CONVEXITY

Updated: 31 Mar 2016

Use CONVEXITY to calculate the convexity of an option free bond. The convexity of a bond is calculated as the second derivative of the price divided by the dirty price of the bond.

Syntax

```
Public Shared Function CONVEXITY(
    ByVal Settlement As Date,
    ByVal Maturity As Date,
    ByVal Rate As Double,
    ByVal Yield As Double,
    ByVal Frequency As Integer,
    ByVal Basis As String,
    ByVal Par As Double,
    ByVal Redemption As Double,
    ByVal IssueDate As Date,
    ByVal FirstInterestDate As Date,
    ByVal LastInterestDate As Date,)
```

Arguments

Settlement

the settlement date of the transaction. *Settlement* is an expression that returns a **Date**, or of a type that can be implicitly converted to **Date**.

Maturity

the maturity date for the financial instrument. *Maturity* is an expression that returns a **Date**, or of a type that can be implicitly converted to **Date**.

Rate

the coupon rate, as a decimal, for the financial instrument. *Rate* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Yield

the security's annual yield. *Yield* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Frequency

the number of coupon payments per year. For annual payments, *Frequency* = 1; for semi-annual, *Frequency* = 2; for quarterly, *Frequency* = 4; for monthly, *Frequency* = 12. For interest-at-maturity securities, *Frequency* = 0. *Frequency* is an expression that returns an **Integer**, or of a type that can be implicitly converted to **Integer**.

Basis

the day-count convention used in the calculation of the accrued coupon interest.

Basis	Day count basis
0 or omitted	US (NASD) 30/360
1	Actual/Actual
2	Actual/360
3	Actual/365
4	European 30/360

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

Par

the par value of the financial instrument. *Par* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Redemption

the redemption value of the financial instrument expressed in relation to the *Par*. *Redemption* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

IssueDate

the issue date of the security; the date from which the security starts accruing interest. *IssueDate* is an expression that returns a **Date**, or of a type that can be implicitly converted to **Date**.

FirstInterestDate

the first coupon date of the security. The period from the issue date until the first coupon date defines the odd first interest period. All subsequent coupon dates are assumed to occur at regular periodic intervals as defined by *Frequency* in relation to the *LastInterestDate* (if entered) or *Maturity*. *FirstInterestDate* is an expression that returns a **Date**, or of a type that can be implicitly converted to **Date**

LastInterestDate

the last coupon date of the security prior to maturity date, if the last coupon period is an odd period. The period from the last interest date date until the maturity date defines the odd last interest period. All previous coupon dates are assumed to occur at regular periodic intervals as defined by *Frequency*. *LastInterestDate* is an expression that returns a **Date**, or of a type that can be implicitly converted to **Date**.

Return Type

Double

Remarks

- *Settlement* cannot be NULL
- *Maturity* cannot be NULL
- *Settlement* must be less than *Maturity*
- If *Redemption* is NULL, then *Redemption* = *Par*
- If *Par* is NULL, then *Par* = 100
- If *Frequency* is NULL, then *Frequency* = 2
- If *Basis* is NULL, then Basis = 0
- If *FirstInterestDate* is NOT NULL, then *IssueDate* cannot be NULL
- If *FirstInterestDate* is NOT NULL, then *FirstInterestDate* must be greater than *IssueDate*
- If *LastInterestDate* is NOT NULL, The *LastInterestDate* must be less than *Maturity*
- If *LastInterestDate* is NOT NULL and *FirstInterestDate* is NOT NULL, then *FirstInterestDate* must be less than *LastInterestDate*.

See Also

- CFCONVEXITY - Convexity of a series of cash flows
- CFDURATION - Duration of a series of cash flows
- CFMDURATION - Modified duration of a series of cash flows
- DURATION - Duration of a security
- MDURATION - Macauley Duration
- OFCCONVEXITY - Convexity of a bond with and odd first coupon
- OFCDURATION - Duration of a bond with an odd first coupon
- OFCMDURATION - Modified duration of a bond with an odd first coupon
- OFLCONVEXITY - Convexity of a bond with an odd first and odd last coupon
- OFLDURATION - Duration of a bond with an odd first and odd last coupon
- OFLMDURATION - Modified duration of a bond with an odd first and odd last coupon
- OLCCONVEXITY - Convexity of a bond with an odd last coupon
- OLCDURATION - Duration of a bond with an odd last coupon
- OLCMDURATION - Modified duration of a bond with an odd last coupon
- RPICONVEXITY - Convexity of a bond paying regular periodic interest
- RPIDURATION - Duration of a bond paying regular periodic interest
- RPIMDURATION - Modified duration of a bond paying regular periodic interest
- STEPCONVEXITY - Convexity of a stepped-coupon bond
- STEPDURATION - Duration of a stepped-coupon bond
- STEPMDURATION - Modified duration of a stepped-coupon bond