

Chapter 1 Questions

- 1. Pinfold and Patel** is a discount trading company which is still run by its founder directors, Peter Pinfold and Usman Patel. The business has been successful over the years, supplying a wide range of imported goods to retailers and wholesalers.

An opportunity has arisen to acquire a retail outlet and the directors are considering the expansion of their operations. They need to decide in principle: a) whether or not to make the acquisition; and b) how the acquisition could be financed. The asking price of the retail outlet is €1.1million and the business has spare cash resources of only €200,000.

What items of information, both financial and non-financial, are likely to be useful to the directors in making these decisions?

- 2. Shelby Garden Designs** is a company with a successful record in selling garden ornaments to retail outlets. The market for its products has declined in recent years, however; the availability of cheaper ranges of imported goods has had a detrimental effect on the company's market share. The production facilities have been scaled back several times, and they now occupy only about 60% of the space available in the factory. The factory, which is owned outright, occupies a potentially very valuable piece of land near to the centre of a town with a housing shortage.

Shelby's production director, Esmond, has written a report for his fellow directors in which he discusses possible future uses for the spare capacity. The conclusion to the report advocates investment in new machinery which would produce garden netting of various strengths. Esmond thinks that, with new machinery, the company could produce netting very efficiently and would be able to compete on price with the existing market leaders.

As one of Esmond's fellow directors, you are required to jot down the principal questions which you would want to put to Esmond at the next meeting of the board.

Chapter 1 Answers

1. Pinfold & Patel

a) deciding whether or not to make the acquisition

This acquisition would represent a major strategic development for the company and its directors. Pinfold and Patel is a discount trading company which makes money by selling goods to retailers and wholesalers. If the company acquires a retail outlet of its own it enters a different kind of business. If the acquisition were to be successful the company would be able to channel some of its goods through the retailer, selling directly to the public. This could achieve significant economies and would allow the company to benefit from a greater proportion of the profit. The directors should be looking at the following types of information:

- Information about the current levels of profitability of the retail outlet. This would be obtainable from recent sets of accounts.
- Projected turnover and profit levels for the retail outlet. This information would not normally be available to interested parties outside the company, but Pinfold and Patel, as prospective purchasers, should be able to obtain some of the management accounting information which would normally be confidential.

- Details of existing managers and staff employed. Would key members of staff be likely to stay? What incentives might they require to make them stay? (this is particularly important for Pinfold and Patel who do not appear to have any experience of running a retail outlet).
- Information about the type of products stocked. The company makes money by selling goods at a discount. If the retail outlet is a high class, full margin type of business, there is likely to be a poor match with Pinfold and Patel's existing business.

[There are many other valid points that could be mentioned here]

b) deciding how to finance the acquisition

In order to obtain finance from external sources, the directors will need to produce a business expansion plan. In the plan, they will have to explain their strategy, setting out the reasons for the alteration to the company's strategic direction. They will use some of the information noted in part a) above to produce financial forecasts to support the application for finance.

The directors are not in a position to finance the acquisition through the existing resources of the company, and so they will have to examine the range of available external sources of finance. These include:

- **Commercial borrowing:** The directors need to investigate possible commercial lenders in order to identify the best financing deal. Rate of interest, repayment schedules and terms and conditions of lending will all form part of the information which feeds into the decision.
- **Venture capital:** The situation described in the question is one where venture capital financing might well be appropriate. A venture capital firm would probably require an equity stake (i.e. a shareholding) in the company and at least one seat on the board of directors. The advantage to Pinfold and Patel of this arrangement is that the venture capital firm would probably be able to provide them with a retail specialist as a director. Pinfold and Patel, however, need to be clear on the extent to which they are prepared to accept outside help. If they are inclined to see it as meddling interference, the venture capital route might not be appropriate.

2. Shelby Garden Designs

Questions for Esmond:

- a) What problems are likely to arise if the company attempts to break into the garden netting market? (The existing market leaders will not abandon their market share without a fight. They are more experienced in the market than Shelby and may be better able to compete because of factors such as reputation for reliability, good sales contacts, etc.)

- b) How robust are the financial projections that Esmond has prepared? What assumptions has he used to estimate future sales and costs?
- c) The new machinery could well be able to produce garden netting very efficiently, but is it safe to assume that competitors will be less efficient? How much information does Esmond have about the production capacity of the competitors in this market?
- d) Has Esmond considered the possible alternative use for the land on which the factory is built? If planning permission could be obtained for a change in use from industrial to residential, the company could make a lot of money by selling its factory (which is too large) and moving elsewhere to production facilities of a more suitable size.
- e) What are the other possible uses for the spare capacity in the factory? Have thorough financial projections been prepared for them, so that the directors can weigh up the various options?

Chapter 3 Questions

1. **Vance and Vane** produces a range of innovative storage units, designed by some of the biggest names in contemporary furniture design. The following is a list of some of the costs incurred by the company:

| | |
|--|--|
| Wages of factory canteen staff | |
| Purchase of wood for shelving | |
| Salespersons' commissions earned on volume of sales achieved | |
| Wages of factory machine operators | |
| Marketing campaign expenditure | |
| Metal brackets for shelving units | |
| Depreciation of office computer | |
| Business rates for factory | |
| Quality inspector's salary | |
| Royalties paid to designers | |
| Fire insurance for factory | |
| Office workers' Christmas party expenses | |

Classify each item of expense as one of the following:

- Direct labour
- Direct materials

- Direct expenses
- Indirect production overheads
- Other indirect overheads

2. Wellingborough Cravats produces high quality silk ties. In the month ending 30

November 2010 the company incurs the following costs:

| | € |
|---|-------|
| Depreciation of weaving machines | 610 |
| Secretarial and administrative salaries | 3,373 |
| Silk thread | 6,866 |
| Office supplies | 861 |
| Presentation packaging for ties | 433 |
| Factory supervisors' wages | 1,604 |
| Depreciation of office computer | 82 |
| Labels for ties | 121 |
| Other factory costs | 1,080 |
| Advertising | 650 |
| Weaving machine operators' wages | 6,620 |
| Factory cleaning | 260 |
| Repairs and maintenance of factory | 676 |
| Selling costs | 1,270 |

| | |
|--------------------------|-------|
| Electricity (see note) | 1,025 |
| Factory rental and rates | 1,665 |

Note: 80% of the electricity charge relates to the factory and 20% to the office.

Required: rearrange the information given into a cost statement for the month ending 30 November 2010.

3. Zane and Aldiss produces custom-built yachts for the seriously wealthy. The company uses a job costing system to accumulate costs for each yacht built. In the month of June 2010 the company has three yachts at various stages of assembly in its dry dock. Accumulated costs to 1 June 2010 for each yacht are as follows:

| | Yacht ref: X0/22 | Yacht ref: X0/24 | Yacht ref: X0/27 |
|-----------------|------------------|------------------|------------------|
| | € | € | € |
| Direct material | 6,625 | 1,030 | 1,850 |
| Direct labour | 2,070 | 663 | 1,200 |

During June 2010 the following transfers from stores are made:

| | Quantity | Value per unit | Job no |
|----------------|------------|-----------------|--------|
| Mahogany strip | 120 metres | €16 per metre | X0/22 |
| Pine strip | 80 metres | €3.50 per metre | X0/24 |

| | | | |
|-------------------------|-----------|----------------|-------|
| Metal fixing components | 60 units | €0.80 per unit | X0/27 |
| Metal fixing components | 84 units | €0.75 per unit | X0/24 |
| Metal fixing components | 104 units | €1.00 per unit | X0/22 |

The value of other sundry materials booked to each job is as follows:

| | |
|-------|--------|
| X0/22 | €610 |
| X0/24 | €52 |
| X0/27 | €1,003 |

The input of the four different grades of direct labour is as follows:

| Grade | Number of hours | Job no |
|-------|-----------------|--------|
| 4 | 16 | X0/27 |
| | 30 | X0/22 |
| 3 | 28 | X0/24 |
| | 106 | X0/27 |
| 2 | 88 | X0/22 |
| | 78 | X0/24 |
| 1 | 54 | X0/22 |
| | 60 | X0/27 |

The total cost to the company of the various grades of direct labour, per hour, is:

| | |
|---------|--------|
| Grade 4 | €12.50 |
| Grade 3 | €10.00 |
| Grade 2 | €9.50 |
| Grade 1 | €9.00 |

Required: design a job costing form which records the material and labour costs for each yacht up to the end of June 2010. The form should show an accumulated prime cost total for each yacht at the end of June 2010.

4. Amis Brevel Biscuits has three principal departments in its production process: mixing, baking and packaging. In April 2010 the company incurs the following production overheads which it plans to allocate and apportion as follows between its three departments:

| | € | Basis of apportionment |
|-----------------------------------|--------|------------------------|
| Factory rental and business rates | 7,910 | Floor area |
| Factory cleaning | 910 | Floor area |
| Supervisory salaries | 18,400 | No. of employees |
| Other indirect labour | 14,210 | Floor area |
| Electricity | 6,560 | Actual |
| Building maintenance | 632 | Actual |
| Insurance | 1,064 | Floor area |

| | | |
|------------------------|--------|--------------------------|
| Machinery depreciation | 370 | Machinery net book value |
| Total | 50,056 | |

The following information is relevant for the apportionment of overheads:

| | Total | Mixing | Baking | Packaging |
|----------------------|----------------------|----------------------|----------------------|------------------------|
| Floor area | 7,000 m ² | 2,500 m ² | 2,500 m ² | 2,000 m ² . |
| Employees | 16 | 6 | 4 | 6 |
| Machinery NBV | €14,400 | €18,240 | €20,040 | €6,120 |
| Electricity | €6,560 | €2,160 | €3,104 | €1,296 |
| Building maintenance | €32 | €60 | - | €72 |

Required: produce a schedule apportioning the overheads between the three departments (cost centres).

5. Bayleaf Manufacturing and Trading Company produces several kitchen products, one of which is a bayleaf grinder. One bayleaf grinder has a prime cost of €2.20, which includes 10 minutes of direct labour (costed at €7.20 per hour). Each unit uses 15 minutes of machine time.

The company's management accountant has estimated the following totals for the coming financial year, 2011:

| | |
|--|--------------|
| Machine hours available in the factory | 20,000 hours |
| Direct labour hours available | 40,000 hours |
| Total production overheads | €120,000 |

What is the estimated production cost of one bayleaf grinder if:

- a) production overheads are absorbed on the basis of machine hours?
 - b) production overheads are absorbed on the basis of labour hours?
6. Identify and explain the principal reasons why costs reported by English health trusts can vary so significantly between one trust and another.
7. The directors of **JLX bank** are meeting to consider a proposal by the finance director that the bank's call centre operations should be closed down in order to cut costs. He proposes instead to employ call agents who will work in their own homes rather than at a centralised call centre.

Identify the principal potential cost savings that could arise if the finance director's proposal is adopted.

Chapter 3 Answers

1. Vance and Vane

| | |
|--|-------------------------------|
| Wages of factory canteen staff | Indirect production overheads |
| Purchase of wood for shelving | Direct materials |
| Salespersons' commissions earned on volume of sales achieved | Other indirect overheads |
| Wages of factory machine operators | Direct labour |
| Marketing campaign expenditure | Other indirect overheads |
| Metal brackets for shelving units | Direct materials |
| Depreciation of office computer | Other indirect overheads |
| Business rates for factory | Indirect production overheads |
| Quality inspector's salary | Indirect production overheads |
| Royalties paid to designers | Direct expenses |
| Fire insurance for factory | Indirect production overheads |
| Office workers' Christmas party expenses | Other indirect overheads |

2. Wellingborough Cravats

Cost statement for November 2010

| | € | € |
|------------------------------------|-------|--------------|
| Direct materials | | |
| Silk thread | 6,866 | |
| Labels for ties | 121 | |
| Presentation packaging for ties | 433 | |
| | <hr/> | 7,420 |
| Direct labour | | |
| Weaving machine operators' wages | | 6,620 |
| Prime cost | | <hr/> 14,040 |
| Production overheads | | |
| Depreciation of weaving machines | 610 | |
| Repairs and maintenance of factory | 676 | |
| Factory rental and rates | 1,665 | |
| Electricity (80% x €1,025) | 820 | |
| Factory cleaning | 260 | |
| Factory supervisors' wages | 1,604 | |
| Other factory costs | 1,080 | |
| | <hr/> | 6,715 |
| Production cost | | <hr/> 20,755 |

| | | |
|---|-------|--------|
| Other overheads | | |
| Secretarial and administrative salaries | 3,373 | |
| Office supplies | 861 | |
| Selling costs | 1,270 | |
| Advertising | 650 | |
| Electricity for office | 205 | |
| Depreciation of office computer | 82 | |
| | | 6,441 |
| Total costs | | 27,196 |

3. Zane and Aldiss

Job costing record – June 2010

| | Job ref: X0/22 | Job ref: X0/24 | Job ref: X0/27 |
|-----------------|----------------|-------------------|-------------------|
| | € | € | € |
| <hr/> | | | |
| Direct material | | | |
| Brought forward | 6,625 | 1,030 | 1,850 |
| Mahogany | 1,920 | | |
| 120 x €16 | | | |
| Pine 80 x €3.50 | | 280 | |

Metal fixings:

| | | | |
|---------------------------|-------|-------|-------|
| 60 x €0.80 | | | 48 |
| 84 x €0.75 | | 63 | |
| 104 x €1.00 | 104 | | |
| Sundry materials | 610 | 552 | 1,003 |
| Materials carried forward | 9,259 | 1,925 | 2,901 |

Direct labour

| | | | |
|------------------------|-------|-------|-------|
| Brought forward | 2,070 | 663 | 1,200 |
| Grade 4 | | | |
| 16 x €12.50 | | | 200 |
| 30 x €12.50 | 375 | | |
| Grade 3 | | | |
| 28 x €10.00 | | 280 | |
| 106 x €10.00 | | | 1,060 |
| Grade 2 | | | |
| 88 x €9.50 | 836 | | |
| 78 x €9.50 | | 741 | |
| Grade 1 | | | |
| 54 x €9.00 | 486 | | |
| 60 x €9.00 | | | 540 |
| Labour carried forward | 3,767 | 1,684 | 3,000 |

| | | | |
|----------------------------|--------|-------|-------|
| Prime cost | | | |
| Materials carried forward | 9,259 | 1,925 | 2,901 |
| Labour carried forward | 3,767 | 1,684 | 3,000 |
| Prime cost carried forward | 13,026 | 3,609 | 5,901 |

4. Amis Brevel Biscuits

| | Cost Centre | | | | |
|---------------------------|---------------------|------------|-------------|-------------|----------------|
| | Basis | Total € | Mixing € | Baking € | Packaging € |
| Factory rental/rates | Floor area | 7,910 | 2,825 | 2,825 | 2,260 |
| Factory cleaning | Floor area | 910 | 325 | 325 | 260 |
| Supervisory salaries | No. of employees | 18,400 | 6,900 | 4,600 | 6,900 |
| Other indirect labour | Floor area | 14,210 | 5,075 | 5,075 | 4,060 |
| Electricity | Actual | 6,560 | 2,160 | 3,104 | 1,296 |
| Building maintenance | Actual | 632 | 360 | - | 272 |
| Insurance | Floor area | 1,064 | 380 | 380 | 304 |
| Machinery depreciation | Machinery NBV | 370 | 152 | 167 | 51 |
| Totals | | 50,056 | 18,177 | 16,476 | 15,403 |

5. Bayleaf Manufacturing and Trading Company

a) Overheads absorbed on a machine hours basis:

The overhead absorption rate is : $\frac{\text{€}120,000}{20,000} = \text{€}6$ per machine hour

The production cost of one bayleaf grinder is:

| | | |
|--|-------------|--------------|
| Prime cost | 2.20 | |
| Overhead ($\text{€}6.00 \times 15\text{mins}/60 \text{ mins}$) | <u>1.50</u> | |
| | | <u>€3.70</u> |

b) overheads absorbed on a labour hours basis

The overhead absorption rate is: $\frac{\text{€}120,000}{40,000} = \text{€}3.00$ per machine hour

The production cost of one bayleaf grinder is:

| | | |
|--|-------------|--------------|
| Prime cost | 2.20 | |
| Overhead ($\text{€}3.00 \times 10\text{mins}/60 \text{ mins}$) | <u>0.50</u> | |
| | | <u>€2.70</u> |

6. Research has shown that there are substantial differences in costs reported by English health trusts. Reasons for the differences include the followings:
- Variations in cost allocation practices. Not all trusts account for their costs in the same way, and differences may simply arise because similar costs are dealt with differently.
 - Variations in patient length of stay. The length of time a patient stays in hospital tends to be a clinical decision, not an accounting decision. Length of stay may also be influenced by such factors as the availability of social care for the elderly upon leaving hospital. Where social care is plentiful and freely available, average length of stay for the elderly may be reduced, relatively speaking.
 - Variations in clinical practices. Opinions may vary between clinicians as to best practice. Specialists in a clinical discipline in one trust may, for example, favour medical as opposed to surgical interventions, and this decision would have consequences for costs.
7. The principal potential cost savings associated with the finance director's proposal would include:
- Savings on premises costs such as rental, depreciation, heating, lighting, etc.
 - Information technology costs, if employees are required to use their own computer hardware and broadband connection.

Chapter 4 Questions

1. **Spartacus & Bellows** manufactures two products, Alpha and Beta. The business's directors have decided to trial an Activity-Based Costing (ABC) system. The finance director produces the following list of cost drivers, overhead cost allocations to each driver and an estimate of quantities for the 2011 financial year:

| Activity | Cost driver | Total | Product Alpha | Product Beta | Total cost per cost driver € |
|--------------------------------|--------------------------------|-------|------------------|-----------------|---------------------------------------|
| Planned units of production | | | 2,000 | 2,000 | |
| Machining | Machine hours | 6,000 | 4,000 | 2,000 | 76,800 |
| Packing | Labour hours | 1,000 | 500 | 500 | 8,000 |
| Materials ordering | No. of orders | 100 | 60 | 40 | 10,750 |
| Materials issues | No. of issues | 25 | 17 | 8 | 2,600 |
| Machine set up | No. of hours used in set up | 80 | 43 | 37 | 12,960 |
| Total | | | | | 111,110 |

A unit of product Alpha uses two machine hours, whereas a unit of product Beta uses one machine hour.

Required: Calculate the overhead cost of one unit of product Alpha and one unit of product Beta using the new ABC costing system.

2. Identify and explain three significant constraints and problems that are associated with the implementation of ABC.

Chapter 4 Answers

1. Spartacus & Bellows

Cost per unit of cost driver:

| Activity | | Cost amount € |
|--------------------|---------------------------------|-------------------------|
| Machining | <u>Overhead</u> = <u>76,800</u> | €12.80 per machine hour |
| | Machine hours 6,000 | |
| Packing | <u>Overhead</u> = <u>8,000</u> | €8.00 per labour hour |
| | Labour hours 1,000 | |
| Materials ordering | <u>Overhead</u> = <u>10,750</u> | €107.50 per order |
| | No. of orders 100 | |
| Materials issue | <u>Overhead</u> = <u>2,600</u> | €104.00 per issue |
| | No. of issues 25 | |
| Machine set up | <u>Overhead</u> = <u>12,960</u> | €162.00 per hour |
| | No of hours 80 | |

Allocation of overhead between product Alpha and product Beta:

| | | Product | | Product |
|-----------|----------------|---------|----------------|---------|
| | | Alpha | | Beta |
| | | € | | € |
| Machining | 4,000 x €12.80 | 51,200 | 2,000 x €12.80 | 25,600 |

| | | | | |
|--------------------|--------------|--------|--------------|--------|
| Packing | 500 x €8.00 | 4,000 | 500 x €8.00 | 4,000 |
| Materials ordering | 60 x €107.50 | 6,450 | 40 x €107.50 | 4,300 |
| Materials issues | 17 x €104.00 | 1,768 | 8 x €104.00 | 832 |
| Machine set up | 43 x €162.00 | 6,966 | 37 x €162.00 | 5,994 |
| Total | | 70,384 | | 40,726 |

2. Constraints and problems in the implementation of ABC

- a) One of the major problems with ABC is the expense. There are high initial and on-going costs including, for example, the cost of new software, consultancy time and reorganisation and redundancy costs. Sometimes, the perceived benefits of ABC systems do not outweigh the considerable costs involved.
- b) Resistance by staff. New systems are often perceived as a threat by staff members, especially where the system is claimed to be more efficient, because they foresee (sometimes correctly) that redundancies might ensue. If staff members are resistant to a proposed change in systems they may fail to co-operate fully or may even attempt to sabotage the implementation.
- c) It can be difficult to ensure that ABC is implemented effectively in complex organisations. There is a trade-off between the number of cost drivers on the one hand and cost and efficiency on the other. A high number of cost drivers may well produce a more accurate result, but it will be expensive to gather information about them. Conversely, if the number of cost drivers is kept at a low level, the results of the ABC system may not be particularly accurate.

Chapter 5 Questions

1. The directors of **Parsons Perry** are currently examining pricing strategies in relation to their line of hair care products. One of the company's products is an economy hair conditioner with the following cost structure per 150 ml bottle:

| | € |
|--------------------------|-------------|
| Variable materials costs | 0.15 |
| Direct labour costs | <u>0.20</u> |
| Prime cost | <u>0.35</u> |

Fixed overheads are recovered on the basis of a percentage of direct labour. The percentage currently used by the company is 275%.

The directors are planning to start their discussions on pricing this product by calculating a) a cost-plus price based on a profit mark up of 82% on full cost, and b) a variable cost-plus price based on a profit mark up of 235% on variable cost.

Required:

- calculate possible selling prices based on the profit marks up percentages noted above
- identify and discuss issues that are relevant to the pricing of this product. You should include references to the possible selling prices identified in i).

2. Quaint Inns is an unlisted company which runs a chain of 25 high quality hotels in the UK and France. The company's tariff is published on the internet, but discounts from the published tariff are available for corporate clients, tour operators and travel agents. The published cost of a double room with breakfast in Stratford-upon-Avon is £190. Corporate clients can usually obtain the room for £140 and the company lowers its price to as little as £98 for the larger tour operators. Needless to say, these reductions are not widely publicised. The variable costs associated with the provision of the room and breakfast are £31.

The company has been approached by an Internet-based service business which offers substantial discounts on late-booked rooms. In exchange for a fixed fee per year Quaint Inns would be able to advertise rooms at heavily discounted prices: the later the booking the greater the discount. The directors are about to meet to discuss whether or not to use this service.

Advise the directors on the principal issues that they should consider in their discussion.

Chapter 5 Answers

1. Parsons Perry

a) possible selling prices

i. based on a cost-plus price

| | € |
|--|-------------|
| Prime cost of one bottle of conditioner | 0.35 |
| Fixed overheads: 275% x direct labour charge | |
| = 0.20 x 275% | <u>0.55</u> |
| Total costs | 0.90 |
| Profit mark up: €0.90 x 82% | <u>0.74</u> |
| Selling price | <u>1.64</u> |

ii. based on a variable cost-plus price

| | |
|------------------------------|-------------|
| Prime cost (as above) | 0.35 |
| Profit mark up: €0.35 x 235% | <u>0.82</u> |
| Selling price | <u>1.17</u> |

b) discussion of relevant issues

Demand for a product like hair conditioner may range from relatively elastic to relatively inelastic. If a particular product is widely and effectively advertised, customers may be motivated to acquire that conditioner in preference to any other. This means that they

place a relatively high value on the product. They are less likely, however, to express such a preference for an economy product. Because there will no doubt be many other such products competing in the market, demand for this type of conditioner is relatively elastic. The product competes, principally, on price, although other issues such as quality of packaging design may also have a part to play.

The cost-plus calculations in part i) are of some assistance in establishing pricing parameters. However, they are likely to be fairly unimportant in fixing a price for this conditioner. The company is unlikely to be able to charge significantly more than its competitors, and so, market-based pricing is more important in this particular instance than cost-based pricing. The cost-based prices established in part i) are subject to a great deal of estimation in any case. The prime cost of the product is so low and the percentage add-ons are so large that there is a great deal of scope for inaccuracy.

2. In theory, any price above £31 per room would be acceptable because it would make some contribution to fixed costs. However, the directors may be reluctant to set such a low price for a room. Some degree of discounting, such as that described in the question for corporate customers and tour operators, is acceptable and normal in the hospitality industry. However, very heavy discounting could potentially damage the reputation of the hotel group and its image as a high quality service provider. If the individual customers who normally pay £190 per room were prepared to leave their booking until the last minute they could benefit from substantial savings; these savings to the customer would represent lost revenue to the hotel.

The directors may wish to consider piloting a partial use of the service in one or two locations. They could establish the level of price discount that would be acceptable to them so as to avoid loss of reputation and potential loss of revenue.

Chapter 6 Questions

1. Classify each of the following costs as:

- variable
 - fixed
 - stepped
 - semi-variable
-
- a) factory insurance costs
 - b) direct labour costs
 - c) costs of a royalty payable to a product designer for each item produced
 - d) cost of chartering planes by a tour operator (more planes are chartered as necessary when bookings are received)
 - e) telephone charges which include line rental and charges for calls made

2. **Finnie & Fogg** produces suit-bags which each sell for €42.50. The variable costs of manufacture include direct materials of €9 and direct labour of €11. In July 2010 the company has budgeted to sell 850 suit-bags. Fixed overheads for the month are expected to total €14,250.

Calculate the company's:

- a) budgeted contribution for July 2010
- b) budgeted net profit for July 2010

3. Grass Green Products manufactures lawnmowers. The selling price of a mower is €25, and variable costs per mower are €158. The company's maximum production capacity in one year is 5,000 lawnmowers, but, realistically, the company's directors do not expect to sell more than 4,200 units in the coming year, 2011. Fixed costs for 2011 are budgeted at €74,750.

- a) What is the company's break-even point in units (to the nearest whole unit)?
- b) What is the company's margin of safety:
 - i) in units
 - ii) in €

4. Garth Goredale manufactures kitchen colanders. The selling price of a colander is €5.50. Variable costs per colander comprise €1.38 of direct materials and €0.98 of direct labour. The company's finance director estimates that fixed costs for 2010 will be €88,530. Net profits in 2009 were €2,000 based on sales of 200,000 colanders. The directors are aiming for a net profit of €72,000 in 20X9.

- a) calculate the company's break-even point in units (to the nearest whole unit)
- b) calculate the percentage increase in sales required in 2010 that is necessary in order to hit the directors' target profit (to one decimal place).

5. Hamer and Horsfall plc runs a department store in a large city in Northern England. The company has always been profitable but in recent years profitability has declined because of keen competition from discount stores. The directors are, therefore, actively looking for ways to cut costs. The business sources some of its products from a subsidiary company, L&L Limited. L&L manufactures goods like underwear and nightwear which it sells both to Hamer and Horsfall and to other customers. L&L's managing director, Harry, is concerned that Hamer and Horsfall are likely to close down L&L's business in order to source cheaper goods from overseas. He has recently discovered that the building next door to the company's factory will soon become vacant, and he is preparing a business case to put to the board of Hamer and Horsfall to expand L&L's production capacity. He maintains that L&L will have more power in the marketplace if it is able to fulfil larger orders, and that the company will be well-placed for even greater expansion in the future.

Harry's figures include the following relevant information:

- If the new space is taken on, L&L's sales could increase by 36% from their existing level of £1,395,000.
 - Fixed costs would increase by £300,000.
 - Variable costs constitute 32% of sales value.
- a) Advise the directors of Hamer & Horsfall whether or not Harry's case for expansion makes business sense.

b) Identify any non-financial factors which you think may have a bearing on the case that Harry has put forward.

6. Immingham Treadway manufactures a range of industrial machines, each of which uses a quantity of a rare metal, velanium. The metal is mined commercially in only one country of the world, Pamania, although small deposits of it have been found elsewhere from time to time. The directors of Immingham Treadway have just been informed that rebel insurgents have started a civil war in Pamania. The war may last for a long time, and it seems likely that supplies of velanium will be cut off completely. The company's engineers have been working on the prototype of a new machine which will not require the use of velanium; however, testing has only just commenced, and the new machine will not be ready for commercial production for at least another year.

The company currently has 100kg of velanium in stock; it was purchased for €120 per kg. The production director thinks it likely that a further 90kg of velanium can be sourced through her contacts, although the price will be very much higher than previously: around €300 per kg. The sales director thinks that there is some scope for increasing selling prices to pass on at least part of the increased cost to customers. However, he has forecast only modest increases so as not to affect potential demand.

Cost and selling price information for each of the three machine types that the company produces are as follows:

| | Type A | Type B | Type C |
|--|--------|--------|--------|
| Selling price (new price per sales director's forecasts) | €6,000 | €5,500 | €4,500 |
| Velanium usage per machine | 2.5kg | 3kg | 2.8kg |
| Other raw materials costs | €1,500 | €1,400 | €880 |
| Variable cost of labour | €1,750 | €1,310 | €960 |
| Demand per year | 35 | 30 | 40 |

- i) calculate the contribution per unit of limiting factor for each of the three machine types
- ii) advise the directors on the optimal production plan for the next year

Chapter 6 Answers

1. Cost classification

- a) factory insurance costs – fixed
- b) direct labour costs – variable
- c) royalty costs – variable
- d) plane charter cost – stepped
- e) telephone charges – semi-variable

2. Finnie & Fogg

- a) budgeted contribution for July 2010

| | € |
|---------------------------|---------|
| Sales: 850 x €2.50 | 36,125 |
| Less: variable costs | |
| Direct materials: 850 x € | (7,650) |
| Direct labour: 850 x €1 | (9,350) |
| Contribution | 19,125 |

- b) budgeted net profit for July 2010

| | € |
|------------------------------|----------|
| Contribution (as in part a)) | 19,125 |
| Less: fixed costs | (14,250) |

Net profit 4,875

3. Grass Green Products

a) Break even point in units =
$$\frac{\text{Fixed costs}}{\text{Contribution per unit}}$$

Contribution per unit = selling price – variable costs per unit =

$$€325 - 158 = €167$$

Break-even point in units: $\frac{€74,750}{167} = 3,442$ units (to nearest whole unit)

167

b) Margin of safety = the excess of planned sales above the break-even point.

i) planned sales – break-even point = $4,200 - 3,442 = 758$ units

ii) margin of safety expressed in terms of sales: $758 \text{ units} \times \text{selling price} = 758 \times$

$$€325 = €246,350$$

4. Garth Goredale

a)

Break even point in units =
$$\frac{\text{Fixed costs}}{\text{Contribution per unit}}$$

Contribution per unit:

| | |
|-----------------------|---------------|
| | € |
| Selling price | 5.50 |
| Less: variable costs | |
| Materials | (1.38) |
| Labour | <u>(0.98)</u> |
| Contribution per unit | <u>€3.14</u> |

$$\frac{\text{Fixed costs}}{\text{Contribution per unit}} = \frac{588,530}{3.14} = 187,430 \text{ units}$$

b) Target sales in units = $\frac{\text{Fixed costs} + \text{target profit}}{\text{Contribution per unit}}$

$$= \frac{588,530 + 72,000}{3.14} = 210,360 \text{ units}$$

$$\text{Percentage increase in units: } \frac{210,360 - 200,000}{200,000} \times 100 = 5.2\%$$

5. Hamer and Horsfall plc

The basic decision rule is: if incremental revenue exceeds incremental costs, accept the project. Applying the rule to the L&L proposal:

| | £ |
|--|------------------|
| Incremental revenue (£1,395,000 x 36%) | 502,200 |
| Incremental costs: | |
| Variable costs (£502,200 x 32%) | (160,704) |
| Fixed costs | <u>(300,000)</u> |
| Incremental profit | <u>41,496</u> |

c) The proposed expansion into the neighbouring premises produces an incremental profit of 341,496, and so it would seem like a good move for the company. However, the directors of Hamer and Horsfall should look carefully at the data. Harry does not want L&L's business to be closed down (presumably, if this were to happen Harry would lose his job). Therefore he has a powerful incentive to persuade Hamer and Horsfall's directors that the expansion makes sense. He may have exaggerated some of the figures to support the case he is making. The incremental increase in fixed costs (a round sum of £300,000) looks very much like a 'broad brush' estimate: the directors should ask Harry for evidence supporting the validity of that figure.

6. Immingham Treadway

a) Contribution per limiting factor

| | Type A | Type B | Type C |
|---------------|--------|--------|--------|
| Selling price | 6,000 | 5,500 | 4,500 |

| | | | |
|--|---------------------|-----------------|-------------------|
| Variable cost of raw materials | | | |
| Velanium (at €600 per kg) (see working) | (1,500) | (1,800) | (1,680) |
| Other raw materials | (1,500) | (1,400) | (880) |
| Variable cost of labour | (1,750) | (1,310) | (960) |
| Contribution | <u>1,250</u> | <u>990</u> | <u>980</u> |
| Kilos of material used | <u>2.5kg</u> | <u>3.0kg</u> | <u>2.8kg</u> |
| Contribution per unit of limiting factor | 1,250/2.5 = €500 | 990/3 = €330 | 980/2.8 = €350 |

Working: cost of velanium per kg:

| | |
|------------------------------|----------------|
| Existing stock 100 kg x €420 | 42,000 |
| New purchase 90kg x €800 | <u>72,000</u> |
| Total cost | <u>114,000</u> |

This gives an average price of:

$$\frac{\underline{€114,000}}{190} = €600 \text{ per kg.}$$

190

b) production plan

In order to maximise contribution the production plan should include as many units as possible of Type A machines. Type C machines are next in order of preference.

In total, the supply of the scarce raw material totals 190kg. To produce up to the maximum demand for Type A machines next year 87.5kg ($35 \times 2.5\text{kg}$) would be required. This would leave 102.5kg available. This would be sufficient to produce 36 Type C machines ($102.5/2.8\text{kg} = 36.6$ machines). As demand for the Type C machines is in excess of 36, no type B machines would be produced.

Chapter 7 Questions

1. **The Tullane Biscuit Company** is a successful biscuit manufacturer. Since it was established five years ago it has gradually increased its range of plain and cheese biscuits. The sales director has now come to the board with a proposal to expand the range further into chocolate coated biscuits. This will involve the purchase of new machinery; the initial outlay will be €135,000. The finance director and the sales director meet to discuss sales projections for the new range of chocolate biscuits. They forecast the following net cash inflows over the five year period until the machinery will need to be replaced:

| | € |
|--------|--------|
| Year 1 | 35,000 |
| Year 2 | 47,000 |
| Year 3 | 52,000 |
| Year 4 | 55,000 |
| Year 5 | 55,000 |

In addition to these inflows, it is expected that the machinery will be sold for scrap at the end of year five for €10,000. The company's policy is to depreciate machinery on the straight line basis over its estimated useful economic life.

Required:

- calculate ARR for the investment project
- calculate the payback period for the project

2. **Ul-Haq and Utley** operates fashion clothing concessions in several large department stores. A major London store is opening its first provincial branch and the company is currently negotiating terms for an in-store concession. There will be a substantial initial outlay on shop-fitting which the company must recoup within three years; after that time, under the terms of the draft agreement with the department store, Ul-Haq and Utley will be required to completely refurbish their space. The company has had a great deal of experience in this type of shop-fitting and is able to estimate to a high degree of accuracy the costs involved. The directors are, therefore, confident in their estimate of €89,000 for shop fitting. There will be additional advertising expenditure of €10,000 in the first year (to be treated as a cash flow arising at time 1). However, the cash inflows arising from the project are less easy to estimate. The directors have prepared two sets of figures – one optimistic and one pessimistic. They wish to appraise both sets of figures in order to be able to assess the impact of the worse-case scenario. Their net cash inflow projections are as follows:

| Time | Optimistic scenario | Pessimistic scenario |
|------|---------------------|----------------------|
| | € | € |
| 1 | 56,000 | 32,000 |
| 2 | 66,000 | 35,000 |
| 3 | 68,000 | 36,000 |

Required:

- i) calculate the payback period for both scenarios
- ii) calculate the NPV of both scenarios, using the company's cost of capital which is 8%

3. A company estimates the following net cash inflows and outflows for a capital investment project that is currently under consideration:

| Time | € |
|------|-----------|
| 0 | (575,000) |
| 1 | 45,800 |
| 2 | 99,000 |
| 3 | 104,300 |
| 4 | 118,700 |
| 5 | 130,400 |
| 6 | 129,000 |
| 7 | 116,500 |
| 8 | 77,200 |
| 9 | 55,000 |
| 10 | 12,500 |

The company's cost of capital is 8%.

- calculate the NPV of the project
- calculate the IRR of the project

4. **Vickery and Vojnovic** is a business partnership set up by Robin Vickery and Kaspar Vojnovic some years ago. The partners are now considering the installation of a new

computer system using specially written software to streamline the business's warehousing operations. The initial outlay on the project will be substantial. A feasibility study has already cost €20,000. Kaspar estimates that payments to the software house will be €100,000 immediately, with a further €75,000 in a year's time. New equipment and installation and testing costs will amount to €148,000 during the first year (it should be assumed for appraisal purposes that these costs arise at time 1). The plan is that the new system should go live in one year's time. After that point the business should start to reap considerable benefits from what will be, essentially, a paperless ordering and shipment tracking system. The partners plan to reduce their staffing levels considerably during the first two years during which the system is in operation and there will be other cost saving benefits including a reduction in office storage space, stationery, postage and other costs. Because of the increased efficiency of the operation, the partners also expect substantial increases in sales. The net cash inflows forecast from the installation of the new systems are as follows:

| Time | €000 |
|------|------|
| 2 | 184 |
| 3 | 159 |
| 4 | 108 |
| 5 | 96 |
| 6 | 40 |

At the end of year six, the partners anticipate that the system will have to be scrapped and replaced with whatever is the latest technology at the time. There will be no residual value in the system at that point.

The partners have asked you to appraise the project to see how quickly it will pay back. You offer to appraise the project using discounted cash flow techniques, although Robin (who did a business course a few years ago) is distinctly sceptical about this approach: 'The good thing about payback is that you can see immediately how long it's going to take to recoup the cost of the investment. Discounted cash flow doesn't make any sense to me'. However, he agrees that it might just be helpful to see what the NPV of the project is, and he estimates the business's cost of capital at 11%.

Required

- a) calculate the payback period for the project
- b) calculate the NPV of the project using 11% as the discount rate
- c) briefly set out the arguments in support of the point of view that discounted cash flow techniques are superior to payback as a method of investment appraisal

Chapter 7 Answers

1. The Tullane Biscuit Company

a) ARR calculation

$\frac{\text{Average expected return (accounting profit)}}{\text{Average capital employed}} \times 100 = \text{ARR}\%$

Average capital employed

€135,000 – 10,000 (residual value) = €125,000 (depreciable amount). Over five years, this results in a straight line depreciation charge of €25,000 per year. This must be taken into account in calculating accounting profit.

| Year | €000 |
|--------------|--------------|
| 1 | 35 – 25 = 10 |
| 2 | 47 – 25 = 22 |
| 3 | 52 – 25 = 27 |
| 4 | 55 – 25 = 30 |
| 5 | 55 – 25 = 30 |
| Total profit | 119 |

The average profit generated per year is:

$$\frac{119,000}{5} = \text{€}23,800$$

5

Average capital employed:

$$\frac{135,000 + 10,000}{2} = \text{€}72,500$$

2

$$\text{ARR} = \frac{23,800}{72,500} \times 100 = 32.8\%$$

72,500

b) Payback

| Time | Cash flow | Cumulative cash flow |
|------|-----------|----------------------|
| | €000 | €000 |
| 0 | (135) | (135) |
| 1 | 35 | (100) |
| 2 | 47 | (53) |
| 3 | 52 | (1) |
| 4 | 55 | 54 |
| 5 | 55 | 109 |

Cumulative cash flow reaches the zero position at almost exactly three years. Payback is three years.

2. Ul-Haq and Utley

a) Payback period

| Time | Optimistic scenario | | Pessimistic scenario | |
|------|----------------------------|---------------------------|--------------------------|---------------------------|
| | Cash inflow/(outflow) € | Cumulative cash flow € | Cash inflow/outflow € | Cumulative cash flow € |
| 0 | (89,000) | (89,000) | (89,000) | (89,000) |
| 1 | 56,000 | | 32,000 | |
| | (10,000) | (43,000) | (10,000) | (67,000) |
| 2 | 66,000 | 23,000 | 35,000 | (32,000) |
| 3 | 68,000 | 91,000 | 36,000 | 4,000 |

Optimistic scenario: the project pays back at some point during the second year: payback to the nearest whole month is:

$$1 \text{ year} + (43/66 \times 12 \text{ months}) = 1 \text{ year and 8 months}$$

Pessimistic scenario: the project does not payback until nearly the end of the third year: payback to the nearest whole month is:

2 years + (32/36 x 12 months) = 2 years and 11 months

b) NPV calculations

Optimistic scenario:

| Time | Cash flow | Discount factor | Discounted cash flow |
|-------|-----------|-----------------|----------------------|
| | € | | € |
| 0 | (89,000) | 1 | (89,000) |
| 1 | 56,000 | 0.926 | 51,856 |
| 1 | (10,000) | 0.926 | (9,260) |
| 2 | 66,000 | 0.857 | 56,562 |
| 3 | 68,000 | 0.794 | 53,992 |
| Total | | | 64,150 |

Pessimistic scenario:

| Time | Cash flow | Discount factor | Discounted cash flow |
|------|-----------|-----------------|----------------------|
| | € | | € |
| 0 | (89,000) | 1 | (89,000) |
| 1 | 32,000 | 0.926 | 29,632 |

| | | | |
|-------|----------|-------|----------------------|
| 1 | (10,000) | 0.926 | (9,260) |
| 2 | 35,000 | 0.857 | 29,995 |
| 3 | 36,000 | 0.794 | 28,584 |
| Total | | | <hr/> (10,049) <hr/> |

3. NPV at 8% cost of capital:

| Time | Cash flow | Discount factor (8%) | Discounted cash flow |
|-------|-----------|----------------------|----------------------|
| | € | | € |
| 0 | (575,000) | 1 | (575,000) |
| 1 | 45,800 | 0.926 | 42,411 |
| 2 | 99,000 | 0.857 | 84,843 |
| 3 | 104,300 | 0.794 | 82,814 |
| 4 | 118,700 | 0.735 | 87,245 |
| 5 | 130,400 | 0.681 | 88,802 |
| 6 | 129,000 | 0.630 | 81,270 |
| 7 | 116,500 | 0.584 | 68,036 |
| 8 | 77,200 | 0.540 | 41,688 |
| 9 | 55,000 | 0.500 | 27,500 |
| 10 | 12,500 | 0.463 | 5,788 |
| Total | | | <hr/> 35,397 <hr/> |

c) IRR

8% cost of capital produces a positive NPV. The IRR (the point at which NPV = 0) must therefore be higher than this. Calculating NPV at 10%:

| Time | Cash flow € | Discount factor (10%) | Discounted cash flow € |
|-------|----------------|--------------------------|------------------------------|
| 0 | (575,000) | 1 | (575,000) |
| 1 | 45,800 | 0.909 | 41,632 |
| 2 | 99,000 | 0.826 | 81,774 |
| 3 | 104,300 | 0.751 | 78,329 |
| 4 | 118,700 | 0.683 | 81,072 |
| 5 | 130,400 | 0.621 | 80,978 |
| 6 | 129,000 | 0.564 | 72,756 |
| 7 | 116,500 | 0.513 | 59,764 |
| 8 | 77,200 | 0.467 | 36,052 |
| 9 | 55,000 | 0.424 | 23,320 |
| 10 | 12,500 | 0.386 | 4,825 |
| Total | | | (14,498) |

IRR must, therefore, lie somewhere between 8% and 10%.

Using a discount rate of 8% NPV = €5 397

Using a discount rate of 10% NPV = € 14 498

The total distance between these two figures is €5 397 + 14 498 = €19 895

The distance between 8% and IRR is:

$$\frac{€5,397}{49,895} \times 2\% = 1.42\%$$

49,895

IRR is 8% + 1.42% = 9.42%

4. Vickery and Vojnovic

a) Payback period

| Time | Cash flows €000 | Cumulative cash flows €000 |
|------|--------------------|----------------------------------|
| 0 | (100) | (100) |
| 1 | (75) | (175) |
| 1 | (148) | (323) |
| 2 | 184 | (139) |
| 3 | 159 | 20 |

| | | |
|---|-----|-----|
| 4 | 108 | 128 |
| 5 | 96 | 224 |
| 6 | 40 | 264 |

Cumulative cash flow reaches the zero position some time during the third year. Payback to the nearest whole month is:

$$2 \text{ years} + (139/159 \times 12 \text{ months}) = 2 \text{ years } 10 \text{ months}$$

Note: the €20,000 spent on the feasibility study is regarded as a sunk cost; it is not taken into account in the appraisal.

b) NPV calculation

| Time | Cash flows € | Discount factor (11%) | Discounted cash flow € |
|------|-----------------|--------------------------|------------------------------|
| 0 | (100,000) | 1 | (100,000) |
| 1 | (75,000) | 0.901 | (67,575) |
| 1 | (148,000) | 0.901 | (133,348) |
| 2 | 184,000 | 0.812 | 149,408 |
| 3 | 159,000 | 0.731 | 116,229 |
| 4 | 108,000 | 0.659 | 71,172 |

| | | | |
|-------|--------|-------|---------------|
| 5 | 96,000 | 0.593 | 56,928 |
| 6 | 40,000 | 0.535 | 21,400 |
| Total | | | <hr/> 114,214 |

c) Payback is a very straightforward investment appraisal technique which is popular because it is easy both to calculate and to understand. However, it emphasises just one single aspect of investment appraisal – the ability to pay back quickly. It ignores cash flows which arise after the point of payback and so does not look at the total cash flows expected to arise from the project. Discounted cash flow techniques address some of the limitations of payback. All cash flows are considered, and the time value of money (which is important) is also taken into account. In most cases relating to capital investment appraisal, business managers should employ more than one technique to assist them in reaching a decision.

Chapter 8 Questions

1. **Pacey Bellamy** manufactures umbrellas. The sales budget for the next three months of 2010 is as follows:

| Month | Units |
|-----------|--------|
| August | 10,600 |
| September | 11,500 |
| October | 12,400 |

Opening inventory of finished umbrellas at 1 August 2010 is expected to be 7600 units. The directors plan to increase that inventory level by 500 units each month for the rest of the financial year.

Each umbrella uses €7.50 in raw materials. Raw materials inventory at 1 August 2010 is expected to be at the very low level of €3,450. By the end of August the company's directors plan to increase it to €6,800. By the end of September it should be €10 300 and by the end of October it will have increased to €16,400.

Calculate for each of the three months:

- the production budget (in units)
- the raw materials purchases budget (in €).

2. **Angel Fish Supplies** is run in partnership by Angelina and her brother Arkady. The business supplies fish tanks and related goods to pet shops. Although the customers almost always

eventually pay, the partners often have problems in collecting the cash due to them. The pattern of cash payment by customers, on average, is as follows:

| | |
|-------------------------|--------------------|
| Month following sale | 30% of sales value |
| 2 months following sale | 40% of sales value |
| 3 months following sale | 20% of sales value |
| 4 months following sale | 10% of sales value |

So, for example, 30% of the value of sales in February will actually be received in cash in March, 40% will be received in cash in April, and so on.

Angelina and Arkady are preparing budgets for the six months ending 30 June 2011. Actual invoiced sales for the September – December 2010 period are as follows:

| | € |
|-----------|--------|
| September | 22,500 |
| October | 20,650 |
| November | 21,040 |
| December | 21,200 |

The partners expect to invoice sales as follows in each of the six months to 30 June 2011:

| | € |
|----------|--------|
| January | 18,400 |
| February | 18,000 |
| March | 19,600 |
| April | 20,400 |
| May | 22,600 |
| June | 23,100 |

By contrast with the slow receipt of cash for sales, Angelina and Arkady's suppliers expect to be paid immediately. Other expenses are also paid in the month in which they are incurred. So, there is no delay in paying for any goods or services by the partners. Cash payments/ expenses for the six months are expected to be as follows:

| | € |
|----------|--------|
| January | 18,650 |
| February | 14,200 |
| March | 22,400 |
| April | 16,800 |
| May | 19,450 |
| June | 14,000 |

In addition, each partner draws €1,000 from the business each month.

No other cash inflows or outflows are expected in the 6 months to 30 June 2011.

At 31 December 2010 the business has a bank overdraft of €3,050. It is permitted a maximum overdraft at any one time of €7,000.

- a) prepare a cash flow forecast for the 6 months to 30 June 2011, noting the maximum forecast overdraft
- b) calculate the profit or loss for the six month period.

3. **Bonita** is starting an art gallery business in part of a converted mill building. She sold her house, making €40,000 profit on the deal, and is currently renting a flat so that she can put the money she's made into the new venture. €30,000 was used as a deposit on the purchase of her space in the mill, and she obtained a commercial mortgage of €18,000 for the remainder of the purchase price. The interest rate on the mortgage is 5.7% and Bonita has negotiated a deal with the lender whereby she does not have to start paying off the capital sum until the third year of her business operation. The monthly interest-only payments are €61.

Bonita will stage one exhibition each month, and her plans for the first three months of her business are as follows:

January: exhibition of prints by major European artists of the 20th century. Bonita expects to sell about 50% of the exhibits, which would produce total sales of €2,000, the cash received immediately. €6,000 of this would be payable to the owner of the prints in February.

February: exhibition of the work of five sculptors. Working, again, on the expectation that 50% of the work will sell, total sales are likely to be €48,000. Bonita will retain one third of this sum; the balance will be paid to the artists in March.

March: exhibition by renowned artist, Pasha Quigley. Pasha rarely exhibits his work and it is a major coup for Bonita to have his paintings on show. Bonita expects to sell €5 000 of work, of which she will retain commission of €20,000. The €85,000 will be received from purchasers within the month of March, and Pasha will be paid in April.

Expenses include the following:

- i. Cost of exhibition catalogues. A catalogue for each exhibition will cost € 000 to produce. The catalogue for the first exhibition will have been paid for in December out of Bonita's remaining €10,000. The catalogues for the second and third exhibitions will also be paid for one month in advance.
- ii. Gallery premises costs. Business rates are to be paid monthly; the cost is €750 per month. Electricity costs will average out at €60 per month and Bonita expects to receive a bill for the first three months electricity in March, and to pay it in April.
- iii. Wages. Bonita will pay a part time assistant €550 per month.
- iv. Other expenses. Bonita estimates that a total of €1,000 in other expenses will be paid each month.
- v. Drawings. She plans to draw €700 per month in cash.
- vi. Private view expenses. In each of the three months Bonita will have to spend an estimated €450 on buying in wine and other refreshments for the private view. This figure also includes the cost of hourly paid waiting staff to take drinks round to guests.
- vii. Advertising. The initial round of press adverts will appear in December, and the €3,000 cost will be paid for out of Bonita's remaining €10,000. Each month €400 will be paid for brochures and postage costs to send out to people on the gallery's mailing list.

The bank balance at 1 January 2011 will be €2,000 after advertising and catalogue costs have been paid for. The advertising and catalogue costs form part of Bonita's start up capital.

The gallery premises are to be depreciated over 25 years on the straight-line basis, with an assumption of nil residual value.

Prepare for Bonita:

- a) a budget cash flow statement for the three months of January, February and March 2011
- b) a budget profit and loss account for the three months ending 31 March 2011
- c) a budget balance sheet at 31 March 2011
- d) briefly discuss whether or not you think Bonita's business is going to be successful, identifying any areas where cash flow might be a problem.

Chapter 8 Answers

1. Pacey Bellamy

a) Production budget (in units) August – October 2010

First, calculate the expected level of closing inventory at the end of each month:

Closing inventory at end of August: $7,600 + 500$ units = 8,100

Closing inventory at end of September: $8,100 + 500$ units = 8,600

Closing inventory at end of October: $8,600 + 500$ units = 9,100

The production budget is the balancing figure in the following table:

| | Opening inventory – units | Production – units | Transfers out of production (for sales) – units | Closing inventory – units |
|-----------|---------------------------------|-----------------------|---|---------------------------------|
| September | 7,600 | 11,100 | (10,600) | 8,100 |
| October | 8,100 | 12,000 | (11,500) | 8,600 |
| November | 8,600 | 12,900 | (12,400) | 9,100 |

b) Raw materials purchases budget: August - October 2010

Closing inventory + raw materials used in production – opening inventory = raw materials
purchases

Purchases of raw materials is the balancing figure in the following table:

| | Opening inventory of raw material € | Purchases of raw materials € (bal. fig) | Raw materials used in production € | Closing inventory of raw material € |
|-----------|-------------------------------------|---|------------------------------------|-------------------------------------|
| August | 3,450 | 86,600 | 11,100 x €7.50 = (83,250) | 6,800 |
| September | 6,800 | 93,500 | 12,000 x €7.50 = (90,000) | 10,300 |
| October | 10,300 | 102,850 | 12,900 x €7.50 = (96,750) | 16,400 |

2. Angel Fish Supplies

a)

Working 1: cash receipts

e.g. September 2010 sales will be received as follows:

30% in October

40% in November

20% in December

10% in January

Once the pattern is established, it is easy to fill in the boxes in the table below:

| | Jan € | Feb € | Mar € | April € | May € | June € |
|-------------------------------------|----------|----------|----------|------------|----------|-----------|
| Sept (10% x €22,500) | 2,250 | | | | | |
| October (20%/10% x €20,650) | 4,130 | 2,065 | | | | |
| November (40%/20%/10% x €1,040) | 8,416 | 4,208 | 2,104 | | | |
| December (30%/40%/20%/10% x €1,200) | 6,360 | 8,480 | 4,240 | 2,120 | | |
| January (30%/40%/20%/10% x €18,400) | | 5,520 | 7,360 | 3,680 | 1,840 | |

| | | | | |
|---|--------|--------|--------|--------|
| February (30%/40%/20%/10% x €18,000) | 5,400 | 7,200 | 3,600 | 1,800 |
| March (30%/40%/20% x €19,600) | | 5,880 | 7,840 | 3,920 |
| April (30%/40% x €20,400) | | | 6,120 | 8,160 |
| May (30% x €22,600) | | | | 6,780 |
| Total | 21,156 | 20,273 | 19,104 | 18,880 |
| | 19,400 | 20,660 | | |

It is now possible to complete the cash flow forecast:

Angel Fish Supplies: Cash flow forecast for the six months ending 30 June 2011

| | Jan | Feb | Mar | April | May | June |
|----------------------------------|----------|----------|----------|----------|----------|----------|
| | € | € | € | € | € | € |
| Cash receipts (see working 1) | 21,156 | 20,273 | 19,104 | 18,880 | 19,400 | 20,660 |
| | | | | | | |
| Cash payments | 18,650 | 14,200 | 22,400 | 16,800 | 19,450 | 14,000 |
| Drawings | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| Total payments | 20,650 | 16,200 | 24,400, | 18,800 | 21,450 | 16,000 |
| | | | | | | |
| Opening balance | (3,050) | (2,544) | 1,529 | (3,767) | (3,687) | (5,737) |
| Add: receipts | 21,156 | 20,273 | 19,104 | 18,880 | 19,400 | 20,660 |
| Less: payments | (20,650) | (16,200) | (24,400) | (18,800) | (21,450) | (16,000) |
| Closing balance | (2,544) | 1,529 | (3,767) | (3,687) | (5,737) | (1,077) |
| | | | | | | |

The maximum overdraft reached in the six month period is €737.

b) Angel Fish Supplies: profit and loss account for the six months ending 30 June 2011

| | € |
|---|---------------|
| Sales (18,400 + 18,000 + 19,600 + 20,400 + 22,600 + 23,100) | 122,100 |
| Expenses (18,650 + 14,200 + 22,400 + 16,800 + 19,450 + 14,000) | (105,500) |
| Profit | <u>16,600</u> |

3. Bonita

Working 1: opening capital = €40,000

€30,000 of this is in the cost of the building, €5,000 in catalogue expenditure, €3,000 in advertising and €2,000 in cash.

Working 2: depreciation of building

Total cost = €30,000 + €18,000 = €48,000

Depreciation over 25 on the straight line basis = €48,000/25 = €920 per year

For three months: €1,480

Working 3: sales

The value of sales for Bonita is the total commission earned each month:

Sales value for January: €52,000 – 36,000 = €16,000

Sales value for February: €48,000 – 32,000 (2/3) = €16,000 (1/3)

Sales value for March: €85,000 – €65,000 = €20,000

Total sales to appear in the three month profit and loss account: €16,000 + €16,000 + €20,000 = €52,000.

Bonita: forecast cash flow statement for the three months to 31 March 2011

| | January | February | March |
|----------------------------|---------------|---------------|---------------|
| | € | € | € |
| Cash inflows | | | |
| Receipts of cash | 52,000 | 48,000 | 85,000 |
| Cash outflows | | | |
| Payments to artists/owners | | 36,000 | 32,000 |
| Catalogues | 5,000 | 5,000 | |
| Business rates | 750 | 750 | 750 |
| Wages | 550 | 550 | 550 |
| Other expenses | 1,000 | 1,000 | 1,000 |
| Drawings | 700 | 700 | 700 |
| Private view expenses | 450 | 450 | 450 |
| Brochures and postage | 400 | 400 | 400 |
| Interest on mortgage | 561 | 561 | 561 |
| | 9,411 | 45,411 | 36,411 |
| Opening balance | 2,000 | 44,589 | 47,178 |
| Add: receipts | 52,000 | 48,000 | 85,000 |
| Less: payments | (9,411) | (45,411) | (36,411) |
| Closing balance | 44,589 | 47,178 | 95,767 |

b) Bonita: profit and loss account for the three months ending 31 March 2011

| | € |
|--------------------------|--------|
| Sales (working 3) | 52,000 |
| Less: expenses | |
| Catalogues | 15,000 |
| Business rates | 2,250 |
| Wages | 1,650 |
| Other expenses | 3,000 |
| Private view expenses | 1,350 |
| Brochures and postage | 1,200 |
| Interest on mortgage | 1,683 |
| Depreciation (working 2) | 1,480 |
| Advertising | 3,000 |
| Electricity | 180 |
| Total expenses | 30,793 |
| Net profit | 21,207 |

c) Bonita: budget balance sheet at 31 March 2011

| | | |
|-----------------------|---------|---------|
| | € | € |
| Property at cost | 148,000 | |
| Less: depreciation | (1,480) | |
| | | 146,520 |
| Current assets | | |
| Cash at bank | 95,767 | |
| Current liabilities | | |
| Accrual (electricity) | 180 | |
| Due to Pasha | 65,000 | |

| | | |
|--------------------------------|---------------|----------------|
| | <u>65,180</u> | |
| Net current assets | | 30,587 |
| | | <u>177,107</u> |
| Long term loan (mortgage) | | (118,000) |
| | | <u>59,107</u> |
| Capital introduced (working 1) | | 40,000 |
| Profit for the period | | 21,207 |
| Less: drawings | | (2,100) |
| | | <u>59,107</u> |

d) discussion of Bonita's budget for the first three months of business

Bonita's budget profit and loss account shows a profit of over €20,000 in just three months, on total capital invested of €40,000 – an impressive result. However, much is dependent on whether or not her expectations as to sales are fulfilled. She could run into trouble quite quickly if actual sales at any of the exhibitions are disappointing. Also, even if her forecasts are accurate, there may be some short-term cash flow problems. She is starting the business at the beginning of January with only €2,000 in the bank. Because she expects to receive cash for artwork a month or so before she has to pay anything to the artists she has a significant cash flow advantage.

However, she has to make payments of over €9,000 in the first month of business, and she may have to juggle the timing of the payments carefully to make sure that her cash position remains sound.

If Bonita's forecasts are accurate, however, she could make a very good living out of the new business.

Chapter 9 Questions

1. **Priory Pegamoid** produces a range of parts for industrial weaving machines. The budget sales and prime costs for April 2010 for component L63A are as follows:

| | € |
|---|-------------------|
| Sales: 600 units x €25 per unit | 15,000 |
| Costs | <hr/> |
| Direct materials: 600 units x (1kg x €6) | 3,600 |
| Direct labour: 600 units x (1.2 hours x €8) | 5,760 |
| Prime cost | <hr/> 9,360 <hr/> |

You are required to flex the budget for a sales and production level of 575 units.

The following information is relevant for questions 2 and 3:

Quayle Products manufactures waste disposal units. Its sales and costs budget for November 2010 is as follows:

| | € |
|--|--------------------|
| Sales: 3,000 units x €72 | 216,000 |
| Costs | |
| Direct materials (metal) 3,000 x (1kg x €14) | (42,000) |
| Direct materials (plastic) 3,000 x (€0.5kg x €7) | (10,500) |
| Direct labour: 3,000 x (0.75 hours x €8) | (18,000) |
| Production overhead | (86,500) |
| | <hr/> 59,000 |
| Other overheads | (31,000) |
| Net profit | <hr/> 28,000 <hr/> |

The company does not absorb production overheads using an overhead absorption rate. It may be assumed that all of its overheads are fixed in nature. The company's actual results for the month are as follows:

| | € |
|---|--------------------|
| Sales: 2,950 units x €73 | 215,350 |
| Costs | |
| Direct materials (metal) 2,950 x (0.9kg x €3.80) | (36,639) |
| Direct materials (plastic) 2,950 x (€0.5kg x €7.20) | (10,620) |
| Direct labour: 2,950 x (0.7 hours x €8.20) | (16,933) |
| Production overhead | (84,250) |
| | <hr/> 66,908 |
| Other overheads | (32,250) |
| Net profit | <hr/> 34,658 <hr/> |

2. Calculate the following variances for Quayle Products for November 2010:

- a) sales profit volume variance
- b) sales price variance
- c) materials price variance (for both metal and plastic)
- d) materials quantity variance (for both metal and plastic)
- e) direct labour rate variance
- f) direct labour efficiency variance
- g) overheads variances

3.

- a) prepare a standard cost operating statement for Quayle Products for November 2010
- b) suggest reasons for any price variances you have calculated.

4.

Robertson Rix is a manufacturing company. In January 2010 it budgeted for 1500 units of production, each of which uses 2.25 hours of machine time. Production overhead absorption rates had been budgeted as follows for the financial year:

| | |
|------------------------------|------------------------|
| Variable production overhead | €6 per machine hour |
| Fixed production overhead | €7.80 per machine hour |

The actual level of production in the month was 1520 units. The actual expenditure on variable production overhead in the month was €21 360. The actual expenditure on fixed production overhead in the month was €6 201.

You are required to calculate:

- a) the variable production overhead variance
- b) the fixed production overhead variance

5.

Selly Watkins makes bathroom fittings. The directors have monthly board meetings at which, amongst other things, they discuss the most recent standard cost operating statement. The statement for April 2010 reads as follows:

| | Total | |
|------------------------------------|-------------------|------------------|
| | € | |
| Original budgeted net profit | 216 760 | |
| Sales profit volume variance | 5 866 | |
| Flexed budget net profit | 222 616 | |
| Other variances | <i>Favourable</i> | <i>(Adverse)</i> |
| | € | € |
| Sales price variance | | (2 689) |
| Direct materials price variance | 8 760 | |
| Direct materials quantity variance | | (9 989) |
| Direct labour rate variance | - | - |
| Direct labour efficiency variance | 660 | |
| Variable overhead variance | | (8 828) |
| Fixed overhead variance | | (9 771) |
| Total | 9 420 | (31 277) |
| Actual net profit | 200 769 | |

The directors are concerned that the net adverse variance for the month is more than 10% of the original budgeted net profit. They call in the management accountant for some explanations. He comes up with the following points:

- a) The sales team decided to raise prices in the middle of April and we haven't yet adjusted the standard prices to reflect this increase

- b) We obtained a really good quantity discount on materials from a new supplier
- c) The materials quantity variance is due to the fact that the materials we've bought in recently have been of higher quality than we originally anticipated
- d) The labour efficiency variance probably arises because the new production line staff we took on in April are really very efficient workers
- e) The overhead variances are unfortunate, but the problem really is that we underestimated the level of both fixed and variable overheads when we were setting the original budget

Three of these explanations are quite plausible; two are not.

Required: identify which explanations for the variances that have occurred in April 2010 are plausible and which are implausible.

Chapter 9 Answers

1. Priory Pegamoid: flexed budget for 575 units

| | € |
|---|-------------------|
| Sales: 575 units x €25 per unit | 14,375 |
| Costs | <hr/> |
| Direct materials: 575 units x (1kg x €6) | 3,450 |
| Direct labour: 575 units x (1.2 hours x €8) | 5,520 |
| Prime cost | <hr/> 8,970 <hr/> |

2. Quayle Products

Flexed budget for 2,950 units:

| | € |
|--|--------------------|
| Sales: 2,950 units x €72 | 212,400 |
| Costs | |
| Direct materials (metal) 2,950 x (1kg x €14) | (41,300) |
| Direct materials (plastic) 2,950 x (€0.5kg x €7) | (10,325) |
| Direct labour: 2,950 x (0.75 hours x €8) | (17,700) |
| Production overhead | (86,500) |
| | <hr/> 56,575 |
| Other overheads | (31,000) |
| Net profit | <hr/> 25,575 <hr/> |

Setting the original budget, flexed budget and actual results side by side:

| | Original budget € | Flexed budget € | Actual € |
|---------------------------|-------------------------|--------------------|---------------|
| Sales | 216,000 | 212,400 | 215,350 |
| Costs | | | |
| Direct material – metal | (42,000) | (41,300) | (36,639) |
| Direct material – plastic | (10,500) | (10,325) | (10,620) |
| Direct labour | (18,000) | (17,700) | (16,933) |
| Production overhead | (86,500) | (86,500) | (84,250) |
| | <u>59,000</u> | <u>56,575</u> | <u>66,908</u> |
| Other overheads | (31,000) | (31,000) | (32,250) |
| | <u>28,000</u> | <u>25,575</u> | <u>34,658</u> |

a) Sales profit volume variance

| | |
|----------------------------|------------------|
| | € |
| Flexed budget net profit | 25,575 |
| Original budget net profit | <u>28,000</u> |
| | <u>2,425 (A)</u> |

b) Sales price variance

| | |
|---|----------------|
| Actual volume of sales at actual selling price: 2,950 x €73 | 215,350 |
| Actual volume of sales at standard selling price: 2,950 x €72 | <u>212,400</u> |

2,950 (F)

c) Materials price variances

| | | |
|---|---|---------------|
| i) Metals | € | |
| Actual volume of material at actual price: $2,950 \times 0.9\text{kg} \times \text{€}13.80$ | | 36,639 |
| Actual volume of material at standard price: $2,950 \times 0.9\text{kg} \times \text{€}14$ | | <u>37,170</u> |
| | | 531 (F) |

| | | |
|--|---|---------------|
| ii) Plastics | € | |
| Actual volume of material at actual price: $2,950 \times 0.5\text{kg} \times \text{€}7.20$ | | 10,620 |
| Actual volume of material at standard price: $2,950 \times 0.5\text{kg} \times \text{€}7$ | | <u>10,325</u> |
| | | 295 (A) |

d) Material quantity variances

| | | |
|--|---|---------------|
| i) Metals | € | |
| Actual volume of material at standard price: $2,950 \times 0.9\text{kg} \times \text{€}14$ | | 37,170 |
| Standard volume of material at standard price: $2,950 \times 1\text{kg} \times \text{€}14$ | | <u>41,300</u> |
| | | 4,130 (F) |

ii) Plastics

There is no quantity variance because actual and standard usage are the same.

e) Labour rate variance

| | |
|---|----------------|
| | € |
| Actual hours at actual wage rate: $2,950 \times 0.7 \text{hours} \times \text{€}8.20$ | 16,933 |
| Actual hours at standard wage rate: $2,950 \times 0.7 \text{hours} \times \text{€}8.00$ | <u>16,520</u> |
| | <u>413 (A)</u> |

f) Labour efficiency variance

| | |
|--|------------------|
| | € |
| Actual hours at standard wage rate: $2,950 \times 0.7 \text{hours} \times \text{€}$ | 16,520 |
| Standard hours at standard wage rate: $2,950 \times 0.75 \text{hours} \times \text{€}$ | <u>17,700</u> |
| | <u>1,180 (F)</u> |

g) Overheads variances

Production overhead variance

| | |
|-----------------------------|------------------|
| | € |
| Budget production overheads | 86,500 |
| Actual production overheads | <u>84,250</u> |
| | <u>2,250 (F)</u> |

Other overheads variance

| | |
|------------------------|------------------|
| | € |
| Budget other overheads | 31,000 |
| Actual other overheads | <u>32,250</u> |
| | <u>1,250 (A)</u> |

3 a) Quayle Products: Standard cost operating statement November 2010

| | | | Total |
|--|-------------------|------------------|---------------|
| | | | € |
| Original budgeted net profit | | | 28,000 |
| Sales profit volume variance | | | (2,425) |
| Flexed budget net profit | | | <u>25,575</u> |
| Other variances | <i>Favourable</i> | <i>(Adverse)</i> | |
| | € | € | |
| Sales price variance | 2,950 | | |
| Direct materials price variance – metals | 531 | | |
| Direct materials price variance – plastics | | (295) | |
| Direct materials quantity variance | 4,130 | | |
| Direct labour rate variance | | (413) | |
| Direct labour efficiency variance | 1,180 | | |
| Production overhead variance | 2,250 | | |
| Other overhead variance | | (1,250) | |
| Total | <u>11,041</u> | <u>(1,958)</u> | 9,083 |
| Actual net profit | | | <u>34,658</u> |

b) Reasons for price variances

There are four price variances: sales price variance, two materials price variance and labour rate variance. Taking each in turn:

Sales price variance: in this case the variance is favourable, because the price charged was higher than budget (€73 rather than €72). This increase is clearly not very large. It may have become possible to increase the price if competitors were seen to be increasing their prices. Or, possibly a major competitor has left the market allowing Quayle to increase its price.

Materials price variances: the positive price variance (for metal) may have arisen because a bulk purchase at a lower price became available, or possibly because a price negotiation was more successful than expected. The negative price variance could have arisen because a slightly better quality material was purchased.

Labour rate variance: the actual wage rate was higher than budget. This may be because wage negotiations turned out to be less favourable for the employer than originally anticipated.

In each case the variation from standard cost may simply be because the original estimates of standard costs were inaccurate.

4.

Robertson Rix

Flex the budget for overheads:

| | Original budget | Flexed budget | Actual |
|--------------------------------|-----------------|---------------|--------|
| | € | € | € |
| Variable production overheads: | | | |

| | | | |
|----------------------------|--------|--------|--------|
| 1,500 x 2.25 x € | 20,250 | | |
| 1,520 x 2.25 x € | | 20,520 | |
| Actual – given in question | | | 21,360 |
| Fixed production overheads | | | |
| 1,500 x 2.25 x €7.80 | 26,325 | | |
| 1,520 x 2.25 x €7.80 | | 26,676 | |
| Actual – given in question | | | 26,201 |

a) variable production overhead variance

| | |
|--|----------------|
| | € |
| Actual variable production overhead | 21,360 |
| Flexed budget variable production overhead | <u>20,520</u> |
| | <u>840 (A)</u> |

b) fixed production overhead variance

| | |
|---|----------------|
| Actual fixed production overhead | 26,201 |
| Flexed budget fixed production overhead | <u>26,676</u> |
| | <u>475 (F)</u> |

5. Selly Watkins

- a) An adverse sales price variance indicates that selling prices actually charged were less than budgeted. The explanation is therefore implausible.

- b) A better than expected quantity discount on materials purchases would give rise to a favourable variance. The explanation is therefore plausible.
- c) Higher quality materials would be expected to give rise to a favourable quantity variance. The explanation is implausible.
- d) The labour efficiency variance is positive and could well have arisen because the production workers are more efficient than expected. The explanation is plausible.
- e) This explanation is plausible.

Chapter 10 Questions

1. The operations of **Warkworth Sunter** are split into profit centres, all of which are required to report monthly. The basic performance criterion is that all profit centres should earn controllable profits amounting to at least 44% of sales. In BC profit centre, the accountant has extracted the following figures from the records for March 2010:

| | € |
|----------------------------------|--------|
| Sales | 65,033 |
| Depreciation of fixed assets | 6,444 |
| Administration costs (90% fixed) | 13,340 |
| Direct materials cost | 9,804 |
| Direct labour cost | 12,750 |

The administration costs are all controllable by the profit centre. Depreciation is not controllable at divisional level. Head office costs of €8,883 should also be taken into account for the month.

Required: from the information given, prepare a divisional performance statement for the profit centre BC. Does BC meet the head office basic performance criterion in March 2010?

2. **Salamander Products** manufactures a range of industrial furnaces and ovens. The directors are discussing a plan to expand the company's operations into related areas, together with an internal reorganisation to decentralise their existing activities. Georgette, the Operations Director, explains the advantages of the scheme:

“Over the next three or four years, if we follow a strategy of acquiring other businesses, we are all going to be very busy identifying investment opportunities. This company has a lot of middle management talent, and I think that the company as a whole will undoubtedly benefit from letting these people have more responsibility. If we appoint our best managers to head up the separate divisions, and give them a profit related pay incentive, they’ll be motivated to produce even better results than they do at the moment”.

Required: identify and briefly discuss two weak points that are apparent in Georgette’s arguments for splitting the company’s activities into divisions.

3. Identify each of the following statements as TRUE or FALSE

- a) Return on investment is a useful performance measure for head office management to help them identify weaknesses in cost centre management
- b) Return on investment is calculated by dividing controllable profit by investment in net assets
- c) The use of return on investment as a performance measurement can have adverse consequences for the company as a whole
- d) Return on investment is calculated by dividing divisional net profit by investment in net assets

Chapter 10 Answers

1. Warkworth Sunter

Divisional performance statement for BC for March 2010

| | € |
|--|----------|
| Sales | 65,033 |
| Less: variable costs (9 804 + 12 750 + [13 340 x 10%]) | (23,888) |
| Contribution | 41,145 |
| Less: Controllable fixed costs (13 340 x 90%) | (12,006) |
| Controllable profit | 29,139 |
| Less: Non-controllable fixed costs (depreciation) | (6,444) |
| Divisional profit before allocation of head office costs | 22,695 |
| Head office cost allocation | (8,883) |
| Divisional profit before tax | 13,812 |

Controllable profit as a percentage of sales:

$$\frac{29,139}{65,033} \times 100 = 44.8\%$$

65,033

So, BC does meet (just) head office's performance criterion.

2. Salamander Products

One of the arguments for divisionalization is that it tends, in favourable conditions, to increase managerial motivation and competitiveness. However, beyond a certain point, high levels of managerial motivation at divisional level can produce results that are dysfunctional for the company's interests as a whole. If divisional managers take a very short-term and narrow view, they may undertake activities (such as aggressive transfer price setting) that are damaging to the profitability of the business. Therefore, Georgette may be somewhat misguided in her opinion that divisionalization will benefit the company as a whole.

A related point is that profit related pay, while it certainly is an incentive, may not always be in the company's best interests. For one thing, if managers are set high targets for performance measures such as ROI, they may be motivated to misstate their division's results in order to meet the targets. Also, they may be tempted to indulge in short-termist behaviour, with the goal of meeting targets, which is not ultimately in the best interests of the company.

3. Statement 1 is FALSE – return on investment is not an appropriate performance measure for a cost centre (because cost centre managers have no control over investment).

Statement 2 is FALSE

Statement 3 is TRUE

Statement 4 is TRUE