

# amLeague® Performance Ratios' definitions

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## Objective and table of contents

This document is intended for amLeague website's users. It describes how the different performance ratios presented on [www.am-league.com](http://www.am-league.com) are calculated.

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## 1. Volatility

A measure of risk based on the standard deviation of the asset return. It measures performances dispersion relative to their average trend. The higher is the volatility, the riskier is the financial instrument.

It allows assessing whether the price of a financial instrument (a stock, a fund, a benchmark, an index...) evolves perfectly regularly (null volatility) or hit (high volatility).

It can be calculated on daily-, weekly-, monthly (and so on) data. It is calculated as the square root of performances' variance, as follows:

$$\sigma = \sqrt{\sum_{t=1}^n \frac{[Perf(t) - \overline{Perf}]^2}{n}} * 100$$

With:

$n$ : Number of periods

$Perf(t)$ : Portfolio's performance at time  $t$

$\overline{Perf}$ : Portfolio's average performance

And then annualized

## 2. Tracking Error (TE)

The tracking error is a measure of how closely a financial instrument (a stock, a fund, a portfolio...) follows the index to which it is benchmarked.

It allows assessing whether the price changes of the financial instrument perfectly (null TE) or disparately (high TE) fit the variations of the benchmark.

It can be calculated on daily-, weekly-, monthly (and so on) data. It is calculated as the volatility of the spread between the financial instrument's performances and the benchmark's performances.

$$T.E. = \sqrt{\sum_{t=1}^n \frac{[(Perf(t) - \overline{Perf})_f - (Perf(t) - \overline{Perf})_i]^2}{n}} * 100$$

With:

$(Perf(t) - \overline{Perf})_f$ : Portfolio's performance at time  $t$  – the average performance of the portfolio

$(Perf(t) - \overline{Perf})_i$ : Benchmark's performance at time  $t$  – the average performance of the benchmark

And then annualized

### 3. Beta

The beta ( $\beta$ ) of a financial instrument (stock, fund, portfolio...) measures how the financial instrument is evolving, in trend, compared to the benchmark (beta=1) or amortizing fluctuations (beta<1) or amplifying them (beta>1).

The beta is also called the systematic risk of a financial instrument compared to the benchmark.

It can be calculated on daily-, weekly-, monthly (and so on) data. It is calculated as the covariance between the performances of the financial instrument and the benchmark's ones.

$$\beta = \frac{\text{cov}(f, i)}{\text{variance}(i)}$$

With:

$\text{cov}(f, i)$  : Covariance between the portfolio's performances and the benchmark's ones.

$\text{variance}(i)$  : Variance of the benchmark

#### Beta Bull and Beta Bear

On a specified period, n amount of daily positive variations of benchmark are identified, followed by identification of negative daily benchmark variations (period length -n). Based on the identified periods, beta bull and beta bear are calculated using the same formula as mentioned above.

### 4. Alpha

The alpha of a financial instrument allows measuring the 'specific risk'. In the financial instrument's performance, it is the performance portion that is not explained by the systematic risk (cf Beta above). In other words, it is the performance that does not result from the financial instrument's tendency to pass, to amortize or amplify the benchmark's fluctuations. This portion of specific performance comes from the specific choices of the portfolio manager regarding his preferences in terms of industrial sectors, geographical zones, stock picking...

It can be calculated on daily-, weekly-, monthly (and so on) data, as follows:

$$\alpha = \left( \frac{\overline{\text{Perf}(f)}}{100} - \beta_{fi} * \frac{\overline{\text{Perf}(i)}}{100} \right) * 100$$

With:

$\overline{\text{Perf}(f)}$  : The realized return (on the portfolio)

$\overline{\text{Perf}(i)}$  : The market return

$\beta_{fi}$  : Beta between the portfolio and the benchmark

It is the return in excess of the compensation for the risk borne, and thus **commonly used to assess active managers' performances.**

## 5. Number of positive months

This indicator gives, on a given period for a given financial instrument, the number of calendar months with a positive performance.

It should especially be appreciated by comparing it to the number of positive months of the benchmark over the same period.

$$Ratio = \frac{\text{count}(\text{Perf}_{\text{monthly}} \geq 0)}{\text{count}(\text{Perf}_{\text{total}})}$$

## 6. Max DrawDown (MDD)

The Max DrawDown or Peak to Valley is the maximum loss from a peak to a valley of a portfolio, before a new peak is attained. Maximum DrawDown is expressed in percentage terms and computed as:

$$MDD = \frac{\text{Valley} - \text{Peak}}{\text{Peak}}$$

It should especially be appreciated by comparing it to the Max DrawDown of the benchmark over the same period.

The Max DrawDown or Peak to Valley is a past indicator giving the maximum downside risk over a given time period.

## 7. Sharpe ratio

The Sharpe ratio is the risk-adjusted performance's measure of a financial instrument. It is the excess return (or Risk Premium) you are receiving for the extra volatility that you endure for holding a riskier asset, compared to a risk-free asset (money market performance). It is a measure in absolute.

$$Sharpe = \frac{\overline{\text{Perf}} - R_f}{\sigma}$$

With:

$\overline{Perf}$  : Portfolio's average performance

$R_f$  : Risk-free instrument's average performance

$\sigma$  : Portfolio's volatility

And has then to be annualized.

The more important this ratio is, the more the portfolio's performance is significant for a unit of risk. It should be higher than 1 to be more efficient than a riskless asset.

## 8. Information ratio

The Information ratio is a measure of the risk-adjusted performance of a financial instrument. It is a relative measure, ie in the logic of a comparison to the benchmark.

It is the excess return (compared to the benchmark) you are receiving for the extra relative risk unit that you endure for holding the financial instrument, measured by the Tracking Error.

$$I.R. = \frac{\overline{Perf}(f) - \overline{Perf}(i)}{T.E.}$$

With:

$\overline{Perf}(f)$  : Portfolio's average performance

$\overline{Perf}(i)$  : Benchmark's average performance

$T.E.$  : Tracking Error of the portfolio relative to the Benchmark

And has then to be annualized.

## 9. Outperformance frequency

The outperformance frequency gives the number of times the portfolio outperforms the benchmark during the selected period. It is calculated on rolling periods of 1 month, 3 months, 6 months, 1 year and 2 years and is given under the form of a percentage.

For instance, on a selected period of 3.5 years, the outperformance frequency 6 months of a portfolio is 85% means that when looking at the 6 months' performance over the 3.5 years selected period, the portfolio beats the benchmark in 85% of all cases.

## 10. Active share

The active share measures in which extent a portfolio is different from its benchmark: it is a measure of the percentage of stock holdings in a portfolio that differ from the benchmark index. The higher it is, the more the portfolio differs from its benchmark.

## 11. Value and Growth indicators

(only on Euro/Europe/Europe SRI Equities Mandates)

These indicators are intended to describe the management style of an equity portfolio.

As its name implies, growth companies are by definition those that have substantial potential for growth in the foreseeable future. Growth companies may currently be growing at a faster rate than the overall markets, and they often devote most of their current revenue towards further expansion.

Value stocks are considered as undervalued compared to their fundamental valuation. They generally have high dividend payouts ratios yield and low financial ratios such as price to earnings ratios (P/E).

Scores published by amLeague on notional portfolios are based on AlphaValue methodology and research. AlphaValue, an independent financial analysis company, produces scores from 1 to 100 for each stock based on a combination of fundamental and qualitative elements. amLeague scores, on a scale from 0 to 10, are computed as the weighted average of each stock scoring.

$$\text{Value/Growth Indicator} = \sum (A_i * AV_i)$$

With:

$A_i$ : security weight in %

$AV_i$ : AlphaValue Growth or Value score of the security

And then brought back on a 0 to 10 scale.

## 12. Liquidation Cost Measurement

Portfolio's liquidation costs enables measuring of how much the value of a portfolio would decrease, relative to last available market prices, if one needed to sell suddenly 10%, 20% or 50% of the portfolio.

To ensure comparable measures, all portfolios are based on a 100 Meur value. The quantity to sell on each security is calculated as follows:

$$Q_{l,i} = Q_{p,i} * \frac{100'000'000}{(NAV_p - CASH_p)} * R_l$$

*With:*

$Q_{l,i}$ : Quantity to be sold of security  $i$  within the portfolio

$Q_{p,i}$ : Quantity of security  $i$  within the portfolio

$R_l$ : Liquidation Ratio of the Portfolio (10%, 20% or 50%)

ITG, the broker partner of amLeague, has transaction costs' estimates for each security depending on the trade amount.

The total liquidation costs are calculated as the weighted average of all underlying securities in the portfolio and the identified costs in bps.

### 13. Extra Financial Indicators on the Europe SRI Equities Mandate

Extra-financial indicators are drawn from analysis tools of Socially Responsible Investment (SRI) on ESG criteria (E: Environmental, S: Social, G: Governance).

ESG scores and those of selected sub-indicators are based on Sustainalytics proprietary methodology.

The portfolio score on a sub-indicator or ESG indicator is computed as the weighted average of each security's score:

$$N_p = \sum (w_i * N_i)$$

*With:*

$w_i$ : Weight of security within the portfolio

$N_i$ : Rating of the security for a given indicator

Two measurement scales are used on the extra-financial indicators:

- a) 0-100 (100 being the highest result, indicating the highest participation) applies to the following extra-financial indicators:
  - ESG Total Rating, E Rating, S Rating and G Rating
  - Environment sub-indicator: Targets to Reduce Direct GHG Emissions
  - Social sub-indicator: Supply Chain Monitoring System Programs
  - Governance sub-indicator: Board Independence
  
- b) 0-5 (5 being the largest presence of controversies) applies to the following extra-financial Indicators:
  - Governance-related controversies
  - Social-related controversies
  - Environment-related controversies

## 14. Extra Financial Indicators on the Global Low Carbon Mandate (sponsored by ERAFP)

Low carbon, ESG and sub-indicators are based on MSCI ESG proprietary methodology.

The portfolio score on a sub-indicator or ESG indicator is computed as the weighted average of each security's score:

$$N_p = \sum (w_i * N_i)$$

*With:*

$w_i$ : *Weight of security within the portfolio*

$N_i$ : *Rating of the security for a given indicator*

### Low Carbon Indicators

The Low Carbon indicators are determined as follows:

- a) Carbon Emission Risk Management (from 1 to 10): the score measures how well a company manages its carbon emission risk and opportunities. Higher scores on risk management indicate a greater capacity to manage risk.



- b) Emissions / turnover (large number): carbon emissions intensity (scope 1+2) in tons/Euros Million sales. amLeague converts on a daily basis the metric given by MSCI ESG in USD into EUR.
- c) Emissions / Turnover adj. (large number): same as above but normalized by the Industry weight
- d) Emissions / Market cap (large number): Carbon emissions intensity (scope 1+2) in tons/ Euros Million market capitalization. amLeague divides the metric in tons given by MSCI ESG by the market capitalization in Euros million as given by its market data provider.
- e) Emissions / Market cap adj. (large number): same as above but normalized by the Industry weight

In b), c), d) and e) cases, higher figures indicate an unfavorable situation.

## ESG Indicators

The ESG Ratios are provided by MSCI ESG:

- a) ESG industry adjusted score (from 1 to 10): the score represents the weighted average of the scores on all key issues contributing to the final rating of a company and is normalized to the industry peer set.

All following ESG indicators are presented both with absolute and adjusted scores. Adjusted scores take into consideration a factor normalizing the absolute score with the importance of the E, S or G issue.

- b) Environment score (from 1 to 10): the score represents the weighted average of all key issues that fall under the environment pillar.
- c) Social score (from 1 to 10): the score represents the weighted average of all key issues that fall under the social pillar.
- d) Governance score (from 1 to 10): the score represents the weighted average of all key issues that fall under the governance pillar.

In a), b), c) and d) cases, higher figures indicate a favorable situation

- e) Water stress (from 1 to 10): this key issue evaluates the extent to which companies are at risk of water shortages impacting their global activity. Higher scores are attributed to companies employing water efficient processes, alternative water sources, etc.

- f) Toxic emissions (from 1 to 10): this key issue evaluates the extent to which companies are at risk of incurring liabilities associated with pollution, contamination, emissions of toxic substances. Higher scores are attributed to companies having strong programs and track record of reducing emissions and waste.
- g) Labor Management (from 1 to 10): this key issue evaluates the extent to which companies are at risk of workflow disruptions due to labor unrest or reduced productivity due to poor job satisfaction. Higher scores are attributed to companies providing strong employment benefits, performance incentives, professional development programs, ...
- h) Health and safety (from 1 to 10): this key issue evaluates the extent to which companies are at risk of accidents that can lead to production disruptions, litigation and liabilities. Higher scores are attributed to companies with comprehensive health and safety management and superior track record operating in countries with lower level of industrial fatalities.
- i) Business Ethics (from 1 to 10): this key issue evaluates industry specific business ethics issues that are not captured by any of the other standard key issue benchmarks, including but not limited to anti-competitive practices, pricing fraud, controversial customer practices, insider trading,...Higher scores are attributed to companies that have avoided controversies in these areas.