7 Cost structure

Using CVP analysis to understand our business

From Chapter 6, we saw – by calculating a range of break-even, profit and loss scenarios – how to enhance routine, day-to-day, business decisions using CVP analysis techniques.

Now, as indicated in Figure 5.1 *Profit Planning Framework*, we can again benefit from the ripple effect of dropping a stone into water – analysing cost behaviour – by applying CVP techniques to gain new insights into our business undertakings and the nature of our products and/or services through the eyes of cost structure.

Let's first take a simple example of the budgeted results of two restaurants for a given period, as presented in Figure 7.1.

	Restaurant A		**Restaurant B**	
	Total	Cover	Total	Cover
Number of covers	10,000		10,000	
	£	£	£	£
Sales revenue	20,000	2.00*	20,000	2.00*
Less: Variable expenses	15,000	1.50	10,000	1.00
Contribution margin (CM)	5,000	0.50	10,000	1.00
Less: Fixed expenses	3,000		8,000	
Net profit	£2,000		£2,000	

*Average spend

Figure 7.1: Two restaurants: Budgeted profit and loss statements

If we compare the results of the two restaurants we find the number of covers, sales revenue, average spend, total expenses and net profit to be the same for the both establishments. Therefore, at first glance, the establishments appear similar in terms of revenue, costs and profit relationships. However, if we probe the results a little and determine their break-even points, we begin to find differences:

			Restaurant A	Restaurant B
Break-even point =	Fixed costs / CM per cover	=	£3,000 / £0.50	£8,000 / £1.00
		=	6,000 covers	8,000 covers

We observe Restaurant A breaks even and generates a profit earlier than Restaurant B, which in operational terms indicates Restaurant A only has to achieve 60% of budgeted capacity (6,000/10,000 × 100) to break-even compared to Restaurant B which has to reach 80% budgeted capacity (8,000/10,000 × 100) to break-even.

If we probe a little further and determine the effect of a 10% change in demand on the two restaurants results, we again find differences:

		Restaurant A	Restaurant B
± 10% change in demand	=	± 1,000 × £0.50	± 1,000 × £1.00
	=	± £500 profit	± £1,000 profit

For example, as Restaurant A produces £0.50 contribution margin (CM) per cover sold, an increase in demand of 1,000 extra covers (10,000 × 10%) will generate an additional £500 CM (1,000 × £0.50). Fixed costs will – by definition – remain constant and, therefore, profit will increase by £500. Conversely, a 10% decrease in demand will result in a fall of £500 CM (1,000 × £0.50) and as fixed costs remain constant, profit will decrease by £500. Thus, a similar change in demand will have a greater impact (± £1,000) on Restaurant B profit.

Note: In relative terms, a similar change in demand will impact less on Restaurant A profit, at ±25% (£500/£2,000 × 100/1), whereas the impact on Restaurant B profit is greater, at ±50% (£1,000/£2,000 × 100/1). Therefore, a 20% drop in demand for Restaurant B will result in a 100% drop – total collapse – in profit, to zero (break-even point).

What we are beginning to see here is, although – on the surface – the operating results suggest the two restaurants are similar, by probing further there are apparently significant differences in the way the two establishments perform. So, let's take a closer look to understand what's happening.

Cost structure

The trading results of both restaurants are similar in all respects, except one, the cost structure. The term *cost structure* – also known as *operating leverage* – refers to the proportions of fixed costs and variable costs to total cost incurred during a trading period.

Note: In relation to cost structure, total cost includes all fixed and variable costs. These costs include direct department expenses (cost of sales, payroll and other expenses) plus indirect expenses (overhead), comprising

undistributed operating expenses, such as administration, marketing, energy and maintenance, and fixed charges, such as rent, property taxes, insurances, depreciation and loan interest.

If we refer to Figure 7.1, although the total costs of the restaurants are similar for the period, the composition of the £18,000 for each establishment is different, namely Restaurant A £18,000 (VC £15,000 + FC £3,000) and Restaurant B £18,000 (VC £10,000 + FC £8,000) .

We can review the results and compare the cost structures visually by using CVP (break-even) graphs, shown in Figure 7.2. In particular, notice how Restaurant A has a low proportion of fixed costs (or a high proportion of variable costs) in relation to total cost compared to Restaurant B.

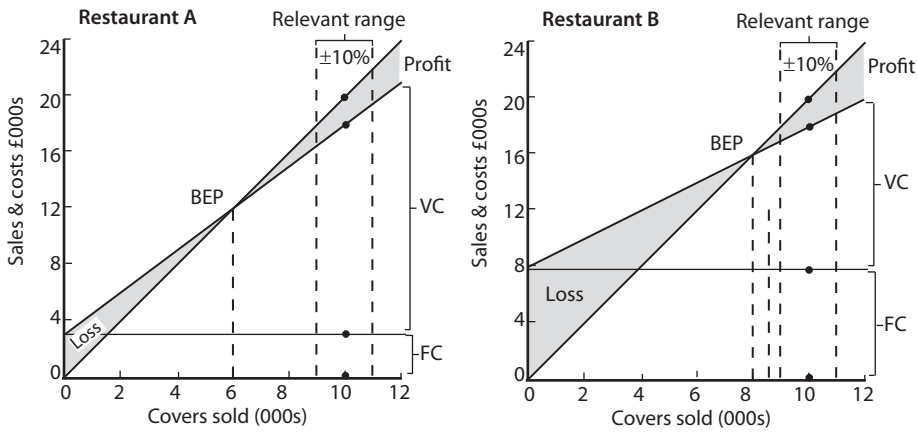

Figure 7.2: Restaurant CVP (break-even) graphs showing cost structures

Note: In Figure 7.2, the relevant range illustrates the effect of a potential ±10% change in demand on the restaurants 10,000 budgeted covers.

The fixed and variable cost proportions of the two restaurants can be determined and expressed as a percentage, as follows:

	Restaurant A	Restaurant B
Fixed costs to total cost	£3,000 ×100 / £18,000	£8,000 × 100 / £18,000
	= 17%	= 44%
Variable costs to total cost	£15,000 × 100 / £18,000	£10,000 × 100 / £18,000
	= 83%	= 56%
Total cost	100%	100%

As indicated in Figure 7.2, Restaurant A has a lower fixed cost structure (17%) than Restaurant B (44%). Conversely, Restaurant A has a higher variable cost structure (83%) compared to Restaurant B (56%). Both are showing similar

information from different perspectives, so in future we will generally refer to cost structure from the fixed cost perspective.

Cost structure and business orientation

Our simple restaurant example draws attention to the presence of cost structure in a business and the – often dramatic – way it can influence the outcome of results. So, what is the relevance of cost structure and how can it assist us in gaining a better practical understanding of our business in terms of the products and services and routine, day-to-day, decisions? Let's have a closer look at cost structure in terms of business undertakings in general.

Figure 7.3 shows a typical example of contrasting cost structures – similar to those in our restaurant example – found in many business undertakings. Review of the two cost structures reveals a number of relevant points:

- Business A has a relatively low fixed cost structure compared to Business B.
- Business A has a lower break-even point and, therefore, can recover total cost and generate profits at a lower level of capacity (sales volume) than Business B.
- Business A is less sensitive to fluctuations in demand and, therefore, profit variations are less pronounced than those experienced by Business B.

We can, therefore, conclude Business B is more risky to operate in terms of profitability compared to Business A, depicted by the ±10% sales volume (demand changes) axis and vertical arrows in the profit and loss segments in Figure 7.3. For instance, Business B is more susceptible (sensitive) to fluctuations in demand, benefiting from higher profits in good times, but potentially sustaining greater losses in in periods of lower demand. By comparison, Business A makes moderate profits in the good times and suffers less in periods of lower demand.

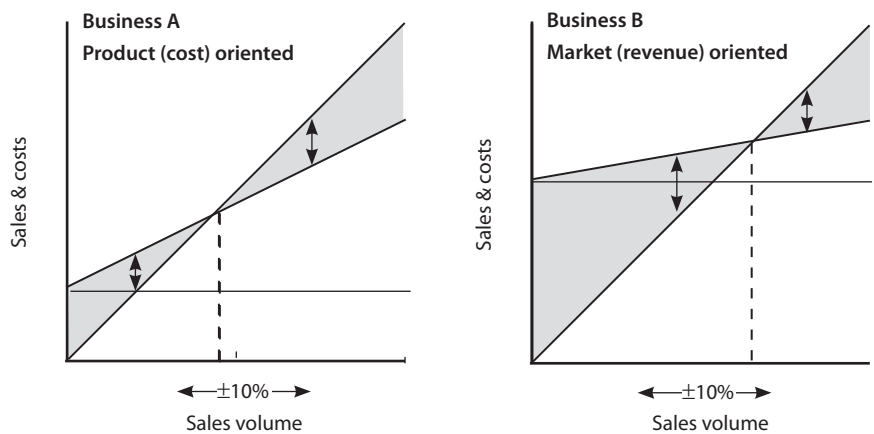

Figure 7.3: CVP (break-even) graphs illustrating cost structure and business orientation