

Title: **DAVID AND GOLIATH:
WHO WINS THE GAME OF QUANTITATIVE INVESTING?**

Speaker: **JOHN C. BOGLE
Vanguard Group**

Importance: Jack Bogle gave the banquet keynote speech. To no one's surprise, he gave a spirited talk on the virtues of indexing. Here are some slightly modified key quotes from his presentation. A copy of the full presentation is available under Spring 2016 Seminar on the Q-Group website.

The David approach to investing, is “buy a diversified portfolio of stocks operated at rock-bottom costs, and hold it forever.” The index fund relies on simple arithmetic, a mathematical tautology that could be calculated by a second grader: *gross return in the stock market, minus the frictional costs of investing, equals the net return that is shared by all investors as a group.* Taking the lion's share of those costs out of the equation is the key to successful long-term investing.

In contrast, many Goliaths of academia and quantitative investing believe the contrary: the application of multiple complex equations—the language of science and technology, of engineering and mathematics, developed with computers processing Big Data, and trading stocks at the speed of light—make you far stronger and more powerful than are we indexing Davids. The question posed in my title is essentially, “who wins?”—the *arithmetic* quants or the *algorithmic* quants.

Arithmetic Quants and Algorithmic Quants

The pool of assets managed by the algorithmic quants is run by (largely!) brilliant managers, many with Ph.Ds, and most with a complex quantitative approach that uses multiple equations. They assume extra-market risks and typically demand—and receive— very high compensation for their work. At the other extreme, of course, are the Vanguard index funds. They have no manager in the conventional sense. Their math is arithmetic, not calculus. They assume only market risk, neither more nor less, and they charge fees that are too small to be believed.

The story of the index fund begins with Vanguard. I recruited the Street's four largest retail brokers, led by Dean Witter. They expected to raise \$150 million in the initial offering. Wrong! The underwriting was a flop: \$11.3 million. The underwriters suggested that we accept the failure and send the investors their money back. But I wouldn't hear of it. After all, the world's first index mutual fund could now begin. And on August 31, 1976, it did. But its subsequent reception was, well, underwhelming. It was called “Bogle's Folly,” and a poster reading, “Help stamp out index funds. Index funds are un-American” was circulated around Wall Street. A pointed question, “Would you be satisfied with an average brain surgeon?” Worse, the first index fund's acceptance by the public was close to zero. During the first five years, it drew total new capital of a mere \$17 million from investors. Nearly a decade elapsed until the second index fund was formed (in 1984 by Wells Fargo) and it took until the mid-1990s before index funds began to gain traction with investors.

The EMH (the efficient market hypothesis) is also part of the algorithmic canon. But while markets are *usually* highly efficient (on both a macro and a micro basis), they experience periodic aberrations that are often unpredictable and extreme. On the other hand, my own arithmetic model relies solely on

the *Cost Matters Hypothesis* (CMH): investors as a group earn the stock market's return *less* the *frictional costs of investing*. This fact is insurmountable, and prevails under *all* circumstances

I was part of the *Pragmatic School* of indexing, with just two principles: (1) gross market returns minus cost equals net market return, and (2) the investment returns earned by fund managers lag the returns of the S&P 500 with remarkable consistency. I was inspired by Paul Samuelson, the consummate algorithmic quantifier, who turned to pragmatic arithmetic in his 1974 JPM paper. In that seminal article, he demanded “brute evidence” that proved that fund managers could consistently beat the market. To this day, none has been forthcoming.

Passive Indexing and Active Management Today

Today, about one-half of all ETF shares is held by banks and other financial institutions that trade them with a fury. The other half is held by individuals, in part by investors who tend to hold them because of their convenience, flexibility, and lower expense ratios than active funds, but, likely in larger part, by those who have a short-term focus and have confidence that they can out-trade their fellow speculators.

In my experience, as assets of a particular fund or style or class grow and competition for performance increases, declining relative returns are normal and to be expected. More and more brilliant, energetic, STEM-educated individuals enter the field, seeking to prove themselves and earn such extraordinary compensation. Then, in theory at least, price discovery becomes more challenging; spreads between stock prices and intrinsic value narrow; and strategies that have won in the past become more popular and draw increasing assets. Result: factor returns ultimately revert to the mean.

For what it's worth, index funds also have momentum in the marketplace. Investors are seeing the light. Since 2007, \$1.5 trillion of net cash flow has *poured into* equity index funds, while \$500 billion has *poured out* of active funds. With the Department of Labor's forthcoming fiduciary duty standard that requires brokers and investment advisers for retirement plan investors to put first the interests of their clients, that momentum will surely accelerate.

Strategic beta funds—essentially designed to provide excess returns over the S&P 500 by focusing on factor strategies—are all too likely to lapse, and ultimately fail to fulfill their promise. Finally, simple arithmetic is the king—the optimal way to capture for investors their fair share of whatever returns the nation's corporations (and the world's) can generate with the dividend yields and earnings growth reflected in the prices of their stocks. Yes, there may be a few investment strategies that will provide better returns for investors, but the number of strategies that will provide worse returns is infinite.