

1 Revision of management accounting

The following topics are covered in this chapter:

- Standard costing
- Flexible budgeting
- Absorption and marginal costing

1.1 STANDARD COSTING

LEARNING SUMMARY

After studying this section you should be able to:

- explain the use of standard costs
- outline the methods used to calculate standard costs.

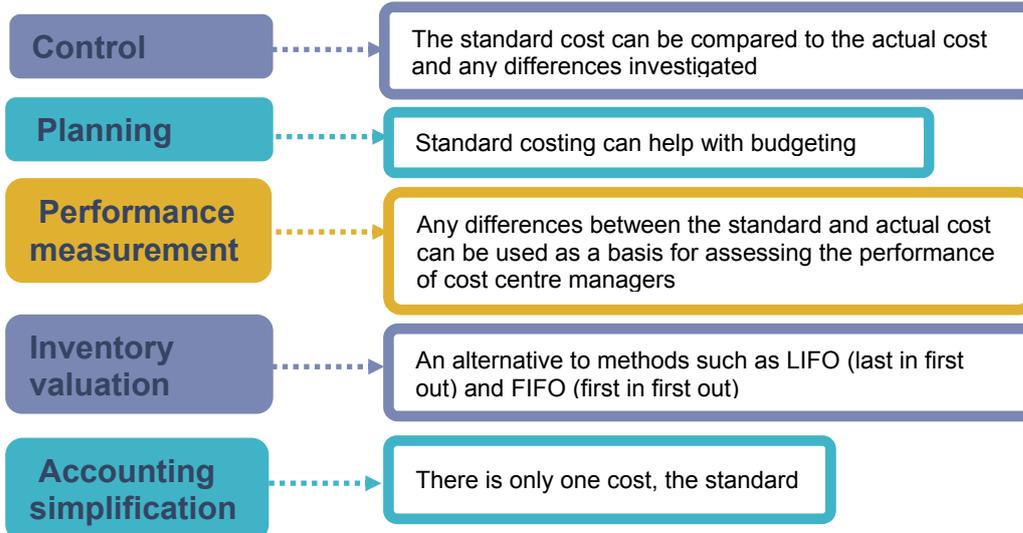


When you studied **F2 – Management Accounting** you covered a wide range of topics including **Standard Costing** and **Absorption and Marginal Costing**. This chapter gives an overview of those topics which are expanded upon in the F5 syllabus.

KEY POINT A standard cost for a product or service is an estimated unit cost which has been set under specified working conditions.



The main purposes of standard costs are:



Standard costing is most suited to organisations with:

- mass production of identical products, for example a food manufacturer
- repetitive assembly work

There are four main types of standard:

Attainable standards - based on efficient operating conditions	Include allowances for normal material losses, realistic allowances for fatigue, machine breakdowns etc. May motivate employees to work harder as they are realistic , but challenging .
Basic standards - long term standards which remain unchanged over a period of years	Show trends over time such as material prices, labour rates and efficiency and the effects of changing methods. May demotivate employees, as they may be too easy to achieve.

Current standards - based on current working conditions	Useful when current conditions are abnormal and any other standard would provide meaningless information. Do not attempt to motivate employees to improve the current working conditions.
Ideal standards - based on perfect working conditions	No allowance for wastage, breakdowns, stoppages, idle time etc. They may have an adverse motivational impact as employees may feel the standard is impossible to achieve.

Standard cost card

A **standard cost card** shows the **cost** of producing **one unit** of a product or service, based on the expected price and usage of materials, labour and overheads.

The example below shows the figures for a product with **budgeted output / sales** of **900 units**:

		\$	
Direct materials	40 x \$5.30	212	40 metres of material to make one unit
Direct labour:			
Bonding	24 x \$5.00	120	24 hours of bonding to make one unit
Finishing	15 x \$4.80	72	15 hours of finishing to make one unit
Prime cost		404	the total of direct costs
Variable overhead:			absorbed based on direct labour hours
Bonding	24 x \$1.50	36	the absorption rate is \$1.50 per hour
Finishing	15 x \$1.00	15	the absorption rate is \$1.00 per hour
Variable production cost		455	prime cost + variable overhead
Production overheads	\$36,000 ÷ 900	40	absorbed based on budgeted output
Total production cost		495	variable production cost + production overheads
Non production overheads	\$27,000 ÷ 900	30	absorbed based on budgeted output
Total cost		525	the total cost of producing one unit

The total unit cost can be used to calculate the selling price. For example:

In the standard cost card example, the **required selling price** is 25% profit on the selling price

To calculate the profit, multiply the total cost by 25 and divide by 75:

$$\$525 \times 25/75 = \$175$$

The selling price per unit is \$700 (\$525 + \$175). The profit figure can be checked as follows, \$700 x 25%.

Allowances for idle time and wastage

KEY POINT Attainable standards are set at levels which include an allowance for employees being paid when they are not working (idle time) and material wastage.





Do you understand?

- 1 The fastest time in which a batch of 20 'spicy meat special' sandwiches has been made was 32 minutes, with no hold ups. However, work studies have shown that, on average, about 8% of sandwich makers' time is non-productive and, in addition to this, setup time is 2 minutes.

If the sandwich makers are paid \$4.50 per hour, what is the attainable standard labour cost of one sandwich?

- A \$0.12
- B \$0.1275
- C \$0.138
- D \$0.225

1 C. Add the idle time ($32 \times 8/92 = 2.8$) and set up time (2) to the fastest time (32) to calculate the attainable standard time for 20 sandwiches. The cost of one sandwich is $(\$4.50 \times 36.8/60) \div 20 = \0.138 .

1.2 FLEXIBLE BUDGETING

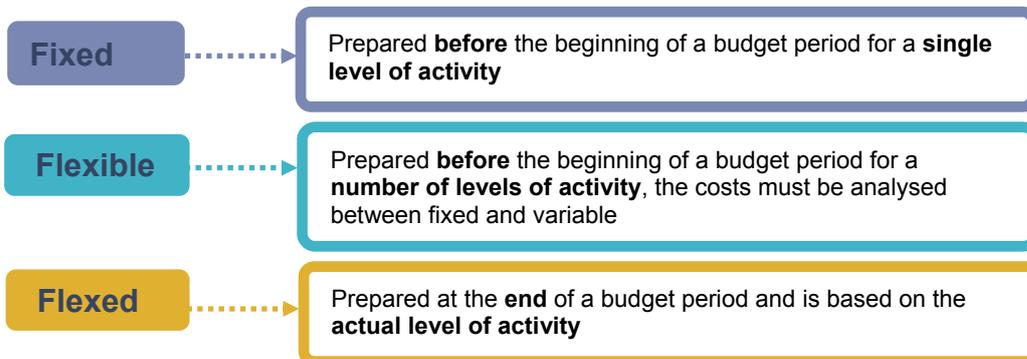
LEARNING SUMMARY

After studying this section you should be able to:

- understand the difference between fixed, flexible and flexed budgets
- flex a budget and calculate variances.



Budgets may be:



KEY POINT Budgetary control compares actual results against expected results. The difference between the two is called a variance.



DEFINITION Favourable (Fav) variance – actual results are better than expected.



DEFINITION Adverse (Adv) variance – actual results are worse than expected.



The example below shows the original **fixed budget** for a product selling **10,000 units** per month.

Actual sales were **12,000 units** and the budget has therefore been **flexed**.

The **actual** results have been **compared** to the **flexed budget** and the **variances** calculated:

	Fixed budget	Flexed budget	Actual results	Variiances
Number of units	10,000	12,000	12,000	
	\$	\$	\$	\$
Sales	100,000	120,000	125,000	5,000 (Fav)
Variable production cost	30,000	36,000	40,000	4,000 (Adv)
Fixed production cost	10,000	10,000	9,000	1,000 (Fav)
Profit	60,000	74,000	76,000	2,000 (Fav)

In the example the **fixed budget** is **based** on the **standard cost card** which shows:

- **selling price** - **\$10** per unit, this amount is multiplied by 12,000 in the flexed budget
- **variable production costs** - **\$3** per unit, this amount is multiplied by 12,000 in the flexed budget
- **fixed production costs** - **\$1** per unit, fixed production costs will remain the same, regardless of the level of output

KEY POINT Total variable costs change according to the budgeted output / sales, whereas total fixed costs remain the same.



Do you understand?



- The standard cost card for a product has been prepared based on producing and selling 5,000 units per month:
 selling price - \$30 per unit
 variable production costs - \$5 per unit
 fixed production costs - \$2 per unit
 The flexible budget for 6,000 units will show a profit of \$138,000.
 True or False

1 False. The flexible budget for 6,000 will show a profit of \$140,000, as the fixed costs remain the same regardless of the level of output. $(\$30 \times 6,000) - (\$5 \times 6,000) - (\$2 \times 5,000)$.

Controllability

KEY POINT A cost is controllable if a manager is responsible for it being incurred or can authorise expenditure.



The performance of a manager should only be evaluated on the costs over which they have control.

1.3 ABSORPTION AND MARGINAL COSTING

LEARNING SUMMARY

After studying this section you should be able to:

- understand how to calculate the cost of a unit using absorption costing
- understand how to calculate the cost of a unit using marginal costing.



Absorption and marginal costing are the traditional costing methods. The modern methods are covered in the next chapter.

Absorption costing

The aim of **absorption costing** is to determine the **full production cost per unit**

The total of:

- **direct (prime) costs**
 - **indirect costs (production overheads)**
 - **non production costs (overheads)**
- calculated per unit.

To calculate the direct costs per unit is relatively straightforward, by using both material and labour quantities and hours. However, overheads are absorbed into the total unit cost by using the **most appropriate level of activity**, this is called the **overhead absorption rate (OAR)**:

$$\text{OAR} = \frac{\text{Budgeted overhead}}{\text{Budgeted activity level}}$$

Activity levels could be:

- **number of units sold and produced**
- **direct labour hours**
- **direct machine hours**

The **overheads absorbed (OAR x actual activity level)** are **compared** with the **actual** expenditure. It is unlikely that the actual units will be the same as the budgeted units, therefore for overheads there may be an **over** or **under absorption**.

DEFINITION Over absorption – absorbed overheads are **greater** than actual. It is shown as a **CR** in the profit and loss account.



DEFINITION Under absorption – absorbed overheads are **less** than actual. It is shown as a **DR** in the profit and loss account.



Do you understand?



A company budgeted to produce 3,000 units of a product with a fixed overhead cost of \$9 per unit. Actual production was 3,200 units and actual fixed overhead expenditure was 5% above budget.

- 1 The fixed overhead absorbed is \$28,800.
True or False
- 2 The fixed overhead is over absorbed by \$1,800.
True or False

1 True: The overhead absorbed is \$28,800 (\$9 × 3,200)
 2 False: The overhead is over absorbed by \$450 ((\$9 × 3,200) – (\$9 × 3,000 × 1.05))

Marginal costing

The **marginal cost** is the cost of producing **one more unit** of a product or service, the **variable cost**

Variable costs are charged to **cost units** and fixed costs are written off in full against the total contribution.
Contribution = selling price less variable cost.

For example:

Number of units	2,500	5,000	
	\$	\$	
Sales	50,000	100,000	selling price per unit is \$20
Variable costs	30,000	60,000	variable costs per unit are \$12
Total contribution	20,000	40,000	sales less variable costs
Fixed costs	25,000	25,000	the same, regardless of the activity level
Total profit / (loss)	(5,000)	15,000	
Contribution per unit	8	8	selling price less variable costs
Profit / (loss) per unit	(2)	3	total profit ÷ number of units

The example shows that as the **number of units increases**, the profit per unit also increases. This is because the **total fixed costs** are **absorbed** into a **higher number of units**.

Do you understand?



- 1 Using the figures from the example above, the profit per unit if 10,000 units are sold is:
- A \$8.00
- B \$5.50

1 B: Total contribution is \$80,000 ((\$20 - \$12) × 10,000), less fixed costs of \$25,000, equals a total profit of \$55,000. Divided by 10,000 units = \$5.50.

Absorption costing	Marginal costing
Advantages – inventory valued in accordance with IAS2, over/ under absorption of overheads are identified	Advantages – simple to operate, profit per unit varies according to output and therefore it is useful for making decisions, fixed costs are charged in full therefore there is no over/ under absorption of overheads
Disadvantages – complex to operate, not useful for decision making as the profit per unit is constant	Disadvantages – inventory is not valued in accordance with IAS2 as the unit cost does not include overheads

Exam style questions

- 1 The ABC Company manufactures two products, Product Alpha and Product Beta. Both are produced in a very labour-intensive environment and use similar processes. Alpha and Beta differ by volume. Beta is a high-volume product, while Alpha is a low-volume product. Details of product inputs, outputs and the costs of activities are as follows:

	Direct labour hours/unit	Annual output (units)	Number of purchase orders	Number of set-ups
Alpha	5	1,200	85	60
Beta	5	12,000	75	40
			160	100

Fixed overhead costs amount to a total of \$420,000 and have been analysed as follows:

	\$
Volume-related	100,000
Purchasing related	145,000
Set-up related	175,000

Using a traditional method of overhead absorption based on labour hours, what is the overhead cost per unit for each unit of product Beta?

- A \$6.36
- B \$22.75
- C \$31.80
- D \$122.55

- 2 **Timely Co manufactures three products, X, Y and Z. Each product uses the same materials and the same type of direct labour, but in different quantities. For many years, the company has been using full absorption costing and absorbing overheads on the basis of direct labour hours. Budgeted production and sales volumes for X, Y and Z for the next year are 20,000 units, 16,000 units and 22,000 units respectively.**

The budgeted direct costs of the three products are:

	X	Y	Z
	\$ per unit	\$ per unit	\$ per unit
Direct materials	25	22	28
Direct labour (\$12 per hour)	30	36	24
Batch size (units per set-up)	5,000	8,000	4,000
Number of purchase orders per batch	40	50	40
Machine hours per unit	1.5	1.25	1.4

In the next year, Timely Co also expects to incur indirect production costs of \$1,377,400, and the company has calculated the Overhead Absorption Rate (OAR) to be \$9.70 per direct labour hour.

What is the full production cost per unit of product Z, using Timely Co's current method of absorption costing?

- A \$71.40 per unit
- B \$79.25 per unit
- C \$93.10 per unit
- D Cannot be determined without more information