

# The Alpha Bet

*With apologies to the Beach Boys...*

*Well she got daddy's stocks  
And she's cruising from the mutual fund land now  
Seems she forgot all about diversifying  
Like she told her old man now  
And with the rally blasting  
Goes trading just as fast as she can now*

*And she'll have funds, funds, funds  
'Til her daddy ruins the 401-K*

Just because the Sugar Buzz Decade is over and done with does not mean that money and investing have gone out of style forever. Think about what happened when the inflationary binge of the late 1970s, wherein any huckster with a smile and a shoeshine fancied himself an expert on gold, came to a crashing halt. Commodities trading and risk management did not disappear; in fact, the futures industry saw rapid growth in financial and energy futures and in managed futures funds. Non-U.S. markets arose and thrived.

The end of the easy money in commodities and the evisceration of assorted bull market geniuses forced those remaining to innovate if they wished to survive. Since evolution tends to work in parallel processes and since the American market has no observable shortage of mutual fund managers, we should expect to see a winnowing of those investment advisors, species *Slobbus americanus*, who in the grand tradition of mass extinction just don't want to hear about the asteroid.

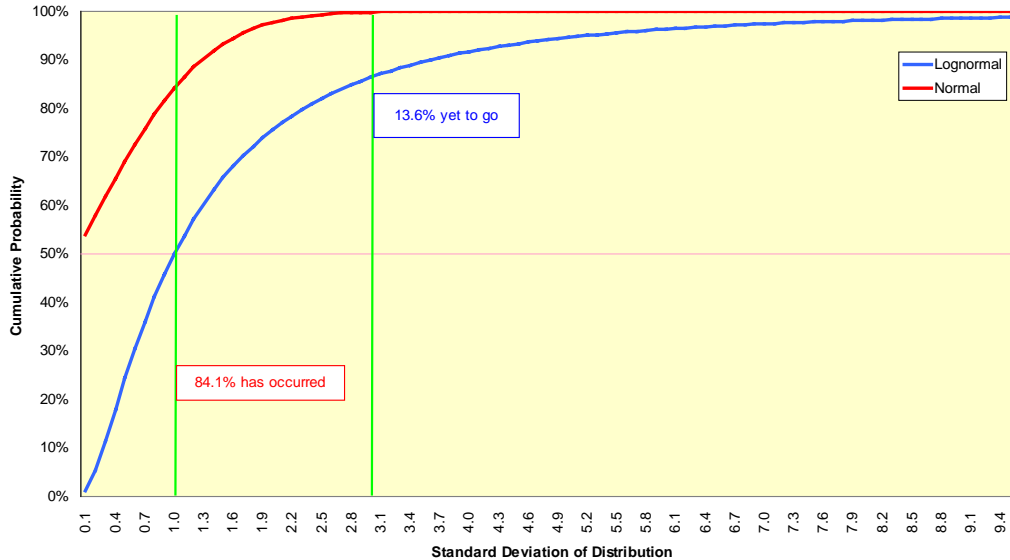
## **Take It To The Index, All The Time**

Index funds are either the greatest thing since sliced bread or the most flagrant refutation of human ingenuity yet devised. The index tends to outperform active managers as a function of total management costs and by the simple arithmetic that in any population of competing individuals, most are chumps. Talent is not distributed evenly, or even normally, but rather in a variant of the lognormal distribution.

The lognormal distribution, celebrated in the original Black-Scholes model, states that percentage changes are distributed normally. It has a much fatter tail than does the familiar Gaussian or normal distribution. At 3.0 standard deviations, the point at which the normal distribution has accounted for 99.9% of expected events, the lognormal distribution has accounted for only 86.4% of events. At 1.0 standard deviation, only 50% of events are accounted for, as opposed to 84.1% of events in a cumulative normal distribution. If that 84.1% sounds similar to the assertion that index funds outperform 85% of actively managed funds, it is exactly what we should expect.

The tyranny of the lognormal distribution is profound. It explains why the vast majority in a market struggle and fall while a few winners take the lion's share. If the fund management business starts to contract, only those who know how to add value will survive as the fittest. Just as other provided an advantage in other markets, single stock futures will provide an advantage to the adroit in equity portfolio management.

### Lognormal Distributions Have Fatter Tails



### It All Begins With Alpha

Certain concepts in finance have amazing durability even though their flaws are well known. The aforementioned Black-Scholes model, with its assumptions of a continuous lognormal distribution of prices, constant volatility and unchanging interest rates, certainly qualifies on this score. The capital asset pricing model (CAPM) similarly has been under fire for a quarter-century, but it continues to be a useful intellectual construct nevertheless. Just as Myron Scholes co-won a Nobel Prize in economics for his work on options theory, William Sharpe co-won a Nobel for his work on portfolio theory. All this must say something about the relative value of creator and critic in our society.

CAPM holds that the expected return on an asset 'i' is the risk-free rate of interest plus beta times [the expected return on the market minus the risk-free rate].

$$E_i = R_f + \beta^*[E_m - R_f]$$

Beta is the slope of a regression line between the returns on the asset and the returns on the comparative market or portfolio. It measures the relative risk of holding an asset. The constant term in this regression, or alpha, is the expected incremental return on the asset relative to the market's return for any accepted risk level beta.

$$E_i = \alpha + \beta^* E_m + \varepsilon$$

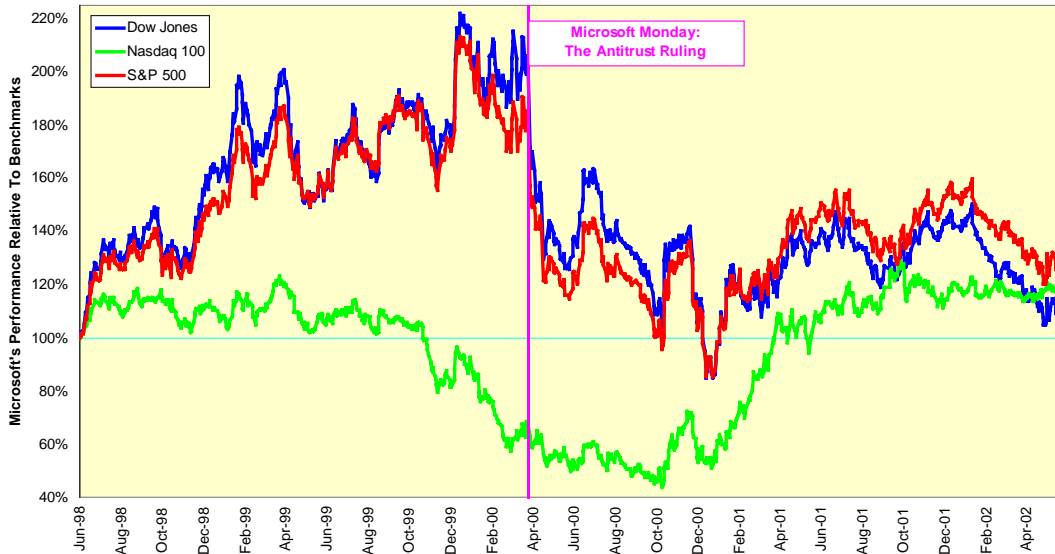
If a fund manager is being benchmarked to the S&P 500 or any other broad-based index, there is little incentive to take on incremental risk or beta without the reasonable expectation of acquiring a little extra alpha along the way. The selection of the appropriate benchmark is critical: In homage to the Heisenberg Uncertainty Principle, the act of observing and measuring a fund manager will influence the manager's behavior and investing style for better or worse.

### How Am I Doing?

Alpha, alas, is not a property intrinsic to any stock relative to any index; this is due to the non-constancy of stocks themselves (see "Two Sides Of Different Coins," *Futures*, May 2002). We can illustrate this with Microsoft, a proud member of the Dow Jones Industrial Average, the Nasdaq 100 index and the S&P 500. The stock steadily outperformed both the S&P and the Dow between mid-1998 and early 2000, but it underperformed the Nasdaq 100 over the same period. Once the bubble burst, the relative performance started to reverse.

Compounding the comparison is the different index weighting schemes between the three indices (see "Weight Until Dark," *Futures*, October 1998). The S&P is capitalization-weighted, the Dow is price-weighted, and the Nasdaq 100 is a modified capitalization-weighted index wherein no security can have more than a 24% weighting.

**Performance Is Relative**



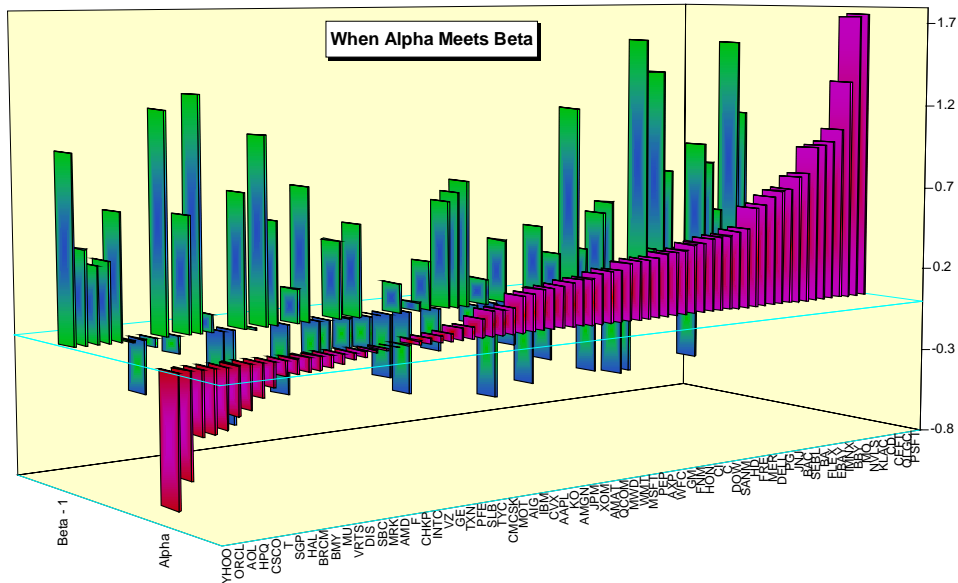
Microsoft changed dramatically at the start of trading on Monday, April 3, 2000, when it began trading after losing its antitrust battle with Uncle Sam. Unsurprisingly, its salient statistics versus the three indices changed as well; it went from a negative alpha to the Nasdaq 100 pre-ruling to a positive alpha post-ruling, and the opposite pattern was seen for the Dow.

	Pre-Ruling			Post-Ruling			Total Sample		
	Alpha	Beta	R <sup>2</sup>	Alpha	Beta	R <sup>2</sup>	Alpha	Beta	R <sup>2</sup>
Nasdaq 100	-0.70%	0.866	0.58	0.04%	0.607	0.47	0.02%	0.682	0.50
S&P 500	0.08%	1.280	0.40	0.00%	1.500	0.43	0.03%	1.390	0.41
Dow Jones	0.12%	1.030	0.23	-0.07%	1.370	0.32	0.01%	1.210	0.28

**Single Stock Futures And Negative Alpha**

It is an easy concept to overlook, but all investments are spreads (see “Think Before You Spread,” *Futures*, April 2001). Any time a stock is purchased the buyer implicitly has rejected not only the risk-free rate of return but also the opportunity rate of return presented by a passive index investment once the initial decision was made to acquire stock market exposure. You have bought the stock and sold the index, presumably in the reasonable expectation of achieving positive alpha.

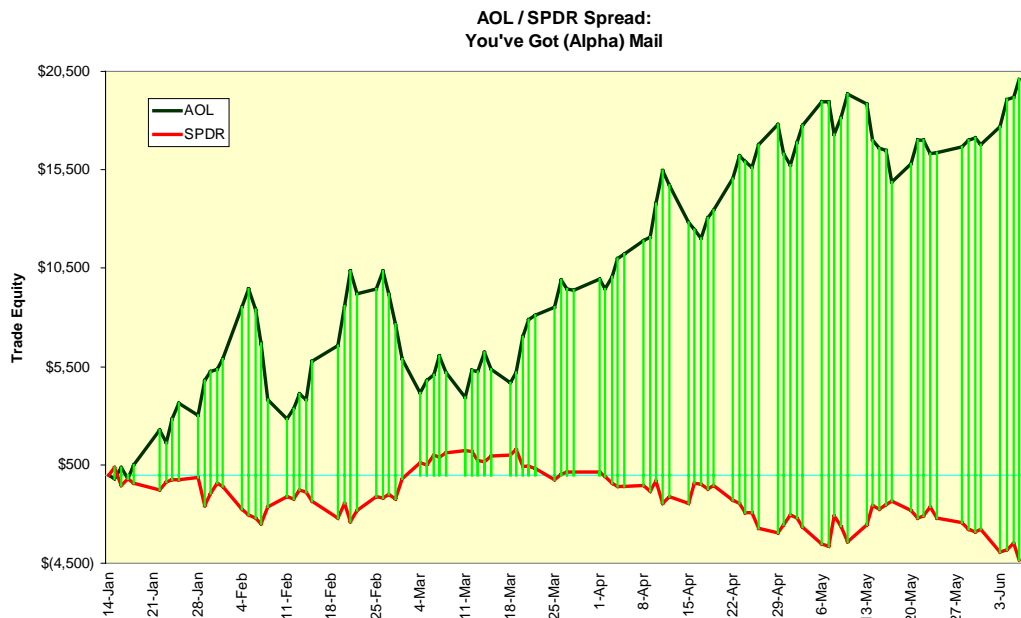
Since single stock futures facilitate the process for going short a stock – you do not have to locate the shares at a stock loan department, wait for an uptick or pay broker loan – they should encourage negative alpha trades. Here the stock is sold short against the purchase of an index. The list of stocks with both negative alpha and a beta greater than 1.00 at the time of this writing includes Yahoo!, Oracle, AOL Time Warner, Hewlett Packard, Cisco Systems, Broadcom, Micron Technologies, Veritas, Walt Disney, AMD, Ford, Checkpoint Software and Intel.



These are issues that, based on the previous year's data, are expected to be both more volatile than the S&P 500 and underperform it as well. Let's take the case of AOL Time Warner, which at the time of this writing has a weight of 0.75% in the S&P 500. At a price of \$16.50, each future on AOL represents, ignoring basis, an underlying value of \$1,650, a number roughly one-thirtieth of an e-mini S&P future. However, 16 S&P Depository Receipts at \$103.46 represents an underlying value of \$1,655, roughly equivalent to one AOL future. For those of you who prefer to deal in round lots, 400 SPDRs can be traded against 25 AOL futures.

Let's turn the clock back to January 12, 2002, one year after the AOL – Time Warner merger became effective and calculate the prevailing ratio at the time. First, AOL then had an alpha of -.07% and a beta of 1.78, so we should have expected a volatile underperformance going forward. Next, the prices of SPDRs and AOL were \$114.94 and \$30.69, respectively. The sale of 15 AOL futures, had they been available, would have represented \$46,035, and the purchase of 400 SPDR shares would have represented \$45,976.

For purposes of keeping the illustration simple, we will ignore the known costs of margin, commissions, and foregone and realized interest. You will need to account for your own costs when doing this trade for yourself, however. Your futures position will have a margin of 20% of the price; you can deposit T-bills and earn 90% of that rate. Your stock side can be margined at 50% of the price; you can post T-bills here as well and borrow the rest. Commissions and fees depend on your individual brokerage relationship.



The market-neutral negative alpha trade worked quite well going forward as AOL underperformed the S&P 500 between January and June 2002, with the simulated gross profit just under \$16,000 per spread. Of course, the trade can go the other way for any number of reasons; an AOL-specific news item such as a divestiture of one of the operating units should signal you to get out of the trade immediately. That cannot happen in most commodity spreads, but it happens in equities all of the time.

This series on single stock futures and their uses began with a tongue-in-cheek observation that between equities and futures traders it would be the smart ones who seized the early advantage. That's how markets operate, and that's how evolution operates. Single stock futures simply provide the Missing Link between equities and commodities.