UpsideRisk

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Use `UpsideRisk` to calculate the Upside Risk, Upside Variance or Upside Deviation.

$$\text{UpsideRisk} = \sqrt{\frac{\sum_{i=1}^{n} \max(0, R_i - \text{MAR})^2}{n}}$$

$$\text{UpsideVariance} = \frac{\sum_{i=1}^{n} \max(0, R_i - \text{MAR})^2}{n}$$

$$\text{UpsidePotential} = \frac{\sum_{i=1}^{n} \max(0, R_i - \text{MAR})}{n}$$

Where

R	=	asset return
MAR	=	minimum acceptable return
n	=	n is either the rows in the GROUP or the number of rows where R < MAR

Syntax

```
Public Shared Function UpsideRisk(
    ByVal R As Double(),
    ByVal MAR As Double,
    ByVal Full As Boolean,
    ByVal State As String,)
```

Arguments

R

the asset return for a period; the percentage return in floating point format (i.e. 10% = 0.10). *R* is an expression that returns an Array of **Double**, or of a type that can be implicitly converted to **Double**.

MAR

the minimum acceptable return in floating point format (i.e. 10% = 0.10). *MAR* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Full

determines the treatment of n. When *Full* is TRUE then n_u and n_d are the number of non-null rows in the GROUP; when *Full* is FALSE then n_u is the number of rows where *R* > *MAR* and n_d is the number of rows where *R* < *MAR*. *Full* is an expression that returns a **Boolean**, or of a type that can be implicitly converted to **Boolean**.

State

A sting value determining the return value. Use 'VARIANCE' for UpsideVariance; 'RISK' for UpsideRisk; or POTENTIAL for UpsidePotential.

State is an expression that returns a **String**, or of a type that can be implicitly converted to **String**.

Return Type

Double

Remarks

- If *R* IS NULL it is not included in the calculation.
- If *MAR* IS NULL it is set to zero.
- If there are no non-NULL rows then NULL is returned.
- If *Full* IS NULL then *Full* is set to TRUE.
- If *Full* is TRUE, then n equals the number of rows in the GROUP, else n = the number of rows where R < MAR in the GROUP

See Also

- BetaCoKurt - Calculate the beta-cokurtosis of an asset return and a benchmark return
- BetaCoSkew - Calculate the beta-coskewness of an asset return and a benchmark return
- BetaCoVar - Calculate the beta-covariance of an asset return and a benchmark return
- DownsideDeviation - Calculate the downside deviation of asset returns
- DownsideFrequency - Calculate the downside frequency of asset returns
- DownsidePotential - Calculate the downside potential of asset returns
- FinCoKurt - Calculate the cokurtosis of an asset return and a benchmark return
- FinCoSkew - Calculate the coskewness of an asset return and a benchmark return
- Omega - Calculate the Omega of asset returns
- OmegaExcessReturn - Calculate the Omega Excess Return
- OmegaSharpeRatio - Calculate the Omega-Sharpe ratio of asset returns
- SemiDeviation - Calculate the semi-deviation of asset returns
- SemiVariance - Calculate the semi-variance of asset returns
- SpecificRisk - Calculate Specific Risk, the standard deviation of the error term in the regression equation
- SystematicRisk - Calculate the Systematic Risk
- TotalRisk - Calculate Total Risk
- UpsideFrequency - Calculate the upside frequency of asset returns
- UpsidePotentialRatio - Calculate the Upside Potential Ratio