MANAGEMENT AND
COST ACCOUNTING
7TH EDITION

Standard costing and variance analysis

Definition

- **Standard costs** (expected cost) are ***target costs*** for each operation that can be built up to produce ***a product standard cost***.
- A budget relates to the cost for the total activity, whereas ***standard*** relates to **a cost per unit of activity**.
- As a result there are almost always ***differences between the actual costs and the standard costs***, and those differences are known as **variances**.

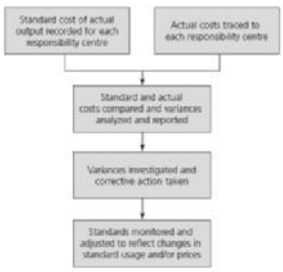
Operation of a standard costing system

1. Most suited to a series of common or repetitive organizations (this can result in the production of many different products).

Responsibility centre	Operation no. and standard cost No.	£	Products 100	101	102	103	104	105	106	Total standard cost £	Actual cost
A	1	20	✓	✓		✓	✓	✓	✓	120	
B	2	30		✓		✓		✓		90	
C	3	40	✓		✓		✓			120	
D	4	50	✓	✓	✓				✓	200	
Standard product cost			£110	£100	£90	£50	£60	£50	£70	530	

2. *Variances are traced to responsibility centres (not products).*
3. *Actual product costs are not required.*
4. *Comparisons after the event provide information for corrective action or highlight the need to revise the standards.*

An overview of a standard costing system



Establishing cost standards

1. Two approaches:
   (i) past historical records
   (ii) engineering studies
2. Engineering studies
   A detailed study of each operation is undertaken:
   - direct material standards (standard quantity × standard prices)
   - direct labour standards (standard quantity × standard prices)
   - overhead standards:
     - cannot be directly observed and studied and traced to units of output;
     - analysed into fixed and variable elements;
     - fixed tend not to be controllable in the short term.

Standard hours produced

1. Used to measure output where more than one product is produced.

Example
Standard (target) times: X = 5 hours, Y = 2 hours, Z = 3 hours
Output = 100 units of X, 200 units of Y, 300 units of Z
Standard hours produced = (100 × 5 hours) + (200 ×2 hours) + (300 ×3 hours) = 1 800 hours

2. If actual Direct Labour Hours are less than 1 800 the department will be efficient, whereas if hours exceed 1 800 the department will be inefficient.

Purposes of standard costing

1. To provide a prediction of future costs that can be used for decision-making.
2. To provide a challenging target that individuals are motivated to achieve.
3. To assist in setting budgets and evaluating performance.
4. To act as a control device by highlighting those activities that do not conform to plan.
5. To simplify the task of tracing costs to products for inventory valuation.

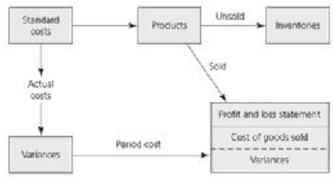


FIGURE 17.2
Standard costs for inventory valuation and profit measurement

Direct material variances

1. Material price variance /SP- standard price, AP- actual price, AQ- actual quantity/
- (SP – AP) × AQ
(£10 - £11) x 19 000 = £19 000 (Material A)→adverse
(£15 - £14) x 10 100 = £10 100 (Material B)→favourable

2. Material usage variance
- /SQ- standard quantity/
(SQ – AQ) × SP
(9 000 units x 2 kg/unit = 18 000 - 19 000) x £10 = £10 000 (Material A) →adverse
(9 000 units x 1 kg/unit = 9 000 - 10 000) x £15 = £16 500 (Material B) →adverse

3. Joint price/usage variance
- SQ x (SP – AP)= 18 000 x (10 – 11)= 18 000 (Material A) →adverse
- (SQ – AQ) x (SP – AP)= (19 000 – 18 000) x (10 – 11)= 1 000 (Material A) →adverse
- Summarize: 19 000 (Material A) →adverse

4. Total material variance = SC – AC
/SC- standard cost, AC- actual cost/

Direct labour and overhead variances

1. Wage rate variance /SR- standard wage rate, AR- actual wage rate, AH- actual number of hours worked/
- (SR – AR) × AH
(£9 - £9.60) x 28 500 = £17 100→adverse

2. Labour efficiency variance /SH- standard number of hours worked/
- (SH – AH) × SR
(9 000 units x 3 hours/unit = 27 000 - 28 500) x £9 = 13 500 →adverse

3. Variable overhead expenditure variance
- Flexed budget allowance (AH × SR) – Actual cost
(28 500 x £2 = £57 000) - £52 000 = £5 000→favourable

4. Variable overhead efficiency variance
- (SH – AH) × SR
(9 000 units x 3 hours/unit = 27 000 - 28 500) x £2 = £3 000 →adverse

5. Fixed overhead expenditure (spending) variance /BFO- budget fixed overhead, AFO- actual fixed overhead/
- BFO – AFO
£120 000 - £116 000 = £4000 →favourable

Sales variances

1. Variances should be computed in terms of contribution profit margins rather than sales revenues.

2. *Example*

Budgeted sales	= 10 000 units × £11/unit	= £110 000
Actual sales	= 12 000 units ×£10/unit	= £120 000
Variance in terms of sales value (£110 000 - £120 000)		= £10 000→favourable
Standard and actual cost per unit		= £7
Budgeted contribution profit margin	=10 000 × (11 – 7)	= £40 000
Actual contribution profit margin	=12 000 × (10 – 7)	= £36 000
Variance in terms of contribution profit margin (£40 000 - £36 000)		= £4 000→adverse

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3. Objective is to maximize profits (not sales value).

4. Total sales margin variance

AP

Actual contribution profit margin
- Actual sales (9 000 units × £90/unit) = £810 000
- Standard variable cost of sales (9 000 units × £68/unit) = <u>£612 000</u>

£198 000

SC

Budgeted contribution profit margin: 10 000 units × (£88/unit - £68/unit) = £200 000

SP

SQ

Variance = £2 000 →adverse

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