Fundamental Indexing Debunked

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Very few topics have generated as much debate as fundamental indexing. Since its introduction in 2005, this debate has taken place in the popular press as well as in academic circles. Much of the academic debate has been in the Financial Analysts Journal (FAJ), the publication of the CFA Institute. On one side of the debate are the architects of the index, Rob Arnott and Jason Hsu, Nobel laureate Harry Markowitz, and former FAJ editor Jack Treynor, who stand behind the principles of fundamental indexing. On the other side, Harvard Business School professor Andre Perold and Morningstar's director of quantitative research Paul Kaplan have attacked these principles.

Now stepping into the fray is Michael Edesess, who says fundamental indexing is built upon faulty assumptions and faulty mathematics. According to Edesess, "the central assumption of fundamental indexing, that market cap weighted indexes overweight overpriced securities and underweight underpriced securities, is without merit."

We had the opportunity to review Edesess' unpublished paper, *Indexation, Noise, and the Size and Value Effects,* which systematically deconstructs and disproves the foundation upon which fundamental indexing is based. A copy of this paper is available by emailing us. We also spoke with him on July 28, 2008.

Edesess' brings impressive credentials to the debate. He is a highly respected mathematician and economist, with a PhD in pure mathematics. He was a founding partner and Chief Economist of Lockwood Financial Group from 1994 to 2002, and is currently Partner and Chief Investment Officer of Fair Advisors. He is author of the 2007 book, The Big Investment Lie: What Your Financial Advisor Doesn't Want You to Know.

Edesess approached the task of analyzing fundamental indexing completely on his own initiative, as a student who had been given an assignment. He looked at the mathematics to see if the proponents of fundamental indexing could prove what they wanted to prove, given the assumptions they were making. Part of the challenge in this task is identifying precisely the assumptions and claims made by fundamental indexing proponents, since they have been stated and restated in ways that differ subtly throughout their debate in the pages of the *FAJ.* Edesess looks to the most current restatement of these claims, which were made in a recent publication by Research Affiliates, What's Going On? A Review of the

[Recent Fundamental Index Strategy Performance](). In this document, they make the following claim:

> The return drag from capitalization weighting—overweighting overpriced securities and underweighting underpriced securities—is a structural long-term return inhibitor. Over shorter intervals, any Fundamental Index application may underperform by placing proportionately more in underperforming stocks than it's [sic] cap-weighted counterpart. The same can be said for equal weighting or, for that matter, any other price indifferent strategy. After all, the goal of price indifferent indexing is to randomize portfolio weights to approximately allocate half of our money to overvalued shares and half to the undervalued.
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> We know that capitalization weighting will structurally place more in securities whose stocks are priced above fair value and less in those that are priced below fair value. Why? Because the weights relative to fair value are not random; they are linked to price and the errors embedded within that price!

A key assumption of fundamental indexing is that the pricing error (the difference between the observed price of a security and its intrinsic fair value) is an unbiased random value, independent of the fair value. Fundamental indexers argue that the pricing error of a capitalization weighted portfolio is greater than zero, creating a performance "headwind" because of an overweighting of overvalued securities (and an underweighting of undervalued securities).

However, the fair value of a security is unobservable, even after the fact, because it is based on the best set of expectations about the future. Therein lies the tenuous nature of the claims of the fundamental indexers.

Edesess shows the expected value of the pricing error in a market cap weighted portfolio is, in fact, zero. Just like the claims of the fundamental indexers, the market cap weighted portfolio allocates half its money to overvalued shares and half to undervalued shares.

The Schwert Rule

The Schwert rule, introduced by economist William Schwert, says "After they are documented and analyzed in the academic literature, anomalies often seem to disappear, reverse, or attenuate." If fundamental indexing has exposed some inefficiency in the market, how likely is it that this inefficiency will persist?

In order for fundamental indexing to have exposed an inefficiency, Edesess claims the outperformance must be due to "statistical characteristics of the market price estimator of a stock's fair value. In particular, large capitalization stocks are more likely to be overpriced, while small capitalization stocks are more likely to be underpriced."

The historical outperformance of small cap and value stocks provide the basis for a large cadre of money managers, who base their strategy on the belief that this outperformance will persist into the future. However, as Edesess notes, "historical records are notoriously poor predictors in the investment field. Justifications not based on the historical record are needed to present a strong argument that some particular style of investing will produce alpha in the future."

Edesess argues that any observed outperformance due to the assumptions of fundamental indexing (e.g., large cap stocks are overpriced) would be arbitraged away, if that has not already taken place. In fact, the previously cited report from Research Affiliates notes that, as of June 30, 2008, the RAFI indexes underperformed the S&P 500 year-to-date, for the prior 12 months, and for the prior three years. One explanation for this underperformance, not offered by the authors, is that whatever inefficiency might have existed in the market has been arbitraged away.

Implication for Advisors

We believe Edesess has dealt a serious blow to the theory upon which fundamental indexing rests. He describes how their "somewhat inept" mathematics and a "questionable set of assumptions" leads to erroneous conclusions like "large cap portfolios are likely to be overpriced." He believes it is impossible to prove what fundamental indexing advocates are trying to prove.

Edesess does not reserve all his criticism for the fundamental indexers. He calls out both Perold and Kaplan for imperfect mathematics. The evenhandedness of Edesess' methodology lends further credence to his conclusions.

Edesess' final thoughts are as follows: "The proposition that market-cap-weighted indexes necessarily overweight overpriced stocks and underweight underpriced stocks is without merit. Market prices are still theoretically the best estimates available of companies' true values. A portfolio based on market-price-weighting will continue, in general, to be the best representation of a well-diversified portfolio."

We find Edesess' claims, along with the previous arguments presented by Perold and Kaplan, to be highly persuasive. In our conversation with Edesess, he characterized fundamental indexing as a marketing gimmick, based on two words ("fundamental" and "indexing"), both of which are currently in vogue. We agree. This marketing effort has been bolstered by an aggressive public relations campaign, where the fundamental indexers have responded to the criticisms leveled against them in academic circles and in the popular press. Fundamental indexing investors should carefully read the papers by Perold, Kaplan, and especially Edesess, and make sure they are willing to bet against the very powerful logic presented by these authors.

We are not saying that products based on fundamental indexing are bad investments. Those products will have certain properties, such as a small-cap and value tilt, which may be desirable to investors. If these products offer cost-effective expense ratios, they may be suitable for many portfolios. However, it is a mistake to invest in products based on fundamental indexing based the theoretical argument that they will beat a broad-based cap-weighted index.