

What is "alpha"? A brief survey.

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There is no doubt that "alpha" is a popular word in today's investment vocabulary. Whether or not it is properly used and understood, especially from a marketing perspective, is the subject of some debate.

Many people agree with Sharpe that alpha is a "zero sum game", i.e. for every manager that generates positive alpha (win) another must generate negative alpha (lose). We disagree with this premise and choose to view alpha as a larger set of opportunities and ideas that a manager may (try to) capture through research, etc. The hunt for alpha is an ongoing pursuit that ultimately leads to new ideas and ways of looking at and thinking about the capital markets. New opportunities, ideas and products that will generate alpha are not a sub-set of a finite group of possibilities, rather the natural evolution of markets, a process that has led to such profitable ideas as options, futures, various hedge fund strategies and structured products, all of which have created extra value (alpha) for early adopters or for those with an "edge". As time goes by, and some (or all) of the existing alpha is eliminated by efficient markets, managers will discover new sources in an ever growing universe of possibilities. Finding managers that can consistently generate alpha is the tough part ("the hunt for alpha": another source of alpha?).

Just what is alpha? From a non-quantitative perspective, alpha is merely "value-added" ó when a manager makes decisions, whether on security/strategy selection, models, timing, valuations, etc. he is contributing alpha to his portfolio. The alpha may be negative or positive depending on the quality of his ideas/research/timing.

From a quantitative perspective, alpha can be defined as:

$$\left(\sum y - b \sum x\right) / n$$

Where:

n = number of observations

b = beta of the fund

x = rate of return for the market

y = rate of return for the fund

This, of course, leads us to the debate regarding absolute return investing. If a fund employs an absolute return strategy (one with no corresponding benchmark) how do we measure the fund's beta (without which, we cannot measure its alpha)?

Waring & Siegel (2006) conveniently argue that there is no such thing as absolute return investing: each and every portfolio has a corresponding benchmark and hence a beta. Their logic, in spite of the hedge fund hype to the contrary, is intuitively appealing. A large-cap European fund may have the EuroStoxx 50 as a benchmark. While the benchmark for a relative value arbitrage hedge fund may not be quite so easy to define, the manager likely has a number in his head other than "cash", a number that he wants to beat on an ongoing basis. If nothing else, with the advent of hedge fund indices, the self-proclaimed absolute return manager is being compared to a peer group/benchmark ó whether he likes it or not.

A simple example may help to illustrate the problem. Two fund managers consistently generate returns equal to twice the market. The first manager uses no leverage and his returns are due purely to superior security selection. The second manager uses 2x leverage to generate his returns. Most people would agree that the first manager is superior and generates alpha, the second manager generates no alpha since he is "adding no value" ó his risk adjusted return is equal to the market return. The second manager insists that he is only using leverage because his models indicate that the market is in a period of sustained positive

returns, his out-performance is due to the predictive nature of the (proprietary) model and is, therefore, alpha.

This is an all too common claim these days ó it does not take a genius to generate "alpha" using leverage during a bull market. In order for a manager to generate alpha he must show superior risk adjusted returns. Leverage (along with other decisions) may generate alpha, but only if it can clearly be shown that the manager's decisions were consistently skill-based and not attributable to excess risk in a directional market.

With the above in mind, here are several insightful definitions of ðalphaö (*emphasis added*)

1. <http://hedgefund.blogspot.com/2007/01/alpha-dog.html>

“Alpha is a measure of EXCESS, RISK-ADJUSTED performance. In a rare example of academic work from 1960s finance that proved useful, Michael Jensen defined alpha but, decades later, alpha is often evaluated incorrectly, especially with regard to hedge funds. For example, take a generic USA equity long/short hedge fund. Its closest security universe might be the "under-analyzed" Russell 2000 and typical long-biased net exposure is 130/30 long and short. So it has 100% net dependence on the index and the fund is only an alpha dog if it made MORE than 17% after fees last year. An added complication is that if its longs were high beta and shorts were low beta, the hedge fund would have needed to make an even higher absolute return for ANY alpha, the EXCESS returns above the net beta. As Jensen's work showed, alpha is the return AFTER allowing for beta risk. If the hypothetical fund's individual longs had an average beta of 1.5 and the shorts a beta of 0.5, then alpha only kicks in ABOVE a 30.6% return. Incidentally many long only traditional shops are heavily marketing 130/30 "double-alpha" products - they think it will allow them to compete with proper hedge funds.

“In the flat world we now live in, there are no exotic countries so there can be no exotic country beta; there is just plain old beta. Alpha however is ALWAYS exotic since it takes exotic feats of exploration and discovery to generate. Suppose a multistrategy "do anything, go anywhere" hedge fund increased capital allocated to India 12 months ago. That is an alpha decision... a measured strategic, risk budget to Indian trading and investment opportunities. If the fund then hedged its India longs with shorts, Nifty index put options and single stock futures, Rupee NDFs and credit default protection, then that is an alpha dog decision.

“The main reason to put money into hedge funds is for EXCESS, RISK-ADJUSTED performance. If you are sure of a bull market there is no need to put any money in hedge funds. The beta and enhanced beta from passive index funds and leveraged index fund participation through borrowing and options strategies are all that an investor would require. Isolating and measuring alpha can also be difficult. Past betas and alphas are unstable and do not necessarily carry predictive information on FUTURE betas and alphas. Portable alpha is not even possible in many cases where the underlying market is not liquid or hedgeable. But not all hedge fund absolute returns can be considered alpha, in fact many alphas are negative after looking at the risk and factor exposures taken to generate that performance.”

2. <http://www.2000wave.com/gateway.htm>

“For Mark [Finn, CEO of Vantage Consulting], alpha is an evolving mass. It is the return that can be captured by innovation and skill, but Mark thinks that in the short run there is a finite quantity of alpha (or excess return) in any given market, with every skill-based manager chasing and trying to capture some of this finite amount of alpha.”

“Alpha according to Mark can be thought of as a mass of bees flying through the countryside, constantly changing shape, but essentially staying relatively the same size.”

“Mark likes to think of the amount of total alpha as a “quantum amount.” In quantum theory, the definition of or the observation of a thing can change the reality of the thing being defined. Defining or observing alpha in a market can change the amount of alpha available. Simply mass observations and chasing the alpha changes the nature and quantity of the alpha...”

"I agree there may be technical limits to alpha, but right now I think it is like saying that there are limits to oil production. We all know in the future, that oil is going to become a scarce quantity. Depending upon who you read last, that could be the next decade or the next five decades. Yes, we have seen the top of oil production in the US. The large fields are all found, but small firms are still finding oil in odd and out-of-the-way places. And there are huge sources of oil being found around the world."

3. <http://www.duke.edu/~charvey/Classes/wpg/bfglosa.htm>

"Alpha: Measure of risk-adjusted performance. An alpha is usually generated by regressing the security or mutual fund's excess return on the S&P 500 excess return. The beta adjusts for the risk (the slope coefficient). The alpha is the intercept. Example: Suppose the mutual fund has a return of 25%, and the short-term interest rate is 5% (excess return is 20%). During the same time the market excess return is 9%. Suppose the beta of the mutual fund is 2.0 (twice as risky as the S&P 500). The expected excess return given the risk is $2 \times 9\% = 18\%$. The actual excess return is 20%. Hence, the alpha is 2% or 200 basis points. Alpha is also known as the Jensen Index."

4. Steve LeCompte (of CXO Advisory blog) on AllAboutAlpha.com:

"Entropy may provide an even better analogy, because of its direct link to information theory. Private information is a low entropy source. Alpha comes from early exploitation of the release and diffusion of private information throughout the investing environment. Maintaining a high alpha means continually locating sources of significantly private and investing-exploitable information. Are a growing number of information exploiters exhausting the supply of private information sources? Do better information drilling tools make more sources of private information exploitable? Do more and more people participating in a global networked economy create an ever-increasing supply of private information sources?"

5. Professor Thomas Schneeweis (in an interview with AllAboutAlpha.com):

"If I compare my managers returns against someone else's, that not alpha. If I take my return and run it against a set of non-investable factors, that's also not alpha. Alpha is only something that I can show against a passive strategy that exactly replicates my strategy and my risks."

Going forward, I hope the market will start paying managers not on a benchmark or hurdle rate of zero or the risk free rate, but on a hurdle rate that reflects an investable alternative to their strategy."

6. Alexander Ineichen, Author of Asymmetric Returns:

*"...there is huge demand for trying to quantify alpha, or more precisely, to separate alpha from beta. Beta today is typically referred to as exposure to a risk premium that, more often than not can be captured in a passive, low cost fashion. The demand for this task is obvious: The rational investor is very happy to pay for alpha but not for beta, if beta is more affordably available elsewhere. Two problems: **first, there is no such thing as pure alpha. Most absolute return strategies involve risk or liquidity premiums in one form or another, that is, include a return element that theoretically could have been captured in a passive fashion had we just known the factors and their loadings in advance.** Second, the real world is very dynamic and complex, perhaps even chaotic. We cannot perfectly isolate and quantify alpha if we do not have an acceptable beta benchmark. We want to, but we can't. **The idea of alpha in absolute return space is somewhat akin to the idea of the EMH. There is no such thing as 100% efficiency in markets. The same is true for alpha. There is no such thing as pure alpha. Alpha comes with other risks.**"*

7. Morningstar (<http://news.morningstar.com/classroom2/course.asp?docId=2932&page=2&CN=COM>)

ōIn a nutshell, alpha is the difference between a fund's expected returns based on its beta and its actual returns. Alpha is sometimes called the value that a portfolio manager adds to the performance. If a fund returns more than what you'd expect given its beta, it has a positive alpha. If a fund returns less than its beta predicts, it has a negative alpha. As you'll recall from our first session on risk, beta tells you how

much you can expect a fund's returns to move up or down given a movement of its benchmark. For example, if the ABC Fund has a beta of 1.1 in comparison with the S&P 500 and the S&P 500 returns 30% for the year, you would expect ABC Fund to return 33%. ($30\% \times 1.1 = 33\%$.) Since mutual funds don't necessarily produce the returns predicted by their betas, alpha can be helpful to investors. To calculate a fund's alpha, first subtract the return of the 90-day Treasury bill from the fund's raw return (the idea being that the return of a mutual fund should, at the very least, exceed that of a risk-free investment). That gives you a fund's excess return. From that, subtract the fund's expected return based on its beta. What's left over is the alpha. Because a fund's return and its risk both contribute to its alpha, two funds with the same returns could have different alphas. Further, **if a fund has a high beta, it's quite possible for it to have a negative alpha. That's because the higher a fund's risk level (beta), the greater the returns it must generate in order to produce a high alpha. Just as a teacher would expect his or her students in an advanced class to work at a higher level than those in a less-advanced class, investors expect more from their higher-risk investments.**"

8. Traders Log – Glossary of Terms (<http://www.traderslog.com/Alpha.htm>)

"(Alpha) reflects the difference between a mutual fund's actual performance and the performance expected based on risk level taken by the fund's manager. A fund that produced the expected return for the level of risk assumed has an Alpha of zero. A positive Alpha shows that the manager produced a return greater than expected for the risk taken. A negative Alpha indicates that the manager has produced a return smaller than expected relative to the risk taken. The formula for alpha is the following:

$$[(\text{sum of } y) - (b)(\text{sum of } x)] / n$$

Where:

n = number of observations (36 mos.)

b = beta of the fund

x = rate of return for the market

y = rate of return for the fund

10. The Economist. "What's it all about, alpha?", March 22nd, 2007

*"...Academics have entered this debate, trying to pin down the factors that drive a fund's performance. These might include the difference in returns between small-cap and large-cap stocks (fund managers tend to favour the former) or the level of credit spreads and so on. **Bill Fung and Narayan Naik of London Business School have come up with a seven-factor model which, they say, can explain the bulk of hedge-fund performance. After allowing for these factors, the average fund of hedge funds has not produced any alpha in the past decade, except during the dotcom bubble.***

"This approach suggests the whole idea of alpha might be an illusion. Academics can explain most of it, and the only reason they cannot explain all of it is because they are not clever enough to think of the missing factors.

*"However, it is also possible to take the opposite tack. This type of analysis gives managers no credit for choosing the systematic factors—the betas—that drive their portfolios. **Yes, these betas could often have been bought for very low fees. But would an investor have been able to put them together in the right combination?***

*"It is as if a diner in Gordon Ramsay's restaurants were brave enough to tell the irascible chef: **"This meal was delicious. But chemical analysis shows it is 65% chicken, 20% carrot, 10% flour and 5% milk. I could have bought those ingredients for £1.50. Why should I pay £20?"** The chef's reply, shorn of its expletives, might be: **"The secret is in the mixing."***