Data Tables

Excel's *Data Table* tool provides a quick and easy way to perform "what if" analysis. It is used to create a range of cells called the *data table*. The values displayed in the data table represent the result of changing certain input variables in your calculation. You can specify what those changing variables are and the range of input values that is used to create the table. Calculations can contain many input variables. The data table tool can be used to represent changes in one or two of them.

As with the Goal Seek example, this example also uses the PMT function to demonstrate data tables. Although this is a simple example remember that data tables can be used with any calculation that has a variable input.

You might want to vary any of the values used by the PMT function. The length of the repayment period can be changed to suit your budget. Perhaps you want to compare the interest rates of different lenders. Or maybe you would consider changing the amount of the loan so that you could determine the optimum term and monthly payment. To examine the effect of changing one of these variables use a *Single Variable Data Table.* To compare the effect of changing two of the variables use a *Two Variable Data Table*.

The Single Variable Data Table

First create your initial function. In this example the function is situated in cell **C7**. You should position the function on the worksheet so that there is space in the column below it and also to the left. Suppose you want to see the effect of different loan amounts (e.g. from £15,000 to £30,000. Enter the list of values in the column that is to the left of the initial function, and starting in the row below it (in this example cell **A8**) remembering to express the values in the same way as in the initial function.

Now select the block of data that contains the original function and the column of values you just entered, on the **Data** tab of the ribbon choose **What-If Analysis** then **Data Table** to open the Data Table tool. Click in the textbox marked **Column input cell** then click on the cell in that supplied the value in the initial function that corresponds to the column of values you entered (*Fig. 1*). In this example it is cell **B1** (the *Loan Amount*). Finally, click **OK** to dismiss the dialog and create the table (*Fig. 2*). Here the result cells have been formatted to show only two decimal places.

Fig. 1 Creating a single variable data table.

Fig. 2 A single variable data table

The Two-Variable Data Table

When comparing two different variables you need to provide a column and a row of variable values. This time enter the column of values directly beneath the initial function (here starting in

cell **B8**) and the row immediately to the right of the initial function (here starting in cell **C7**). In this example the second variable is the duration of the loan or *Term* in months (e.g. from 3 to 12 years or 36 to 144 months). Select the block of cells to include the initial function and the row and column of variable values and open the data table tool. In this example the **Row input cell** is the one containing the *Term* in the initial function (cell **B3**) (*Fig. 3*). The **Column input cell**, representing the *Loan Amount*, is the same as before (cell **B1**).
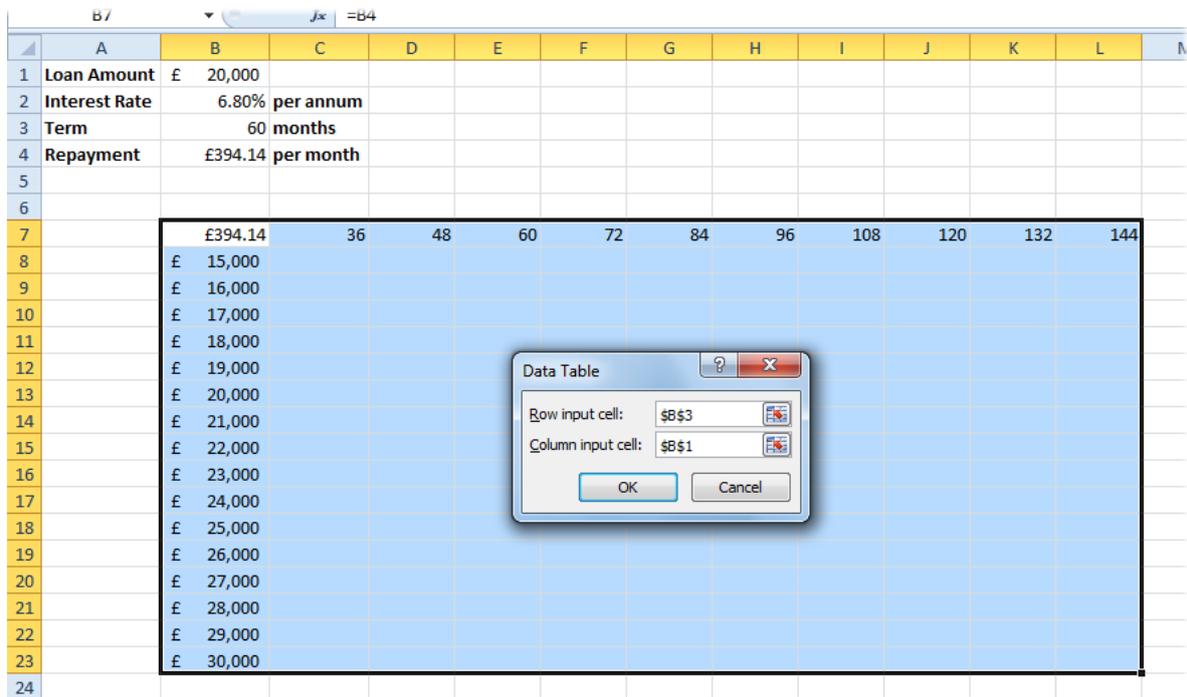

Fig. 3 Creating a two-variable data table.

As before, click **OK** to dismiss the dialog and create the table (*Fig. 4*).

			36	48	60	72	84	96	108	120	132	144
7		£394.14	36	48	60	72	84	96	108	120	132	144
8	£	15,000	£ 461.79	£ 357.80	£ 295.60	£ 254.30	£ 224.93	£ 203.02	£ 186.08	£ 172.62	£ 161.69	£ 152.66
9	£	16,000	£ 492.57	£ 381.66	£ 315.31	£ 271.25	£ 239.92	£ 216.55	£ 198.48	£ 184.13	£ 172.47	£ 162.84
10	£	17,000	£ 523.36	£ 405.51	£ 335.02	£ 288.20	£ 254.92	£ 230.08	£ 210.89	£ 195.64	£ 183.25	£ 173.02
11	£	18,000	£ 554.14	£ 429.36	£ 354.73	£ 305.16	£ 269.91	£ 243.62	£ 223.29	£ 207.14	£ 194.03	£ 183.20
12	£	19,000	£ 584.93	£ 453.22	£ 374.43	£ 322.11	£ 284.91	£ 257.15	£ 235.70	£ 218.65	£ 204.81	£ 193.37
13	£	20,000	£ 615.71	£ 477.07	£ 394.14	£ 339.06	£ 299.90	£ 270.69	£ 248.10	£ 230.16	£ 215.59	£ 203.55
14	£	21,000	£ 646.50	£ 500.92	£ 413.85	£ 356.02	£ 314.90	£ 284.22	£ 260.51	£ 241.67	£ 226.37	£ 213.73
15	£	22,000	£ 677.29	£ 524.78	£ 433.55	£ 372.97	£ 329.89	£ 297.76	£ 272.91	£ 253.18	£ 237.15	£ 223.91
16	£	23,000	£ 708.07	£ 548.63	£ 453.26	£ 389.92	£ 344.89	£ 311.29	£ 285.32	£ 264.68	£ 247.93	£ 234.08
17	£	24,000	£ 738.86	£ 572.49	£ 472.97	£ 406.88	£ 359.88	£ 324.83	£ 297.73	£ 276.19	£ 258.71	£ 244.26
18	£	25,000	£ 769.64	£ 596.34	£ 492.67	£ 423.83	£ 374.88	£ 338.36	£ 310.13	£ 287.70	£ 269.49	£ 254.44
19	£	26,000	£ 800.43	£ 620.19	£ 512.38	£ 440.78	£ 389.87	£ 351.89	£ 322.54	£ 299.21	£ 280.27	£ 264.62
20	£	27,000	£ 831.21	£ 644.05	£ 532.09	£ 457.73	£ 404.87	£ 365.43	£ 334.94	£ 310.72	£ 291.05	£ 274.79
21	£	28,000	£ 862.00	£ 667.90	£ 551.80	£ 474.69	£ 419.86	£ 378.96	£ 347.35	£ 322.22	£ 301.83	£ 284.97
22	£	29,000	£ 892.79	£ 691.75	£ 571.50	£ 491.64	£ 434.86	£ 392.50	£ 359.75	£ 333.73	£ 312.61	£ 295.15
23	£	30,000	£ 923.57	£ 715.61	£ 591.21	£ 508.59	£ 449.85	£ 406.03	£ 372.16	£ 345.24	£ 323.39	£ 305.33

Fig. 4 A two-variable data table.