

Management Accounting

LCBB5002



Break Even Analysis & Methods of Costing

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Table of contents

- Introduction
- Part A
 - Task 01
 - Task 02
 - Task 03
- Part B
 - What is Break even analysis
 - Assumptions
 - Importance of Break even point Analysis
 - Limitation
 - Break even analysis for Multiple products
 - Conclusion
- References

Introduction

This assessment contains two parts, where part A focuses on calculations based on absorption cost and activity based cost. Part B is a critical review of Break even analysis. In general, those key words have taken a vital role in the standard vocabulary of business. In part A, apart from the calculation the report tells some general information as well as advantages and disadvantages of two costing methods. In its last part, some key differences between absorption cost method and activity based costing are discussed.

Part B describes about what is Break even analysis, how the break even point is being calculated, what are the assumptions used, some drawbacks of it, how break even point is used in multi trading and finally why is it important to use break even analysis in the business.

Part A

Task 01

$$\begin{aligned}\text{Overhead Absorption Rate} &= \text{Total overhead} / \text{Total activity level} * 100 \\ &= 37,500 / (7,500 + 67,500) * 100 \\ &= 50\%\end{aligned}$$

Lightweight Stove

Total units produced: 4,500

Unit cost under Absorption costing:

$$\begin{aligned}\text{Direct material} &= 3 \\ \text{Direct Labour} &= 0.7 * 6.3 = 4.41 \\ \text{Overheads} &= 0.5 * 15 = 7.5 \\ \text{Total cost per Unit} &= 14.91\end{aligned}$$

Megarange Stove

Total units produced: 500

Unit cost under Absorption costing:

$$\begin{aligned}\text{Direct material} &= 10 \\ \text{Direct Labour} &= 0.9 * 6.3 = 5.67 \\ \text{Overheads} &= 0.5 * 15 = 7.5 \\ \text{Total cost per Unit} &= 23.17\end{aligned}$$

So, the total Absorption cost for Lws is $(14.91 * 4500)$ **£67,095.00** and for Mrs is $(23.17 * 500)$ **£11,585.00**

Task 02

→ Total Number of cost drivers caused for each activities:

No of cost drivers caused by Lws + No of cost drivers caused by Mrs

$$\text{Purchasing: } 360 + 40 = 400$$

$$\text{Training: } 20 + 30 = 50$$

Setting up machines: $60+30=90$

→ Cost driver rate for each activities

Activity Cost pool / Total Number of cost drivers

Purchasing: $20,000/400=50$

Training: $1,000/50=20$

Setting up machines: $2,250/90=25$

Lightweight Stove

Unit cost under Activity Based Costing:

Direct material= 3

Direct Labour= $0.7 \times 6.3=4.41$

Purchase related Overhead cost= $(50 \times 360)/4500$ units= 4

Training related overhead cost= $(20 \times 20)/4500$ units= 0.08

Setup related overhead cost= $(25 \times 60)/4500$ units= 0.3

Total cost per unit= 11.79

Megarange Stove

Unit cost under Activity Based Costing:

Direct material= 10

Direct Labour= $0.9 \times 6.3=5.67$

Purchase related Overhead cost= $(50 \times 40)/500$ units= 4

Training related overhead cost= $(20 \times 30)/500$ units= 1.2

Setup related overhead cost= $(25 \times 30)/500$ units= 1.5

Total cost per unit= 22.37

So, the total Activity Based cost for Lws is (11.79×4500) **£53,055.00** and for Mrs is (22.37×500) **£11,185.00**

The variances of costs in Absorption costing and Activity based costing are due to inappropriate absorption of overheads. Therefore, in my point of view Activity Based Costing system is highly recommended.

Task 03

Costing is an important contributor to determine selling price of the products. In the business world, Absorption costing and activity based costing are two of the most used systems use to decide the selling price.

Absorption costing refers to the accumulation of variable and fixed cost related to production process. It is a traditional cost method which allocates all costs to individual production units. Under absorption costing the more output we produce, the cheaper will be the cost per unit as the overheads are divided over the number of units. (Osborne Books, 2018)

There are advantages as well as disadvantages in absorption costing. The primary benefit is easier to run since the data volume required is less. It is most applicable for the business which has unchanged demand for products and also helpful in preparing financial accounts. On the other hand, absorption cost system has some limitations as well. The fixed cost is being considered in the cost of product therefore, it is not an effectual tool to assess the profitability of a business. Furthermore, this system is not effective in actions like decision making, budgeting, planning and etc. The business organisation's performance is appeared to be more desirable than actual in this method so

that the stakeholders are misled towards wrong economic decisions. (Wink and Corradino, 2010, pp.49-54)

Activity based costing system is a modern method that is developed in order to overcome some limitations in traditional costing systems. Multiple cost drivers are used in allocating price. Costs like fixed and variable are considered in this approach. Further the expenses incur in the way of labour, material and other overheads. Basically, there are two steps to follow in this costing system. At the beginning the activities have to be identified and overhead costs to be assigned to each activities based on the proportion of the resources usage. Then, the cost drivers have to be identified suitable for each cost pool. As the next step, the overhead cost is allocated to product line from cost pool based on the amount of cost driver consumption.

Activity based costing system has become a popular and widely used system because of its various favourable conditions. The prime advantage is, obtain more accurate cost of the product and do a great job in price decision making. Further, the business organization is able to understand the cost drivers as well as the profitability. So that the firm is able to make investments in new technology. By the better analysis of cost pool, the managers can control and plan better pricing strategy. Additionally, it gives insight of the factors that affect the profitability of the business such as distribution channel, region and etc. Activity based costing helps to estimate the cash flow accuracy, it is because the costs are separated in activity pool in this process. According to recent researches, most of the firms are not willing to involve in activity based costing system because it is not only more expensive to implement and maintain but also the report produced is differ from the profit-loss report produced by traditional costing method. Furthermore, the small business organisations are not able to cope with this due to lack of resources and low transactions.

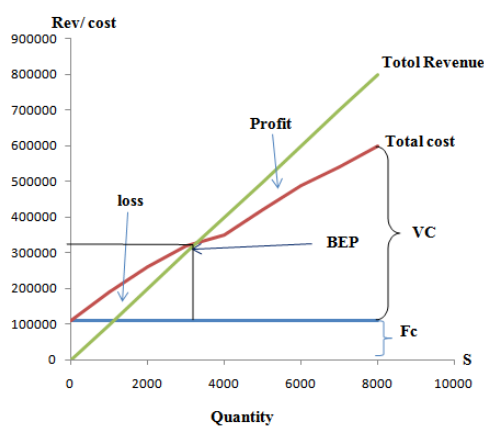
There are some differences between absorption costing and activity based costing as their approach is differ from one another. The initial difference is absorption cost system allocate costs to individual units and uses single base to allocate cost whereas, Activity based system assigns the activities as a centre and then allocates costs to units and uses multiple bases. Activity-Based cost method is more accuracy than absorption. Activity based system is more time consuming and costly though is successful in business compared to absorption costing. The real cost and the profitability of a unit product can be identified under ABC but it is not possible in absorption costing. In reality, these two systems are not applicable to service organisations since the cost drivers are difficult to identify. (Habibi, Javanmardi and Tavakoli 2012, pp. 7-12)

Part B

what is Break even analysis

Break even analysis is one of the most useful accounting tool which helps to control and plan a business. It determines the minimum sales level at which the total revenue is equal to total cost. So at this point, neither the profit nor losses are incurred. Any increase from this level results in profit whereas, any decrease causes losses. Further, break even is used to determine the level of sale needed to cover all its expenses and begin to make profit. Generally, it is determined either in break even volume or break even point.

To many of us, as soon the word “break even point analysis” is mentioned, the first thing comes to mind is the below chart, indicates total revenue and total costs. (Tutor2u, 2020)



The following graph indicates the break even point where the total cost intersects the total revenue. This graph is an aid for the management to make decisions.

It is being calculated either in units or dollars/ pounds.

➔ Break even point in units= $\text{Fixed cost} / (\text{Sales price per unit} - \text{Variable cost per unit})$

➔ Break even point in dollars= $\text{Sales price per unit} * \text{Break even point in units}$

Assumption

Once the break even point is calculated, it is assumed selling price, variable and fixed costs are constants. But in reality in many instances they will not remain unchanged so in this case the break even point has to be calculated in regular basis in order to make adjustments in product line.

- Production volume and sales volume are same: it can not stay same exactly since there may be existence of closing stock and in most cases there might be wasted output
- All the costs are classified as either fixed or variable: We are facing a problem of semi variable cost under this classification. Semi variable costs are varied with volume even though the change is not direct proportion such as maintenance, supervision costs. there can be some semi-variable costs which are being ignored.
- Fixed costs are assumed to be constant: Fixed cost is the one that is not influenced by the activity levels. it is true only within a certain range only beyond that it would change. It is vary beyond a specific period of time. But in here it is assumed to be absolutely fixed over the entire range of product. For an instance, the firm add or alter the capital or building can change its fixed cost so, obviously this assumption is true only when a time period is specified.
- Variable costs are considered to be constant: they are the function of activity which increases or decreases according to activity direction. They are considered as absolutely variable over the entire range of product. The linearity assumption is justified within a small range of output. Though they do not remain the same as if the output increases, the company is able to buy the inputs at lower prices which is defined as “buying power”. At this time the variable cost per unit is decreased. Moreover, if there is proper quality control, it will result in low wastages which will lead to low cost of production.
- Selling price is assumed to remain constant: the unit price is depend on demand and supply of the production. For an example, selling a product in bulk will be given discounts and will result in minimise the selling price per unit.
- Technology and labour efficiency remain unchanged:
- The function of cost and revenue remain linear: Only within a small quantity of output as it is not efficient in large range of products.

Importance of Break even point Analysis

Basically, break even analysis helps in forecasting results identifying its start up costs and also the sales revenue needed to cover the ongoing business expenses. It is an important tool for decision making to achieve desired goals. Further, it provides more realistic policy making. It is used to determine the safety margin with certain volume, whether to drop/ add product line, whether to accept an order or not as well as the effects of changing product cost and product price.

Limitation

According to the above discussion Break even analysis useful in many business situations hence it is subject to some limitations and restrictions. Some common limitations are listed below:

- Almost every factors are assumed as constants and the cost function is linear. But practically it is not possible. Besides the break even point is estimated under a certain selling price so in order to find out the point where the profit is produced under different prices needed more calculations.

- The variation in sales price will affect the demand of commodity but it is not covered under break even analysis.
- The revenue might not be perfectly variable with level of sales due to promotions and discounts.
- The common changes occur in the selling price affects the reliability of the break even point. Also a shift in product mix may change the break even point.
- Profit of a business is not only depends on outputs but also factors like technology and etc have great impact on it.
- The provision for corporate tax is not made by it.
- The future of the business is projected by using the past functions. It is not accurate.

Break even analysis for multiple products

More often the break even analysis is used for multi products even though it is likely to be used for a single product. At this situation, a company with multi products has to assume the given proportion of the total sale for each type of product sold. Hence, these products are not equally profitable to that specific business so with break even analysis, contribution margin is used. When this analysis is being used the sales mix should be in constant but practically, the sales mix changes when time passes so that we have to revise new projection and determine a new break even point by time to time. (Baid, 2017, pp.66-71)

The formula which is used for multiple product line:

Break even point= total fixed cost/ (weighted average selling price- weighted average variable cost)
or

Break even point= total fixed cost/ Contribution margin per unit

Conclusion

In conclusion, the managers use cost accounting to determine the type and the amount of cost involved in a business in order to pursue the business. Different methods of costing have been using in economic history. Each of them has positive and some negative or limitations as we have discussed in this review. So the pros and cons should be considered before applying them in our business activities.

It is not easy to calculate the break even point because often the businesses focus more than one product. So in my point of view the break even point can be used as a planning tool rather than an effective decision making tool. To put in a nutshell, It is an approximation but not a reality.

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