

5.8: Break Even Point for Multiple Products

Although you are likely to use cost-volume-profit analysis for a single product, you will more frequently use it in multi-product situations. The easiest way to use cost-volume-profit analysis for a multi-product company is to use dollars of sales as the volume measure. For CVP purposes, a multi-product company must assume a given product mix or sales mix. **Product (or sales) mix** refers to the proportion of the company's total sales for each type of product sold.

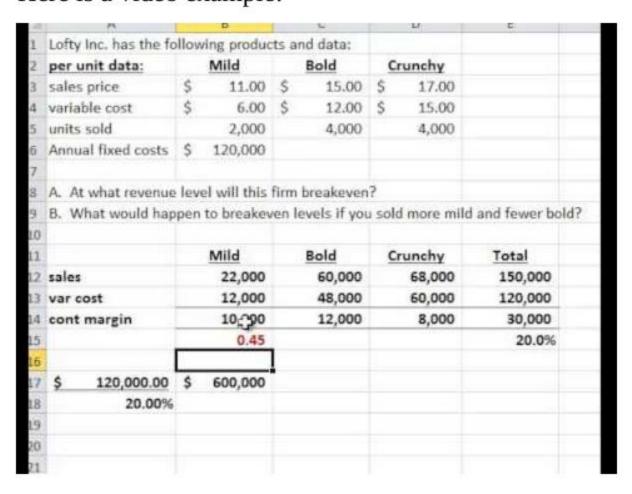
To illustrate the computation of the break-even point for Wonderfood, a multi-product company that makes three types of cereal, assume the following historical data (percent is a percentage of sale, for each product, take the amount / sales and multiply by 100 to get the percentage):

	Product 1		Product 2		Product 3		Total	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Sales	60,000	100%	30,000	100%	10,000	100%	100,000	100%
Less: variable costs	<u>40,000</u>	<u>67%</u>	<u>16,000</u>	<u>53%</u>	<u>4,000</u>	<u>40%</u>	<u>60,000</u>	<u>60%</u>
Contribu tion margin	20,000	33%	14,000	47%	6,000	60%	40,000	40%

We use the data in the **total columns** to compute the break-even point. The contribution margin ratio is 40% (total contribution margin \$40,000/total sales \$ 100,000). Assuming the product mix remains constant and fixed costs for the company are \$50,000, break-even sales are \$125,000, computed as follows:

BE in Sales Dollars =	<u>Fixed Costs</u>	<u>\$50,000</u>	= \$ 125,000
DE III Sales Dollais –	Contribution Margin RATIO	0.40	- \$ 125,000

[To check our answer: (\$125,000 break even sales X 0.40 contribution margin ratio) – \$50,000 fixed costs = \$0 net income.] Here is a video example:



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Since what we found in our example for Wonderfood is a total, we need to determine how much sales would be needed by each product to break even. To find the three product sales totals, we multiply total sales dollars by the percent of product (or sales) mix for each of the three products. The product mix for products 1, 2, and 3 is 60:30:10, respectively. That is, out of the \$ 100,000 total