Transcription

Break Even Analysis

Elements of Cost and Break Even Point

These days, funding is relatively much easier. When I started in 2009, we didn't have that much of a start-up culture or that much of a start-up environment. So, I had some little bit of savings from my first – from my working years – 6 -7 years that I had worked, but it wasn't a lot. I think the way that at least I survived the first year was just have it run at a very low cost, before we could hit any kind of revenues. So, we did have revenues, but they were very small. So the way that at least I have capitalized this business over the 6 years is that first 4 years we actually didn't raise any funding. It's just that we scaled up our costs and we hired employees and we moved to office, we initially had run from a flat where we used to live, we just put tables there and people used to come and work from there. The salaries that we were giving were pretty low, even by the standards of 2009 and by the way, all those people who joined during those times like 2009 -10 and 11 are still with Mobikwik and are working with Mobikwik. So, I think my advice would be that focus on revenue.

In your first transaction, if you break even, well very good, you can remain in that same customer acquisition. If you break even in 6 months, I mean, I don't want to justify, I don't want to qualify whether it is very good or very bad but look at it from a frequency of repeat.

Let's say you acquire a customer, and I'm giving random numbers, for 5,000 rupees and this customer's average transaction size is 1,000 and you make 50% margin on the entire transactions. You make 500 rupees but the cost of acquisition is 5000, you need the customer to shop with you at least ten times. So will the ten times happen in a year, 2 years, 3 years or on 6 months and that is what you have to calibrate for your business. You may not be able to do this early on, in the first 1 year of your business because you don't have repeat cohorts coming in but you would definitely know what you are making in your first transaction and when is she going to come back next?

We just heard Richa from Zivame explaining the concept of breakeven analysis using a single cost element. By now we already understood that it's very important for an entrepreneur to have an understanding of accounting and the various financial aspects but it is also going to be critical for entrepreneur to understand the economics behind break even analysis. But before that we will understand the various cost element business well understood and controlled and managed more effectively. Also such cost compared with the revenue to draw meaning full insights from it But first let us understand the dynamics of the various cost elements when it comes to an early stage business.

Earlier, we have seen how costs are categorised based on financing decision, i.e. Capex or Opex. We also saw another way of segregating cost as production, marketing, administration, and selling and distribution expenses. In this session, let us analyse cost based on behaviour for the purpose of controlling these costs. As a founder of your business venture you must understand that not all costs behave in the same fashion.

We have three kinds of cost.

The first type are Variable Costs. They are expenses that vary with scale of activity. These costs change in total but are fixed per unit. Like Input Cost (that is cost of Raw Material). For example- the cost of labor per hour will remain the same but will vary in direct proportion to hours spent on production.

The second type are the Fixed Costs. They are expenses which do not vary with the level of activity. Though they are fixed in total, they vary per unit i.e. as the activity increases per unit fixed cost comes down. Like the Rent Expenses which will remain fixed immaterial of number of units produced.

The last kind are the Semi-Variable cost. They are those costs that are partly fixed and partly variable. Like Electricity Bills which have both fixed as well as variable component.

Costs need to be controlled. They affect the bottom line of your business. But not all costs can be controlled in short-term. Fixed costs are not as flexible as variable costs as they cannot be controlled as easily as variable costs. For example – the rent of the premise you operate in cannot be reduced as quickly as you can reduce the cost of transportation or telephone bills. Usually your funding partners or investors would be keen to know whether your business idea and revenue model is good enough to recover fixed committed costs.

Imagine, when we start up, you may incur expenses by paying rent deposit or procuring material, but would you have affected adequate sales/revenue to cover all these expenses. Till the time you don't cover these expenses, you will be incurring losses. But there will be a turnaround point, when you will start making adequate sales to cover all cost.This stage when you just manage to cover all costs is the break-even point. And after this point, the sales will not only cover your cost but will also fetch you a profit.

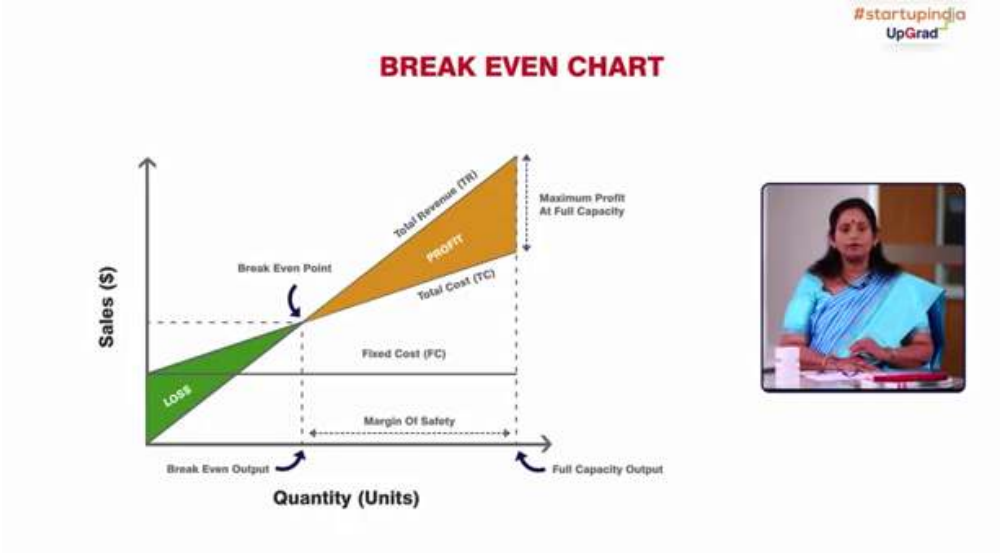
BREAK EVEN ANALYSIS

PARTICULARS	APRIL 2015	MAY 2015	JUNE 2015
Sales Unit	10,000 Units	11,000 Units	12,100 Units
Revenue @ Rs. 10/unit	1,00,000	1,10,000	1,21,000
(-) Variable Costs			
Material @ Rs. 4/unit	40,000	44,000	48,400
Labor @ Rs. 3/unit	30,000	33,000	36,300
Selling @ Re. 1/unit	10,000	11,000	12,100
Total Variable Costs	80,000	88,000	96,800
Revenue - Variable Costs	20,000	22,000	24,200
Fixed Costs (Rent)	22,000	22,000	22,000
Profit/(Loss)	(2,000)	0	2,200
Revenue minus Variable Costs = Fixed Cost + Profit Hence at BEP, Revenue minus Variable Costs = Fixed Cost			

Now please have a look at this table. Spend some time to read through the cells carefully.

1. We have cost, volume and profit data for first quarter of financial year 2015-16. Sales volume for April, May and June are 10,000, 11,000 and 12,100 units respectively.
2. The selling price per unit is 10 and variable cost per unit is 8 which includes Rs 4 of material + Rs. 3 of labor + Re 1 of selling expenses.
3. The Fixed Cost is Rs. 22,000 per month.

4. The net profit = sales – variable cost – fixed cost is negative for April, Zero for May and Positive for June 2015.So, May is the month of Break-Even i.e. a month where the company's sales is equal to costs and hence no profit-no loss.



Now, let us understand it through graph as well. As you can see in the graph, we have Quantity or Units on X axis and Sales Value or Revenue on Y axis.

- The fixed cost line starts above the zero level as the fixed cost has to be incurred regardless of any output.
- The total cost line starts at a point of Fixed Cost and has a slope equal to variable cost per unit.
- The point where the sales line intersects total cost line is the point of Break-Even or in other words BEP.
- The 'green' area is an area where total costs exceed the revenue. Therefore, this is the loss region.
- The 'yellow' area is an area of profit because as you will notice, revenues exceed total costs in this region.

The value of sales by which we are above Break Even Point is called Margin of Safety. The concept of Margin of safety will be taken up in the later part of this session.

Now, let me introduce you to a new concept, i.e. contribution. Take the previous example. Where the selling price per unit was Rs. 10 and all variable expenses are Rs. 8 per unit. Let us first deduct the variable expenses from the selling price. We get Rs. 2.Can we say that this is profit? No. You cannot because we still have not deducted the fixed cost to call it as profit.

Contribution refers to excess of revenue over variable costs. At per unit level, it is the difference between Selling Price and Per unit variable expenses. After the Break-Even Point, since all fixed costs have been recovered, the entire contribution is equal to profit.

Why should we calculate contribution?

It is not good for you to know what will be the balance that you can get after your sales and covering all direct expenses that will be incurred to get the revenue. Taking the same example

We have the contribution of Rs 2. So, the question is how many units you need to sell to cover the fixed cost of Rs 22,000

22,000/2 which is 11,000 (that is shown in the table) Hence, Break Even Point Units will be Fixed Cost divided by Contribution per unit.

We have also noted earlier in the Cost Analysis Table that

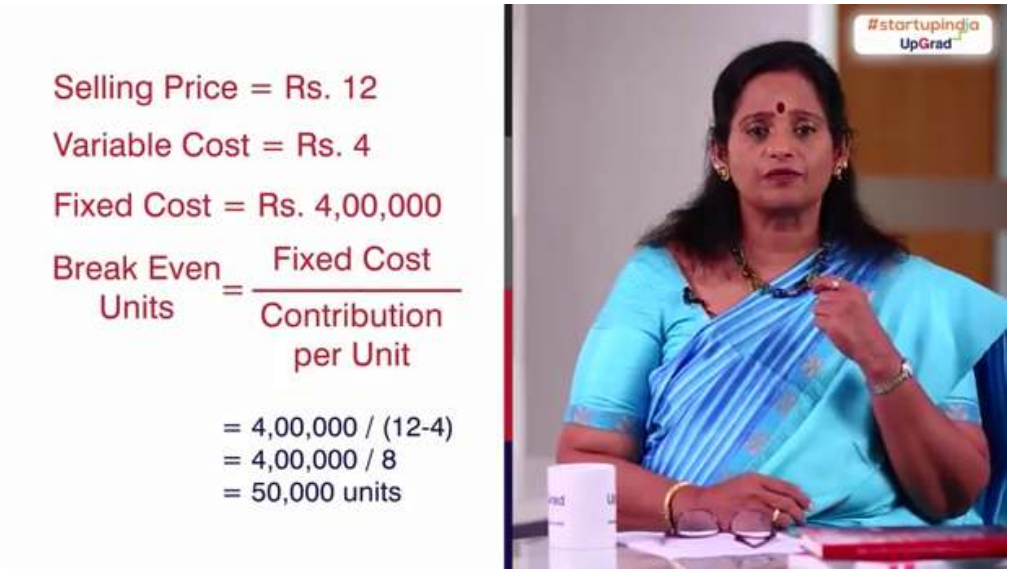
Sales Revenue minus Variable Cost is contribution and this contribution will be equal to fixed cost and profit, if any.

Take this equation, Sales = fixed cost + Variable cost + Profit

Let's alter this equation a little.

Sale – Variable cost = Contribution = Fixed cost + Profit

When you break even there is no profit earned. So, Contribution = Fixed cost and this equations sets the stage for several decision making.



Let us look at some numbers for a single product; veg wrap restaurant to understand it completely. The founders are keen to know how many units of this product need to be sold for achieving break-even.

The given details are

- Selling price per unit is Rs. 12
- Variable cost per unit is Rs. 4

Fixed costs is Rs. 4, 00,000 annually. In this example our veg wrap restaurant it takes 50,000 units of sale to recover the fixed costs. How?

Contribution per unit is Rs. 8 and therefore 4,00,000 divided by 8 is equal to 50,000 sales units. If the contribution is Rs. 8 then in simple terms you need to sell 50,000 units first to recover your fixed expenses of Rs 4,00,000. Also, you must note that anything above 50,000 units will have to recover only the variable costs as all the fixed costs are recovered by the time break-even point sales are achieved.

Cost Change and Margin of Safety

The right location in a QSR is a very important factor with real estate being the way it is in most of the country. to make sure that the business is profitable. It is important to understand the land value also which is obviously is linked with selling the product at the end of the day. So our strategy was always to make sure that even in prime locations, we really didn't get into paying heavy rentals because we had a fair idea of what the sales would be dictated based on the price point that we had kept for the product.

We just heard from Ketan from Maroosh talk about he analysed various cost elements in comparisons to sales to make sure the business in profitable. So basically break even analyses is something very fundamental. Before an entrepreneur even gets to thinking about profit and profitability it's going to be important to understand when he is going to get his money back which is the breakeven analysis. It's going to be very important to dig deeper to understand the dynamics of breakeven analysis when it comes to changing circumstances to the business.

Increase in Fixed Cost
by Rs. 1,00,000
New Selling Price = ?
Variable Cost = Rs. 4
Fixed Cost = Rs. 5,00,000
Desired BEP = 50,000 Units

Any change in your cost structure will affect the Break Even Point. When the Fixed Cost goes up, you need to improve your contribution margin (i.e. difference between revenue and variable costs) to recover the increase in fixed expenses. And also, the Break Even Point can be reduced by increasing per unit selling price or reducing variable cost per unit.

Break Even (Units)	=	$\frac{\text{Fixed Cost}}{\text{Contribution per Unit}}$
50,000	=	$\frac{5,00,000}{\text{(New Price-Variable Cost)}}$
50,000	=	$\frac{5,00,000}{\text{(X-4)}}$
50,000 * (X-4)	=	5,00,000
X	=	14

Let's understand the same with the help of an example.

Now assume that the estimated Fixed Expenses of our veg wrap restaurant have gone up by another 1,00,000 rupees. How much should the founders increase the price to ensure that the Break Even Point is retained at 50,000 units with no change in variable costs?

New Selling Price per unit is not known. Variable cost per unit is equal to Rs. 4. Fixed costs is now Rs. 5, 00,000 annually. The desired Break Even Point is the same that is 50,000 units. We are required to estimate the selling price that will lead us to the same break even sales of 50,000 units after increasing the fixed cost by Rs. 1,00,000

1. In this example we have a scenario where the company has pre-decided the level of Break-Even Point.

2. They have asked you to fix the selling price in such a way that considers the given total fixed costs and per unit variable costs to achieve this Break-Even Point.

3. So, simply assume that your profit is zero. Then you need to recover Rs 5, 00,000 which will only be recovered if the contribution is Rs. 10 because the 50,000 units sale is fixed.

4. We also know that the variable cost for a unit is Rs.4

So in that sense, we can clearly make it out that the selling price has to be set at Rs.14 to have a no profit or no loss situation. After having understood the concept of Break Even Point, let's look into one more important concept of Margin of Safety and the utility of cost and break even concept in decision making.

The Revenue earned over and above the Break Even Point is called Margin of Safety. This is the cushion that generates profit for the entity. Though Break Even Point is a No Profit-No Loss situation, Margin of Safety (MOS) is desirable as without sales above Breakeven Point- there will be no profit in long run.

Let us look at a scenario here to understand Margin of Safety.

1. In our restaurant example, if the actual sales were 55,000 the Margin of Safety comes to 5000 units. The margin of safety is 9%.

2. The profit generated by these 5000 units is equal to Selling Price minus Variable Cost only. Because fixed cost has been already recovered.

3. So, the profit will be 5,000 units multiplied by Rs. 8 which is out contribution which will be total profit in this case. So, the profit is Rs. 40,000

Break-Even Analysis is useful for deciding -

- What changes in price can help you recover your costs?
- Which elements of costs can be controlled in long-term and thereby help you to improve your gross margin.

- In a multi-product business, you need to allocate fixed costs across your product offerings. Using cost-volume relationships you can decide the best sales mix that generates maximum contribution.

Summary – Break Even Analysis

This was an amazing conclusion to the Finance Module. In this session, we understood in detail the concept of break-even analyses and how it can have a significant impact on major decisions like pricing.

We also saw cost is an integral part of the business which needs to be monitored and controlled very closely from day 1. We saw the various types of cost involved:

- Cost
- Fixed Cost and
- Semi variable cost

Through various examples we saw how one can approach and major the breakeven sales and revenues for the business.

We also understood concepts like contribution and margin of safety was great meeting you for this session and I look forward to seeing you again soon