How can I use the PRICE function in Excel to calculate the price of a bond or other financial instrument?

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The PRICE function in Excel is a useful tool for calculating the price of a bond or other financial instrument. By inputting relevant information such as the bond's face value, coupon rate, and maturity date, the function calculates the present value of future cash flows and provides an accurate price for the bond. This allows users to make informed decisions about buying or selling financial instruments and helps them analyze potential investments. The PRICE function is a valuable tool for financial professionals and individuals alike, providing a quick and efficient way to determine the value of various financial assets.

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

Description

Returns the price per $100 face value of a security that pays periodic interest.

Syntax

PRICE(settlement, maturity, 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 PRICE 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.

Rate Required. The security's annual coupon 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, frequency, and basis are truncated to integers.

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

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

If redemption ≤ 0, PRICE returns the #NUM! error value.

If frequency is any number other than 1, 2, or 4, PRICE returns the #NUM! error value.

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

If settlement ≥ maturity, PRICE returns the #NUM! error value.

Important:

When N > 1 (N is the number of coupons payable between the settlement date and redemption date), **PRICE** is calculated as follows:

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

where:

When N = 1 (N is the number of coupons payable between the settlement date and redemption date), **PRICE** is calculated as follows:

$$DSR = E - A$$

$$T1 = 100 * \frac{rate}{frequency} + redemption$$

$$T2 = \frac{yld}{frequency} * \frac{DSR}{E} + 1$$

$$T3 = 100 * \frac{rate}{frequency} * \frac{A}{E}$$

$$Price = \frac{T1}{T2} - T3$$

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

E = number of days in coupon period in which the settlement date falls.

A = number of days from beginning of coupon period to settlement date.