Georgia Institute of Technology

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Computational Investing, Part I

201: Jensen's Alpha

Find out how modern electronic markets work, why stock prices change in the ways they do, and how computation can help our understanding of them. Learn to build algorithms and visualizations to inform investing practice.

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Jensen's Alpha

First used as a measure in the evaluation of mutual fund managers by Michael Jensen in 1968.

Idea: Measure should adapt to volatility of the stock's price.

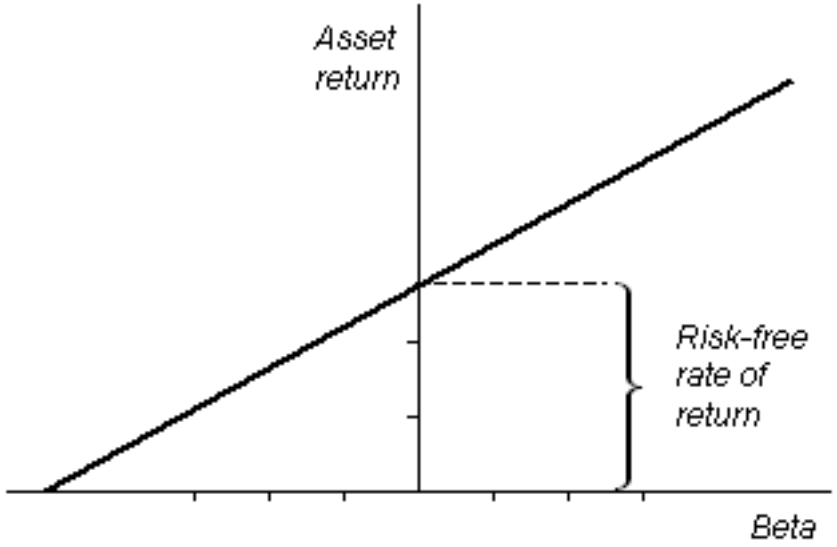
Formal statement of CAPM

Expected return on an asset related to Beta:

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

- Where *E()* = “expected”
- R_i = return on investment
- R_m = market return
- R_f = risk free rate
- B_i = beta of the asset or portfolio

Graphical statement of CAPM



$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

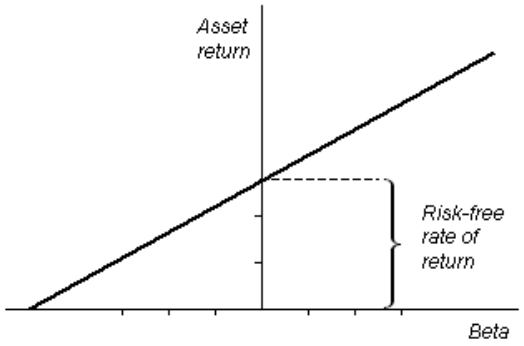
Move from “expected” to “actual”

Consider now actual returns

$$R_i = R_f + B_i^*(R_m - R_f)$$

It doesn’t usually add up *exactly*.

Example: SPLV versus SPY



SPLV's beta = 0.75

Return should be *lower*

We need an extra term to make it add up

$$R_i = R_f + B_i^*(R_m - R_f) + \text{alpha}$$

CAPM asserts that *E(alpha)* = 0

Others assert that alpha is a measure of management skill.

Another view of Alpha & Beta