OFLCONVEXITY

Updated: 31 Mar 2016

Use OFLCONVEXITY to calculate the convexity for a bond that has an odd first and an odd last coupon. Convexity is defined as the second derivative of price with respect to yield divided by the dirty price of the bond multiplied by 100.

$$CONVEXITY = \frac{\frac{\partial^2 P}{\partial y^2}}{P_{dirty} * 100}$$

Syntax

```
Public Shared Function OFLCONVEXITY(
    ByVal Settlement As Date,
    ByVal Maturity As Date,
    ByVal IssueDate As Date,
    ByVal FirstCouponDate As Date,
    ByVal LastCouponDate As Date,
    ByVal Rate As Double,
    ByVal Yld As Double,
    ByVal Redemption As Double,
    ByVal Frequency As Double,
    ByVal Basis As String,)
```

Arguments

Settlement

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

Maturity

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

IssueDate

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

FirstCouponDate

the first coupon date of the bond. The period from the issue date until the first coupon date defines the odd interest period. All subsequent coupon dates are assumed to occur at regular periodic intervals as defined by *Frequency*. *FirstCouponDate* is an expression that returns a **Date**, or of a type that can be implicitly converted to **{paramtype}**.

LastCouponDate

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

Rate

> the bond's annual coupon rate. *Rate* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Yld

> the yield for the maturity date passed into the function. *Yld* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Redemption

> the redemption value of the bond assuming a par value of 100. *Redemption* 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 bi-monthly, *Frequency* = 6; for monthly, *Frequency* = 12. For bonds with Basis = "A/364" or 9, you can enter 364 for payments made every 52 weeks, 182 for payments made every 26 weeks, 91 for payments made every 13 weeks, 28 for payments made every 4 weeks, 14 for payments made every 2 weeks, and 7 for weekly payments. *Frequency* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Basis

> the type of day count to use.

Basis	Day count basis
0, "BOND"	US (NASD) 30/360
1, "ACTUAL"	Actual/Actual
2, "A360"	Actual/360
3, "A365"	Actual/365
4, "30E/360 (ISDA)", "30E/360", "ISDA", "30E/360 ISDA", "EBOND"	European 30/360
5, "30/360", "30/360 ISDA", "GERMAN"	30/360 ISDA
6, "NL/ACT"	No Leap Year/ACT
7, "NL/365"	No Leap Year /365
8, "NL/360"	No Leap Year /360
9, "A/365"	Actual/364
10, "BOND NON-EOM"	US (NASD) 30/360 non-end-of-month
11, "ACTUAL NON-EOM"	Actual/Actual non-end-of-month

12, "A360 NON-EOM"	Actual/360 non-end-of-month
13, "A365 NON-EOM"	Actual/365 non-end-of-month
14, "30E/360 NON-EOM", "30E/360 ICMA NON-EOM", "EBOND NON-EOM"	European 30/360 non-end-of-month
15, "30/360 NON-EOM", "30/360 ISDA NON-EOM", "GERMAN NON-EOM"	30/360 ISDA non-end-of-month
16, "NL/ACT NON-EOM"	No Leap Year/ACT non-end-of-month
17, "NL/365 NON-EOM"	No Leap Year/365 non-end-of-month
18, "NL/360 NON-EOM"	No Leap Year/360 non-end-of-month
19, "A/365 NON-EOM"	Actual/364 non-end-of-month

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

Return Type
Double

Remarks
- If *Settlement* is NULL then *Settlement* equals current system processing date.
- If *Rate* is NULL then *Rate* = 0.
- If *Yield* is NULL then Yield = 0.
- If *Redemption* is NULL then *Redemption* = 100.
- If *Frequency* is NULL then *Frequency* = 2.
- If *Basis* is NULL then *Basis* = 0.
- If *Frequency* invalid an error is returned.
- If *Basis* invalid (see above list) an error is returned.
- If *Maturity* is NULL then an error is returned.
- If *LastCouponDate* is NULL then an error is returned.
- If *FirstCouponDate* is NULL then an error is returned.
- If *Issue* is NULL then an error is returned.

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
- CONVEXITY - Convexity of an option free bond
- 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

- 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