ON THE NEWS: Alpha and Beta of a stock

In Jan 2008, a Financial Times story attracted attention to a stock's Alpha. How is a stock's Alpha and Beta defined?

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The alpha and beta of a lone manager

By Deborah Brewster
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Most money managers like to think they do things a little differently from the crowd, but few take this as seriously as Ray Dalio.

Mr Dalio, who founded his company, Bridgewater Associates, more than 30 years ago, is relentless in his pursuit of difference. He tracks his funds' correlations to the market and quickly tacks away whenever they appear to converge.

His singular view has shown results, propelling Bridgewater to become a highly regarded $150bn institutional manager as well as the third biggest hedge fund manager in the world. Bridgewater's hedge funds typically returned about 15 per cent a year, after fees, for the past 15 years. In 2007 the performance range was 9 to 11.2 per cent, net of fees, for its three hedge funds, a respectable showing in an environment where many big funds have faltered.

EDITOR'S CHOICE

A cautious embrace of performance fees - Jan-07
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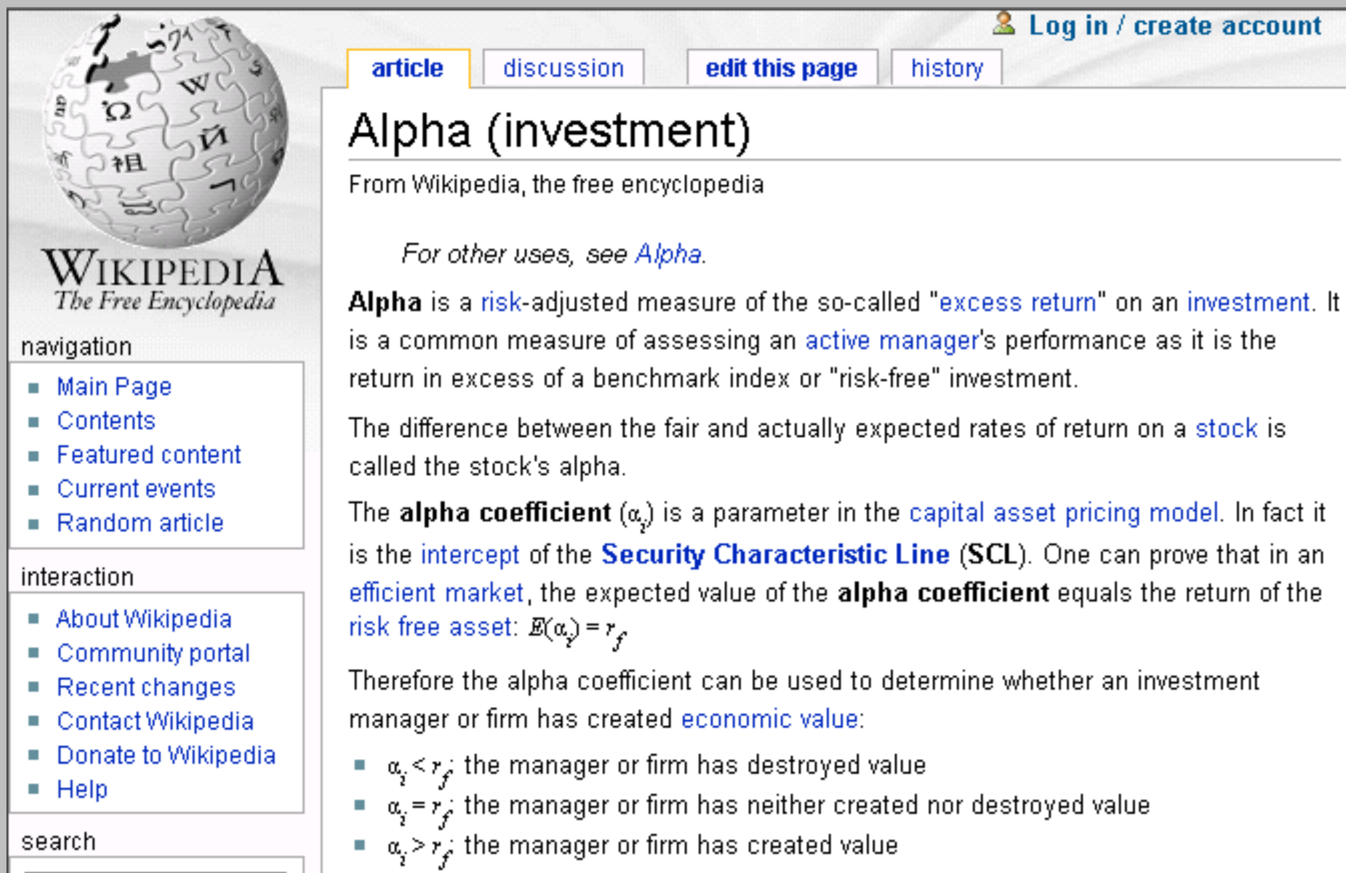
Hedge fund returns outstrip equities in spite of volatility - Dec-13

Definition of Alpha



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Alpha (investment)

From Wikipedia, the free encyclopedia

For other uses, see Alpha.

Alpha is a risk-adjusted measure of the so-called "excess return" on an investment. It is a common measure of assessing an active manager's performance as it is the return in excess of a benchmark index or "risk-free" investment.

The difference between the fair and actually expected rates of return on a stock is called the stock's alpha.

The **alpha coefficient** (α_i) is a parameter in the capital asset pricing model. In fact it is the intercept of the **Security Characteristic Line** (**SCL**). One can prove that in an efficient market, the expected value of the **alpha coefficient** equals the return of the risk free asset: $E(\alpha_i) = r_f$

Therefore the alpha coefficient can be used to determine whether an investment manager or firm has created economic value:

- $\alpha_i < r_f$: the manager or firm has destroyed value
- $\alpha_i = r_f$: the manager or firm has neither created nor destroyed value
- $\alpha_i > r_f$: the manager or firm has created value

Definition of Beta

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Beta coefficient

From Wikipedia, the free encyclopedia

This article discusses the beta coefficient *as used in economics. For the statistical term often used in regression, see standardized coefficient.*

The **Beta coefficient**, in terms of finance and investing, is a measure of volatility of a stock or portfolio in relation to the rest of the financial market.

An asset with a beta of 0 means that it's price is not at all correlated with the market; that asset is independent. A positive beta means that the asset generally follows the market. A negative beta shows that the asset inversely follows the market; the asset generally decreases in value if the market goes up.

Correlations are evident between companies within the same industry, or even within the same asset class (such as equities), as was demonstrated in the Wall Street crash of 1929. This correlated risk, measured by Beta, creates almost all of the risk in a diversified portfolio.

The beta coefficient is a key parameter in the capital asset pricing model (CAPM). It measures the part of the asset's statistical variance that cannot be mitigated by the diversification provided by the portfolio of many risky assets, because it is correlated with the return of the other assets that are in the portfolio. Beta is calculated for individual companies using regression analysis.

ON THE NEWS: The "Beta-fication" of Alpha?

In a presentation given to the Society for Financial Econometrics in July 2008, Andrew Lo argued that, as investors are presented with a variety of alpha options, alpha will slowly evolve to beta

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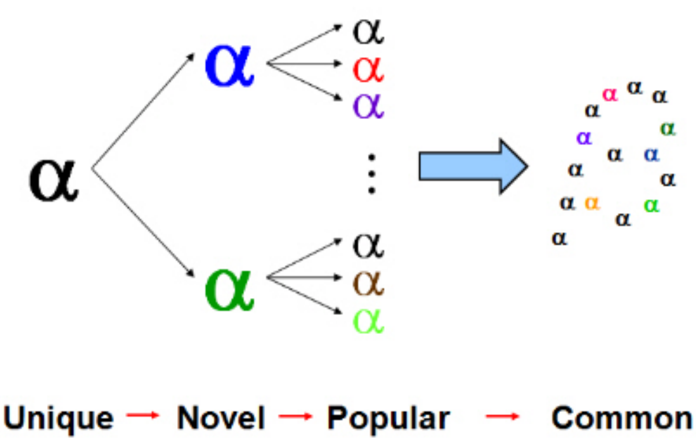
A picture of the "betafication" of alpha

Jul 29th, 2008 | Filed under: **CAPM / Alpha Theory**

The commoditization of alpha has been a recurring theme on these pages (see, for example, "**Alpha - once *beatified*, now *beta*-fied**"). We came across the graphic below in a recent presentation given by Andrew Lo to the Society for Financial Econometrics in June. The presentation was called "**What will happen to the quants in August 2017**?". But this particular slide sums up the inextricable evolution from alpha to beta.



ON THE NEWS: Is the quest for Alpha a religion?

A Sep 2008, a story in *The Economist* argued that some people's devotion to Alpha resembles a religion

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Alpha Beta Separation: A separation of church and state

Sep 7th, 2008 | Filed under: **Portable Alpha & Alpha/Beta Separation**, **Today's Post**

Is the quest for alpha a religion? In some ways, it just might. This according to **The Economist** last week. Says the magazine (sorry, *"newspaper"*):

> *"The concept of alpha is a slightly metaphysical one and resembles the "God of the gaps" familiar to Victorians. Traditionally, people were inclined to attribute natural phenomena such as earthquakes and plagues to God; eventually they discovered plate tectonics and bacteria. The role of God was steadily diminished to that which people could not explain by other means."*

Separating the secular (beta) from the spiritual (alpha) has been the mantra not only of liberal democracies, but also of a new breed of investor. Hedge funds find themselves at the center of this metaphysical revolution, not because they simply aim to make "absolute returns", but because they (claim to) have taken a vow of beta-celibacy. Continued The Economist:

> *"In a way, hedge funds, by virtue of their complex strategies, are one of the main perceived repositories of alpha left in the market (the average traditional fund underperforms the market, after fees)."*

In an attempt to repent for their historical portfolio management sins, institutional investors such as pension funds aren't just looking to hedge funds for short term gratification, but they are looking to them for something deeper - something to balance out the day to day ups and downs of beta.

CAPM (Market Model)

The Capital Asset Pricing Model (CAPM), aka Market Model, decomposes returns of an individual security into two components: fixed and variable. For simplicity, let us consider monthly returns of security *i* in relation to monthly returns of a given market index M, such as S&P500:

Monthly returns of security *i*

$$\boxed{r_i = \ {}_i + \ {}_i r_M + \ {}_i}$$

error

Fixed component
(returns that are insulated from market volatility)

Variable component
(returns that follow the market to an extent indicated by coefficient beta)

Understanding alpha and beta

$$\hat{r}_i = \quad + \quad r_M$$

$$\hat{r}_i = 0.01 + 0r_M$$

Alpha=large and **beta=0**
implies that your security can guarantee high returns regardless of which direction the market goes

$$\hat{r}_i = 0.001 + 2r_M$$

Alpha=small and **beta>1**
implies that you will profit more than the market average in market upswings, but lose more than the market average in market downturns

$$\hat{r}_i = 0.005 + 0.5r_M$$

Alpha=medium and **beta<1**
implies that you will not profit as much as the market average in market upswings, but you will not lose as much as the market average in market downturns