How can I use the INTRATE function in Excel to calculate the effective interest rate for a loan or investment?

Authored by

stats writer

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The INTRATE function in Excel is a useful tool for calculating the effective interest rate for a loan or investment. It allows users to easily determine the true cost or return of a financial transaction, taking into account compounding periods and fees. By inputting the necessary data, such as the initial investment, payment schedule, and interest rate, the function will calculate the annual percentage rate (APR) and present the effective interest rate in a clear and accurate manner. This allows individuals and businesses to make informed decisions about their financial investments and understand the true impact of interest rates on their loans. The INTRATE function in Excel is a valuable tool for financial planning and decision making.

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

Description

Returns the interest rate for a fully invested security.

Syntax

INTRATE(settlement, maturity, investment, redemption,)

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 INTRATE 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.

Investment Required. The amount invested in the security.

Redemption Required. The amount to be received at maturity.

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

Basis	Day count basis
0 or omitted	US (NASD) 30/360
1	Actual/actual

Basis	Day count basis
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, and basis are truncated to integers.

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

If investment ≤ 0 or if redemption ≤ 0, INTRATE returns the #NUM! error value.

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

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

INTRATE is calculated as follows:

$$INTRATE = \frac{redemption - investment}{investment} \times \frac{B}{DIM}$$

where:

B = number of days in a year, depending on the year basis.

DIM = number of days from settlement to maturity.