



# What does it all mean? Understanding Modern Portfolio Theory statistics

**Alpha:** a measure of risk (beta) adjusted return. Alpha is calculated as the mean of the excess return of the manager over beta times the benchmark.

**Beta:** A measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole.

Looking at the example to the right, Funds A, B, and C all captured excess return over the benchmark. But how do we know if the managers also exposed the funds to excess risk?

**Alpha** creates more of an “apples to apples” comparison by taking the benchmark return and adjusting it using the **Beta** of the fund.

## Alpha / Beta example

	Return	Excess return (over benchmark)	Beta (risk)	Alpha
Fund A	16.74%	8.22%	1.42	6.77
Fund B	11.23%	2.72%	0.60	5.57
Fund C	9.12%	0.60%	1.12	-0.29
Benchmark	8.52%	0.00	1.00	0.00

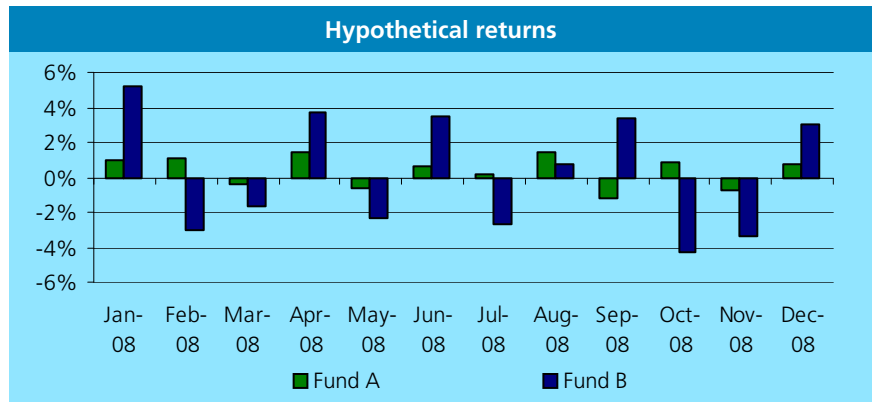
This is a hypothetical example and is not representative of actual performance of the Henderson Global Funds. Data shown is for illustrative purposes only.

While Fund A took on the most risk with a **beta** of 1.42, it also had the highest **alpha** which means the manager was rewarded for taking on the additional risk. In contrast, Fund C had the lowest alpha which indicates that the manager was not rewarded for the additional risk.

**Information Ratio:** measures the consistency with which a manager beats a benchmark. It's calculated as the quotient of the annualized excess return and the annualized standard deviation of excess return.

Essentially the **information ratio** demonstrates how consistently a manager beats the benchmark. The larger the **information ratio** the more consistently the manager has beaten the benchmark.

## Information ratio example



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In this example Fund A and Fund B both created excess return and beat the respective benchmark but Fund A did it in such a way that was much less volatile than Fund B. Therefore creating a portfolio with a higher **information ratio** demonstrating greater consistency of returns.

	Information ratio	Average excess return (over benchmark)
Fund A	1.14	3.54%
Fund B	0.20	2.33%

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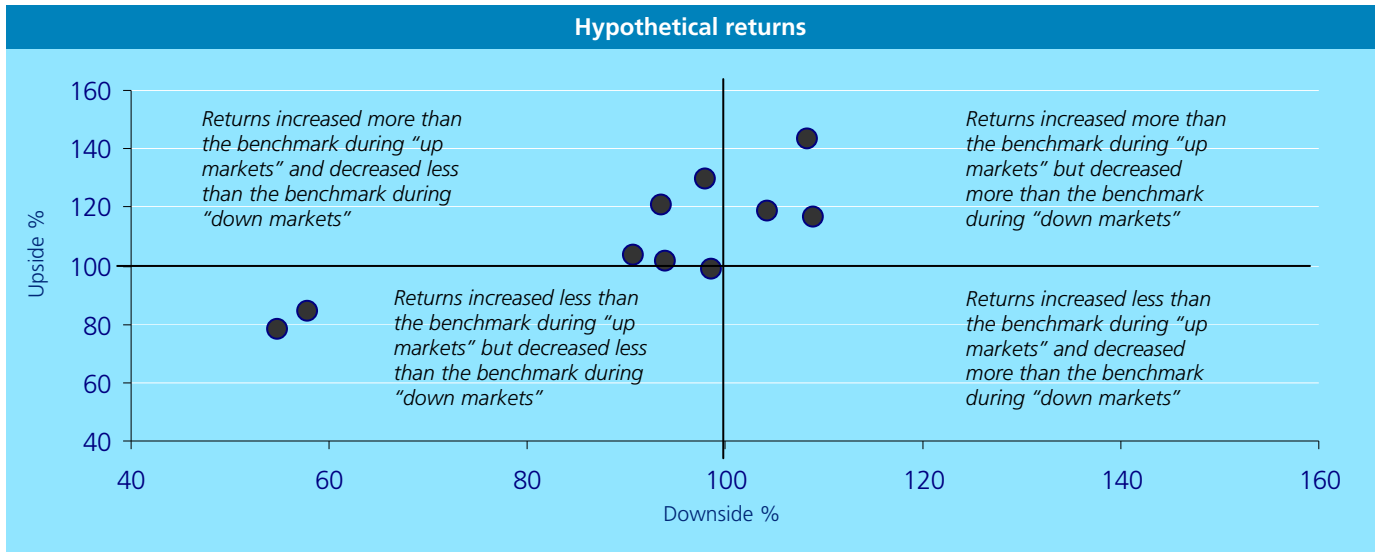
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**Up/Down Capture:** represents the amount of return the manager captured for every 1% gain/loss for the benchmark. For example, if the manager had an **up capture** of 120% this means a historical 10% increase in the benchmark resulted in a 12% increase for the manager.

The same is true with **down capture**; if a manager had a down capture of 80% this means a 10% drop in the index represented an 8% drop in that fund. The chart below illustrates how these relationships can be broken down into 4 quadrants, with each dot representing a different manager.

The upper left quadrant is called the “eat well, sleep well” quadrant. This is the most desirable quadrant because it represents managers who have historically captured more than 100% of the “up markets” and less than 100% of the “down markets”.

### Up/Down capture example



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