How can I use the ODDFPRICE function in Excel to calculate the price of a security with an odd first period?

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The ODDFPRICE function in Excel is a useful tool for calculating the price of a security with an odd first period. This function takes into consideration the specific payment schedule of the security, where the first period may not align with the rest of the payment periods. By using the ODDFPRICE function, the user can input the necessary information such as the settlement date, maturity date, annual coupon rate, and yield rate to accurately determine the price of the security. This function is particularly helpful in situations where the first period of a security's payment schedule is irregular, allowing for more precise calculations and analysis.

This article describes the formula syntax and usage of the **ODDFPRICE** function in Microsoft Excel.

Description

Returns the price per $100 face value of a security having an odd (short or long) first period.

Syntax

ODDFPRICE(settlement, maturity, issue, first_coupon, rate, yld, redemption, frequency,)

Important: Dates should be entered by using the DATE function, or as results of other formulas or functions. For example, use DATE(2008,5,23) for the 23rd day of May, 2008. Problems can occur if dates are entered as text.

The ODDFPRICE function syntax has the following arguments:

Settlement Required. The security's settlement date. The security settlement date is the date after the issue date when the security is traded to the buyer.

Maturity Required. The security's maturity date. The maturity date is the date when the security expires.

Issue Required. The security's issue date.

First_coupon Required. The security's first coupon date.

Rate Required. The security's interest rate.

Yld Required. The security's annual yield.

Redemption Required. The security's redemption value per $100 face value.

Frequency Required. The number of coupon payments per year. For annual payments, frequency

= 1; for semiannual, frequency = 2; for quarterly, frequency = 4.

Basis Optional. The type of day count basis to use.

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

Remarks

Microsoft Excel stores dates as sequential serial numbers so they can be used in calculations. By default, January 1, 1900 is serial number 1, and January 1, 2008 is serial number 39448 because it is 39,448 days after January 1, 1900.

The settlement date is the date a buyer purchases a coupon, such as a bond. The maturity date is the date when a coupon expires. For example, suppose a 30-year bond is issued on January 1, 2008, and is purchased by a buyer six months later. The issue date would be January 1, 2008, the settlement date would be July 1, 2008, and the maturity date would be January 1, 2038, which is 30 years after the January 1, 2008, issue date.

Settlement, maturity, issue, first_coupon, and basis are truncated to integers.

If settlement, maturity, issue, or first_coupon is not a valid date, ODDFPRICE returns the #VALUE! error value.

If rate < 0 or if yld < 0, ODDFPRICE returns the #NUM! error value.

If basis < 0 or if basis > 4, ODDFPRICE returns the #NUM! error value.

The following date condition must be satisfied; otherwise, ODDFPRICE returns the #NUM! error value:

maturity > first_coupon > settlement > issue

ODDFPRICE is calculated as follows:

Odd short first coupon:

$$ODDFPRICE = \left[\frac{redemption}{\left(1+\frac{yld}{frequency}\right)^{\left(N-1+\frac{DSC}{E}\right)}}\right] + \left[\frac{100 \times \frac{rate}{frequency} \times \frac{DFC}{E}}{\left(1+\frac{yld}{frequency}\right)^{\frac{DSC}{E}}}\right] + \left[\sum_{k=2}^{N} \frac{100 \times \frac{rate}{frequency}}{\left(1+\frac{yld}{frequency}\right)^{\left(k-1+\frac{DSC}{E}\right)}}\right] - \left[100 \times \frac{rate}{frequency} \times \frac{A}{E}\right]$$

where:

A = number of days from the beginning of the coupon period to the settlement date (accrued days).

DSC = number of days from the settlement to the next coupon date.

DFC = number of days from the beginning of the odd first coupon to the first coupon date.

E = number of days in the coupon period.

N = number of coupons payable between the settlement date and the redemption date. (If this number contains a fraction, it is raised to the next whole number.)

Odd long first coupon:

$$ODDFPRICE = \left[\frac{redemption}{\left(1+\frac{yld}{frequency}\right)^{\left(N+N_q+\frac{DSC}{E}\right)}}\right] + \left[\frac{100 \times \frac{rate}{frequency} \times \left[\sum_{i=1}^{NC}\frac{DC_i}{NL_i}\right]}{\left(1+\frac{yld}{frequency}\right)^{\left(N_q+\frac{DSC}{E}\right)}}\right] + \left[\sum_{k=1}^{N}\frac{100 \times \frac{rate}{frequency}}{\left(1+\frac{yld}{frequency}\right)^{\left(k-N_q+\frac{DSC}{E}\right)}}\right] - \left[100 \times \frac{rate}{frequency} \times \sum_{i=1}^{NC}\frac{A_i}{NL_i}\right]$$

where:

Ai = number of days from the beginning of the ith, or last, quasi-coupon period within odd period.

DCi = number of days from dated date (or issue date) to first quasi-coupon (i = 1) or number of days in quasi-coupon (i = 2,..., i = NC).

DSC = number of days from settlement to next coupon date.

E = number of days in coupon period.

N = number of coupons payable between the first real coupon date and redemption date. (If this number contains a fraction, it is raised to the next whole number.)

NC = number of quasi-coupon periods that fit in odd period. (If this number contains a fraction, it is raised to the next whole number.)

NLi = normal length in days of the full ith, or last, quasi-coupon period within odd period.

Nq = number of whole quasi-coupon periods between settlement date and first coupon.