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## Indexation as a Business

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## INDEXATION AS A BUSINESS

Indices were originally invented to serve as a benchmark, or reference point, for measuring the ability of managers. The index is essentially a sample of the opportunity set of all securities available within an asset class. Therefore, a comparison of the returns of a manager with those of an index is entirely reasonable. Yet, what happens when the index becomes a business? That is to say, what happens when the reference point itself is marketed as an actual portfolio that competes with the managers being measured by that reference point? Is it still legitimate to use the index as a reference point if it's also being used as a business?

To explore those questions, let's consider the scientific method employed to conduct objective inquiry in the western world. One can divide the scientific method simplistically into two spheres: observation and experimentation. In observation, a classic example might be ancient astronomers observing the stars. The act of observing the stars in no way alters the reality; however, even in such a simple observation there can exist that which a statistician would call confounding variables. For instance, no modern astronomer would dare draw any conclusions from viewing the night sky in a large city, because of the distortions created by ambient light. In that case, ambient light is a confounding variable.

In experimentation, it's easy to see how a confounding variable might exist. For instance, if half a group of patients afflicted with a given disease are given a drug while the other half are given a placebo, some of the possible confounding variables would include differences in age, health, quality of medical care and so on. Any of those variables might possibly explain results achieved in the experiment. In fact, to achieve experimental results without the existence of confounding variables is one of the great problems of science.

In the case of indexation, the largest holders of virtually any company in the S&P 500 include Blackrock, State Street, Vanguard, TIAA-CREF, and Invesco PowerShares, which are all well-known indexation firms. There are over \$1 trillion worth of assets in ETFs which, after all, are merely indexes. The total amount of money invested in the many and various passive strategies, whether in separate account form or in structured product form, is clearly many times larger than that existing in ETFs. No one knows with any degree of precision how much money is actually indexed. Moreover, no one is in a position to know, since no small portion of indexation money is invested via derivatives, and no hard figures are readily available. Given that situation, one may ask if anything is proven by the fact that the passive strategies have outperformed the active strategies, except that investors have been convinced to purchase trillions of dollars' worth of passive strategies.

If the issues at stake were merely those of measuring relative performance, this would be a trivial subject; however, the issue is much more profound. For example, the central concept of indexation is to hold the index portfolio for long periods of time since, in principle, there is no statistical advantage in attempting to time the ebb and flow of the

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market. Nevertheless, in the 11 months of 2011 through November, roughly \$1 trillion worth of ETFs produced a trading volume with notional value of \$18.9 trillion.<sup>1</sup>

This year-to-date amount means that there's little basis to doubt that notional trading volume will comfortably exceed \$20 trillion by the end of 2011. Consequently, using the \$1 trillion of indexation strategies represented by ETFs as a proxy, these indexes turned over 20 times, or 2,000%. The U.S. equity long category had \$476 billion of ETF assets at the end of November 2011.<sup>2</sup> Its notional trading volume on a year-to-date basis through November 2011 was roughly \$12.3 trillion.<sup>1</sup> The U.S. indices' turnover was therefore 25.8 times, or 2,580%.

The long leveraged category of ETFs had \$10.2 billion of assets at the end of November 2011. The notional turnover, or trading volume, for this group was \$951 billion.<sup>1</sup> This amount equates to a turnover ratio of 93.2 times, or 9,320% in 11 months. However large these figures are, they dramatically understate the actual impact, since the leveraged funds are at least 2 times levered, and in many cases they are 3 times levered. Therefore, the turnover figure should be multiplied by a coefficient of somewhere between 2 and 3 times to arrive at a more realistic figure that would certainly exceed 20,000%.

Similarly, the leveraged short ETF category had roughly \$7 billion of assets. The notional trading volume for this group in the first 11 months of 2011 was approximately \$835 billion. This amount is equivalent to a turnover ratio of 119.3 times, or 11,930%. Of course, the leverage factor would imply that the gross turnover is well in excess of 2 times that amount, so the actual number is certainly in excess of 23,000% in 11 months.

In light of these figures, is there anyone willing to assert that the S&P 500 is only an abstract benchmark? Should an active manager really be faulted for being unwilling to build a portfolio comprised of the same constituents as these so-called indexes? Can an active manager really be expected to predict the ebb and flow of money that enters and then leaves these various index products on a daily basis? Is the manager being fairly compared to a benchmark, a random number generator, or a casino?

The academic answer is that the comparison is fair, since the manager is certainly at liberty to buy and hold the S&P 500 issues. However, consider that Berkshire Hathaway has \$67 billion of its capital invested in S&P 500 issues, including Johnson & Johnson, Procter & Gamble, IBM, Coca-Cola, American Express, and Wells Fargo. Its mix of other businesses includes MidAmerican Energy, PacifiCorp, GEICO, Burlington Northern, See's Candies, Benjamin Moore Paint, and others, is well-diversified and not vastly different in character from the S&P 500. Yet, thus far in 2011, Berkshire Hathaway's shares have underperformed the S&P 500 by over 1,000 basis points. Is anyone willing to assert that

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<sup>1</sup> Source: National Stock Exchange <http://www.nsx.com/content/etf-notional-list>.

<sup>2</sup> Source: National Stock Exchange <http://www.nsx.com/content/etf-assets-list>.

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the business prospects of Berkshire Hathaway are so vastly inferior to those of the S&P 500, despite the fact that a large proportion of Berkshire Hathaway's assets are invested in the S&P 500?

One is tempted to assert, but unable to prove, that there is more than a slight connection between the 1,000 basis point underperformance of Berkshire Hathaway stock and the fact that it is the largest member of the SPDR Financial Select ETF (XLF). In that index, Berkshire Hathaway has a weight of 9.12%. It is contained in the same portfolio as Bank of America, Citigroup, and Goldman Sachs. According to Bloomberg, there were 247 million shares short of XLF as of November 30, 2011.

As a practical matter, because of its weight in XLF, Berkshire Hathaway has become one of the most heavily shorted stocks in the United States. There are many companies that suffer the same fate by virtue of their inclusion in or exclusion from an index. It is clearly beyond the ability of any person or group of people to predict these changes. In fact, prior knowledge of such changes is considered insider information and anyone with access to that data is legally prohibited from making use of it.

The problem is not only limited to the use of indexes as benchmarks for active managers. Indexes are also the basic data implements used in making asset allocation decisions. Portfolios are constructed, in no small measure, based upon the correlation of these indices with one another. Due consideration is given to historical return characteristics of various indices; yet, how can anyone possibly expect that U.S. government bonds will produce anything remotely close to the historical level of return when the 10-year U.S. Treasury now yields 1.85%, and the 30-year Treasury yields 2.85%? Ultimately, if yields rise to historical levels, how is it possible that other asset classes will react in accordance to historical correlations when the S&P itself now yields more than either the 10-year or 30-year Treasury?

Let us consider the following figures: the iShares Barclays 20+ Year Treasury ETF (TLT) has a 30-day SEC yield of 2.79%; the iShares Barclays 7–10 Year Treasury ETF (IEF) has a 30-day SEC yield of 1.63%; the iShares Barclays Aggregate Bond Fund (AGG) has a 30-day SEC yield of 2.10%, and that's considered to be the proxy for the bond market at large; the Vanguard Barclays Total Bond Market has a 30-day SEC yield of 2.40%; and the iShares Barclays TIPS Bond Fund (TIP) (for Treasury Inflation Protected) has a 30-day SEC yield of negative 12 basis points.

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	<u>SEC Yield</u>
iShares Barclays 20+ Year Treasury ETF (TLT)	2.79%
iShares Barclays 7–10 Year Treasury ETF (IEF)	1.63%
iShares Barclays Aggregate Bond Fund (AGG)	2.10%
Vanguard Barclays Total Bond Market	2.40%

*Source: ETF sponsors' websites as of 12/16/2011*

It is extraordinary that the iShares Barclays TIPS Bond Fund has \$22 billion of assets under management given that the ETF has a negative yield. The March 2012 at-the-money put with a strike price of \$117 traded at \$2 on December 16, 2011. If one wished to be long TIPS, and if all else remains constant, one could sell the at-the-money puts every three months at \$2 to earn 6.84% plus a handful of basis points from placing the collateral for the trade in a money market account. It is possible to construct a portfolio that would be effectively long TIPS and would have a yield that is much higher.

That situation is not supposed to exist in a world of efficient markets, and it highlights the distortions created by indexation. Of course, as simple as this trade would be to construct, it will generally not be done for reasons that are relatively simple. In modern portfolio theory logic, constructing a TIPS portfolio via options would be an asset allocation move from bonds to options. Moreover, the trading account for the portfolio would require a Level 5 Options Trading Authority.

The same construction technique performed on the iBoxx High-Yield Corporate Bond ETF (HYG) using the March 2012 options, as they were priced on December 16, 2011, would produce a yield of 14.25%. As of the same date, the HYG yield was 7.86%.

It is certainly in accordance with the scientific method that managers should be quantitatively assessed against a standard or benchmark. However, the benchmark is no longer merely a standard; it is a competitor. Large-scale use of the benchmark as a product creates its own confounding variables such that measuring the accomplishments of managers against the benchmark is meaningless. The benchmark is merely another manager with a quantitative method of security selection. If it should ever lose popularity, the investment flows and performance characteristics will be dramatically reversed, with grievous consequences to the investors in the index.

The index is now, by far, effectively the largest manager. There do not exist sufficiently large pockets of liquidity to accommodate a large-scale outflow of funds from indices. The following table displays the current indexation circumstance:

<u>Institution</u>	<u>Assets Under Management</u> <i>(\$ in trillions)</i>
State Street	\$2.0
Vanguard	\$1.6
BlackRock	\$3.345

*Source: Company websites as of 12/16/2011*

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State Street is largely an indexation company. Although BlackRock is not entirely an index fund, it is largely an index fund, because it owns iShares. If there should ever be a significant outflow from indexation into any other type of strategy, there exists no pool of capital sufficiently large to absorb the outflow of dollars from the index securities, an observation of which asset allocators should be reasonably cognizant.