
AIMMS Function Reference - Financial Functions - Day Count Bases and Dates

This file contains only one chapter of the book. For a free download of the complete book in pdf format, please visit www.aimms.com

Financial Functions - Day Count Bases and Dates

Many financial functions require date arguments, and depend on differences between two dates, either as a number of days or as a fraction of a year. This chapter discusses the date format expected by AIMMS' financial functions and the different methods to compute date differences used from which you can choose in many functions.

Format of date arguments

All date arguments in AIMMS' financial functions should be provided in the fixed string date format "ccyy-mm-dd". So, 15 August, 2000 should be passed to a financial function as the string '2000-08-15'. Alternatively, date arguments can be elements of any daily calendar in your AIMMS model, which are converted to the proper date representation by AIMMS automatically.

Day count bases

The result of many financial functions depends on the way with which differences between two dates are dealt with. Such functions have a *day count basis* argument, which determines how the difference between two dates is calculated, either in days or as a fraction of a year. AIMMS supports 5 different day count basis methods, each of which is commonly used in the financial markets. Each of these methods is specified by a way to count days and a way to determine how many days are in a year.

- **Method 1 - NASD Method / 360 Days:** Calculating with day count basis method 1 means that a year is assumed to consist of 12 periods of 30 days. A year consists of 360 days. The difference between this method and method 5 is the way the last day of a month is handled.
- **Method 2 - Actual / Actual:** Calculating with day count basis method 2 means that both the number of days between two dates and the number of dates in a year are actual.
- **Method 3 - Actual / 360 Days:** Calculating with day count basis method 3 means that the number of days between two dates is actual and that

the number of days in a year is 360. When using this method, you should note that the year fraction of two dates that are one year apart is larger than 1 (365/360) and that this may lead to unwanted results.

- **Method 4 - Actual / 365 Days:** Calculating with day count basis method 4 means that the number of days between two dates is actual and that the number of days in a year is 365.
- **Method 5 - European Method / 360 Days:** Calculating with day count basis method 5 means that a year is assumed to consist of 12 periods of 30 days. A year consists of 360 days. The difference between this method and method 1 is the way the last day of a month is handled.

When the day count basis argument is optional, AIMMS assumes the NASD method 1 by default.

Date differences

AIMMS supports the following functions for computing differences between two dates:

- `DateDifferenceDays`
- `DateDifferenceYearFraction`

DateDifferenceDays

The function DateDifferenceDays calculates the number of days between two dates based on the specified day count basis.

```
DateDifferenceDays(  
    FirstDate,          ! (input) scalar string expression  
    SecondDate,        ! (input) scalar string expression  
    [Basis]             ! (optional) numerical expression  
)
```

Arguments:

FirstDate

The first date must be in date format.

SecondDate

The second date must be in date format, and later than *FirstDate*.

Basis

The day-count basis method to be used. The default is 1.

Return value:

The function DateDifferenceDays returns the number of days between the two dates.

Remarks:

The function DateDifferenceDays is similar to the Excel function DAYS300.

See also:

Day count basis [methods](#).

DateDifferenceYearFraction

The function `DateDifferenceYearFraction` calculates the year fraction between two dates based on the specified day count basis.

```
DateDifferenceYearFraction(  
    FirstDate,          ! (input) scalar string expression  
    SecondDate,        ! (input) scalar string expression  
    [Basis]             ! (optional) numerical expression  
)
```

Arguments:

FirstDate

The first date must be in date format.

SecondDate

The second date must be in date format, and later than *FirstDate*.

Basis

The day-count basis method to be used. The default is 1.

Return value:

The function `DateDifferenceYearFraction` returns the difference between *FirstDate* and *SecondDate* in fractions of a year.

Remarks:

The function `DateDifferenceYearFraction` is similar to the Excel function `YEARFRAC`.

See also:

Day count basis [methods](#).