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The Value of Fundamental Indexing

Proponents of market benchmarks weighted by such factors as dividends, earnings or sales claim that an investment management revolution is afoot. But is the concept really new — or is it just a cleverly repackaged version of the discipline known as value investing?

By Clifford Asness

"There is nothing new under the sun, but there are lots of old things we don't know."
— Ambrose Bierce, *The Devil's Dictionary*
U.S. author and satirist (1842 -1914)

There is an interesting and sometimes heated debate under way about the merits of traditional capitalization-weighted indexing versus so-called Fundamentally Weighted™ indexes.[1] Robert Arnott, chairman of Research Affiliates, a Pasadena, California–based investment management firm, and finance professor Jeremy Siegel of the Wharton School of the University of Pennsylvania have led the charge for Fundamental Indexing. Vanguard Group founder Jack Bogle and Princeton University economics professor Burton Malkiel have been the chief defenders of traditional indexing. I write this piece as one stuck in the middle. On the one hand, Bogle and Malkiel are right: If we use a strict definition of the word "index," the only indexes that truly

1. Rob Arnott's firm, Research Affiliates, has either a full or provisional trademark on the term "Fundamental Index" and its variants. Therefore, at their request, after using the trademark symbol once above, I subsequently capitalize any word combination in this essay bearing close resemblance to Fundamental Index. Please blame Arnott and his firm for any awkwardness and eyestrain that results. Also, please note that I am in the process of trademarking the phrase, "aggressively marketing something we have known about for a while as something new" and, of course, all its variants.

Illustrations by Edel Rodriguez

make sense are cap-weighted. On the other hand, I am not a pure index fund investor. Instead, I try to outperform indexes by making active bets — and the bets I favor are in the direction of Arnott and Siegel.

It is worth repeating explicitly something that is implicit in this last point. The "tilt" underlying Arnott and Siegel's investment portfolio is an active bet. I therefore take great issue with the word "index" in Fundamental Indexing. More important, I also take great issue with the notion that Fundamental Indexing represents anything new. For reasons I'll explain, Fundamental Indexes are not indexes in the sense that they can be the core of most investors' portfolios. And the source of any return advantage they possess has long been known to researchers: the higher average returns associated with value stocks.

Let us first define the debate. Traditional indexes and the funds based on them are market-capitalization-weighted and provide the investor with exposure to markets, usually at a very low, all-in cost. The risk premium offered for lending money to the market is a cornerstone of investment theory. But Fundamental Indexers claim you can do better. They say that capitalization-weighted indexes, all else being equal, assign higher weight to higher-priced stocks (this is unarguable) — and because investors make mistakes in setting stock prices (this is quite arguable), cap-weighted indexes systematically overweight expensive stocks and underweight cheap ones. You can do better by taking price out of the equation, the argument goes, by constructing your indexes based on measures of economic import, such as book value, dividends, earnings or sales, that are not contaminated by the irrationalities of price.

To fully understand my skepticism about Fundamental Indexing, it's important to first explore a seemingly simple question: What is an index? The loosest definition is any rule-based method of constructing a portfolio. The method can be completely mechanical — this is how we usually think of it — but it can also be the result of a committee decision, such as that undertaken to construct the Standard & Poor's 500 index. What is important is that it is defined *ex ante*, so we know the components before we see the results.

Under this loose definition, any predefined portfolio is an index (for example, we might think of my father's three physical shares of ITT Corp. from the 1960s as an "index of sloth," but not in any useful sense). So we generally narrow the definition to mean a number meant to describe the performance of a group of similar investments. Examples abound: the S&P 500 and Russell 1000 for large-cap U.S. stocks, the Russell 2000 for small-cap stocks, competing value indexes and even indexes of performance for specific industries. It's clearly not hard to make it under the umbrella of this loose form of an index.

Now let's consider a definition of an index that is stricter and for some purposes more useful. A strictly defined index describes a combination of assets we can all invest in without distorting prices. That's an opaque sentence, so let me explain. Imagine two indexes of the 5,000 biggest U.S. stocks. One index weights securities by their market capitalizations; in the other, every stock has the same weight. Clearly, all investors can simultaneously own the cap-weighted index. If I try to move $100 into the stock market in such an index, I'm buying the same tiny fraction of each company — perhaps 0.000000001 percent of each firm's shares outstanding. I may increase stock prices in general, but it's hard to imagine any large, distortive effect among relative prices.

Now imagine I try to move $100 — or to better make the point, $100 billion — into an equal-weight index. If there were 5,000 companies in the index, I would be allocating 1/5,000, or $20 million, to each of them. I have no problem investing this much in the largest stock. However, if you assume that the market cap of the 5,000th-smallest stock is less than $20 million before I start buying, my investment is sure to have a dramatic effect on its relative stock price. You simply cannot invest significant wealth in an equal-weight index without moving relative prices.

> "Fundamental Indexing and value investing in general are a lot more popular now after they have had a fabulous five years. Where was this popularity in 1999 and 2000?"

Let's think about this for a minute. Since market capitalization derives from the set of prices and corresponding company values on which the market currently agrees, any deviations from market-cap weights — from the extreme of equal weights to the subtler but still significant tilts of Fundamental Indexing — are deviations from that agreed-upon center. These deviations are the classic definition of an active bet. Moreover, for every active bet overweight, there is an equal and opposite active bet underweight. Basically, we must come home from Garrison Keillor's fictional Lake Wobegon, where all the kids are above average, and admit that collectively we all own the market-cap-weighted "market" portfolio (a point — and a Wobegon analogy — that Bogle and Malkiel have highlighted elsewhere). In this much stricter sense of the word "index" — something we can all own at the same time — every index must be capitalization-weighted.

So which definition are the proponents of Fundamental Indexing using, the loose or strict form? They are obviously using at least the former. But by advocating that great masses of investors change their benchmark to a Fundamental Index, they are also implicitly invoking the latter, strict interpretation. The proponents are not just recommending bets against existing cap-weighted benchmarks — they are advocating a new starting point for investing.

This is quite odd. In effect, they are saying: "Here is cap-weighted indexing. It's a summary of what everyone believes at once. Now here is a different portfolio that represents a thematic bet away from the crowd, and we think everyone should take this bet." It is odd to define a bet away from the crowd as a starting point for the masses. For everyone who bets against the crowd, whose collective wisdom is represented by cap-weighted indexes, someone must take the other side, a much worse portfolio according to both sides in this debate.

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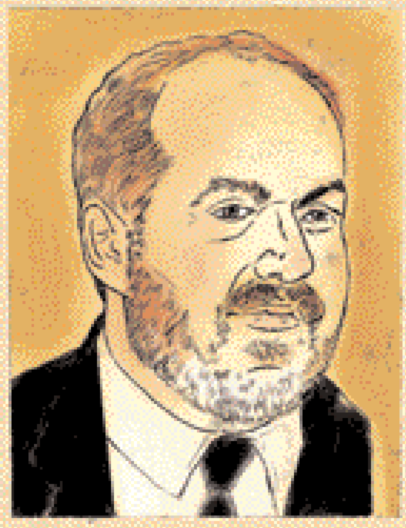

In his widely read pro–Fundamental Indexing editorial published in the *Wall Street Journal* in June, Jeremy Siegel argued that "we are on the verge of a revolution: New research demonstrates that it is possible to construct broad-based indexes offering investors better returns and lower volatility than capitalization-weighted indexes." If instead of discussing an index product I told you a revolution was coming as investors more and more actively tilt toward value stocks, one hopes you would ask, "Uh, if they're tilting toward value more then ever before, who is tilting away more than ever before, and isn't this a zero-sum game?" You would be asking a very good question.

Advocates of Fundamental Indexing will no doubt take issue with my argument. They will claim that they are just using the less strict definition of an index. (In a literal sense they must be right, as they are collectively too learned to think that all investors can buy their index without it becoming cap-weighted itself.) Nonetheless, their rhetoric clearly positions them toward the strict form (Siegel's "revolution" and all that). These proponents repeatedly position Fundamental Index portfolios not as active portfolios but as new core holdings. The effect of investors buying Fundamental Indexes is not as extreme as if they all rushed to buy equal-weight indexes. But if the buying is done on a large scale, it is technically impossible to own a Fundamental Index — or it is possible only if Fundamental Indexes become one and the same as cap-weighted indexes — as it represents a large group of investors systematically deviating from the group!

So what are advocates of Fundamental Indexing actually saying? Is it anything new? The answer is no, their "revolution" is driven by nothing we do not already know. If, for example, advocates of Fundamental Indexing are simply saying that they have found a way to beat market-capitalization-weighted indexes — and that they can elucidate this method in a clear enough way to use the term "index" in its loosest sense — then we already have a characterization for this in the investment management industry: It is called value investing. More precisely, in this form it is called a quantitative active value tilt (sometimes it is even called semipassive, to indicate its low tracking error). Many of us have made a lot of money in the past few years on this bet (and I use the word "bet" quite consciously) after losing a lot on it in 1999 and early 2000. It is about as new as the dust on my copy of Graham and Dodd.

To be mathematically precise (and risk the reader's loss of patience with those who say such things), a comparison of a Fundamental Index–weighted portfolio with a cap-weighted portfolio, both derived from the same universe of stocks, yields an interesting finding. Let's use dividends as our fundamental example. If D/Pi is the dividend yield of stock i and D/Pm is the dividend yield of the cap-weighted market itself, stock i's weight in the Fundamental Index — the percentage it forms of the portfolio — is precisely:

Wi,F = weight of stock i in Fundamental Index
Wi,C = weight of stock i in traditional cap-weighted index
Wi,F = Wi,C x [D/Pi / D/Pm]

In other words, the over- or underweighting of stock i in the Fundamental Dividend Index relative to the cap-weighted index is exactly proportional to the dividend yield of the stock relative to the dividend yield of the market. Stocks with high dividend yields — value stocks according to the D/P measure — are overweighted. Growth stocks, with low dividend yields, are underweighted. Lo and behold, stocks whose dividend yields match the market have the same weight in fundamental and cap-weighted indexes.[2] Thus we see that Fundamental Indexing is precisely and solely a very clear and definable value tilt away from cap-weighted indexing.

Some advocates of Fundamental Indexes cede the point, but others forcefully argue that what they are doing is not simply value investing. In a paper published in the January/February 2006 edition of the *Journal of Indexes*, Jason Hsu of Research Affiliates and Carmen Campollo, senior vice president at FTSE Americas, compare Fundamental Indexing to the Rus-

2. Building fundamental indexes by averaging across many fundamentals changes none of the logic. I wasn't sure how to capitalize "index" within this sentence, so please don't forget the ™!

sell value indexes (among others) and declare it superior. Using his own improvised headline, "Just Another Value Index? Not," Rob Arnott circulates a chart similar to that developed by Hsu and Campollo. Well, Fundamental Indexing is 100 percent exactly, precisely, without question, just a tilt away from market cap based purely on valuation.[3] That makes it hard to even begin addressing these claims beyond the schoolyard riposte, "Yes, it is value investing, do the math."[4] Those asserting that Fundamental Indexing is not simply a value tilt ignore more than just the massive prior evidence of a value effect among U.S. large caps. They go on to "discover" that Fundamental Indexing beats capitalization-weighted indexing everywhere they look: It wins in small-cap and international stocks; it wins throughout time in a robust variety of economic environments; and so on.

That may seem like an impressive set of findings. But it is merely a repeat of the vast literature on value investing dating back more than 50 years, one that certainly owes its modern popularity to the work of the University of Chicago's Eugene Fama and Kenneth French, the latter now at Dartmouth's Tuck School of Business, in the late 1980s and early 1990s (and then to a host of others). Fundamental Indexers are "discovering" as new the territory that academics and practitioners have already trodden. It's as if they are planting a flag on somebody else's terrain and chanting, "I can't see you, I can't see you."

Now let's clean up a few details. Another tenet of Fundamental Indexing is that prices are "wrong" and that various fundamental measures can do a better job of telling us how much to invest than the nefarious price. This is possible, but it too ignores — or rather, rediscovers — a long strand of academic research. To cite one of many possible examples, Ray Ball of the University of Chicago Graduate School of Business has shown that if expected returns on stocks vary (because of pricing errors or differences in risk — more on that in a bit), then any measure that divides or is divided by price, like P/E, P/S, or D/P, will have the power to forecast the cross-section of stock returns. Jonathan Berk of the University of California at Berkeley's Haas School of Business argues that the famous size effect — the apparently high average returns to small company stocks — is really a low-price effect and that when he adjusts for this finding using what he might have accurately called Fundamental Indexes, the size effect shrinks or goes away. I am not trying to disparage the current debate, but it is important for all of us, particularly the principal debaters, to remember that most if not all of the issues being discussed have already been explored in a vast literature that was many years in the making.

So to summarize thus far, Fundamental Indexing is an active strategy based 100 percent on a value tilt, an idea that has been around and successfully implemented for decades. So what do we have left to debate? Well, I can think of two issues. First, why does it work? Or, to be more precise, why has it worked in the past? (We must all strive to keep our tenses correct!) And second, will Fundamental Indexing make for an attractive and successful investment product?

Let's take the first question. Here again, we do not have to think too hard before noting that there is a long, well-thought-out and still hotly debated academic literature on why value investing and its trademarked twin, Fundamental Indexing, work. So far I have framed the discussion using the Fundamental Indexer's argument, that prices are "wrong" and thus capitalization-weighted indexes overweight overpriced stocks and underweight underpriced stocks. But there are other explanations. One alternative often advocated by the late economist Fischer Black (of Black-Scholes fame), was that the success of value investing is just the result of data mining. That is, if enough smart people with enough big computers look at this long enough, they are sure to find patterns in historical data — patterns that could be used to construct strategies that appear to beat the capitalization-weighed market in the historical data. That's a plausible argument and one that can never be fully ruled out. But there is now tremendous out-of-sample evidence for value's efficacy. The original Fama and French study, for example, looked at the value effect in U.S. stocks from 1963 to 1990. Since then researchers have found a value effect in international stocks, in U.S. data from 1926 to 1962 — and perhaps most important, in the 15 years of returns since 1990. As a result, I don't find the data-mining explanation compelling.

Still, intellectual honesty demands that I mention it. In fact, there is one telling observation that favors the data-mining story — if only to show that people are natural data miners: Fundamental Indexing and value investing in general are a lot more popular now after they have had a fabulous five years. Where was this popularity in 1999 and 2000?

The other explanation for why Fundamental Indexing works is efficient markets theory, championed most forcefully by Fama and French. Essentially, the argument is that highly priced stocks (on any fundamental measure) are lower-risk stocks and thus are priced rationally to have lower expected returns. This is not the forum to cut the Gordian knot between the camps of rationality and irrationality. In fact, I believe the value effect most likely results from some combination of rationality and irrationality. But whatever the explanation, we can be sure it also explains why Fundamental Indexing has beaten cap-weighted indexing over time, since both explanations are trying to justify the success of value investing. It is, however, interesting that in jumping whole hog into the "inefficient" explanation for value's success, the advocates of Fundamental Indexing largely ignore this gigantic, subtle and still unsettled academic debate. They simply crown one side the victor, often without even considering the issues. Both efficient and inefficient market explanations for the success of value predict higher returns for Fundamental

3. What Hsu and Campollo, and by extension Arnott, actually argue — by showing that Fundamental Indexing outperforms some other specific value indexes — is that they believe it is a better value tilt than the Russell versions. This is plausible but difficult to judge from their analytics, given that return differences may be a function of "tracking error" (since all value portfolios differ from capitalization-weighting by more or less). Either way, it is not a subject I take up in this essay.

4. I played in a very geeky schoolyard.

Indexes, so evidence that they have higher returns adds literally nothing to this ongoing discussion. Whether the value effect is caused by mispricing, risk or — almost certainly — some combination of the two, Fundamental Indexing is just a new label on old wine. Claiming that the premium on Fundamental Indexes comes from mispricing does not make it so.[5]

I would be remiss if I didn't discuss the commercial prospects of Fundamental Indexing. As a product it appears to be a pretty reasonable tilt toward cheaper stocks (with lower prices versus dividends, book value, earnings, sales, etc.) and away from more expensive stocks. Thus it is a fairly credible form of disciplined, value-based active management. Still, like all forms of active management, it is subject to fads and flows. (Notice again that nobody was introducing these "indexes" in late 1999 to early 2000, when the historical evidence was not so favorable, but the prospective returns were much greater.) And if Fundamental Indexing grows too successful, it will suffer after the spreads between cheap and expensive stocks narrow. In the extreme its success could sow the seeds of its own destruction — but not before the pressure on prices causes extraordinarily high returns on value stocks.

On the positive side, though, I am a believer that there are biases that lead investors to overpay and underpay for certain stocks. Thus, at current prices, I remain a fan of value investing. (Full disclosure: As the manager of funds that tilt toward value, I am talking up my own book here.) In addition, at the right investment management fee and given more information about the details, I am a potential fan of fundamentally constructed portfolios. But this is no more than I would say about any other disciplined form of value investing, with the devil being in the details.[6]

To make one additional prediction, I think the proponents of Fundamental Indexing are on to something in a marketing sense. The approach is a clean, simple way to describe how to construct an active, value-based portfolio. Although it is not a revolutionary new core holding, the proponents should still do well with that.

Last, a word about market-capitalization-based indexing, which will never be driven from its deserved perch as king of the investing world. Market-cap indexes designed to capture the broad market have delivered low-cost equity returns to a great mass of investors. Most important, as I've argued, that is the only portfolio we can all own in aggregate.

These days, many investors spend much of their time arguing over whether this now-and-forever king-of-the-hill can be beaten by other methods. But we must never lose sight of the fact that these other approaches are merely side bets. (Remember, if you increase your expected return by tilting toward value, other people must lower theirs by tilting toward growth.) So Fundamental Indexing is really just a relabeling of the most debated, and most promising, side bet out there — value investing — and as such, may be an attractive investment product. But Fundamental Indexing is certainly nothing even remotely new under the investing sun. Instead, Fundamental Indexing is just a catchy term for a long-established discipline. **i**

5. After much cajoling by early readers like myself, some later versions of the works on Fundamental Indexing make grudging mention of the value literature and of alternative explanations like "risk" for the success of value investing (and by extension, Fundamental Indexing). I am confident that I have accurately summarized the gist of what Fundamental Index advocates are saying about mispricing.

6. These details include but are not limited to the level of diversification, the degree of value tilt versus fees charged, turnover and how firms with extremely high B/P or E/P are dealt with. Some of these issues are addressed in the literature on Fundamental Indexing, but the main point is that once you accept that such indexing is simply active management with a known value tilt, all we must evaluate, on multiple dimensions, is whether it's a particularly attractive or unattractive value tilt compared with the alternatives. Proponents may or may not succeed with that, but it's a lot harder than selling a "revolution"! In a twist on the standard disclosure, I should mention that as part of a broader investment managed by Rob Arnott, I believe I'm one of the earliest investors in a Fundamental Indexing product. I just don't think of it as something new or as an index.