

How to Perform a Break-Even Analysis in a Retail Store A Step by Step Guide

By BizMove Management Training Institute

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1. Introduction

Break-even analysis is not a panacea. It doesn't tell you if your costs are out of line. It tells you only what sales volume you need to cover fixed costs.

It is, however, an excellent starting point for finding out where you are and, more importantly, where you can go. It's a good first step to planning.

This Guide presented as a conversation between a business counselor (C) and the owner-manager of a retail store (M), discusses a simplified method of calculating the break-even point for a retail operation. While this method is not appropriate for manufacturers, it does provides a financial planning take-off point.

M: I'm ready to expand. I've just had a great forth quarter. I've got a chance to move to a larger store in a good location. I really think I'm on my way. Still, though, I don't want to take any unnecessary chances and lose what I've built up these first three years. What do you think I should do?

C: Let me answer your question with a question: What's your break-even point now and what will it be if you assume the added expansion cost?

M: I'm not exactly sure, but after that last quarter, I've got money in the bank and I'm paying all my bills on time.

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2. What Bank Balances May Not Reveal

C: I'm glad to hear you're in good shape, but you can't make an intelligent expansion decision based on your bank balance at a given moment.

M: You ought to know, but why not

C: Take your balance now, for example. It's a lot better than it was at the end of the first quarter, isn't it?

M: Sure, but the first quarter's usually slow. It's a fact of retail life.

C: And the fourth quarter is usually good, right?

M: Yes, that a fact, too. But mine was outstanding - it was the best I've ever had.

C: I'm sure it was, but it can distort the picture. If you're relying on your bank balance for a feel for your break-even point, you may just be guessing. Many things influence your bank balance that may not necessarily have a direct bearing on the break-even point for your store. Seasonal fluctuation is just one of them.

M: There are more?

C: Sure, capital expenditures, extraordinary repairs, unusual outlay...

M: Okay, I get the point. My bank balance is meaningless. I shouldn't expand.

C: We don't know that yet. After we find out what sales volume you'll need to break even, then you'll tell me if you ought to expand or not.

M: Some counselor. First you tell me I don't know what I'm doing and then you expect me to advise me on expansion.

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3. Break-even Analysis Is Not a Substitute for Judgment

C: You're wrong on the first half of that; I know you know retailing. But, yes, you'll decide on the basis of your business knowledge and judgment whether or not expansion now makes sense.

M: I must do something right. I'm still in business.

C: Exactly. You've made it through some of the toughest business years, the first ones. And you're showing a fair profit. I think you've got a real flair for merchandising.

M: Please, you'll make me blush. What about this break-even thing?

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4. What Break-Even Means

C: Break-even is simply the point where costs equal what you're taking in - no profit, no loss - over a relevant sales range. To calculate this point you must work with only two factors, fixed expenses (like insurance or rent) and variable costs (like cost of goods or sales commissions).

M: I sure wish my costs were fixed. Everything goes up for me. My insurance, for example, looks like it's going up 25 percent over last year.

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5. Fixed and Variable Costs

C: Well, actually "fixed costs" is something of a misnomer. Sure, rents, property taxes, insurance, even the salary you pay yourself may fluctuate - but on a yearly basis and not in relation to sales. For the purpose of break-even analysis every cost that doesn't vary in relation to sales is called "fixed". Your rent, for instance, stays the same for a

year whether you sell 250,000 or 2.50 worth of goods, though we know some rents are tied to volume and vary. The same is usually true of utilities, depreciation and similar expense items.

M: I see the point. Variable costs, then, are basically my cost of sales? I have to buy more if I sell more. If I paid commissions, I'd be paying more for more sales, and that sort of thing.

C: That's right. There can be other variable costs, but we're simplifying. In addition, you'll probably find costs that seem to be part variable, part fixed.

M: You mean they're "semi-variable" or "semi-fixed?"

C: Yes, they're costs that remain fixed up to a certain sales volume and then jump as that volume is exceeded. For example, office costs, or delivery expenses may fit in this category.

M: How do I treat them?

C: Use your good business judgment and split them between fixed and variable costs in what you consider a reasonable proportion. The important thing is to hold in mind for simple break-even analysis is to keep it simple. Over simplicity is, of course, a drawback of this method. But simple break-even analysis really helps you to see your way into a planning problem and to establish its perimeters.

M: I like the idea of simplicity, but I don't think break-even sounds simple so far.

C: I think you'll see how easy it is if we work through an example. Here, take a look at this hypothetical income or profit and loss statement for the B-E Retail Store.

B-E Retail Store - Income Statement

Item		Amount	Percent
Sales		60,000	100
Cost of Sales		42,000	70
Gross Profit		<u>18,000</u>	30
<hr/>			
Expenses:			
Rent	1,800		3
Wages	12,600		21
Utilities	2,400		4
Insurance	1,200		2
Taxes	600		1
All Other	600		1
Total Expenses	<u> </u>	19,200	32
Loss for period		<u>(1,200)</u>	(2)

M: B-E doesn't seem to have broken even.

C: Correct. Let's find out what kind of sales volume B-E needed to break-even in that year. For simplicity (there's that word again) Let's consider cost of sales (which is 70 percent of sales) as the total variable costs and the expense items of 19,200 as the fixed costs. We calculate the break-even point by using an algebraic formula.

M: A simple one, I hope.

C: Of course. It's just $S = F + V$, where:

S = Sales at the break-even point,

F = Fixed expenses, and

V = Variable costs and expenses as a percent of sales.

M: All right, we know B-E's variable and fixed costs. How do we get sales?

C: Let's plug in the figures:

$$S = 19,200 + .70S$$

$$10S = 192,000 + 7S$$

O-M: Excuse me, 10S?

C: I multiplied the whole equation by 10 to get rid of the decimal fraction, because I think it's easier to work with whole numbers.

Anyway, we get:

$$10S - 7S = 192,00$$

$$3S = 192,000$$

$$S = 64,000$$

M: B-E needed 64,000 total sales to break even? Anything less, they'd have a loss; anything more they'd make a profit?

C: You've got it. Let's check it, though, just to confirm it:

Sales	64,000	
Less Cost of Sales	-44,800	(70% of sales)
	<hr/>	
Gross Profit	19,200	
Less Expenses	-19,200	
	<hr/>	
Profit or Loss	0	

M: Okay, so B-E has broken even. I think they'd like to make a profit. I know I do.

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6. Calculating Break-even for a Given Profit

C: We can find out what kind of sales B-E needed to make a profit using the formula again. Leaving the other figures the same, let's put in a modest profit - say, 9,000 - and see what sales they needed. The formula now looks like this:

$$\text{Sales} = \text{Fixed Expenses} + \text{Variable Costs} + \text{Profit.}$$

M: You just add the desired amount of profit in?

C: Yes, really it affects the break-even point just like a fixed expense:

$$S = 19,200 + .70S + 9,000 \text{ (desired profit)}$$

$$10S = 192,000 + 7S + 90,000 \text{ (multiple by 10 to eliminate fraction)}$$

$$3S = 282,000$$

$$S = 94,000$$

M: May I check the figures this time?

C: Certainly.

M: All right, let's see:

Sales	94,000
Less Cost of Sales	-65,800 (70% of sales)
Gross Profit	<u>28,200</u>
Less Expenses	-19,000
Profit	<u>9,000</u>

C: Convinced?

M: Yes, I can see how this formula can help you find how much you need to sell to break even or make a given profit, but what about my problem?

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7. Break-even Analysis for Planning

C: Break-even analysis is just what you need. It's primarily a planning tool. I've looked at your Income Statement and divided it into fixed and variable costs. As I see it, your cost of sales, which we'll consider as your total variable costs, comes to about 60 percent of sales. Your fixed expenses ran about 60,000. So for last year:

$$S = 60,000 + .60S$$

$$10S = 600,000 + 6S$$

$$4S = 600,000$$

$$S = 150,000$$

You had to sell only 150,000 worth of merchandise to break even.

M: As you can see, I sold 200,000 worth, but I didn't make a 50,000 profit.

C: Right, you made a 20,000 profit just as the bottom line indicates. Remember, you still had those variable costs on sales even after all of your fixed expenses were covered at the 150,000 level.

M: Oh, I see, it's like this:

$$S = F + V + \text{Profit}$$

$$S = 60,000 + .60S = 20,000$$

$$10S = 600,000 + 6S + 200,000$$

$$4S = 800,000$$

$$S = 200,000$$

C: Now you've got it. Let's consider your expansion question. How much will your rent increase?

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8. Using Break-even Analysis to Examine Expansion Feasibility

M: It would be about 5,000 more. I figure the utilities for the larger space will be 2,000 more than I paid last year. Taxes, the "fixed" ones, I expect to run about 500, I also think I may need to hire another sales person.

C: Let's say you do. What do you plan to pay?

M: I'd pay an experienced sales clerk about 9,000. I'm toying with the idea of instituting a 2 percent commission on sales as an incentive, too.

C: All right. We know it's not as simple as we'll lay it out, but I think the analysis will give you an idea of whether or not to explore the expansion idea more carefully and in greater detail.

M: Fine

C: Your fixed expenses will rise by 17,500, if you include hiring another employee. That brings them to 77,500, assuming no other increases from last year's 60,000. For simplicity's sake let's assume your cost of sales (your variable costs) will increase only by the 2 percent commission. That means 62 percent of sales for variable costs. so:

$$S = 77,500 + .62S$$

$$100S = 7,774,000 + 62S \text{ (multiplied by 100 to eliminate fraction)}$$

$$38S = 7,775,000$$

$$S = 205,000 \text{ (approximately)}$$

M: Only 5,000 more than I did last year? I can do that easily.

C: And be 20,000 in profits worse off than last year. Let's put last year's 20,000 profit in - in an expansion you still might want to do at least as well:

$$S = 77,500 + .62S + 22,000$$

$$100S = 7,750,000 + 62S + 2,000,000$$

$$38S = 9,750,000$$

$$S = 257,000 \text{ (approximately)}$$

M: Hm, that's approximately a 25 percent sales increase just to make the same profit as last year.

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9. Business Judgment Still Necessary

C: Do you think you can boost sales by that much? Perhaps you see long range benefits from expansion that justify sacrificing some profit for the short run.

M: I'm not sure. I'll have to give it more thought, look at the trends in my business and in this area. My pricing policy may need adjustment. Maybe I can cut costs. But now at least I've got a starting point, a dollar figure I can work with and from. Most importantly of all, I have a technique to help me attack my problem and help point me toward a rational decision.

C: That's what break-even analysis is all about.

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10. Pricing Policies

A word of caution is in order regarding the popular but misunderstood pricing method known as retailers mark-up. Retail mark-up means the amount added to the price of an item to arrive at the retail sales price, either in dollars or as a percentage of the cost.

For example, if a single item costing \$8.00 is sold for \$12.00 it carries a mark-up of \$4.00 or 50 percent. If a group of items costing \$6,000 is offered for \$10,000, the mark-up is \$4,000 or 66.33 percent. While in these illustrations the mark-up percentage appears generally to equal the gross margin percentages, the mark-up is not the same as the gross margin. Adding mark-up to the price merely to simplify pricing will almost always adversely affect profitability.

To demonstrate, assume a manager determines from past records that the business's operating expenses average 29 percent of sales. She decides that she is entitled to a profit of 3 percent. So she prices her goods at a 32 percent gross margin, in order to earn a 3 percent profit after all operating expenses are paid. What she fails to realize, however, is that once the goods are displayed, some may be lost through pilferage. Others may have to be marked down later in order to sell them, or employees may purchase some of them at a discount. Therefore, the total reductions (mark-downs, shortages, discounts) in the sales price realized from selling all the inventory actually add up to an annual average of six percent of total sales. To correctly calculate the necessary mark-up required to yield a 32 percent gross margin, these reductions to inventory must be anticipated and added into its selling price. Using the formula:

$$\text{Initial Mark-up} = \frac{\text{Desired Gross Margin} + \text{Retail Reductions}}{100 \text{ Percent} + \text{Retail Reductions}}$$

$$\frac{32 \text{ percent} + 6 \text{ percent}}{100 \text{ percent} + 6 \text{ percent}} = \frac{38 \text{ percent}}{106 \text{ percent}} = 35.85 \text{ percent}$$

To obtain the desired gross margin of 32 percent, therefore, the retailer must initially mark up his inventory by nearly 36 percent.

Pricing Policies and Profitability Goals

Break-Even Analysis and Return on Investment, discussed earlier in this section, should be reviewed at this time. Remember, all costs (direct and indirect), the break-even point, desired profit, and the methods of calculating sales price from these factors must be thoroughly studied when you establish pricing policies and profitability goals. They should be understood before you offer items for sale because an omission or error in these calculations could make the difference between success and failure.

Selling Strategy

Proper product pricing is only one facet of overall planning for profitability. A second major factor to be determined once costs, break-even point, and profitability goals have been analyzed, is the selling strategy. Three sales planning approaches are used (often concurrently) by businesses to develop final pricing policies, as they strive to compete successfully.

In the first, employed as a short-term strategy in the earliest stages of a business, the owner/manager sells products at such low prices that the business only breaks even (no profit), while trying to attract future steady customers. As volume grows, the

owner/manager gradually builds in the profit margin necessary to achieve the targeted Return on Investment.

"Loss leaders" are a second strategy practiced in both developing and mature business. While a few items are sold at a loss, most goods are priced for healthy profits. The hope is that while customers are in the store to purchase the low-price items, they will also buy enough other goods to make the seller's overall profitability higher than if he had not used "come-ons." The seller wants to maximize total profit and can sacrifice profit on a few items to achieve that goal.

The third strategy recognizes that maximum profit does not result only from selling goods at relatively high profit margins. The relationship of volume, price, cost of merchandise, and operational expenses determines profitability. Price increases may result in fewer sales and decreased profits. Reductions in prices, if sales volume is substantially increased, may produce satisfactory profits.

There is no arbitrary rule about this. It is perfectly possible for two stores, with different pricing structures to exist side by side and both be successful. It is the owner/manager's responsibility to identify and understand the market factors that affect his or her unique business circumstances. The level of service (delivery, availability of credit, store hours, product advice, and the like) may permit a business to charge higher prices in order to cover the costs of such services. Location, too, often permits a business to charge more, since customers are often willing to pay a premium for convenience.

The point is that many considerations go into setting selling prices. Some small businesses do not seek to compete on price at all, finding an un- or under-occupied market niche, which can be a more certain path to success. What is important is that all factors that affect pricing must be recognized and analyzed for their costs as well as their benefits.

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