

IS YOUR INVESTMENT FACTOR "CAMPBELL HARVEY STRONG"?

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On Friday, May 1, I attended The Alpha and Beta of Factor Investing conference in New York, hosted by The Wharton School's Jacobs Levy Equity Management Center. The center is focused on quantitative financial research, and the organizers put together a fantastic, education-packed agenda. Professor Jeremy Siegel and I sat down with Campbell Harvey, professor at Duke University, to speak about his presentation, which challenges the efficacy of many factor-based investment strategies.

Too Many False Positives? Harvey believes both the academic finance profession and industry practitioners have too loose a standard for determining the success of new investment factors—causing a proliferation of new investment products that he deems destined to fail. He discusses how the finance community and statisticians in general are accustomed to using a [two-sigma rule](#) to test the significance of various effects on investment strategies—which is to say, if the factor in question is more than two [standard deviations](#) from zero, statisticians would say there is 95% confidence that this factor could outperform the market. Harvey went through 316 published factors—harvested from the premiere financial journals—that have been shown to outperform a passive portfolio of the market. He believes many of these findings are false, illustrating a type I error, or a false positive result. This suggests that while the data looked good in the past, in reality much of it was a fluke. Harvey discussed research showing that stocks starting with a certain letter of the alphabet outperformed the market. But there are 26 letters, so there is a 4% chance that any one of these would happen to outperform. This letter-based investment strategy is not a sound basis for a forward-looking investment strategy, despite its success in the historical data.

Evolution Hardwired for Type I Errors Harvey pointed out how evolution has caused humans to favor these type I errors. His presentation went back in history to the gazelles on the Serengeti to illustrate. Let's say a gazelle heard a rustling in the grass and took off, expending energy to move from danger. But it turned out there was nothing dangerous lurking in the grass; it was just wind. This gazelle made a classic type I error—it had a false positive reading of danger. A type II error would be if the gazelle heard the rustling in the grass, did not move and then was eaten by a cheetah. Harvey believes evolution thus favored those who were hardwired and had a predisposition to make more type I errors—gazelles or early humans. Those who made more type I errors survived more often. The implication is that we all like looking for patterns in data, even when none truly exists and much of it is just noise and coincidence.

Which Factors Are "Campbell Harvey Strong"? In addition to the 316 factors Harvey identified, countless other simulations and tests were not presented in the journals. He thus believes the significance of testing for new factors must be much greater than the original tests of significance conducted years ago. The very first factor that was identified—"the market factor" by William Sharpe—was tested with the two-sigma rule discussed above. But further tests, especially those conducted today, need a higher threshold. Based on Harvey's higher bars for performance measurement, he believes the ["value effect"](#)—which was discovered by Eugene Fama and Ken French in 1992 and showed that value stocks (those with low [price-to-book ratios](#)) historically outperformed more expensive stocks (those with high price-to-book ratios)—would have passed the "Campbell Harvey strong" test. But the size factor—or [small-capitalization](#) stocks outperforming [large-capitalization](#) stocks—would have failed his test. He believes the data since 1992 validates his beliefs that the small-cap factor just has not been that deterministic as it was thought to have been, while the value effect has held up better.

Is the Size Factor Dead? It is interesting that Harvey believes Fama and French have a misguided focus on the [size effect](#), as another presenter at the conference—Cliff Asness of AQR—presented a paper titled "Size Matters, If You Control Your Junk." In a later blog post, we will discuss the research in Asness's paper in greater detail, but the basics of the argument are that small caps show very different performance if you screen for the quality of companies. Asness believes the small-cap effect is real if the quality of the companies is factored into the model.

For those interested in quantitative finance, and these types of factor investment strategies, the [Jacobs Levy center](#) is a very good resource. Both papers discussed in this post are important streams in factor-based investment research. Read the Conversations with Professor Siegel Series [here](#).

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DEFINITIONS

Two-sigma rule : empirical rule stating that, for a normal distribution, 95% of the population under consideration is being included in the outcome.

Standard deviation : measure of how widely an investment or investment strategy's returns move relative to its average returns for an observed period. A higher value implies more "risk", in that there is more of a chance the actual return observed is farther away from the average return.

Value effect : measure of the strength of the phenomenon when investing in either the value or growth cuts of the markets.

Small caps : new or relatively young companies that typically have a market capitalization between \$200 million to \$2 billion.

Large-Capitalization (Large-Cap) : A term used by the investment community to refer to companies with a market capitalization value of more than \$10 billion. Large cap is an abbreviation of the term "large market capitalization". Market capitalization is calculated by multiplying the number of a company's shares outstanding by its stock price per share.

Size effect : measure of the strength of the phenomenon when investing in specific size cuts in the markets.