How can I calculate the future value of an investment in Excel?

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The process of calculating the future value of an investment in Excel involves utilizing the built-in financial functions and formulas to project the potential growth of an investment over a specified period of time. This can be achieved by inputting the initial investment amount, the expected interest rate, and the number of compounding periods into the appropriate cells within a spreadsheet. By using these variables, Excel will automatically calculate and display the future value of the investment, taking into account the effects of compounding interest. This method allows for accurate and efficient forecasting of potential investment returns, making it a useful tool for financial planning and decision making.

FV, one of the financial functions, calculates the future value of an investment based on a constant interest rate. You can use FV with either periodic, constant payments, or a single lump sum payment.

Use the Excel Formula Coach to find the future value of a series of payments. At the same time, you'll learn how to use the FV function in a formula.

Or, use the Excel Formula Coach to find the future value of a single, lump sum payment.

Syntax

FV(rate,nper,pmt,,)

For a more complete description of the arguments in FV and for more information on annuity functions, see PV.

The FV function syntax has the following arguments:

Rate Required. The interest rate per period.

Nper Required. The total number of payment periods in an annuity.

Pmt Required. The payment made each period; it cannot change over the life of the annuity. Typically, pmt contains principal and interest but no other fees or taxes. If pmt is omitted, you must include the pv argument.

Pv Optional. The present value, or the lump-sum amount that a series of future payments is worth right now. If pv is omitted, it is assumed to be 0 (zero), and you must include the pmt argument.

Type Optional. The number 0 or 1 and indicates when payments are due. If type is omitted, it is assumed to be 0.

Set type equal to	If payments are due
0	At the end of the period
1	At the beginning of the period

Remarks

Make sure that you are consistent about the units you use for specifying rate and nper. If you make monthly payments on a four-year loan at 12 percent annual interest, use 12%/12 for rate and 4*12 for nper. If you make annual payments on the same loan, use 12% for rate and 4 for nper.

For all the arguments, cash you pay out, such as deposits to savings, is represented by negative numbers; cash you receive, such as dividend checks, is represented by positive numbers.

Examples

Copy the example data in the following table, and paste it in cell A1 of a new Excel worksheet. For formulas to show results, select them, press F2, and then press Enter. If you need to, you can adjust the column widths to see all the data.

Data	Description	
0.06	Annual interest rate	
10	Number of payments	
-200	Amount of the payment	
-500	Present value	
1	Payment is due at the beginning of the period (0 indicates payment is due at end of period)	
Formula	**Description**	**Result**
=FV(A2/12, A3, A4, A5, A6)	Future value of an investment using the terms in A2:A5.	$2,581.40

Example 2

Data	Description	
0.12	Annual interest rate	

Data	Description	
12	Number of payments	
-1000	Amount of the payment	
Formula	**Description**	**Result**
=FV(A2/12, A3, A4)	Future value of an investment using the terms in A2:A4.	$12,682.50

Example 4

Data	Description	
0.06	Annual interest rate	
12	Number of payments	
-100	Amount of the payment	
-1000	Present value	
1	Payment is due at the beginning of the year (0 indicates end of year)	
Formula	**Description**	**Result**
=FV(A2/12, A3, A4, A5, A6)	Future value of an investment using the terms in A2:A5.	$2,301.40