SHORT-TERM DECISION

RELEVANT TO CAT PAPER 10

The area of short-term decision making has recently moved from CAT Paper 7, *Planning – Control and Performance Management*, to CAT Paper 10, *Managing Finances*.

This article discusses the importance of short-term decision making within the context of the Paper 10 syllabus.

Setting the scene

With effect from the June 2009 exam, the Paper 10 syllabus was expanded to include the following area:
7: short-term decisions.
Application of the following principles:
(a) Cost behaviour and cost volume profit analysis
(b) Break-even charts and profit-volume charts
(c) Make or buy decisions
(d) Opportunity costs and relevant costs.

Further clarification of the examinable areas was given by the *Study Guide*, which reads as follows:
18. Decision making – short-term decisions
(a) Describe the relationship between fixed and variable costs and the time horizon under consideration
(b) Explain the advantages and limitations of different costing methods when used in decision making (marginal and absorption costing)
(c) Describe the concept of relevant costs and its importance for decision making
(d) Outline the advantages and limitations of using an opportunity cost approach for management decision making
(e) Describe the qualitative factors that may influence short-term decisions
(f) Prepare reports making recommendations for management action in connection with short-term decisions

19. Cost/volume/profit (CVP) relationships
(a) Calculate and explain the break-even point in single product situations
(b) Analyse the effect on the break-even point of changes in sales price and costs
(c) Prepare and explain break-even charts and profit volume charts
(d) Describe the advantages and limitations of break-even analysis for management decision making

(Note: break-even analysis will only be examined in the context of single product situations.)

The reason for the transfer of this area from Paper 7 to Paper 10 was because the Paper 7 syllabus was disproportionately large compared to the Paper 10 syllabus. Also, this whole area sits nicely within the context of Paper 10, where long-term decisions play a key role.

The need for accurate decision making

If any business is to be successful, it goes without saying that it is critical to make the right decisions. While long-term decisions are obviously important – by virtue of the fact that they often involve committing large sums of money to a project – accurate short-term decisions are also pivotal to a company's long-term success. One could even argue that using the correct techniques to make short-term decisions is even more important because, in management, short-term decisions are made repeatedly in many different areas.

MAKING

For example, a business may have to decide whether to make components itself or buy them in; whether to accept or reject an order; whether to further process a product or sell it at its split-off point; or how to best use resources when one or more of them becomes scarce. The list could go on.

Therefore, if fundamental errors in principle are being made and these errors persist undetected, they could affect many areas of the business over a long period of time.

There are four basic steps involved in making a decision. These are as follows:
1 Becoming aware that a decision needs to be made
2 Identifying the available alternatives
3 Evaluating the alternatives
4 Making the decision.

An accounting technician is, of course, unlikely to be involved in all four of these steps. However, he or she may play an important role in providing the figures that these decisions will be based on, ie in step 3: evaluating the alternatives. The Paper 10 syllabus, therefore, rightly focuses on providing the accounting technician with a technical toolbox so that they can support a business in the evaluation of the short-term decisions that it has to make.

From the *Syllabus* and *Study Guide* extracts shown above, it can be seen that the area of short-term decisions covered by the Paper 10 syllabus is quite extensive, just as it was in the old Paper 7 syllabus. Therefore, this article will only focus on parts of it. These are as follows:
◘ Emphasising the use of the relevant costing approach when making short-term decisions
◘ Explaining the contribution approach to decision making
◘ Showing how to approach and answer a 'make or buy' decision question.

The importance of using the relevant costing approach when making short-term decisions

Decision making involves making a choice between alternative courses of action. If there are no alternatives, there is no decision to be made. The decision-making process will be influenced both by quantitative and qualitative factors:
◘ quantitative factors are those factors that are relevant to a decision and expressed numerically
◘ qualitative factors are those factors that are relevant but are not expressed numerically.

Qualitative factors would come into play when setting the price of an alcoholic beverage, for example. The cost of making it may only be $1 per litre but the fact is that excessive use of alcohol has high costs in terms of its detrimental effect on a person's health. This would be difficult to put an actual figure on, and is therefore quite subjective – but somehow, it would have to be taken into account when setting the selling price of the beverage. As accountants, we try to minimise uncertainty by expressing as many factors as possible in numerical terms.

With regard to our quantitative cash flows, in short-term decision making, it is important that we only take into account 'relevant cash flows'. A relevant cash flow is a future cash flow arising as a direct consequence of a decision.

There are five main points to note here – but they will only be covered briefly, since many existing articles already cover this area (including one of mine dating back to March 2004 that can be found in the archive of technical articles on the ACCA website):

IF ANY BUSINESS IS TO BE SUCCESSFUL, IT IS CRITICAL TO MAKE THE RIGHT DECISIONS. WHILE LONG-TERM DECISIONS ARE IMPORTANT – THEY OFTEN INVOLVE COMMITTING LARGE SUMS OF MONEY TO A PROJECT – ACCURATE SHORT-TERM DECISIONS ARE PIVOTAL TO A COMPANY'S LONG-TERM SUCCESS.

1 The cash flow must be a future one, ie it must not already have been incurred. Past costs are referred to as 'sunk' costs and may include, for example, the cost of materials that are already in stock but which the company has no other use for. These sunk costs are never relevant.

2 The cash flow must be a real cash flow rather than an accounting adjustment. Therefore, costs which do not reflect real cash spending must be ignored.

3 The cash flow must arise as a direct consequence of the decision, ie it must be incremental. So, for example, the cost of using a salaried supervisor, who has idle time, on a potential contract, would not be relevant to the costing of that potential contract. This is because the supervisor will be paid anyway, irrespective of whether the company takes the potential contract on. The cost is not incremental.

4 The concept of opportunity costing is important within the area of relevant costing because it is essential to take relevant costs into account. An opportunity cost is the value of the best alternative foregone when a course of action is chosen in preference to an alternative. So, for example, the cost of the material referred to in 1 (above) will be sunk because it is in the past. However, if the material could be used as a substitute to using another material, then that cost will be relevant. If it could be used as a substitute, saving $4 per kg, or sold for $5 per kg, then the best alternative would be to sell the material for $5 per kg. Hence, this is the opportunity cost of using the material in a potential contract now; it is the relevant cost.

IDENTIFYING THE CORRECT RELEVANT CASH FLOWS WHEN MAKING DECISIONS CAN SOMETIMES BE DIFFICULT, BUT IT IS ABSOLUTELY CRITICAL. A COMMON-SENSE APPROACH TO EXAM QUESTIONS WILL ALWAYS BE THE BEST ONE, RATHER THAN TRYING TO ROTE-LEARN TEXTBOOK DEFINITIONS.

5 Since relevant costing involves comparing the different costs of alternative courses of action it logically follows that common costs will not be relevant since they are common to every alternative.

Identifying the correct relevant cash flows when making decisions can sometimes be difficult, but it is absolutely critical. A common-sense approach to exam questions will always be the best one, rather than trying to rote-learn textbook definitions. Always remember that any historical costs given in a question are irrelevant since they represent costs in the past, not the future. Be warned: they are red herrings.

Short-term decisions focus on how to make the best use of resources in the short-term. The relevant costing approach is therefore essential if a business is to maximise profits. In the long-term, however, it should be remembered that a business must cover all of its costs, including its fixed costs.

The contribution approach to decision making

Contribution is the difference between sales revenue and variable costs. It is normally assumed that costs will behave in a linear fashion, ie total fixed costs will remain constant over all volumes and total variable costs will vary in direct relation to output. Therefore, in many short-term decisions, fixed costs will be irrelevant, since they will remain the same, irrespective of which alternative is selected. Since this is usually the case, marginal costing techniques are applied in most short-term decisions. However, it should be remembered that if a fixed cost is incremental, eg the purchase of a new machine in order to complete a contract, then a deviation from the marginal costing approach will be needed in order to take into account this incremental cost.

Therefore, this contribution approach to decision making may involve simply looking at the individual incremental contribution per unit in cases where costs are linear – but in cases where incremental fixed costs occur, the overall incremental contribution will need to be considered.

In some decisions, such as 'make or buy' decisions, it is not appropriate to bring sales revenue figures into the calculations. This is because sales revenue is common to all of the alternatives, and is therefore not relevant. The contribution approach is still being applied, however, because, by choosing to buy in components with the lowest incremental cost of buying in, the overall contribution to the business is still being maximised. This is explained more below.

Make or buy decisions

Businesses may be faced with the decision as to whether to make components needed for their products internally, as opposed to outsourcing this part of the process and merely assembling the products in-house. If the resources are bought in, their purchase cost is obviously the cost per unit from the supplier. However, if the components are manufactured internally, the relevant comparative costs of doing so will include direct material costs and wages costs plus the variable factory overhead. It may also be the case that some specialist machinery needs to be bought in order to make the components in-house, and this cost – although fixed in nature – would clearly be relevant to the decision as well. If the total costs of internally manufacturing components works out to be higher than the cost of purchasing the components externally, it is obviously better to buy the components in. To put it another way, following on from our discussions in the above sections, the correct approach in such instances is to ascertain the relevant costs of alternative courses of action and then select the alternative that maximises contribution.

WHETHER IT IS THE INITIAL 'MAKE OR BUY' DECISION THAT IS BEING MADE OR A NEW 'MAKE OR BUY' DECISION THAT HAS ARISEN AS A RESULT OF A CHANGE IN CAPACITY, THE APPROACH TO EVALUATING THE DECISION NUMERICALLY IS JUST THE SAME.

A business will make these 'make or buy' decisions before production of its product commences. However, the decision may then need to be reviewed because the company either:
- finds itself with spare capacity which enables it to consider doing work itself that would usually be done elsewhere, or
- finds that it has shortage of capacity such that it has to subcontract out work that it would usually do itself.

Whether it is the initial 'make or buy' decision that is being made or a new 'make or buy' decision that has arisen as a result of a change in capacity, the approach to evaluating the decision numerically is just the same. Let's look at a question.

Question
A toy manufacturing company makes four components, A, B, C and D, which are incorporated into different toys. All the components are manufactured using the same general purpose machinery. The following production cost and machine hour data are available, together with the purchase prices from an external supplier.

	A	B	C	D
Production cost:	$	$	$	$
Direct material	6	9	7	4
Direct labour	12	7	5	4
Variable overhead	4	3	2	2
General fixed overhead	5	3	2	1
External supplier's price	$26	$27	$20	$15
Machine hours per unit	6	10	8	2

Manufacturing requirements show a need for 3,000 units of each component per week. The maximum number of general purpose machine hours available per week is 58,000. What number of units should be purchased from the external supplier?

Answer

Using the approach outlined in our discussion above, we first need to ascertain the relevant costs of making each of our products in-house. These costs can then be compared to the cost of buying the components in from the external supplier. From this, we can then work out the incremental cost or saving of buying in the components.

	A $	B $	C $	D $
Variable production cost	22	19	14	10
External cost	26	27	20	15
Incremental cost of buying in	4	8	6	5

You can see from these initial calculations that the general fixed overhead for each component has been ignored, as per the contribution approach that we are adopting. It is also immediately apparent that all of the components are cheaper to make than to buy. In an ideal world, where there wasn't a shortage of capacity, all of the components would be made in-house. Here, however, there are only 58,000 machine hours available, so the next step is to identify how many hours it would take to make all of the components in-house. This can then be compared to the maximum available hours so that the shortage of capacity can be calculated.

To make 3,000 of each component would take (3,000 x 6) + (3,000 x 10) + (3,000 x 8) + (3,000 x 2) = 78,000 hours. Since there are only 58,000 hours available, we have a shortage of 20,000 hours.

SINCE MACHINE HOURS ARE THE RESOURCE THAT IS IN SHORT SUPPLY, THE NEXT STEP IS TO CALCULATE THE INCREMENTAL COST PER MACHINE HOUR OF BUYING EACH OF THE COMPONENTS IN. THEN, THE COMPONENTS CAN BE RANKED IN ORDER OF THE CHEAPEST PER MACHINE HOUR TO BUY IN FIRST.

Since machine hours are the resource that is in short supply, the next step is to calculate the incremental cost per machine hour of buying each of the components in. Then, the components can be ranked in order of the cheapest per machine hour to buy in first. The company will then allocate their resources such that the cheapest to buy in is bought in first and, if need be, the next cheapest is bought in next – and so on, until all resources are allocated so as to maximise the overall contribution to the business.

	A $	B $	C $	D $
Incremental cost of buying in	4	8	6	5
Machine hours per unit	6	10	8	2
Incremental cost per hour	0.667	0.80	0.75	2.50
Ranking in order of cheapest	1	3	2	4

Since component A is the cheapest to buy in, this should be the first to be bought in. We need 20,000 hours worth of components to buy in, and 3,000 of A multiplied by the six hours that each takes to make equals 18,000 hours.

Hence, we still need 2,000 hours worth of our second ranking component to be bought in. This will be component C. 2,000/8 = 250 units of component C also need to be bought in.

So, in summary, the company will make all of component B and D in house, 2,750 of C (3,000-250) and none of A. It will buy in 3,000 of A and 250 of C from the external supplier.

Although we have not considered the selling price of the products, and therefore have not looked at contribution in the sales revenue less variable costs way, we have still adopted an approach which looks at maximising the overall contribution to the business by minimising the variable costs.

Hopefully, this article has been useful in covering some of the issues arising in the area of short-term decision making.