



Attacking Business Decision Problems With Breakeven Analysis

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Breakeven analysis can be a very useful and relatively simple tool for management to use in making decisions. It can be used for dealing with unknown variables such as demand. By specifying the levels of known variables such as cost or profit, a required or minimum level can be found for the unknown variable. Any problem requiring income estimation can be set up so that the most difficult variable to estimate is isolated for solution.

This publication illustrates ways in which breakeven analysis can be applied to sales, profits, and costs. It also illustrates how it can be used to help make sound decisions for your business such as employing idle plant capacity, planning advertising, granting credit, and expanding production.

Breakeven analysis is not a panacea. It is only one of the many tools available to the business decision maker. But it is a good tool with which to approach decision problems.

Some Shortcomings of Breakeven Analysis

The major problem with breakeven analysis is that no project really exists in isolation. There are alternative uses for the firm's funds in every case. For example, in a manufacturer's case, a vacant plant could be leased to another company for some return. It could also be used for another product. We, must, therefore, always consider not only the value of an individual project, but how it compares to other uses of the funds and facilities.

Another shortcoming of breakeven analysis is that it does not permit proper examination of cash flows. It is generally accepted in basic financial theory that the appropriate way to make investment or capital decisions is to consider the value of a proposed project's anticipated cash flows. If the discounted value of the cash flows exceeds the required investment outlay in cash, then the project is acceptable.

There are other objections. Breakeven makes many restrictive assumptions about cost-revenue relationships; in normal use, it's basically a negative technique, defining constraints rather than looking at benefits; and it's essentially a static tool for analysing a single period. What all this theory boils down to is that breakeven analysis is too simplistic a technique to be used to make final investment decisions on its own.

You might well ask then: If that is true, what is breakeven analysis good for?

Some Basic Uses for Breakeven

It's a cheap screening device. Discounted cash flow techniques require large amounts of expensive-to-get data. Breakeven analysis can tell you whether or not it's worthwhile to do more intensive (costly) analysis.

It provides a handle for designing product specifications. Each design has implications for cost. Costs obviously affect price and marketing feasibility. Breakeven permits comparison of possible designs before the specifications are frozen.

It serves as a substitute for estimating an unknown factor in making project decisions. In deciding whether to go ahead or to skip it, there are always variables to be considered: demand, costs, price, and miscellaneous factors. When most expenses can be determined, only two missing variables remain, profit (or cash flow) and demand. Demand is usually tougher to estimate. By deciding that profit must at least be zero, (the breakeven point), you can then fairly simply find the demand you must have to make the project a reasonable undertaking.

You still have to compare the demand figure at breakeven with the market share you think you can capture to judge the worthiness of the project, and you'll have to use your business sense here. But breakeven gives you a way to attack uncertainty, to get onto the target if not the bull's-eye.

Breakeven Applied to Uncertainty

Breakeven analysis a management control that approximates how much you must sell in order to cover your costs with NO profit and NO loss. Profit comes after breakeven.

The following formula will help in the calculation of your breakeven sales volume level:

$$\begin{aligned} \text{Breakeven} &= \text{Fixed Costs}^* / \text{Contribution Margin} \%^{**} \\ &= \$250\,000 / 15\% \\ &= \$1\,666\,667 \end{aligned}$$

* Fixed Costs are those costs that are not variable as a result of the sales activity. For example, rent of the building or insurance costs may be fairly constant no matter how sales vary, while, expenses such as advertising and usage of shop or store supplies will vary with sales.

** Contribution Margin = Revenue - Variable Costs. In a retail business, the gross margin % is generally recognized as the Contribution Margin %. Gross Margin equals the difference between the Sales and the Cost of the Sales.

In this example, \$1 667 667 are the sales that are required to cover fixed costs of \$250 000 and a margin of 15 percent, with nothing left over for profit.

If you now wanted to calculate the sales that are required to now build in a profit factor, add the profit factor you want to allow for to the fixed costs. If in this example, the fixed costs are \$250 000 and you want a \$150 000 profit, add the two together and then apply the breakeven formula to this.

Breakeven	=	(Fixed Costs + Profit Margin)/ Contribution Margin %
	=	(\$250 000 + \$150 000) / 15%
	=	\$400 000 / 15%
	=	\$2 666 667

If this was a small manufacturing company and you wanted to calculate how many unit sales you need to breakeven, you could divide the breakeven sales volume by the unit selling price. For example, if the unit sells for \$10, the breakeven unit sales before a profit is allowed for is 166 667 units and after a profit is allowed for, 266 667 units.

Conclusion

Breakeven analysis requires above all, realistic definition of costs, both in amount and type. For many small businesses, breakeven analysis can be a very useful management tool. At the same time, it is not a panacea, and should be used along with other management tools when making a decision.

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