

Rob Arnott Defends Fundamental Indexing

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Robert Arnott is CEO and founder of Research Affiliates, a Newport Beach, CA-based investment management firm with over \$30 billion under management. Arnott and his firm have been major proponents of fundamental indexing since 2004. His firm holds various trademarks and pending patents on the concept and the name. He is a past editor of the *Financial Analysts Journal*, has served as visiting professor of finance at UCLA, and his academic articles have won numerous awards.

We interviewed Mr. Arnott on January 29, 2009.

Overall, how would you assess the historical performance thus far of fundamental indexing? Has it behaved in the ways that you expected, in both up and down markets?

If we dig into the results and understand the attribution, I am quite pleased with how they held up on a global basis. In the US markets, fundamental index portfolios underperformed in 2007 and 2008, but did well in 2005 and 2006. The US market has been savage to value stocks recently. Normally, in a bear market, stocks with a foundation of profitability (based on metrics such as book value, cash flow and dividends) hold up well. But this bear market has been very different in that regard.

When you adjust for the relative performance of the value stocks, the results for fundamental index portfolios are quite striking. At the start of 2008, when measured using trailing five-year earnings (to smooth out fluctuations in the business cycle), the FTSE-RAFI® US 1000 index was priced at a 12 percent discount to cap-weighted indices. This discount widened to 24 percent at the end of 2008. If relative valuation multiples drop by 12 percent, you would expect to have experienced 12 percent underperformance, no? But the underperformance was only three percent.

On a global basis, the fundamental indices underperformed in 2008 by a scant 60 basis points. Absent the US, 2007 and 2008 were both successful years for the fundamental index concept ... as were the previous seven years. Over the past three years, during which time these indexes have been live and published,



fundamental index portfolios added 180 basis points per annum globally, compared to cap-weighted indices.

In the US, the S&P 500 has won two years in row. But, on a global basis, in any year there will be outliers. In 2008, the US was an outlier. Growth dominated the US market and value was savaged. The Fundamental Index concept held up surprisingly well under those circumstances.

How would you assess the level of investor acceptance of fundamental indexing? What factors have inhibited broader adoption?

Never in my career have I seen a new idea gain so much traction so fast. Market-cap weighted indexing took about two decades to achieve \$20 billion in assets. Fundamental Index strategies crossed that threshold a year ago, less than three years after I wrote the first article on the topic. We garnered nearly \$10 billion in new assignments during 2008. The growth has been quite remarkable.

Even so, fundamental index portfolios are is not yet a large factor in the capital markets. Post-crash, roughly \$20 billion in assets are invested in fundamentally weighted index portfolios, including the various “me too” strategies. Out of the \$30 trillion invested in the capital markets, this is a drop in the bucket.

What I find most surprising is the stridency of the opposition. Our new ideas have evoked a visceral reaction, which I find amusing. Why is there such antipathy? Perhaps others are competitively threatened by it. I don't know.

I believe the fundamental index concept is an an interesting way to invest. Whether you call it an index or a strategy, it is undeniably an interesting idea. It's hardly anything to get upset about! It is gaining traction, although it is not a large factor in the markets yet, by any stretch of the imagination.

One of the criticisms of fundamental indexing is semantic. Joe Nocera claimed in a New York Times [article](#) in May 2008 that the use of the term “indexing” disguises nature of the underlying active management in fundamental index construction. How do you react to this?

I find this aspect of the debate interesting. It is mere semantics. It hinges on the definition of our terms. If you define an index as in the dictionary - a metric for measurement or for comparison - there is no problem calling it an index.

If you think an index should be historically replicable, formulaic, liquid, scaleable and objective, then, by that definition, we have an index on all counts. But most



classic indices, including the S&P 500, don't qualify. [Ed. Note: The composition of the S&P 500 is not objective; it is decided by a committee.]

But if you define an index as mirroring the composition of the market, then capitalization weighting is necessary. It would be deceptive to say any fundamental index portfolio does that.

This issue of semantics is not new. Price- and equal-weighted indices have been around for a very long time. And yet, this is the first time anyone has raised the issue that a non-capitalization-weighted index is not an index. Why were the Dow and Value Line indices not singled out or criticized on this basis? [Ed. Note: The Dow is price-weighted and the Value Line is equal-weighted.]

I believe the underlying controversy is not due to semantics; it is a reaction to a perceived threat, by much of the indexing community. They had a good ride for the last 50 years, with no competition except from other cap-weighted indexers. Someone else came up with a good alternative approach which attracted adherents. I think it's not the use of the word "index" that troubles them!

One of your basic claims of fundamental indexing, as you stated in a recent article in the Journal of Indexes, is that "If we have a cap-weighted portfolio, we know most of our money is in companies that are above fair value." In a recent Advisor Perspectives [article](#), the author (Michael Edesess) proposed an example in which Company A has a fair value of \$10 billion with a market value of \$9 billion, and Company B has a fair value of \$5 billion with a market value of \$6 billion. If we have a \$150,000 market-cap-weighted portfolio, it will have \$90,000 in Company A, the undervalued company, and \$60,000 in Company B, the overvalued company. It will not have most of its money in companies that are above fair value—it will have most of its money in the company that is below fair value. So how can the statement in quotes generally be true?

This is a deceptive example. It's easy to construct exceptions, but only if we cannot divide the universe in two equal halves by fair value. In this case, the cap-weighted investor has 60% invested in the undervalued stock ... which represents 67% of the fair value of the market. The overvalued *half* of the fair value portfolio consists of \$7.5 billion in fair value: Company B plus one-fourth of Company A. The undervalued *half* of this universe consists of \$7.5 billion in fair value: the remaining three-fourths of Company A. The cap-weighted investor has \$8.25 billion invested in the overvalued former portfolio and \$6.75 billion in the undervalued latter portfolio.



It is mathematically impossible to construct a counterexample, as I'm sure Edesess would concede, if the market is ranked by relative valuation and then partitioned *in half* by fair value.

It seems you are conceding that your statement “If we have a cap-weighted portfolio, we know most of our money is in companies that are above fair value” is untrue, or at least imperfectly worded. Does your statement need to be qualified by an assumption about how the market can be ranked or partitioned?

The statement is imperfectly worded, but not in any way that is important in the real world. The two-company counterargument is deceptive in ways that (I think) are important.

How is this example deceptive?

Take Edesess's example one step further. Assume that Company A has a fair value of \$10 billion and a market value of \$9 billion and Company B has a fair value of zero with a market value of \$1 billion. In this case, the cap-weighted portfolio would invest 90% in the undervalued Company A and 10% in the overvalued Company B; over half of our money is in an overvalued company. But this is pretty meaningless, because all of the true value of the market is in Company A. This is the Achilles heel in the Edesess "counterexample": his example is specifically structured so you cannot divide the universe in half by fair value.

Let's construct a dividing line at the midpoint of the fair value of all companies, when they are first ranked by their relative valuation. These two-company examples have a huge company straddling that dividing line. In the real world, the company that straddles that dividing line would typically be too small to matter.

In my counterexample, if you start with the more undervalued companies and work your way down, the halfway point of the cap-weighted portfolio is \$7.5 billion and the halfway point of the fair value portfolio is \$7.5 billion. The simple fact is that most of the cap-weighted investor's money is in the overvalued portion of the market portfolio.

As an aside, I have a draft article that is scheduled to appear in the Journal of Portfolio Management on "clairvoyant" value. We went back historically and asked "what were the fair values in the market, and how did the market perform relative to these fair values?" Two important findings emerged. First, there is an awesome correlation between whether the market values of companies were above or below their economic footprint and the future growth of these



companies. The market does a really good job distinguishing fast and slow growing companies. Second, we found that the market routinely pays a premium of two-times the valuation premium that these fast-growing companies deserve.

In your papers, in which you approach fundamental indexing mathematically, you assume that the market price of a security is an unbiased estimator of its fair value—which of course means that the average of all mispricings in the market is zero. But doesn't that obviously also mean that the average mispricing in a market cap-weighted portfolio is zero—and doesn't that contradict your basic premise?

This is a mathematical truism: if the correlation between pricing error and fair value is zero, then the correlation between pricing error and price must be negative (except in the trivial cases of zero standard deviation of error or of infinite standard deviation of error). This was glossed over by Andre Perold in his paper, as Harry Markowitz and I pointed out.

The interesting thing is that much of the controversy hinges on one's frame of reference. In a cap-weighted world, prices are correct, the market is the market, and you will perceive anything that increases your exposure to value stocks and lowers your exposure to growth stocks as value-tilting. From that frame of reference, you would be absolutely correct.

But from an economic frame of reference, where one owns businesses and not stocks, the market prices react to constantly shifting expectations, fads, bubbles, and crashes. From this perspective, the market is making an active bet, with a growth bias. Growth stocks are trading at premium multiples, and are therefore accorded more weight in the market portfolio than in the economy are not necessarily better investments.

Both views are right from their own frame of reference. Both views are predicated on a widely respected and accepted frame of reference. But the concept of an economic frame of reference is not radical; it's merely fallen out of favor. Graham and Dodd, and John Burr Williams, whose work dates back 75 years, wrote that you do not invest in stocks; you invest in companies.

You have frequently used the word "structural" to refer to what you call the "negative return bias in cap-weighted portfolios." What exactly do you mean by "structural"? Do you mean that it's a mathematical necessity that a cap-weighted portfolio must be overpriced on average? If it's really a mathematical necessity, then the cap-weighted portfolio would always be overpriced and never revert fully to the mean, so its returns would not suffer a drag.



Not quite. I view it as structural in today's markets and the markets that are reasonably plausible in the years ahead. If price is an unbiased estimator of true future fair value, and if errors are symmetric around price, then the market is efficient. No departures from capitalization weighting will have structural alpha. In this "efficient markets" world, there may be accidental alpha, but not structural alpha.

Let's flip that around. Assume the unknowable fair value is the anchor, and the market is constantly looking for it. The market moves around, as facts become known and circumstances change. I think this represents a more plausible representation of the real world than the efficient markets view, which is the utterly dominant view. This view is more plausible because most practitioners acknowledge there is a fair value, although we don't know what is. And the market constantly seeks that fair value, for which price is a reasonable best guess. If the error around the fair value is symmetric, it must be negatively correlated with price: the higher the price or the P/E ratio, the more likely it is that the price is too high.

Now, let's suppose that growth stocks are systematically priced at a *discount* to fair value, and value stocks at a premium. In other words, the growth stocks carry a premium multiple, but it's too small a premium ... they're too cheap and the value stocks are too expensive. If we have this peculiar pricing, to an extent just large enough to offset the mean reversion in pricing noise, then the alpha of any valuation-indifferent approach would be neutralized.

Push this to an extreme. Suppose valuation multiples (e.g., P/E and P/B ratios) are the same for all assets. Then cap-weighted and fundamentally-weighted indices would perform identically and the alpha would be zero. Then any decent analyst who could discern future growth, with better than random skill, could win by identifying the companies with greater growth prospects.

The more fundamental index strategies are embraced, and the more money flows into these strategies, the more the extreme of the valuation range will be pulled in and the narrower will be the dispersion of valuation multiples. As that happens, the fundamental index concept should deliver smaller and smaller alpha.

But it is hard to imagine that happening without trillions of dollars of investment. And it's pretty clear that the transition from today's world to this hypothetical world of too-narrow dispersion of valuation multiples would be an immense boon to the early adopters of fundamental index strategies.

Regarding the last part of your question, the answer depends on how you define drag. If the performance drag of a portfolio is defined relative to the market, then



of course cap-weighting can't have a drag, because it *is* the market. But, suppose drag is defined relative to the opportunity set. If prices constantly move to seek fair value, there is a mean reversion in that error. There are also constant new shocks, so the size of the error remains that same. Long-term returns exhibit this serial correlation. On a rolling ten-year basis, returns are negatively correlated with the prior decade to a surprising extent, about -40%. We are seeing that right now, in the current decade. These mean reverting errors are the key source of alpha in fundamental index portfolios.

The performance [results](#), as of 12/31/08, show that FTSI RAFI 1000 index underperformed the S&P over the trailing 12 month and 3-year periods. It performed about the same over the trailing 5-year period and outperformed over the trailing 10-year period. Volatility has been the same in both indexes. Can this be interpreted as erosion in performance over time?

I have the opposite perception. The short term alpha of fundamental weighting is directly tied to the growth-value cycle. When growth is winning, fundamental weighing has a headwind. Reciprocally, cap-weighting has a tailwind when you have a growth dominated market.

From 2000 to 2006, fundamental weighting was utterly dominant. It benefited both from a market that was rewarding value strategies and from contra-trading against excesses in the market. This is our rebalancing mechanism at work. When regressed against the Russell Value and Russell Growth indices, fundamental index returns have a beta tilt towards Russell Value, but they also have an alpha relative to *both* that accounts for three-fourth of its value added. That alpha can be swamped by the impact of the value tilt, depending on whether value is winning or losing. The reciprocal happened in 2007 and 2008, when value lost, big time.

The magnitude of the value tilt in the Fundamental Index® portfolios will depend on the dispersion of value multiples. If this dispersion is narrow, fundamental index strategies may not have an advantage. But it is brilliant when value is cheap.



Today, the value versus growth dispersion is the widest it has been since 2000. Today is a wonderful time to embrace value strategies, and, because of the wide dispersion in valuation multiples, a fundamental index portfolio has recently become a deep value strategy.

The fundamental strategy self-adjusts when dispersion is huge, as it is today, trimming growth and adding value exposure. If 2009 and 2010 are outstanding years for value stocks – which probably will be the case – then fundamental index strategies will turn out to be a very valuable part of our tool-kit.

Most folks will opt to “wait and see” because of the last year of underperformance, but fundamental indices are priced to add exceptional value.

Related to the previous question, in the Journal of Indexes article, you say that you expect the alpha offered by fundamental indexing to decay and eventually disappear over time. Is it possible, based on the US performance, this has already happened, at least in the US markets? If not, how will we know when this has happened?

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Fundamental IndexPLUS Fund
Fundamental IndexPLUS Total Return Fund
Fundamental Advantage TR Strategy Fund
Fundamental Advantage Tax Efficient Strategy

PowerShares (19 Passive FTSE-RAFI® index ETFs)

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FTSE RAFI® US 1500
FTSE RAFI® US 1000 Basic Materials
FTSE RAFI® US 1000 Consumer Goods
FTSE RAFI® US 1000 Consumer Services
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FTSE RAFI® US 1000 Industrials
FTSE RAFI® US 1000 Energy
FTSE RAFI® US 1000 Telecommunications and Technology
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No, I don't think the alpha potential has dissipated. To the contrary, I think today offers the richest potential for fundamental index alphas since the peak of the tech bubble in 2000.

You will know the alpha potential is fading when the dispersion of valuation ratios narrows ... and remains that way. In 2005 and 2006, this dispersion narrowed but didn't stay there. It widened, hugely, in 2007 and 2008. This dispersion is like a spring. If the spring gets squashed by vast adoption of the fundamental index concept, and if the dispersion of valuation multiples then stays narrow, the fundamental index concept will have lost much of its edge.

The underperformance of fundamental index portfolios in 2007 and 2008 was largely a US phenomenon; the US was the outlier, just as it was an outlier on the up side in 2000 and 2001; that underperformance can be traced directly to the underperformance of value relative to growth, which we already discussed, and the widening dispersion of valuation multiples.

The spring is very much intact. As long as you have that spring, the best time to embrace the idea is when it is least comfortable - when dispersions are very wide and value has underperformed.

What is your personal asset allocation? What percent of your own assets are in publicly-traded fundamentally indexed funds and ETFs?

My largest single investment is in a long/short fundamentally weighted strategy that we run ourselves. We are long the companies that are most heavily weighted in the fundamental index, relative to their market cap, and short those that are most heavily weighted in the cap-weighted index, relative to their fundamental economic scale. We invest where the gap between the two indices is the most extreme. The effect is much the same as being long the fundamental index and short the S&P 500, leveraged ten-to-one.

A very significant part of my net worth is invested in the fundamental weighting concept through this long/short strategy. I have no significant investments in the fundamentally weighted funds or ETFs. I am more focused on buying the alpha of the index, rather than the beta of the stock market, where I remain a little bearish to this day.

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