

Charting Break-Even Analysis (Chapter 9)

This document supplements Chapter 9 of *Using Excel for Business Analysis: A Guide to Financial Modelling Fundamentals, Revised Edition*, which explores three different methods of performing break-even analysis:

1. Formula calculation (Breakeven point = $\text{Fixed cost} / (\text{Price} - \text{Variable cost})$)
2. Goal seek
3. Charting the break-even point visually

The section “Break-Even Analysis” on pages 307–313 explains in detail how to perform the first two methods, and in this document we will explore the step-by-step instructions for how to create a chart to visually represent the break-even point.

Charting the Break-Even Point

It is always interesting to look at numbers graphically, so let’s create a break-even line chart which shows the point at which the revenue from the business becomes greater than the cost.

1. First, highlight the numbers you want to chart—in this case, the Fixed cost, Total cost, and Revenue—by holding down the control key as shown below.
2. [Excel 07/10] Select the line chart from the Insert tab on the Ribbon.

[Excel for Mac 2011] Select the line chart from the Charts tab on the Ribbon.

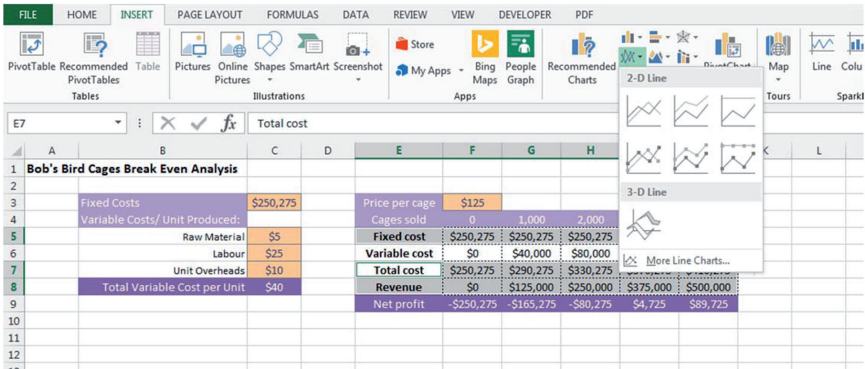


FIGURE B1 Creating a Chart

- 3. Insert the “horizontal” or x-axis labels by right-clicking on the chart and selecting Select Data. Pick up the number of cages sold from row 4.

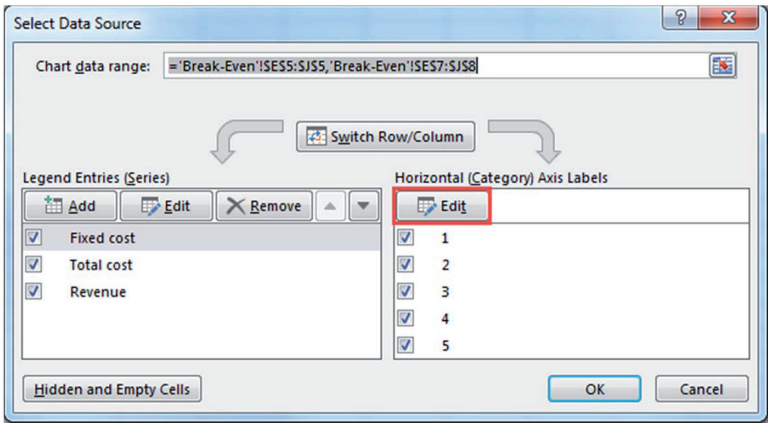


FIGURE B2 Changing the Axis Labels in the Chart Dialog Box

- 4. [Excel 07/10] Insert a title by selecting Chart Title from the Layout tab in the Ribbon under Chart Tools (note that this tab is hidden until you click on the chart) or;
- 5. [Excel 2013] Click on the chart, and check the Chart Title box under the Chart Elements on the right side of the chart to display the title. Change the title and the chart should look something like this:

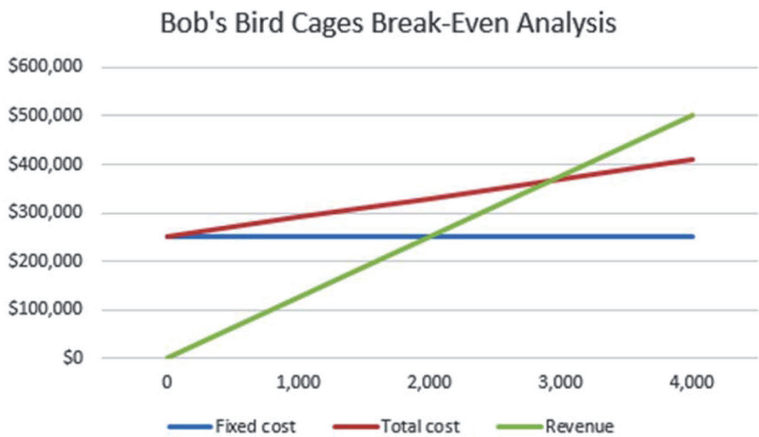


FIGURE B3 Break-Even Chart

If you would like the line to begin at the far left—touching the y-axis without a space between—simply change the options in the chart as shown in Figure B4.

- 6. Double-click on the x-axis to bring up the Axis Options.
- 7. Change the options to position the axis on tick marks, instead of between tick marks. (In Excel for Mac 2011, uncheck “Vertical Axis crosses between tick marks.”)

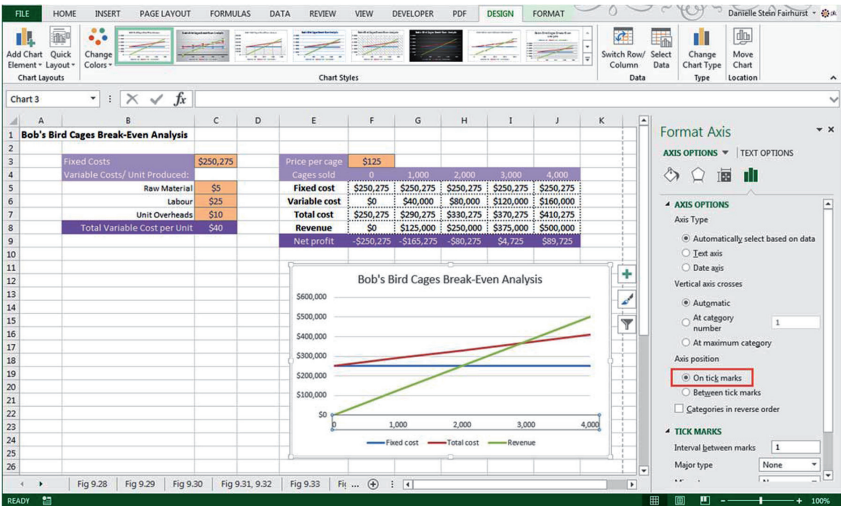


FIGURE B4 Changing Axis Options

8. Use shapes to draw a line from the point where the revenue line meets the total cost line. Change the shape color and weight.

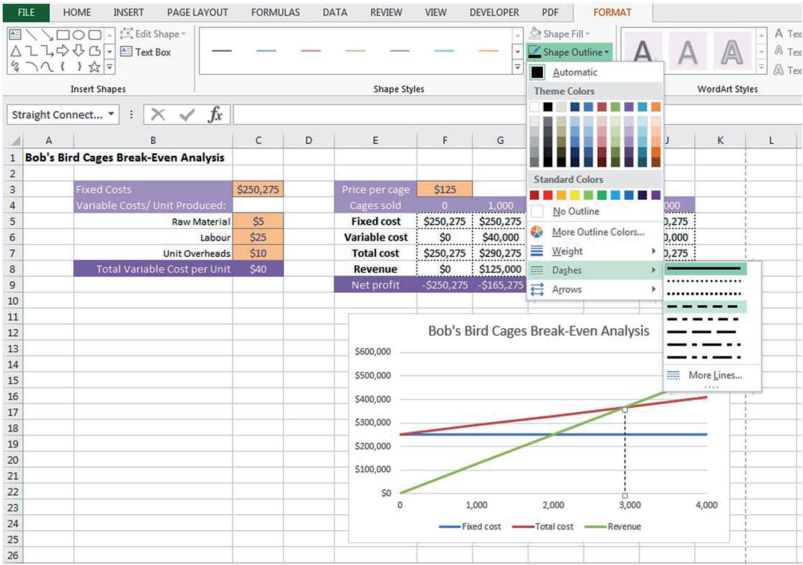


FIGURE B5 Editing the Shape Line

When we did the table calculation above, we could see that the break-even point was somewhere between 2,000 and 3,000 cages. By creating the chart as shown below, we can see that the break-even point is probably closer to 3,000 cages.

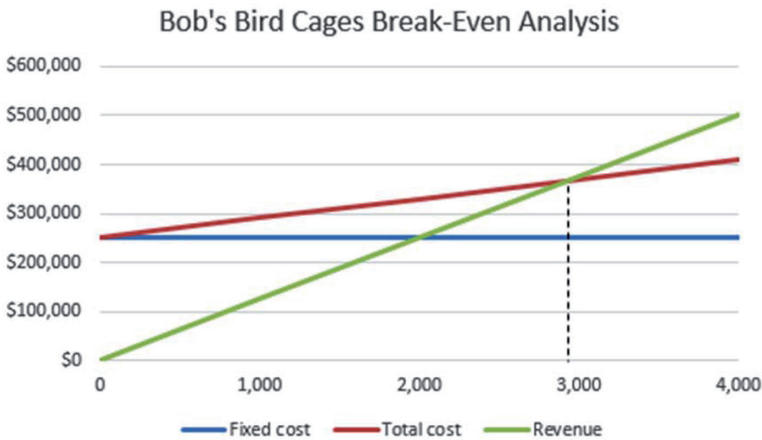


FIGURE B6 Completed Break-Even Chart

As evident, this can be a pretty laborious task when done manually (and not very accurate!). We can calculate this *exactly*, however, using two methods:

1. A formula calculation or;
2. A goal seek

See Chapter 9 for detailed explanations on how to calculate break-even points using these two methods.