SystematicRisk

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Use the aggregate function `SystematicRisk` to calculate the Systematic. Systematic Risk is calculated as:

$$\text{SystematicRisk} = \beta \times s_m$$

$$\beta = \text{BetaCovar}(Ra - Rf, Rb - Rf)$$

$$s_m = s_{Rb-Rf} \times \sqrt{freq}$$

Where

Ra	=	asset return
Rb	=	benchmark return
Rf	=	risk-free return
freq	=	periodicity of returns
s	=	sample standard deviation

Syntax

```
Public Shared Function SystematicRisk(
    ByVal Ra As Double(),
    ByVal Rb As Double(),
    ByVal Rf As Double(),
    ByVal Freq As Integer,)
```

Arguments

Ra

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

Rb

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

Rf

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

Freq

the period in which *Ra*, *Rb*, and *Rf* are expressed. For example, a *Freq* of 1 would indicate that the returns are annual; 4 would be quarterly, 12 would be monthly, and 252 would be business-

daily. *Freq* is an expression that returns an **Integer**, or of a type that can be implicitly converted to **Integer**.

Return Type

Double

Remarks

- If *Ra* or *Rb* IS NULL it is not included in the calculation.
- If *Rf* IS NULL it is set to zero.
- If there are no non-NULL rows then NULL is returned.
- *Freq* must be greater than zero.
- If *Freq* IS NULL then *Freq* is set to 12.

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
- TotalRisk - Calculate Total Risk
- UpsideFrequency - Calculate the upside frequency of asset returns
- UpsidePotentialRatio - Calculate the Upside Potential Ratio
- UpsideRisk - Calculate the Upside Risk, Upside Variance or Upside Deviation