CAN AN INDEX UNDERPERFORM ITS BENCHMARK?

THE CURIOUS CASE OF SMALL CAP EQUITY PERFORMANCE

"The Russell 2000—the leading small cap index used by institutional investors in the U.S.—is simply a pure, transparent, rules-based small cap index. So if you're looking for an industry-leading small cap benchmark, or looking for pure, unbiased small cap exposure, try this one on for size." – Russell Investments[4]

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Introduction

In January 2013, we authored a white paper entitled "*R2000 Index Construction: When Small Caps Became a Big Problem*" that outlined the little known vagaries of market capitalization "banding" in Russell's portfolio construction methodology. Our white paper became the basis for a July 2013 Wall Street Journal article entitled "*Small Cap Stocks Are in the Eye of the Index: Inclusion in the Russell 2000 May Distort Some Stock Values*" in which Russell admitted to discrepancies in defense of their banding methodology. In this essay, we take a slightly different approach than we did in our January 2013 paper; but the goal of highlighting our concerns regarding the potentially negative consequences of recent developments in the index business remains unchanged.

We chose a rather paradoxical title for this essay to draw your attention to one of the more intriguing consequences of the continuing move, en masse, of investors to passive equity investments (indexation). What were once simple benchmarks used by investors to evaluate active manager performance have become widely followed strategies in investors' portfolios and a multi-billion dollar revenue business for investment firms. These index strategies are intended to provide direct, cost-effective exposures to various return factors via well diversified portfolios built on the foundations of capital asset pricing model ("CAPM"). A cornerstone of this approach is the CAPM tenet that investors should require higher returns for riskier assets. Unfortunately, markets do not always follow the rules and investors might be surprised to find that the indexes they own don't either.

Small Cap Stocks Outperform Large Cap Stocks, Right?

Let's consider two of the more prominent U.S. equity indexes, the Russell 1000® Index (large cap equities) and the Russell 2000® Index (small cap equities). Since December 1978, the inception date of both indexes, through October 31st, 2014 the Russell 1000 has outperformed the Russell 2000 by roughly 20bps per annum despite the Russell 2000's close to 30% higher volatility over the period (19.7% vs. 15.3%). That may not be a wide margin, but the important point is that the Russell 1000 exhibits lower volatility *and* outperforms the Russell 2000, which runs counter to academic investment models, which rely on the opposite being true—that is, investors should demand that small cap equities compensate investors with higher returns for taking additional risk. Proponents of indexation argue that investors should continue to hold the Russell 2000 and the ship will right itself over time. After all, it is an index and investors can't underperform if they are invested in a market index, right?

A Benchmark for an Index

In 1992, Eugene Fama and Kenneth French published the "The Cross-Section of Expected Stock Returns." The developments discussed in this paper, commonly known as the Fama-French three factor model, extended upon CAPM to better explain stock returns. The two additional factors are "Small minus Big" (SMB) and "High minus Low" (HML). SMB is used to measure the excess returns of small capitalization stocks with respect to larger capitalization stocks. Similarly, the HML factor is used to measure the excess returns of value stocks relative to growth stocks.[1] Today, the Fama-French model and its subsequent iterations are used across the investment industry as a means to evaluate portfolio exposures and performance.

[1] Fama, E. F.; French, K. R. (1992). "The Cross-Section of Expected Stock Returns". *The Journal of Finance* **47** (2): 427.

Both factors are constructed by ranking all of the securities in the NYSE, AMEX, and NASDAQ by market capitalization (Market Equity or "ME")[2] and book-to-market ratio (BE/ME). The table below shows the six portfolios that are constructed. Each of these six portfolios is market capitalization weighted and rebalanced annually.

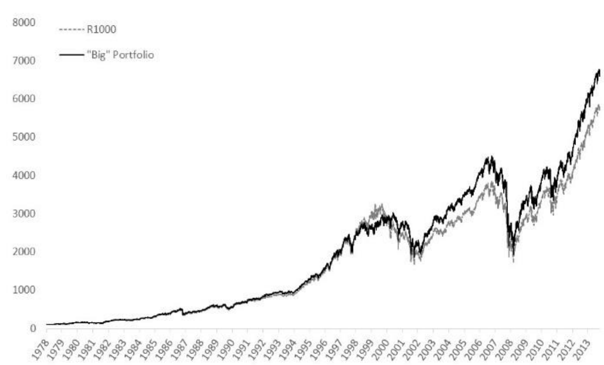
Fama-French Portfolios
(Figure 1[2])

		Market Cap (ME)	
		Below 50th Pct. ME	Above 50th Pct. ME
Top 30 Pct. BE/ME (i.e. low P/B)	Value	Small Value	Big Value
	Neutral	Small Neutral	Big Neutral
Bottom 30 Pct. BE/ME (i.e. high P/B)	Growth	Small Growth	Big Growth
	Average	**Small**	**Big**

The SMB factor is the average return on the three small portfolios (Small) minus the average return on the three big portfolios (Big). Averaging across the HML factor creates valuation neutrality in the large cap and small cap portfolios. Similarly, the HML factor is the average return of the two value portfolios minus the average returns on the two growth portfolios.[3]

The Big portfolio represents the largest 50% percent of securities in the U.S. markets[2]. Therefore, the Big portfolio attempts to characterize a portion of the market similar to that of the Russell 1000. The figure to the right shows that over a 35-year period, the two return paths are not dissimilar even though the Russell 1000 only encompasses approximately 25% of all 4000 securities in the Russell extended universe and is not value-growth neutral. The Big Portfolio annual return exceeds the Russell 1000 annual return by approximately 50bps per annum (11.9% vs. 12.4%) with little difference in annual volatility (17% vs. 17.4%). We reasonably conclude that the Russell 1000 and Big portfolio are copasetic.

Russell 1000 vs. Big Portfolio
Cumulative Return (Dec. 1978 – Sep. 2014)



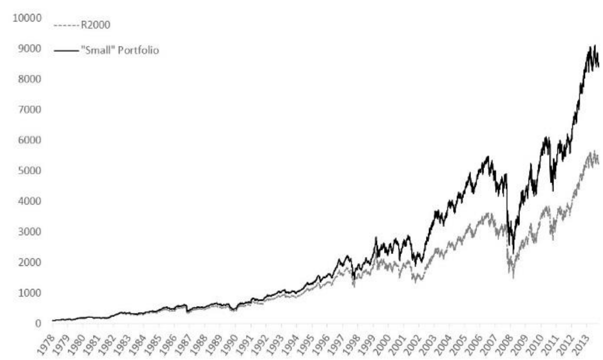
Source(s): Horizon Kinetics, Bloomberg, Dartmouth

Considering the results of our large cap comparison above, we would expect a similar relationship to hold for the Russell 2000 and Fama-French's Small portfolio. However, looking at the figure below, there are stark contrasts between the two portfolios.

[2] The market capitalization ranking is based on NYSE stocks only. AMEX and NASDAQ stocks are then allocated accordingly. As a result, the number of stocks in each percentile may vary.
[3] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french

The Fama-French Small portfolio outperforms the Russell 2000 by more than 150 bps per year (13.2% vs. 11.7%) and has nearly 200bps less volatility (17% vs. 19%). Recall that the motivation of the SMB factor is to quantify the persistent outperformance of small capitalization stocks relative to large capitalization stocks.

Russell 2000 vs. Small Portfolio
Cumulative Return (Dec. 1978 – Sep. 2014)



Source(s): Horizon Kinetics, Bloomberg, Dartmouth

Yet, the Russell 2000 has underperformed the Russell 1000 over this time period while the Fama-French Small portfolio outperformed the Big portfolio by approximately 0.74% annually with modestly more volatility (32bps).

So investors that have allocated to a passive Russell 2000 strategy expecting to be rewarded with a small cap return premium should reconsider their long-term expectations for the index. Readers may quickly point out that the Fama-French Small portfolio may have more microcap stock exposure relative to the Russell 2000, which only captures the middle 50% (i.e., the middle 2000 of a 4000 security universe). This is a valid point and deserves more detailed analysis, but in the interest of brevity, one can see below that the Russell Micro Cap® Index does not have materially higher returns than the Russell 2000 and it has exhibited lower volatility.

Jun. 2000 – Sep. 2014	Russell Micro Cap	Russell 2000	Small Portfolio
Total Annual Return	10.3%	10.1%	13.4%
Annual Volatility	23.5%	25.2%	22.9%

Source: Bloomberg, Horizon Kinetics

Indexation, as a function of its extremely low (and continually declining) fees, is now an asset management business that requires scale for success. Where active managers used to pick specific small cap names to own, index strategies try to own an entire universe of stocks. Small cap investing, by definition, has significant scale limitations and micro cap even more so. Small cap indexes that have been created to provide access to capacity constrained asset classes should logically be avoided, as they are likely to underperform their benchmarks over the long-term. Consider the following quote from the Russell Investments advertisement that appeared on the back of the CBOE Risk Management Conference Europe Report dated October 2014.

> *"How small is your small cap? We like to think of the Russell 2000® small cap index as true size. There are no midcap stocks mixed in to artificially enhance performance. The Russell 2000—the leading small cap index used by institutional investors in the U.S.—is simply a pure, transparent, rules-based small cap index. So if you're looking for an industry-leading small cap benchmark, or looking for pure, unbiased small cap exposure, try this one on for size." – Russell Investments*[4]

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[4] *CBOE Risk Management Conference Europe Report. October 2014. Back Cover Advertisement*

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The following applies to all of the indexes used in this document: Indexes are presented merely to show general trends in the markets for a particular period. The indexes are unmanaged, may or may not be investable, have no expenses, and generally reflect reinvestment of dividends and distributions. A variety of factors may cause an index to be an inaccurate benchmark for a particular strategy. Index data has been obtained from Bloomberg L.P.

The Russell 1000® Index measures the performance of the large-cap segment of the U.S. equity universe. It is a subset of the Russell 3000® Index and includes approximately 1000 of the largest securities based on a combination of their market cap and current index membership. The Russell 1000 represents approximately 92% of the U.S. market.

The Russell 2000® Index measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 is a subset of the Russell 3000® Index representing approximately 10% of the total market capitalization of that index. It includes approximately 2000 of the smallest securities based on a combination of their market cap and current index membership.

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