and market environments. Looking at performance in several sequential decades is just scratching the surface of time period dependence. I would like to see rolling time period results over the whole 40+ year time horizon for each of several rolling period lengths, like 3, 5 and 10 years, for example. And, as mentioned

earlier, they should add to the market environment research by examining the relative performance of FI versus cap-weighted indexes in growth versus value favored market environments.

FI Is Nothing New

Another criticism hurled at the fundamental indexing proponents is that this is really nothing new. There are other indexes that are not cap-weighted, and which may share some of the supposed advantages of fundamental indexes. For example, there are a number of equal weighted indexes, such as the equal weighted S&P 500 index. Equal weighted indexes are far more extreme variations from cap-weighted indices than are fundamental indexes, because they give every company in the index an equal weighting. There are also indexes from Dow Jones that use other than cap-weighting schemes – the venerable Dow Jones Industrials Average, for example. I think this point is well taken. But the other non-cap-weighting schemes seem to have little relationship to the actual importance or "footprint" of their component companies in the economy, and as a result end up having much more extreme or random variations from the cap-weighted benchmarks.

Our Theory Can "Explain" Everything

The next critique is theoretical in nature, and in my opinion opens up the most interesting can of worms in the whole debate. This critique says that essentially all of the excess returns found in the fundamental indexes can be statistically "explained" by their exposure to certain "market factors". These market factors are none other than the Fama-French value (specifically "book-to-market") and smallness (market cap) factors.

Fully explaining the Fama-French factors is beyond the scope of this paper, but I will provide the briefest of summaries. In a seminal research article paper published in 1992, Fama and French convincingly showed that value stocks and smaller stocks have, over time, produced higher returns than the overall market *even after adjusting for risk*. Prior to this, the Efficient Market Hypothesis (EMH) and Capital Asset Pricing Model (CAPM) had said that the only way a diversified portfolio of stocks could beat the market – as defined by a cap weighted index - would be to take on more volatility. To some, this research represented a dagger to the heart of both the EMH and CAPM theories. But Fama and French would have none of this. After all, they are themselves the originators of the EMH⁴! Instead of admitting that maybe the market was not as efficient as they originally thought, Fama

and French merely re-defined the concept of risk. Risk is not volatility they now claimed. Rather, risk should be defined as one's level of exposure to the value and smallness market factors. But why should value and smallness define risk? Because, they say, these factors to cause higher returns, and how could you earn higher returns if you didn't assume more risk? (If this sounds like circular logic, it's because I think it is.)

But now back to the critique. The Fama-French crowd has by now long been comfortable with their factor model, which they believe can explain most of the excess returns of any diversified portfolio. When they performed their factor analysis on Arnott's composite fundamental index, they found that essentially all of the excess returns were "explained" by their exposure to value and smallness (the residual alpha was near zero and actually slightly negative). This must have been quite a relief for them. The excess returns from fundamental indexing could be "fully explained" by the Fama-French factor model. But what is intriguing to me is that they might just have the argument exactly reversed. Maybe the Fama-French findings have now been explained by the fundamental indexing argument. Perhaps the true reason that smaller, more value oriented portfolios beat the conventional market averages in the first place is because the conventional market averages are miss-specified; not because value and smallness are inherently risky!

I'm willing to believe that the Fama French theory is statistically sound. But at heart it really is just a statistical model, lacking in intuitive, behavioral or convincing cause-and-effect justifications. The proponents' qualitative explanations of what it means and why it is true seem to be mostly after the fact justifications of statistical results, and have never been all that satisfying to me. I would love to see a Fama-French like study to determine if any value or small stock return advantages remain if the market they are compared to is a fundamental index market rather than a cap weighted market. That would be an explanation with some substance!

Investment Implications for MAM

I suspect most of my readers don't have as much interest in the theoretical implications of this work as I do. (How can that be?) But there are potentially powerful practical implications as well. I have always avoided investing directly in any of the conventional value index products because I've had the feeling that the methods they have used to define their value

universe were crude and/or naïve. Furthermore, these indexes are inherently biased against certain economic sectors and fast growing companies. These types of companies will never be represented in the conventional value indexes, even if on a true valuation basis they may sometimes come to be attractive buys⁵. This is actually a key reason that I decided over a decade ago to pursue active rather than passive equity management approaches for myself and my clients. Surely a good value manager should be able to do a better job of identifying true value stocks than do these crude value indexes.

As of now, I don't think fundamental indexing should ever become a complete substitute for investing with good, reasonable cost value-oriented active managers. But there may come a time, and it may be in the near

Fundamental Indexing investment products are beginning to be introduced, with more are on the way.

I am monitoring them for possible inclusion in our portfolios—but not quite yet!

future, when I decide to introduce one or more fundamental index products into our portfolios as supplements to the other approaches we are using.

The initial research evidence on fundamental indexes looks so promising, that some may ask, why not jump in on it right now? My answer is that the theory and the investment products are still just too new. On the theoretical front, I expect there to be heaps of related research in the next few years from all manner of third party analysts. Tons more empirical work can be done and there is rich trove of related ideas that remain to be investigated. I think it is prudent to wait and absorb some of this information before we are ready to take these new ideas "to the bank".

Investment Products

It has been less than a year since the concept of fundamental indexing was introduced, so commercial indexes and investment products are just beginning to be introduced. Arnott's company, Research Affiliates (RA), has licensed the London-based FTSE Group (a fairly well-known provider of indexes) to develop a series of 24 fundamental indexes. The flagship of these, the "FTSE Research Affiliates Fundamental 1000 Index" has already been introduced. A new ETF designed to track this index was just launched on

December 19 by PowerShares, a company that markets various types of ETF's. In addition, a pair of new mutual funds were brought to market by PIMCO last June 30. And, according to Financial Planning magazine, other firms are also making plans to introduce fundamental indexing related products before long.

The two PIMCO funds have been designed as "enhanced" index products. They don't actually own the stocks in the index. Instead they use derivatives and fixed income strategies that PIMCO is well known for to try to mimic and beat the index by small amounts. The start-up of these funds has been inauspicious, as they both failed to beat even the S&P 500 in their first 6 months of existence.

The PowerShares ETF seems more appealing at this point, since it has a plain vanilla objective of owning the stocks in the index and tracking its performance as closely as possible. The index, and the ETF are rebalanced once per year, and the expectation is they will have a turnover rate around 10%. The operating expense ratio for the ETF has been initially set at 0.60%. This is higher than the cost of conventional index tracking products (which can lower than 20 basis points for larger cap index products) but is still considerably less than the costs of most active products. In its ultra-short 3 month existence, it has beaten the S&P 500 by 1.4%. PowerShares will also be coming out with ETF's tied to other fundamental indexes in the near future (e.g., e.g., tied to other countries' markets or smaller cap domestic market segments).

Conclusion

Fundamental indexing is one of the freshest new ideas to come along in the investment world in some time. It is a way of creating an index in which the components' weights depend on a measure of their economic "footprints" in the economy, but do not depend on the prices that the market may assign to them at any given moment. Research has shown that fundamental indexes of both U.S. and other countries' markets have generated greater returns than the conventional cap-weighted indexes, and have done so without the burden of greater volatility. Although I doubt fundamental indexes will replace the conventional indexes as benchmarks for measuring equity manager and portfolio performance, they may well lead to attractive new investment alternatives. Also, I think they may serve as the catalyst for revisions to some of the central investment theories of our time. Associated investment products are just now beginning to be launched. I intend to keep a close eye on this field, and I think there is a reasonable chance I will add fundamental index based products into our portfolios in the not too distant future.

¹ See "Fundamental Indexation", by Robert Arnott, Jason Hsu and Philip Moore in the *Financial Analysts Journal*, March/April 2005, pp. 83 – 99. Robert Arnott serves as the editor of the *Financial Analysts Journal* and has authored over 70 articles for financial journals. Previously a professor at UCLA, he runs his own firm, Research Associates, manages a hedge fund and is a subadvisor to PIMCO where he also manages a mutual fund.

² The Dow Jones Industrial is a notable exception. It is weighted by prices rather than market values, for no good reason other than that at the time it was created there were no handy computers or calculators to recalculate valuations. People had to reconstitute the index by hand every day, and it was simply much easier just to add up the prices of the 30 Dow components than to weight the stocks by market cap or anything else!

³ Actually, the variable used is cash flow rather than net income.

⁴ The idea that equity markets are efficient first began to get real traction with the publication of Eugene Fama's Ph D dissertation in 1963. The CAPM was the creation of Stanford professor William Sharpe, for which he was awarded a Nobel prize in economics.

⁵ As, incidentally, I think is the case for many such stocks in the market right now.