

Section 2

1. Give an explanation of break-even analysis and explain how it supports the achievement of strategic aims and objectives.

Break-even analysis compares a firm's revenue with its fixed and variable costs to identify the minimum sales level needed to make a profit.

The starting point for all financial management is to know how much goods or services cost to produce. If a business knows how many products they have to sell, they can benefit from it because this can cover their costs.

This is particularly important for new businesses with limited experience of their products or their markets. It is also of value for established businesses which are planning to produce a new product.

A company whose aims and objectives are growth, continuity, investment, innovation etc can use break-even analysis as a cheap, quick and simple tool to analyse and estimate the future level of output they will need to produce and sell in order to meet given objectives in terms of profits.

It can also help to assess the impact of planned price, changes upon profit and the level of output needed to break-even.

It is also of value for established businesses which are planning to produce a new product. It also helps to support applications for loans from banks and offer financial institutions-the use of the technique may indicate good business sense as well as forecast profitability, and therefore businesses would be able to get financial help to support and meet any of their business objectives.

Break-even analysis can also be calculated, this requires:

- The selling price of the product.
- The fixed costs.
- The variable costs per unit.

The formula for calculating the break-even output level is:

Fixed costs

÷ Selling price per unit-variable cost per unit.

To calculate the 'break-even point' we need information on both: costs and prices. A change in costs or in the firm's pricing policy will change the level of output at which the firms break-even.

Break-even analysis is simple to understand and useful-especially in small firms. Businesses can use break-even to:

- Estimate the future level of output they will need to produce and sell in order to meet given objectives in terms of profit.
- Assess the impact of planned prices, changes upon profit and the level of output needed to break-even.
- Assess how changes in fixed and/or variable costs may affect profits, and the level of output necessary to break-even.
- Take decisions on whether to produce their own products or whether to purchase from external sources.
- Support application loans from banks and other financial institutions-the use of the technique may indicate good business sense as well as forecast profitability.

Break-even can be calculated or shown on a graph. However, the calculation of break-even is simpler and quicker than drawing break-even charts. A break-even chart shows the level of profit or loss at any level of output. For instance; if the circumstances of the firm change, then it's **really** important to be able to quantify the extent to which profit changes at any level of output. The break-even chart is a graph which shows companies revenues and costs at all possible levels of demand/output from 0 to max capacity. (The chart is constructed by first drawing the horizontal axis to represent the output of goods or services for the business in question. The horizontal axis shows output per time period-usually output per month or year. The vertical axis represents costs and revenues in pounds). This is why it is useful to use a break-even chart.

BREAK-EVEN CHARTS:

A break-even chart is a graph showing a company's revenues and costs at all possible levels of demand/output.

Firstly, put sales on the axes. The output scale goes from zero to the company's maximum annual output: this will be 250,000 kilograms. The vertical axis records values of costs & revenues. It goes from £0 to maximum output multiplied by the selling price. In this case it will have a maximum value on the axis of £250,000 (£1x250, 000)

Having drawn the axis and placed sales upon them, the first line to draw is fixed costs. Since this value does not change with output, it is a horizontal line placed at £50, 000

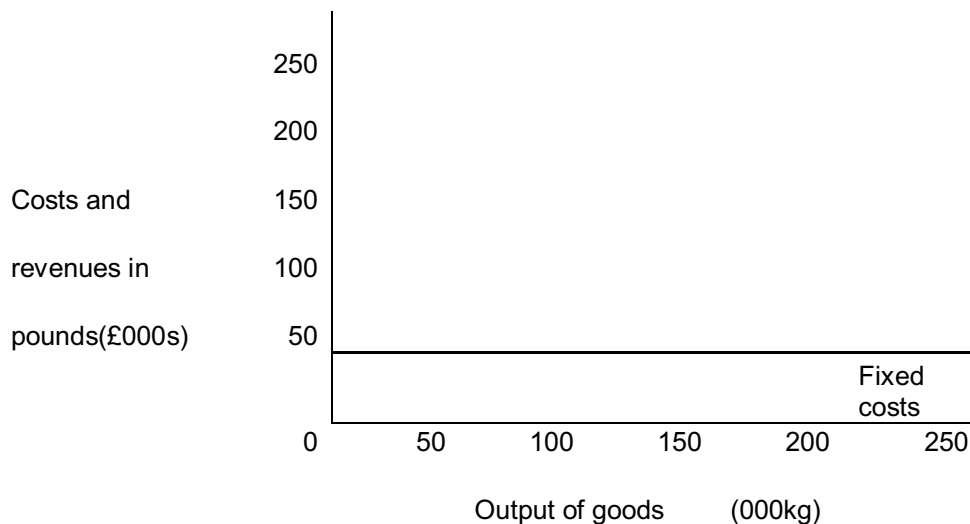


FIGURE 1: is showing the fixed costs

The costs in figure 1 cover rent and rates. Next, add on variable costs to arrive at total costs. The difference between total costs and fixed costs is variable costs. Total costs start at the fixed costs line and then rises diagonally. To see where they rise to, calculate total costs at the maximum output level.

In this case, this is 250, 000kg per year. The total cost is fixed costs (£50 000) plus variable costs producing 250kg (£0.60x250, 000=£150 000). So total cost at this level of output £50 000 + £150 000=£200 000.

This point can now be marked on the chart, i.e. £200 000 at an output level of 250 000kg. This can be joined to the total costs at zero output £50 000. This is illustrated below in fig 2

Finally, sales revenue must be added. This is drawn in a similar way to total costs. For the maximum level of output, calculate the sales revenue and mark this on the chart. In this case, maximum output of 250 000kg multiplied by selling price gives £250 000 each year. A straight diagonal line from zero to £250 000 therefore represents the sales revenue for the product (see fig 3 below)

This brings together the costs of revenues. A line is drawn from the point where total costs and sales revenue cross shows break-even output. In this case, it is 125 000kg per year.

Various pieces of information can be taken from a break-even chart such as Fig 3. As well as the break-even output it also shows the level of profits earned, or losses incurred at every possible level of output,

Any level of output lower than 125 000kg per year will mean the product is making a loss. The amount of loss is indicated by the vertical distance between the total costs and the total revenue line.

Sales in excess of 125 000kg of sales per year will earn the company a profit. If the company produces and sells 150 000kg annually, it will earn a profit of £20 000. At this level of output, total revenue is £150 000 + total costs of £130 000. This is shown on the chart by the vertical distance between total revenue and total costs at 150 000 units of output.

One feature of break-even chart is that it can show the safety margin. This is the amount by which demand can fall before the firm starts making losses. It is the difference between sales and break-even point.

If the sales in this case was 175 000 units with a break-even output of 125 000, the margin of safety would be 50 000 units.

Margin of safety= $175\,000 - 125\,000 = 50\,000\text{kg}$.

That is, output could fall by 50 000 units before losses are made. The higher the margin of safety, the less likely it is that a loss making situation will develop. The margin of safety is illustrated in fig 4

A break-even chart shows the level of profit or loss at any level of output. It is a line graph showing total revenues and total costs at all possible levels of output or demand from zero to maximum capacity.

When using break-even, a business may draw several charts using different prices to assess the impact of price changes. This approach is useful in markets where prices may be volatile.

2. Analyse the importance of break-even analysis in one of your selected businesses and indicate how these techniques may have been taken into account in management decisions to supply goods or services.

As with most techniques of financial control, break-even analysis has advantages and disadvantages. Break-even analysis is simple to conduct and understand. It is cheap and can also be carried out quickly. If presented in the form of a chart, it shows profit and loss at various levels of output. This relates to a business when it's first established.

Break-even analysis can cope with changing circumstances. It can also allow for changing revenues and costs, and gives a valuable guide to potential profitability. Nevertheless, as many things: break-even has its share of drawbacks, it pays little attention to the realities of the market place. Therefore, any businesses including 'Nike,' should take into account external influence before making any important decisions.

A major flaw is its assumption that all output is sold, which would result in an inaccurate break-even estimate. Although break-even can cope with changes in prices and costs, it would be difficult to use it as a forecasting technique because such factors change regularly.

Break-even forecasts can also invalidate due to changes in tastes, fashion, exchange rates and technology. Since Nike operates in the fashion industry, it may be affected by the public changes in preferences. Nike needs to be fast and efficient in responding to these changing needs and break-even to a point which can help them when planning to modify or introduce new products.

The model assumes that costs increase constantly and that firms don't benefit from economies of scale. Break-even analysis assumes the firm sells all its output at a single price. In reality, firms frequently offer discounts for bulk purchases. Finally, break-even analysis is only as good as the data on which it is based. If Nike uses poor quality data to begin with, then this can result in inaccurate conclusions being drawn.

An example being the 'Channel Tunnel.' Who failed to break-even after seven years.

'Eurotunnel', the firm that operates the Channel Tunnel, once again recorded a loss in 2001-2002. The company, which recorded a loss of £132 million, believes that it will break-even during 2003.

Eurotunnel has suffered several setbacks in its attempt to bring the Channel Tunnel to profitability. The activities of asylum seekers attempting to break into euro tunnel's property in France have imposed additional security costs on the company. Their activities have also disrupted services, reducing the company's revenue. The number of freight trains running through the tunnel fell by 80% in the first half of 2002.

However, freight services are increasing once again and even though passenger numbers on Le Shuttle have fallen, price users have boosted revenues.

This shows that Nike has to remain careful when making decisions. Break-even cannot be used in isolation. To be effective and increase certainty, it should be used with other tools and techniques.

The technique of break-even analysis helps businesses like Nike to make decisions relating to their goods and services. By using break-even, they can estimate the future level of output they will need to produce in order to meet their objectives in terms of profits.

One of Nike's objectives is to achieve growth and maximise sales globally. By consulting their break-even charts, they will be able to see changes in their level of output and can make important decisions about increasing demand and output.

Nike is known for selling everything from footwear to gym accessories. Since they have a wide variety of products, they are able to produce break-even charts for each product and therefore they are able to compare how successful the products are in relation to each other. If some product easily reaches break-even than others, they may use profits from those products for investment. Also, if some products are not breaking-even, they may decide to discontinue producing them.

Nike also uses break-even to assist them in planning to produce a new product. They can identify the minimum level of sales needed to make a profit. Nike also use break-even to assess the impact of planned price changes upon profit, and therefore it can assist them in deciding what prices to charge their customers. Nike also uses break-even to assess how changes in fixed and/or variable costs may affect profits.

Therefore, they can use this information to decide whether changing production processes to cut costs would be appropriate, and whether external factors such as inflation, recession or price war have affected the break-even point.

By using break-even to find out if and when their products will be profitable, they can in turn make decisions of sharing profits to shareholders. Over the past five years, the company has returned 20% of their profits to shareholders through dividends.

Overall, using break-even analysis in this way has enabled Nike to make important management decisions regarding their goods and services.

As with most techniques and financial control.