Alternative Risk-Adjusted Measures

Next to the Sharpe Ratio, there are several alternative metrics to capture risk-adjusted returns, such as the Sortino Ratio or the Upside / Downside Capture.

The Sharpe Ratio measures the additional amount of return an investor receives per unit of increased risk: It is calculated by subtracting the risk-free rate from the average rate of return of the investment under consideration, with this amount then divided by the standard deviation of the investment proposition (i.e. the degree to which its return profile fluctuates around its mean returns). Therefore, the higher the Sharpe Ratio, the more attractive the risk-adjusted return of an investment is expected to be.

Whilst the Sharpe Ratio measures the desirability of an investment and provides valuable insight in assessing the investment quality of low-volatility propositions, such as of mutual funds, it has certain limitations.

To start with, it assumes that investment returns are normally distributed, whilst in reality they are not. Most important, though, the Sharpe Ratio does not distinguish between ("good") upside and ("bad") downside volatility. For instance, positive outlier returns can have the effect of increasing the value of the denominator more than that of the numerator: Hence, lowering the value of the ratio. - In consequence, this may penalize strategies that have significant upside volatility. Besides, many investors´ aim is on avoiding losses, therefore they regard downside volatility as more relevant to focus on than overall volatility.
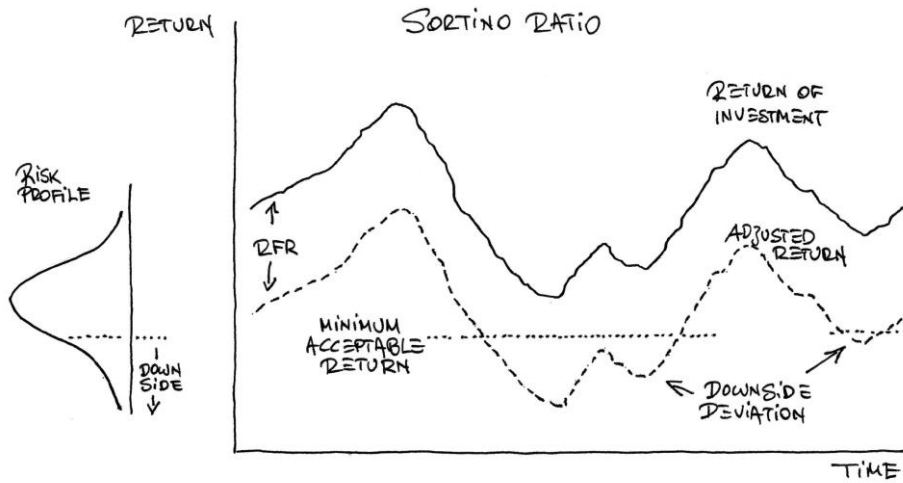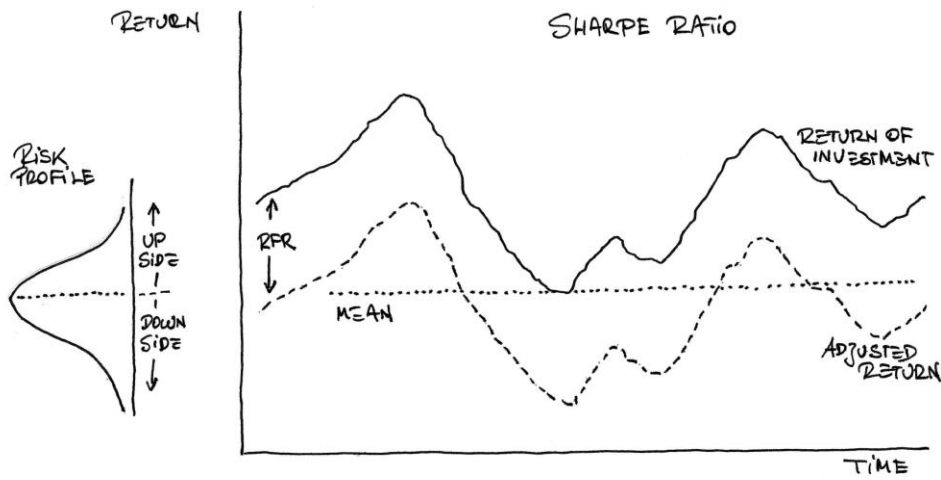
The Sortino Ratio addresses this concern: Whilst it also focuses on the excess return of an asset, in a second step – and in contrast to the Sharpe Ratio - this result is subsequently divided by the asset's

assumed downside risk (downside deviation) only. Latter is exclusively derived from moments or periods when and if a chosen asset´s returns fall below a minimum acceptable target return which can be individually set by an investor. Hence, the Sortino Ratio is more frequently applied in evaluating high-volatility portfolios, whereby it only penalizes downside volatility below target return.
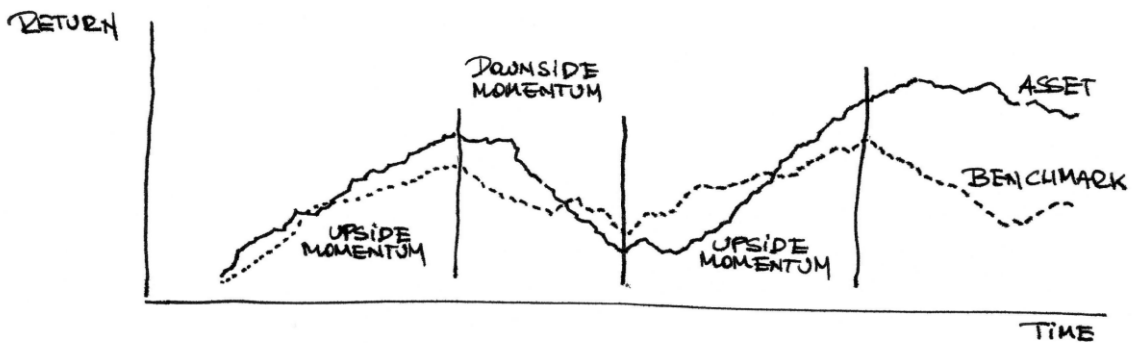
The Downside Capture provides an alternative to the Sortino Ratio: It calculates a given asset's risk-adjusted return as a function of a chosen benchmark (e.g. S&P 500, some MSCI index). In essence, it indicates whether the asset has lost less than the benchmark during market weakness, and if so, how much less. Therefore, Downside Capture Ratios are calculated by dividing an asset's (usually: monthly) return during periods of a negative performance by the benchmark return. To analyse this, Downside Capture Ratios are usually calculated over periods of 3, 5 or 10 years: A ratio of less than 100 would indicate that an asset has lost less than its benchmark in periods when the chosen benchmark index has been in the red. – As an alternative to this approach, one could for instance only focus at those points in time when a benchmark - set in absolute terms - fell below a certain minimum acceptable return.
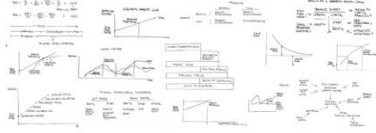
The Upside Capture is calculated accordingly.

The spread of the Upside/Downside Capture Ratio indicates whether an asset has outperformed - gained more or lost less than - a broad market benchmark during periods of market strength and weakness. For example, whilst an asset may not capture 100 per cent of the upside, if it captures even less of the downside (the Down Capture Ratio being lower than its Upside Capture Ratio), the asset may still have the ability to outperform the market and potentially do so with even less risk over full market cycles.

RETURN

SHARPE RATIO

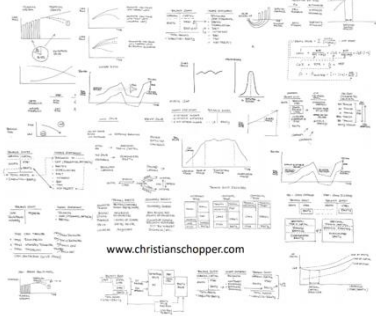RISK PROFILE

↑ UP SIDE
DOWN SIDE ↓

RFR

RETURN OF INVESTMENT

MEAN

ADJUSTED RETURN

TIME

RETURN

SORTINO RATIO

RISK PROFILE

DOWN SIDE ↓

RFR

RETURN OF INVESTMENT

MINIMUM ACCEPTABLE RETURN

ADJUSTED RETURN

⇐ DOWNSIDE DEVIATION

TIME

UPSIDE|DOWNSIDE CAPTURE

RETURN

DOWNSIDE MOMENTUM

UPSIDE MOMENTUM

UPSIDE MOMENTUM

ASSET

BENCHMARK

TIME

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