Decision Making for Business & Finance and Strategic Management Accounting

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3.12 Summary

Key themes in this chapter are:

- How control through the use of **standard costs** per unit leads to a more specific analysis than is available where control is through the use of budgets. Budgets give only the total cost of each line item. Standard costing allows decomposition into cost per unit and quantity of units.
- **Variances** have been defined and illustrated for:
  - direct materials (total cost variance, analysed into price and usage variances);
  - direct labour (total cost variance, analysed into rate and efficiency variances);
  - variable overhead (total cost variance, analysed into rate and efficiency variances);
  - fixed overhead (total cost variance, analysed into volume and expenditure variances);
  - sales price and sales volume.
- **Flexible budgeting** has been explained, showing that where the level of output is different from that expected when the budget was prepared, the standard costs should be used to prepare a new flexible budget for the new level of output. All variable costs should be recalculated to reflect the change in output. Fixed overhead costs are independent of activity level and therefore have no flexibility.
- The chapter has also given some flavour of the debate on the importance and usefulness of **standard costs**. They are widely used but, to be effective, must be chosen with care to meet the needs of the business and of the management purposes of planning and control.

References and further reading

Anthony, R. and Govindarajan, V. (1997) *Management Control Systems*, 9th edn. McGraw-Hill, New York.

Solomons, D. (1978) 'Flexible budgets and the analysis of overhead variances', in Antony, H.R., Firmin, P.A., and Grove, H.D. (eds), *Issues in Cost and Managerial Accounting: A Discipline in Transition*. Houghton Mifflin, Boston.

Sulaiman, M., Ahmad, N.N. and Alwi, N.M. (2005) 'Is standard costing obsolete? Empirical evidence from Malaysia, *Managerial Auditing Journal*, 20(2): 109–24.

Northcott, D. and Llewellyn, S. (2002) 'Challenges in costing health care services: recent evidence from the UK', *The International Journal of Public Sector Management*, 15(3): 188–203.

QUESTIONS

The Questions section of each chapter has three types of question. '**Test your understanding**' questions to help you review your reading are in the 'A' series of questions. You will find the answer to these by reading and thinking about the material in the textbook. '**Application**' questions to test your ability to apply technical skills are in the 'B' series of questions. Questions requiring you to show skills in '**Problem solving and evaluation**' are in the 'C' series of questions. The symbol **[S]** indicates that a solution is available at the end of the book.

A Test your understanding

A3.1 What is a standard cost (section 3.1)?

A3.2 Why are standard costs useful (section 3.2)?

A3.3 How are standard costs related to levels of output (section 3.3)?

A3.4 How are standard costs used in the control process (section 3.4)?

A3.5 How are direct materials price and usage variances calculated (section 3.5.1)?

A3.6 Give three possible causes of an adverse direct materials price variance (section 3.5.1).

A3.7 Give three possible causes of a favourable direct materials usage variance (section 3.5.1).

A3.8 How are direct labour rate and efficiency variances calculated (section 3.5.2).

A3.9 Give three possible causes of a favourable direct labour rate variance (section 3.5.2).

A3.10 Give three possible causes of an adverse direct labour efficiency variance (section 3.5.2).

A3.11 How are variable overhead cost variances calculated (section 3.5.3)?

A3.12 How are fixed overhead cost variances calculated? (section 3.5.4)?

A3.13 How are sales margin variances calculated (section 3.5.5)?

A3.14 Explain how you would identify which variances to investigate (section 3.7).

A3.15 Explain the importance of using a flexible budget with variance analysis (section 3.9).

A3.16 Give three reasons for regarding variance reports as a useful tool of management (section 3.10).

A3.17 **[S]** It was budgeted that to produce 20,000 concrete building blocks in one month would require 100,000 kg of material. In the month of May, only 16,000 blocks were produced, using 80,080 kg of material. The standard cost of materials is £3 per kg. What is the materials usage variance?

A3.18 **[S]** The standard cost of direct labour in the month of August is £36,000. There is a direct labour rate variance of £6,000 adverse and a direct labour efficiency variance of £2,500 favourable. What is the actual cost of direct labour in the month?

A3.19 **[S]** Fixed overhead for the month of October has been budgeted at £16,000 with an expectation of 8,000 units of production. The actual fixed overhead cost is £17,500 and the actual production is 7,000 units. What is the variance?

B Application

B3.1 [S]

The monthly budget of Plastics Ltd, manufacturers of specialist containers, was prepared on the following specification:

Production and sales	30,000 units
Selling price	£70 per unit
Direct materials input	5 kg per unit at a cost of £1.20 per kg
Direct labour input	2 hours per unit at a rate of £4 per hour
Variable overhead	£2 per direct labour hour
Fixed overhead	£90,000 per month

The following actual results were recorded for the month of May Year 8:

Stock of finished goods at start of month	8,000 units
Sales	40,000 units
Production	42,800 units
Stock of finished goods at end of month	10,800 units

Actual costs incurred were:

	£
Direct material	267,220 (213,776 kg at £1.25 per kg)
Direct labour	356,577
Variable overhead	165,243
Fixed overhead	95,000

Further information

(a) Throughout May the price paid for direct materials was £1.25 per kg. Direct material is used as soon as it arrives on site. No stocks of materials were held at the start or end of May.
(b) The labour rate paid throughout the month was £4.10 per hour.
(c) The selling price of finished goods was £70 per unit throughout the month.
(d) Stocks of finished goods are valued at standard cost of production.

Required

(a) Calculate the budgeted profit for May Year 8, based on the actual sales volume achieved.
(b) Calculate the cost variances for the month of May.
(c) Explain how cost variances may be used to identify responsibility for cost control within the company.

B3.2 [S]

The upholstery department of a furniture manufacturing business prepared the following statement of standard costs at the start of the calendar year:

Standard cost per unit	
	£
Direct material	250
Direct labour	150
Fixed manufacturing overhead	100
	500

In preparing the statement, it was budgeted that 100 units would be completed each month.

During the month of May the following results were reported:

	£
Direct materials cost	31,200
Direct labour cost	16,800
Fixed manufacturing overhead	9,600
	57,600

The actual level of production achieved in May was 120 units.

The budget for direct materials was based on an allowance of 10 kg materials per unit produced. The budgeted cost of materials was £25 per kg. Actual materials used during May amounted to 1,300 kg.

The budget for direct labour was based on an allowance of 15 hours per unit, at a labour rate of £10 per hour. At the start of May, an agreed incentive scheme increased the labour rate to £12 per hour. All employees receive the same rate of pay.

Stocks of finished goods are valued at full standard cost of manufacture.

Required

(a) Prepare an accounting statement reconciling the budgeted costs for the month of May with the actual costs incurred, including in your answer relevant cost variances.
(b) Suggest possible causes for the variances you have calculated.

B3.3 [S]

Carrypack Ltd manufactures and sells plastic cases for portable computers. Production each month equals sales orders received.

The following monthly budget was prepared at the start of Year 6, to apply throughout the year:

	Units	£	£
Sales (@ £50 per unit):	12,000		600,000
Production:	12,000		
Production costs:			
Direct materials		132,000	
Direct labour		108,000	
Variable overheads		72,000	
Fixed overheads		48,000	
			360,000
Budgeted profit			240,000

Further information

(a) Budgeted direct materials used per month were set at 26,400 kg.
(b) Budgeted direct labour hours per month were set at 36,000 hours.

The following actual report was produced for the month of April Year 6:

	Units	£	£
Sales (@ £50 per unit):	12,300		615,000
Production:	12,300		
Production costs:			
Direct materials		136,220	
Direct labour		129,200	
Variable overheads		72,200	
Fixed overheads		49,400	
			387,020
Actual profit			227,980

Further information

(a) Actual direct materials used during April were 27,800 kg.
(b) Actual direct labour hours worked during April were 38,000 hours.

Required

(1) Prepare an explanation, using variances, of the difference between the budgeted profit and the actual profit for the month of April.
(2) Comment on possible causes for the variances you have calculated.

B3.4

DEF Products Ltd manufactures and assembles one type of furniture unit. The following information is available for the year ended 31 August Year 7.

The budgeted costs and the actual costs incurred during the year were as follows:

Cost	*Budgeted production overhead cost* £000s	*Actual production overhead cost* £000s	*Nature of cost*
Supervision	100	85	Fixed
Machine power	30	22	Varies with machine hours
Heat and light	30	27	Varies with direct labour hours
Rates and insurance	220	203	Fixed
Lubricants	60	45	Varies with machine hours
Indirect materials	50	38	Varies with units of output
Machine depreciation	180	180	Fixed
Maintenance and repairs	80	60	Varies with machine hours
	750	660	

The budgeted and actual activity for the year was as follows:

	Machine hours	*Direct labour hours*	*Units of output*
Budget	255,000	500,000	100,000
Actual	180,000	440,000	80,000

At the end of the year, the production director made the following report to his colleagues on the board of directors: 'We budgeted for £750,000 overhead cost based on 500,000 direct labour hours. We incurred £660,000 actual cost but only worked 440,000 hours. This appears to me to be a satisfactory proportionate reduction in costs and there are consequently no adverse variances from budget to be explained.'

The other directors felt this comment ignored the distinction between fixed overhead cost and variable overhead cost. They were also concerned that the production director referred only to the fall in direct labour hours worked, when it was known that some overheads depended on the number of machine hours worked. They asked for a more detailed analysis of the expected level of overhead costs in relation to the activity levels achieved.

Required
Prepare a memorandum to the production director:

(a) proposing, with reasons, a suitable method for calculating overhead cost rates;
(b) setting out a variance analysis which distinguishes fixed overheads from variable overheads.

B3.5 [S] [CIMA question]
Which ONE of the following would **NOT** explain a favourable direct materials usage variance?

A Using a higher quality of materials than that specified in the standard.
B A reduction in materials wastage rates.
C An increase in suppliers' quality control checks.
D Achieving a lower output volume than budgeted.

CIMA Paper P1 – Management Accounting – Performance Evaluation November 2008, Question 1.2

B3.6 [S] [CIMA question]
The sales volume profit variance is defined as the difference between the:

A actual and budgeted sales volumes valued at the actual profit per unit.
B actual and budgeted sales volumes valued at the standard profit per unit.
C actual and budgeted sales volumes valued at the difference between the actual and standard profit margins.
D actual and standard profit per unit multiplied by the budgeted sales volume.

CIMA Paper P1 – Management Accounting – Performance Evaluation November 2008, Question 1.7

B3.7 [S] [CIMA question]
A company has the following total cost data available for two levels of production of one type of product:

	4,000 units	*8,000 units*
Purchasing costs	£112,000	£140,000
Supervision	£25,000	£41,000
Power	£12,000	£15,500

The current supervisor can cover production levels up to and including 5,000 units. For higher levels of production, an assistant supervisor costing £16,000 is also required.

For power, a flat fee is payable that will cover all power costs sufficient to produce up to and including 6,000 units. For production above this level there is an additional variable charge per unit.

Calculate the total flexed budget cost allowance for the production of 7,500 units.

CIMA Paper P1 – Management Accounting – Performance Evaluation November 2008, Question 1.11

B3.8 [S] [CIMA question]
State **four** factors that should be considered before the cause of a variance is investigated.

CIMA Paper P1 – Management Accounting – Performance Evaluation November 2008, Question 1.15

C Problem solving and evaluation

C3.1 [S]

The following report has been prepared for the production department of Cabinets Ltd in respect of the month of May Year 4:

	Actual costs or quantities recorded	*Variance* £
Direct materials price	£2.80 per kg	2,240 favourable
Direct materials usage	11,200 kg	4,800 adverse
Direct labour rate	£9 per hour	5,600 adverse
Direct labour efficiency	3.5 hours per unit	6,400 adverse
Fixed overhead expenditure	£39,000	3,000 adverse

The department manufactures storage cabinets. When the budget was prepared, it was expected that 1,800 units would be produced in the month but, due to a machine breakdown, only 1,600 units were produced.

Required

(a) Reconstruct the original budget, giving as much information as may be derived from the data presented above.
(b) Provide an interpretation of the performance of the production department during the month of May Year 4.

C3.2 [S]

Fixit Ltd is a manufacturing company which produces a fixed budget for planning purposes. Set out below is the fixed monthly budget of production costs, together with the actual results observed for the month of July Year 7.

	Budget	*Actual*
Units produced	5,000	5,500
	£	£
Costs:		
Direct materials	20,000	22,764
Direct labour	60,000	75,900
Variable production overhead	14,000	14,950
Fixed production overhead	10,000	9,000
Depreciation	4,000	4,000

In preparing the fixed budget, the following standards were adopted:

Direct material	10 kg of materials per unit produced.
Direct labour	2 hours per unit produced.
Variable production overhead	A cost rate per direct labour hour was calculated.
Fixed production overhead	A cost rate per unit was calculated.
Depreciation	Straight-line method is used for all assets.

The following additional information is available concerning the actual output:

(a) the actual usage of materials in July was 54,200 kg; and
(b) the nationally agreed wage rate increased to £6.60 per hour at the start of July.

Required

(a) Prepare a flexible budget in respect of Fixit Ltd for the month of July Year 7.
(b) Analyse and comment on cost variances.