Chapter 16 Budgeting

Questions

1. Harris Leader Limited manufactures plastic moulded briefcases. The company's directors have projected the following levels of sales for the next three months:

	Units
October 20X4	12 300
November 20X4	13 600
December 20X4	14 100

Opening stock of finished goods at 1 October 20X4 is expected to be 2000 units. The company has had some problems recently in supplying its customers promptly and the directors have decided that they will aim for a 10% increase in finished goods closing stock at the end of each of the three months.

Each briefcase uses 1.5kg of a plastic material that costs £5 per kilo. Stocks at 1 October are expected to be 6000 kg. The raw material is readily obtainable, but in order to be quite sure that the company will not run out of stock the directors would like to increase closing stock of the plastic by 10% each month for the next three months.

Required: calculate for each of the three months:

(a) the production budget (in units)

(b) the raw materials purchases budget (in £s)

2. Innisfree Ilminster Limited manufactures a range of wardrobes that it sells to furniture retailers for £106 per unit. Each unit has the following prime cost structure:

	£
Direct materials	31.00
Direct labour	20.00
Prime cost	51.00

Sales forecasts for the first four months of the financial year are as follows:

	Units
April 20X5	500
May 20X5	550
June 20X5	425
July 20X5	400

The company's management accountant has estimated that production overheads for the financial year will total £215 000. According to the company's normal practice, overheads will be recovered via an absorption rate based on machine hours. Each wardrobe requires 2 hours of machine time, and the budget machine hours total for the year is 12 000 hours.

Administrative and selling expenses are budgeted at £6000 per month for each of the four months.

Until recently the company has generally produced a net profit margin of 9–10% and a gross profit margin of about 20%. However, raw materials prices have increased substantially during the last year and it looks as though the company's margins will be threatened.

Required:

(a) calculate a budget overhead recovery rate for the 20X5/6 financial year;

(b) prepare a budget profit and loss account for each of the four months ending 31 July 20X5;

(c) comment briefly on the company's budget performance.

3. Wesley is a commodities broker in the City of London who has grown tired of his highly paid but very stressful job. Recently, his auntie Dora died, leaving him her house which is situated in a seaside resort on the South coast of England. At first, Wesley was inclined to just sell the house. However, when he was clearing away his aunt's personal belongings, he realised that it could represent a good opportunity for him to get away from the rat race. The house is large with several good-sized bedrooms, and Wesley could see its potential as a small hotel. He has never had anything to do with hotel management but he reckons it can't be that difficult.

   Wesley sets to work immediately. He obtains planning permission from the local authority for a change of use for the house, and spends the whole of his substantial annual bonus and a large sum from his savings on converting the house for use as a hotel. This involves installing several extra bathrooms, creating a car park and landscaping the grounds. When the work is complete the hotel will have ten luxury bedrooms and three large reception rooms, plus a board room which can be used for conference trade.

   The house was valued in its unconverted condition at £1.2 million, and Wesley has spent an additional £600 000 on the conversion. Even after spending all the money on conversion

Wesley is still a wealthy man, and he expects to finance the working capital of his business from his savings. Purchase of bedroom furniture, restaurant fittings and kitchen equipment amounts to a further £100 000. Finally, Wesley plans to place £30 000 in the business bank account at the beginning of his financial year in January 20X5. The total value of the house, fittings and opening cash represents his capital introduced into the business. Before Wesley hands in his notice to the commodities house in which he works, he sits down to work out a set of budgeted accounts for his first six months in business.

Wesley makes the following projections in relation to income and expenditure:

(1) He will organise an advertising campaign with a budget of £35 000. The new business will start on 1 January 20X6 and Wesley expects to pay £20 000 in the first month and £15 000 in the second month in respect of advertising.

(2) He has already picked up some conference business through his vast network of contacts. A conference is booked for three days in March for ten people at a cost of £600 per person. 20% of the fee will be received in January as a deposit, and the rest in April. However, Wesley doesn't know whether or not he will be able to secure any other conference business during the rest of the six month period. To be on the safe side, he assumes that no other business of this type will be obtained.

(3) Wesley is aiming for an average 50% occupancy rate in the first year of trading, although he knows that there will be a slow start to trading until the hotel becomes well known. Cash flows from sale of rooms are anticipated as follows:

January	31 days × 3 rooms (30% occupancy) at £145 per room	13 485
February	28 days × 4 rooms (40% occupancy) at £145 per room	16 240
March	31 days × 4 rooms (40% occupancy) at £145 per room	17 980
April	30 days × 4 rooms (40% occupancy) at £145 per room	17 400
May	31 days × 5 rooms (50% occupancy) at £145 per room	22 475
June	30 days × 5 rooms (50% occupancy) at £150 per room	22 500

Although some of the cash will be received in advance in the form of deposits, Wesley decides to assume that all the cash will be received within the month (so, for example, £16 240 will be the cash receipt from room lettings in February).

(4) The small hotel bar will be open for non-residents. The expected takings (from both residents and non-residents) are expected to be £5 000 in the first month rising after that to £6 000 each month from February to June inclusive.

(5) Wesley is prepared to spend a substantial sum on staffing to ensure that his guests are comfortable. He has reached an agreement with a well known London chef who will act as menu consultant and will assist him in hiring high-quality staff. For this the London chef will charge a consultancy fee of £1500 per month. Excluding this charge the staffing costs are expected to amount to £12 500 each month for January to April inclusive, rising to £14 000 in May and June. Wesley assumes that he will pay consultancy and staffing costs in the month in which they are incurred.

(6) The cost of food, wine, and other consumables is expected to be £6000 per month in January and February, rising to £7500 in March (because of the conference booking). £6000 is budgeted for April and May, and £7000 for June. Wesley expects to be able to obtain most of these goods on credit and will pay in the next following month (so, e.g. January's costs will be paid for in February).

(7) General administration, telephone, electricity and premises costs will average out at £3000 per month, paid in the next following month.

(8) The house is to be depreciated at a rate of 4% per year with an assumption of £1m residual value at the end of 25 years.

(9) Fixtures fittings and equipment are to be depreciated on the straight line basis over 5 years with an assumption of nil residual value at the end of that period.

You are required to prepare for Wesley's business:

(a) a budget cash flow statement for the six months to 30 June 20X5

(b) a budget profit and loss account for the six month period

(c) a budget balance sheet at 30 June 20X5

(d) a brief commentary on the first six months' budget

Spreadsheet exercises

4. Hamid & Haldane manufacture a range of cuddly toys. The business is building up stocks for anticipated high sales in November and December. At the beginning of October 20X2 finished goods stocks of the 'Snuggles' range total 325 units. By the end of the month the partners plan to have 600 'Snuggles' in stock. By the end of November this figure will increase to 750 and will fall back to 130 by the end of December.

   Planned sales of 'Snuggles' are:

October	400
November	800
December	800

   Required:

   (a) create a spreadsheet in Excel or a similar program that calculates the production budget for each of the three months;

   (b) use the spreadsheet to calculate the effect on the production budget if sales are only 90% of the original budget.

5. Wesley

   If you have not already done so, set up a spreadsheet in Excel or a similar program incorporating the cash flow data from question 3 (Wesley's hotel business). If you're feeling particularly enthusiastic you can also try setting up a profit and loss account and balance sheet on the same spreadsheet, copying relevant figures between the three statements (this is a very good way of learning how the three statements interact).

   Using your spreadsheet, answer the following questions:

   (a) What happens to the closing cash balance if room receipts are 10% better than forecast?

   (b) What happens to the closing cash balance if food and other consumables cost £7 500 in January, February, April and May, and £8 500 in March and June?

Answers

1. Harris Leader Limited

(a) Production budget (in units) October–December 20X4

Closing stock at end of October must be 10% higher than at the beginning of the month: 2000 × 110% = 2200 units. (Closing stock for October is the same as opening stock for November)

Closing stock at end of November must be 10% higher than at the beginning of the month: 2200 × 110% = 2420 units.

Closing stock at end of December must be 10% higher than at the beginning of the month: 2420 × 100% = 2662 units.

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

	Opening stock	Production	Transfers out of production (for sales)	Closing stock
	units	units	units	units
October	2 000	12 500	(12 300)	2 200
November	2 200	13 820	(13 600)	2 420
December	2 420	14 342	(14 100)	2 662

(b) Raw materials purchases budget: October–December 20X4

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

Opening stock of raw material at beginning of October = 6 000 kg × £5 = £30 000

Closing stock at end of October must be 10% higher than opening stock: £30 000 × 110% = £33 000

Closing stock at end of November must be 10% higher than opening stock: £33 000 × 110% = £36 300

Closing stock at end of December must be 10% higher than opening stock: £36 300 × 110% = £39 930

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

Opening stock	Purchases of	Raw materials used in	Closing stock of

	of raw material	raw materials	production	raw material
	£	£ (bal. fig)	£	£
October	30 000	96 750	(12 500 × 1.5kg × £5) = (93 750)	33 000
November	33 000	106 950	(13 820 × 1.5kg × £5) = (103 650)	36 300
December	36 300	111 195	(14 342 × 1.5kg × £5) = (107 565)	39 930

2. Innisfree Ilminster Limited

(a) budget overhead recovery rate for 20X5/6

<u>Budget overhead</u>	= <u>£215 000</u>	= £17.92 per hour
Machine hours	12 000	

(b) Working: production cost of one wardrobe:

	£
Prime cost (given in the question)	51.00
Production overhead: 2 hours × £17.92	<u>35.84</u>
	<u>86.84</u>

<u>Budget profit and loss account for the four months to 31 July 20X5</u>

	April	May	June	July
	£	£	£	£
Sales	500 x £106 = 53 000	550 x £106 = 58 300	425 x £106 = 45 050	400 x £106 = 42 400
Cost of sales (= production cost)	500 x £86.84 = (43 420)	550 x £86.84 = (47 762)	425 x £86.84 = (36 907)	400 x £86.84 = (34 736)
Gross profit	9 580	10 538	8 143	7 664
Admin & selling expenses	(6 000)	(6 000)	(6 000)	(6 000)
Net profit	3 580	4 538	2 143	1 664

(c) The budget gross profit margin is 18.1% (NB this is the same for each of the four months because the cost structure remains the same over the budget period).

Budget net profit margin is:

April	6.8%
May	7.8%
June	4.8%
July	3.9%

The budget gross profit margin has fallen from the usual 20%; this is probably because of the increase in raw materials prices noted by the management accountant. However, the net profit margin in all four months is substantially less than that previously achieved, and it appears that administrative and selling expenses have also increased substantially. The company should be making plans to build up its margins again, possibly by raising selling prices, but also by exerting strict control over costs.

3 Wesley

(a) Cash flow forecast for the 6 months to 30 June 20X5

	January	February	March	April	May	June	TOTAL
	£	£	£	£	£	£	£
RECEIPTS							
Conference	1 200			4 800			6 000
Rooms	13 485	16 240	17 980	17 400	22 475	22 500	110 080
Bar sales	5 000	6 000	6 000	6 000	6 000	6 000	35 000
Total receipts	19 685	22 240	23 980	28 200	28 475	28 500	151 080
PAYMENTS							
Advertising	20 000	15 000					35 000
Consultancy	1 500	1 500	1 500	1 500	1 500	1 500	9 000
Staffing	12 500	12 500	12 500	12 500	14 000	14 000	78 000
Food etc		6 000	6 000	7 500	6 000	6 000	31 500
General admin		3 000	3 000	3 000	3 000	3 000	15 000
Total	34 000	38 000	23 000	24 500	24 500	24 500	168 500
Bank account							
Opening balance	30 000	15 685	(75)	905	4 605	8 580	
Add: receipts	19 685	22 240	23 980	28 200	28 475	28 500	
Less: payments	(34 000)	(38 000)	(23 000)	(24 500)	(24 500)	(24 500)	
Closing balance	15 685	(75)	905	4605	8 580	12 580	

(b) Working 1 – Depreciation of building

Cost of building = £1 200 000 + 600 000	1 800 000
Less: residual value	(1 000 000)
Depreciable amount	800 000

4% per year = 800 000 × 4% = £32 000.

For six months: £16 000

Working 2 – Depreciation of fixtures, fittings and equipment

Cost	100 000

10% per year = £100 000 × 10% = £10 000

For six months: £5 000

Working 3

Take into account accrued expenses for food (£31 500 in the cash flow + 7 500 accrued = £39 000 in the profit and loss account).

Take into account accrued expenses for general administration (£15 000 in the cash flow + 3 000 accrued = £18 000 in the profit and loss account).

Other than the adjustments in the workings all the expense items are the same as in the cash flow statement.

Wesley: budget profit and loss account for the 6 months ending 30 June 20X5

	£	£
Sales		151 080
Less: expenses		
Advertising	35 000	
Consultancy	9 000	
Staffing	78 000	
Food and other consumables (working 3)	39 000	
General administration (working 3)	18 000	
Depreciation of building (working 1)	16 000	
Depreciation of fixtures etc. (working 2)	5 000	
		200 000
Loss		48 920

(c) Budget balance sheet at 30 June 20X5

	£	£

Fixed assets		
Hotel at cost	1 800 000	
Less: depreciation	(16 000)	
		1 784 000
Fixtures, fittings and equipment at cost	100 000	
Less: depreciation	(5 000)	
		95 000
Current asset		
Bank balance	12 580	
Current liabilities		
Accrued expenses (7 500 + 3 000)	(10 500)	
Net current assets		2 080
Total net assets		1 881 080
Capital introduced (£1 800 000 + 100 000 + 30 000)		1 930 000
Loss for the six months		(48 920)
		1 881 080

(d) Commentary on the first 6 months' budget

Wesley is budgeting a substantial loss (32% of turnover) in the first six months. Clearly, it will take a while for this new business to get established, but losses of this size cannot be sustained (even by a comparatively wealthy man) for long. It will be necessary, as in all businesses, to control costs carefully, and it might be sensible to re-examine the detail of the budgets for staffing and food, in order to ensure that these are not too extravagant.

Wesley may have been too cautious in his income predictions for the first six months. He may be able to pick up more conference business and bar sales may have been underestimated.

The budgeted cash flow statement shows only one month overdrawn, and only to the extent of £75. However, the difference between the opening and closing cash balances is substantial. If trade does not improve in the second half of the year Wesley will almost certainly have to inject more cash into his business.

In summary, the budget for the first six months trading gives some cause for concern. Wesley may find that hotel management is not quite as easy as he thinks.

Spreadsheet exercises

Answers

1. Hamid & Haldane

Month	Opening stock	Production in units	Transfers out of production (sales)	Closing stock
October	325	675	400	600
November	600	950	800	750
December	750	180	800	130

Procedure:

1. Set up months in column A and head up next four columns as shown
2. Set up opening stock and closing stock for October and closing stock for November and December. Enter budget sales for each of the three months in column D.
3. Copy cell E2 to cell B3 (i.e. October closing stock = November opening stock). Copy cell E3 to cell B4 (i.e. November closing stock = December opening stock).
4. Enter formula for production budget in cell C2:

   Closing stock + transfers out of production – opening stock

   In Excel: =sum(E2+D2–B2)

   Copy this formula to cells C3 and D3

(a) If sales are 90% of budget:

October sales = 90% × 400 = 360

November sales = 90% × 800 = 720

December sales = 90% × 800 = 720

Substitute these figures in column D of the spreadsheet and look at the effect on production. The following spreadsheet should result:

Month	Opening stock	Production in units	Transfers out of production (sales)	Closing stock
October	325	635	360	600
November	600	870	720	750
December	750	100	720	130

2. Wesley

If the figures have been transferred correctly, the following spreadsheet should result:

	January	**February**	**March**	**April**	**May**	**June**	**Total**	Accruals	P&L
RECEIPTS									
Rooms	13,485	16,240	17,980	17,400	22,475	22,500	110,080		110,080
Conference	1,200			4,800			6,000		6,000
Bar takings	5,000	6,000	6,000	6,000	6,000	6,000	35,000		
Total	**19,685**	**22,240**	**23,980**	**28,200**	**28,475**	**28,500**	**151,080**		151,080
PAYMENTS									-
Advertising	20,000	15,000					35,000		35,000
Consultancy	1,500	1,500	1,500	1,500	1,500	1,500	9,000		9,000
Staffing	12,500	12,500	12,500	12,500	14,000	14,000	78,000		78,000
Food etc		6,000	6,000	7,500	6,000	6,000	31,500	7500	39,000
General admin		3,000	3,000	3,000	3,000	3,000	15,000	3000	18,000
Total	**34,000**	**38,000**	**23,000**	**24,500**	**24,500**	**24,500**	**168,500**		168,500
								10500	
Bank account									
Opening balance	30,000	15,685	-75	905	4,605	8,580			
Receipts	19,685	22,240	23,980	28,200	28,475	28,500			
Payments	34,000	38,000	23,000	24,500	24,500	24,500			
Closing balance	15,685	-75	905	4,605	8,580	12,580			

Profit & loss account	
Sales	151,080
Expenses	
Advertising	35,000
Consultancy	9,000
Staffing	78,000
Food etc	39,000
General admin	18,000
Depreciation of property	16,000
Depreciation of fixtures etc	5,000
Total expenses	200,000
Loss	-48,920

Balance sheet		
Property at cost	1,800,000	
Less depreciation	16,000	
		1,784,000
Fixtures at cost	100,000	
Less depreciation	5,000	
		95,000
Total fixed assets		1,879,000
Bank balance		12,580
Current liabilities		
Accruals		-10,500
		1,881,080
Capital		1,930,000
Loss for 6 months		-48,920
		1,881,080

If you have not been able to set up a profit and loss account and balance sheet as well as the cash flow statement, look at the spreadsheet commands and cross references carefully to see how it is done.

(a) If Wesley's receipts are 10% better than forecast the closing cash balance improves to £23 588.

	January	**February**	**March**	**April**	**May**	**June**	**Total**	Accruals	P&L
RECEIPTS									
Rooms	14,834	17,864	19,778	19,140	24,723	24,750	121,088		121,088
Conference	1,200			4,800			6,000		6,000
Bar takings	5,000	6,000	6,000	6,000	6,000	6,000	35,000		
Total	**21,034**	**23,864**	**25,778**	**29,940**	**30,723**	**30,750**	**162,088**		162,088
PAYMENTS									-
Advertising	20,000	15,000					35,000		35,000
Consultancy	1,500	1,500	1,500	1,500	1,500	1,500	9,000		9,000
Staffing	12,500	12,500	12,500	12,500	14,000	14,000	78,000		78,000
Food etc		6,000	6,000	7,500	6,000	6,000	31,500	7500	39,000
General admin		3,000	3,000	3,000	3,000	3,000	15,000	3000	18,000
Total	**34,000**	**38,000**	**23,000**	**24,500**	**24,500**	**24,500**	**168,500**		168,500
								10500	
Bank account									
Opening balance	30,000	17,034	2,898	5,676	11,116	17,338			
Receipts	21,034	23,864	25,778	29,940	30,723	30,750			
Payments	34,000	38,000	23,000	24,500	24,500	24,500			
Closing balance	17,034	2,898	5,676	11,116	17,338	23,588			

Profit & loss account		**Balance sheet**		
Sales	162,088	Property at cost	1,800,000	
Expenses		Less depreciation	16,000	
Advertising	35,000			1,784,000
Consultancy	9,000	Fixtures at cost	100,000	
Staffing	78,000	Less depreciation	5,000	
Food etc	39,000			95,000
General admin	18,000	Total fixed assets		1,879,000
Depreciation of property	16,000	Bank balance		23,588
Depreciation of fixtures etc	5,000			
Total expenses	200,000	Accruals		-10,500
Loss	-37,912			1,892,088
		Capital		1,930,000
		Loss for 6 months		-37,912
				1,892,088

(b) If food and other consumables increase as stated in the question, the closing cash balance decreases to £5 580. It is also noticeable that the cash flow runs into an overdraft position in both February and March.

	January	**February**	**March**	**April**	**May**	**June**	**Total**	Accruals	P&L
RECEIPTS									
Rooms	13,485	16,240	17,980	17,400	22,475	22,500	110,080		
									110,080
Conference	1,200			4,800			6,000		6,000
Bar takings	5,000	6,000	6,000	6,000	6,000	6,000	35,000		
Total	**19,685**	**22,240**	**23,980**	**28,200**	**28,475**	**28,500**	**151,080**		
									151,080
PAYMENTS									-
Advertising	20,000	15,000					35,000		35,000

Consultancy	1,500	1,500	1,500	1,500	1,500	1,500	9,000		9,000
Staffing	12,500	12,500	12,500	12,500	14,000	14,000	78,000		78,000
Food etc		7,500	7,500	8,500	7,500	7,500	38,500	8500	47,000
General admin		3,000	3,000	3,000	3,000	3,000	15,000	3000	18,000
Total	**34,000**	**39,500**	**24,500**	**25,500**	**26,000**	**26,000**	**175,500**		
									175,500
								11500	
Bank account									
Opening balance	30,000	15,685	-1,575	-2,095	605	3,080			
Receipts	19,685	22,240	23,980	28,200	28,475	28,500			
Payments	34,000	39,500	24,500	25,500	26,000	26,000			
Closing balance	15,685	-1,575	-2,095	605	3,080	5,580			

Profit & loss account	
Sales	151,080
Expenses	
Advertising	35,000
Consultancy	9,000
Staffing	78,000
Food etc	47,000
General admin	18,000
Depreciation of property	16,000
Depreciation of fixtures etc	5,000
Total expenses	208,000
Loss	-56,920

Balance sheet		
Property at cost	1,800,000	
Less depreciation	16,000	
		1,784,000
Fixtures at cost	100,000	
Less depreciation	5,000	
		95,000
Total fixed assets		1,879,000
Bank balance		5,580
Current liabilities		
Accruals		-11,500
		1,873,080
Capital		1,930,000
Loss for 6 months		-56,920
		1,873,080