Financial planning

Calculating costs, revenues and profits

Price, total revenue and profit

Key terms

price: the amount paid by a consumer to purchase 1 unit of a product.
total revenue: a measure of the income received from an organisation's activities. Total revenue = price per unit × quantity of units sold (e.g. if price is £12 and 6 units are sold, total revenue is £12 × 6 = £72).
profit: the difference between the income of a business and its total costs. Profit = total revenue – total costs.

Price

A business must set a price that is:

- high enough to cover the costs of making the product
- low enough to attract customers

The ideal selling price is the one that helps the firm to make the most profit (or helps to achieve other aims of the business).

Total revenue

Total revenue may also be described by the following terms:

- income
- revenue
- sales revenue
- sales turnover
- turnover

Profit

Making a profit is a prime objective of most firms. In effect, there are two ways of improving profit:

- increasing sales revenue
- decreasing costs

A combination of both is the ideal way of achieving additional profit.

Costs

Some functional areas of a business, such as production and administration, can help to achieve rising profits by reducing costs, but the business must be careful that these cost savings are not reducing the quality of the good or service.

Key terms

fixed costs: costs that do not vary directly with output in the short run (e.g. rent).
variable costs: costs that vary directly with output in the short run (e.g. raw materials).
total costs: the sum of fixed costs and variable costs.

If there is a 20% rise in output, it is assumed that:

- fixed costs do not change
- variable costs change by the same percentage as the change in output (20% in this case)

This is an oversimplification of what actually happens in real life, but it is helpful to firms because it allows them to make fairly accurate predictions about how costs will change as output changes. In turn, this will assist them in making logical business decisions.

Classification of some typical costs

Fixed costs	Variable costs
Machinery	Raw materials
Rent and rates	Wages of operatives/direct labour
Salaries	Power
Administration	
Vehicles	
Marketing	
Lighting and heating	

Effect of changes in output on costs

Total units of output (000s)	Fixed costs (£000s)	Variable costs (£000s)	Total costs (£000s)
0	80	0	80
10	80	40	120
20	80	80	160
30	80	120	200
40	80	160	240
50	80	200	280
60	80	240	320

Annual costs and output for product X

Note how total costs are rising at a slower rate than output because only the variable costs are increasing as output increases.

Relationship between costs and price

In many industries, increases in costs (e.g. for raw materials and labour) are 'passed on' to the consumer in the form of higher prices. Although business theory suggests that higher prices will lead to a fall in demand (and possibly in sales revenue), demand is less likely to fall if every business is increasing its prices. This is likely to happen when costs are increasing, because all firms will be affected in a similar way and they will all be trying to maintain a **profit margin** (the difference between the selling price of an item and the cost of making or buying that item).

Analysis

Opportunities for analysis are:

- understanding the relationship between costs, price, revenue and profits
- assessing the impact of a change in one of these variables on the performance of the business
- advising the entrepreneur on changes in price and cost, and their impact on the business

Evaluation

Opportunities for evaluation are:

- interpretation of the extent to which changes in costs and/or revenue can impact upon profit
- recognition of situations in which changes in profit arising from changes in output can be greatly influenced by the balance of fixed and variable costs
- assessing the relative significance of price changes for sales revenue and/or profit

Links

The topics in all sections of Unit 1 have financial repercussions which will affect costs and revenue. Consequently, this section is a vital integrating link throughout Unit 1. It links most closely with the remainder of financial planning, particularly breakeven analysis. It is also likely that a major objective of a business is to make a profit. Thus this section will be vital in assessing the success or failure of a business start-up.

Using breakeven analysis to make decisions

Contribution

Key term

contribution per unit: selling price per unit – variable cost per unit.

For example, if the variable costs of making a candle are 15p and the candle sells for 38p, the contribution per unit is 23p (38p – 15p).

Key term

total contribution: the difference between sales revenue and total variable costs.

If total contribution is greater than fixed costs, the business makes a profit.

If total contribution is less than fixed costs, the business makes a loss.

The total contribution of a product can be calculated in two ways:
- total contribution = contribution per unit × no. of units sold
- total contribution = sales revenue – total variable costs

Calculating contribution per unit and total contribution

fixed costs (per year): £9,000
variable costs: £1.10 per unit
selling price (per unit): £2.60
no. of units sold (per year): 14,000
contribution per unit = £2.60 – £1.10 = £1.50

Using the first of the two formulae above:

total contribution = £1.50 × 14,000 = £21,000

Using the second formula:

(14,000 × £2.60) – (14,000 × £1.10) = £36,400 – £15,400 = £21,000
annual profit = total contribution – fixed costs = £21,000 – £9,000 = £12,000

Breakeven

Key terms

breakeven output: the level of output at which total sales revenue is equal to total costs of production.

breakeven analysis: study of the relationship between total costs and total revenue to identify the output at which a business breaks even (i.e. makes neither a profit nor a loss).

Assumptions of breakeven analysis

Breakeven analysis makes the following assumptions:
- The selling price per unit stays the same, regardless of the number of units sold.
- Fixed costs remain the same, regardless of the number of units of output.
- Variable costs per unit stay the same, regardless of output.
- Every unit of output that is produced is sold.

Calculating breakeven output

Using a formula

$$\text{breakeven output} = \frac{\text{fixed costs (£)}}{\text{contribution per unit (£)}}$$

Applying the data from earlier:

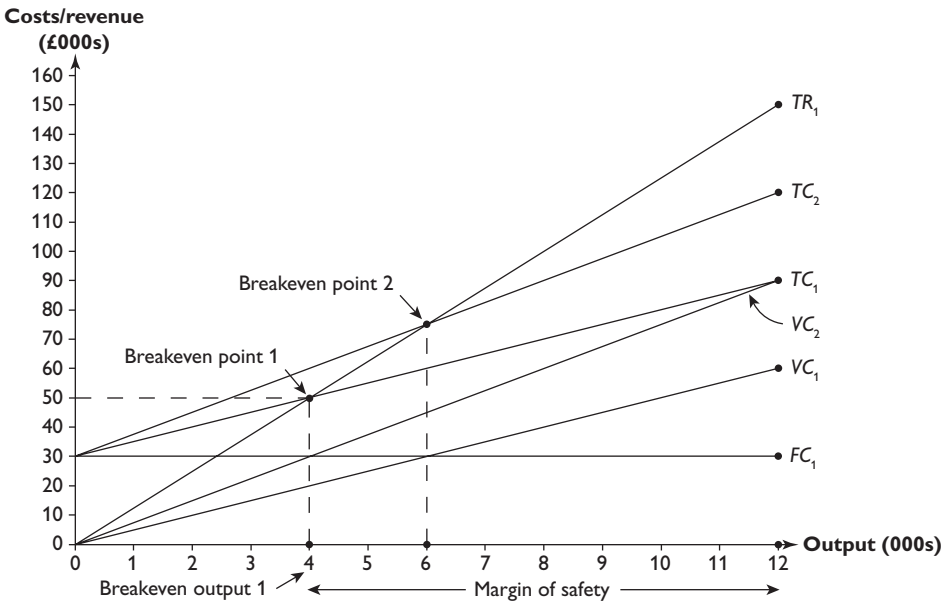
$$\text{breakeven output} = \frac{£9{,}000}{£2.60 - £1.10} = \frac{£9{,}000}{£1.50} = 6{,}000 \text{ units}$$

Using a graph

The graph shows the breakeven chart for a product based on the following data:

fixed costs (FC_1) = £30,000
variable costs per unit (VC_1) = £5
selling price = £12.50 per unit

The breakeven point is shown on the graph. Breakeven output is 4,000 units.



Breakeven chart

If variable costs per unit rise to £7.50, VC_1 becomes VC_2 and TC_1 becomes TC_2. Assuming no changes to fixed costs and total revenue, this changes the breakeven output to 6,000 units.

Key term

margin of safety: the difference between the actual output and the breakeven output.

In our example, if actual output is 12,000 units and the breakeven output is 4,000 units, the margin of safety is 8,000 units (12,000 – 4,000). After variable costs increase, the margin of safety falls to 6,000 units (12,000 – 6,000).

Usefulness of breakeven analysis to start-up businesses

Breakeven analysis is useful to a new business in many ways:

- A new firm can use breakeven analysis to calculate how long it will take to reach the level of output needed to make a profit.

- As a result, the business can predict its likely profit level.
- Breakeven analysis is particularly important to start-up businesses as it is a simple, straightforward way of discovering whether a business plan is likely to succeed financially.
- These data can be used as a key element in persuading bank managers or investors to give financial support to the start-up.
- Usually a start-up will use breakeven analysis to plan its expected results but also a 'best case' scenario and a 'worst case' scenario. This information can indicate the level of risk involved in the start-up.
- Breakeven analysis allows a firm to use 'what if?' analysis to show the different breakeven outputs and the changes in levels of profit that might arise from changes in its price or fixed costs or variable costs.
- The calculations are quick and easy to complete, thus saving businesses time.

Weaknesses of breakeven analysis

Breakeven analysis has the following drawbacks:

- The information may be unreliable.
- The assumption that sales will equal output is a major weakness of breakeven analysis. It is likely that some output will remain unsold.
- In practice, the selling price may change as more is bought and sold.
- Fixed costs may not stay the same as output changes. At particular levels of output, new machines and even new buildings may need to be purchased.
- The analysis assumes that variable costs per unit are always the same, ignoring factors such as buying in bulk.

Analysis

Opportunities for analysis are:

- examining the impact of changes in costs, price and output on contribution and contribution per unit
- understanding how start-up businesses may use contribution to make business decisions
- using 'what if?' analysis to show the impact of different costs and prices on breakeven and profit
- making a decision on a start-up based on these data
- explaining the usefulness and strengths of breakeven analysis
- explaining the limitations and weaknesses of breakeven analysis

Evaluation

Opportunities for evaluation are:

- showing awareness of the strengths and weaknesses of breakeven analysis to a particular business
- making decisions on whether to start a business based on contribution calculations and/or breakeven analysis
- evaluating the best way of reaching breakeven output
- using breakeven analysis to advise on the best way to increase profit

Links

The topics in all sections of Unit 1 have financial repercussions that will affect contribution and breakeven. The notion of contribution per unit is based on similar principles to adding value. Breakeven is used to make decisions on location. This section develops from costs, prices and profit, and most closely links with the remainder of financial planning. It is also vital in assessing the financial success or failure of a business start-up.

Using cash-flow forecasting

Key terms

cash flow: the amounts of money flowing into and out of a business over a period of time.

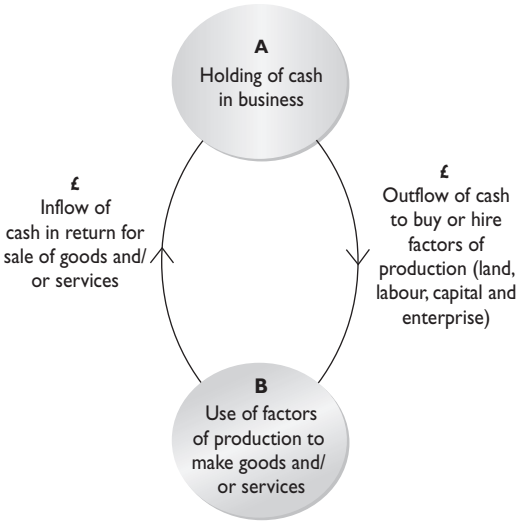
cash inflows: receipts of cash, typically arising from sales of items, payments by debtors, loans received, rent charged, sale of assets and interest received.

cash outflows: payments of cash, typically arising from the purchase of items, payments to creditors, loans repaid or given, rental payments, purchase of assets and interest payments.

net cash flow: the sum of cash inflows to an organisation minus the sum of cash outflows over a period of time.

cash-flow cycle: the regular pattern of inflows and outflows of cash within a business.

The cash-flow cycle



The diagram indicates that there is a delay between outflows of cash and inflows of cash. This means that it is in the nature of business activity that a typical business will suffer cash-flow problems. The extent to which this is a problem will depend on a number of important factors:

- the amount of cash held at the beginning of the cash-flow cycle
- the length of time required to convert inputs into outputs
- the level of credit payments by customers
- the amount of credit offered by suppliers

How to forecast cash flow

Key terms

cash-flow forecasting: the process of estimating the expected cash inflows and cash outflows over a period of time. Cash flow is often seasonal, so it is advisable to forecast for a period of 1 year.

cash-flow statement: a description of how cash flowed into and out of a business during a particular period of time.

A cash-flow forecast attempts to predict the future whereas a cash-flow statement describes what actually happened in the past.

Sources of information

In order to compile a cash-flow forecast, a business uses a number of sources:

- previous cash-flow forecasts
- recent cash-flow statements
- consumer research
- study of similar businesses (e.g. competitors)
- banks
- consultants
- the cash-flow forecast itself — it is important that early drafts of the cash-flow forecast are used to build up the final forecast

Possible causes of inaccuracy

The following problems may cause inaccuracy in a cash-flow forecast:

- changes in the economy
- changes in consumer tastes
- inaccurate market research
- actions by competitors
- uncertainty

Structure of a cash-flow forecast

The details of cash-flow forecasts will vary according to the type of business. However, the key items in constructing a cash-flow forecast are as follows:

- **Cash inflows** (e.g. income from sales).
- **Cash outflows** (e.g. wages and purchases of materials).

- **Net cash flow.** The formula for net cash flow is:
  net cash flow = cash inflows – cash outflows
- **Opening balance and closing balance.** The formula for closing balance is:
  closing cash balance = opening cash balance + net cash flow

A simplified cash-flow forecast is set out in the following table.

	October 2009	November 2009	December 2009
Opening balance	0	4,830	10,120
Total inflows	17,600	18,000	25,000
Materials	5,000	5,200	8,100
Wages	6,200	6,200	6,600
Other costs	1,570	1,310	1,420
Total outflows	12,770	12,710	16,120
Net monthly balance (or flow)	4,830	5,290	8,880
Closing balance	4,830	10,120	19,000

Why businesses forecast cash flow

Key term

liquidity: the ability to convert an asset into cash without loss or delay. The most liquid asset that a business can possess is cash. A cash-flow forecast enables the firm to see possible times in the future when the firm will be short of liquidity. If shortages are anticipated far enough in advance, the firm may be able to take measures that will prevent the shortage from occurring.

The main reasons for forecasting cash flow are:

- to identify potential cash-flow problems in advance
- to guide the firm towards appropriate action
- to make sure that there is sufficient cash available to pay suppliers and creditors and to make other payments
- to provide evidence in support of a request for financial assistance (e.g. asking a bank for an overdraft)
- to avoid the possibility of the company being forced out of business (into liquidation) because of a forthcoming shortage of money
- to identify the possibility of holding too much cash — this probably means that a firm has less machinery and stock than it could possess, which gives the firm less output and stock to sell, so it makes less profit

Analysis

Opportunities for analysis are:

- recognising the significance of the figures in a cash-flow forecast

- analysing the significance of changes in figures in a cash-flow forecast
- understanding the sources of information for cash-flow forecasts
- explaining the reasons for the business forecasting its cash flow
- examining the difficulties in forecasting cash flow for a business start-up

Evaluation

Opportunities for evaluation are:

- evaluating the best sources of information for cash-flow forecasts
- understanding the significance of the data in a cash-flow forecast
- assessing the usefulness of a cash-flow forecast to the business
- judging whether a financial trend (e.g cash flow) is within a firm's control
- weighing up the most likely causes of potential difficulties indicated by a cash-flow forecast

Links

The cash-flow forecast is an essential element of a business plan and the figures in it are derived from estimates relating to all of the other decisions made by the entrepreneur, such as how inputs will be transformed into outputs, how much will be spent on market research, what legal structure the business will select, how finance will be raised and where the business will be located. Cash-flow forecasts are most closely linked to the budgeting process, as this is the other major example of financial planning incorporated into Unit 1.

Setting budgets

Key terms

budget: an agreed plan establishing, in numerical or financial terms, the policy to be pursued and the anticipated outcomes of that policy.

income budget: the agreed, planned income of a business (or division of a business) over a period of time. It may also be described as a revenue budget or sales budget.

expenditure budget: the agreed, planned expenditure of a business (or division of a business) over a period of time.

profit budget: the agreed, planned profit of a business (or division of a business) over a period of time.

Types of budget

Income budgets

The income budget should include income from sales but also other sources of income, such as rent received, if property is owned, or sponsorship, if financial payments are being made by another firm that is using the business's activity for publicity purposes.