

Standard costing and variance analysis

Learning outcomes:

By the end of this topic, you should be able to:

- Define standard costing and standard cost
- Understand how standards are set
- Calculate Material, Labour, Overhead and Sales variances
- Discuss, interpret and ascribe meaning to the variances

Introduction

Standard costing techniques allow a more detailed examination performance deviations from plan

Standard costing and variance analysis

A standard cost is a carefully predetermined unit cost which is prepared for each cost unit. It contains details of the expected amount and price of each resource that will be utilized production or service delivery. The predetermined costs are known as standard costs.

The total standard cost of a unit may be calculated using either marginal or absorption costing principles. The total standard cost is then calculated by taking the standard cost per unit of resource and multiplying it by the actual level of output. The difference between the total standard cost of a resource and the actual cost is the total variance (the same as the total variance in a flexible budget). The process by which the total difference between the standard and actual results are analysed is known as variance analysis.

A standard costing system has two principle uses

1. To act as a management control (estimate expected costs, compare to actuals then investigate reasons) e.g NHS Medical Professionals Shortage
2. To value inventories and cost production.
3. Setting budgets, planning and controlling
4. Decision-making and performance evaluation

Example

Preparing a standard cost card

Standard Cost Card – Product X				
	Cost	Requirement	£	£
Direct Materials				
A	£4.00 per kg	1 kgs	4.00	
B	£6.00 per kg	3 kgs	18.00	
C			3.00	25.00
Direct Labour				
Welders	£15.00 per hour	4 hours	60.00	

Assemblers	£10.00 per hour	2 hours	20.00	80.00
Fixed Prod overhead	£5.00 per hour	2 hours		10.00

Types of standards

Ideal standard

Set at full capacity level with no allowance for normal losses, waste and machine downtime. This type of ideal standard can be used if managers wish to highlight and monitor the full cost of factors such as waste etc.

However, consider practical downtime, machine hour, efficiency percentages etc

Attainable standard

Set at efficiency levels taking into account machine time, down time etc

Current standard

Standards based on current performance levels (current wastage, current inefficiencies) are known as current standards. Their disadvantage is that they do not encourage any attempt to improve on current levels of efficiency.

Basic standard

A basic standard is one which is kept unchanged over a period of time. It is used as the basis for preparing more up-to-date standards for control purposes. A basic standard may be used to show the trend in costs over a period of time.

Calculation of Direct Cost variances

The flexible budget variance is often referred to as the total variance. In a standard costingsystem this can be broken down further into a usage/efficiency variance and a price/rate variance.

Variance analysis involves breaking down the total variance to explain how much of it is caused by the usage of resources being different from the standard, and how much of it is caused by the price of resources being different from the standard. These variances can be combined to reconcile the total cost difference revealed by the comparison of the actual and standard cost. Where variances are significant and within the control of the company they should be investigated. This investigation may lead to standards being changed or new procedural policies being introduced.

Material Variances

The total material variance can be analysed further into the

- Material price variance
- Material usage variance

Product XTC500 has a standard material cost of £100 per unit (10 kilograms of material X at £10 per kilogram). During May 1,000 units were produced, using 11,700 kilograms of material X which cost £98,600.

A good variance is referred to as a Favourable Variance (F)

A bad variance is referred to as an Adverse Variance (A)

Required

Calculate

1. Total material variance (TMV)

TMV = MPV + MUV - this equation MUST always balance else there is a calculation error
 TMV – this variance shows the difference between what the ACTUAL units cost and the standard cost of those units produced

- a. The actual units were supposed to cost i.e the standard cost ($1000 \times £100$) = £100000
- b. But these actual units ACTUALLY cost (this is the actual cost) £98600
- c. The difference between the two is the variance ($100000 - 98600$) = £1400 (F)
- d. This variance could be caused either by the material price or the material usage – the TMV variance is therefore split/ divided into MUV and MPV

2. Material price variance (MPV)

MPV shows the difference between what the actual material used was supposed to cost and what they actually cost i.e the standard cost of the actual material used vs the actual cost of the ACTUAL material used

MPV calculation:

- The actual material used was supposed to cost (standard cost) $(11700 \times £10) = £117000$
- BUT These actual material actually cost (actual cost) £98600
- The difference between the two is the variance $(117000 - 98600)$ **£18400 (F)**
- Material was therefore cheaper – think of possible reasons: e.g cheaper material, supplier negotiations, new supplier, excess supply in the market

3. Material usage variance (MUV)

MUV – shows the difference between what the actual units produced were supposed to consume in terms of material (standard usage) vs what these actual units actually consume

MUV calculation:

- The actual units produced (1000) were supposed to use (10kgs per unit) $(1000 \times 10) = 10000\text{kgs}$
- BUT these 1000 units actually consumed/ used (given the scenario) 11700kgs
- The difference between the two is the variance $(10000 - 11700)$ **1700kgs (A)**
- Convert this material quantity into money by multiplying it by the Standard Cost per kg
 $1700\text{kgs} \times £10 = \text{£17000 (A)}$
- This means, we used more material per unit produced than planned. Think of possible practical reasons e.g wastage, substandard material than planned,

Testing the equation

$\text{TMV} = \text{MPV} + \text{MUV}$

$£1400 \text{ (F)} = £18400 \text{ (F)} + £17000 \text{ (A)}$

£1400 = £18400 - £17000 = £1400(F)

Solution

Total Material Variance

Total standard cost of materials	100,000
Less total actual cost of materials	<u>(98,600)</u>
	<u>£ 1,400</u> (F)

Material Price Variance

To buy 11,700 kilos should cost £10 per kilo	117,000
Did cost	<u>(98,600)</u>
	<u>£18,400</u> (F)

$$(SP - AP) \times AQ$$

$$(\text{£}10 - 98,600/11,700) \times 11,700$$

Material Usage Variance

To make 1,000 units should take 10 kilos	10,000 kilos
Did take	<u>(11,700)</u> kilos
	<u>1,700</u> (A) kilos

@standard price £10

£17,000 (A)

$$(SQ - AQ) \times SP$$

$$(10,000 - 11,700) \times$$

$$\text{£}10$$

Practice Question

MetalCrafts Limited manufactures a variety of roofing products. One such product is the Delux Aluminium Roofing sheet. The standard material cost of this product is £500 per squaremetre of aluminium with an expectation that 4 metres are required per roofing sheet. The 3,200 Delux Aluminium Roofing Sheets were produced during October 2015 for which 14,200 metres were used at a total cost of £7,210,000.

Required

1. Total material variance

- The actual units were supposed to cost i.e the standard cost $(3200 \times \text{£}500 \times 4) = \text{£}6400000$
- But these actual units ACTUALLY cost (this is the actual cost) $\text{£}7210000$
- The difference between the two is the variance $(6400000 - 7210000)$ $\text{£}810000$ (A)
- This variance could be caused either by the material price or the material usage – the TMV variance is therefore split/ divided into MUV and MPV

6. Material price variance

MPV shows the difference between what the actual material used was supposed to cost and what they actually cost i.e the standard cost of the actual material used vs the actual cost of the ACTUAL material used

MPV calculation:

- The actual material used was supposed to cost (standard cost) ($£14200 \times £500$) = £7100000
- BUT These actual material actually cost (actual cost) £7210000
- The difference between the two is the variance ($7100000 - 7210000$) £110000 (A)
- Material was therefore cheaper – think of possible reasons: e.g cheaper material, supplier negotiations, new supplier, excess supply in the market

7. Material usage variance

MUV – shows the difference between what the actual units produced were supposed to consume in terms of material (standard usage) vs what these actual units actually consume

MUV calculation:

- The actual units produced (3200) were supposed to use (4 per unit) (3200×4) = 12800
- BUT these 3200 units actually consumed/ used (given the scenario) 14200
- The difference between the two is the variance ($12800 - 14200$) 1400 m (A)
- Convert this material quantity into money by multiplying it by the Standard Cost per kg
 $1400 \times £500 = £700000$ (A)
- This means, we used more material per unit produced than planned. Think of possible practical reasons e.g wastage, substandard material than planned,

Testing the equation

$TMV = MPV + MUV$

$£810000$ (A) = $£110000$ (A) + $£700000$ (A)

$-810000 = -110000 - 700000$

Meaning of Material Variances

Material price variance

A material price variance is normally the responsibility of the purchasing department manager, and as such is controllable by the department. However it could also be due to changes in the economic environment. The following are some potential reasons behind such variances.

Favourable material price variance

- Buying cheaper materials, but potentially of poorer quality, which could lead to more wastage (impacting on the material usage variance)

Adverse material price variance

- Buying more expensive materials, this could be due to them being of superior quality (impacting on the material usage variance)
- general price increases

Material usage variance

A material usage variance is normally the responsibility of the manager of the production department and controllable by that department. The following are some of the reasons behind why such variances might occur.

Favourable material usage variance

- The purchase of superior quality materials - this could cost more and have an adverse impact on the material price variance
- Investment in new machinery or training which reduces wastage

Adverse material usage variance

- The purchase of inferior quality materials – this could have been bought more cheaply producing a favourable material price variance
- Careless handling of materials by untrained or poorly trained employees
- Poorly maintained machinery causing wastage

Always remember to read the question carefully, as some reasons for variances may be given when the question gives some background regarding the business.

Practice question

A product has a standard usage of 12 litres of material at a standard cost of £20.50 per litre. The production of the product during the last month was 24,000 units for which 312,000 litres were used at a total cost of £6,240,000.

Required

a) Total material variance

Should have cost = $24000 \times 20.50 \times 12$	£5904000
But cost	£6240000
Variance	336000 (A)

b) Material price variance

312000 should have cost 20.50 per litre (20.50×312000)	£6396000
But the 312000 I actually cost	6240000
Variance	£156000 F

c) Material usage variance

24000 should have used/ consumed 12×24000	288000 I
But these 24000 units actually used/consumed	312000 I
Variance	24000 A
Convert to money at standard cost $\text{£}20.50 \times 24000$	$\text{£}492000$ A

$$\text{TMV} = \text{MPV} + \text{MUV}$$

$$336000\text{A} = 156000\text{F} + 492000\text{A}$$

$$-336000 = 156000 - 492000 = -336000$$

- d) Explain what these variances mean and give two explanations each, as to why the above variances might have occurred.
- e) Suggest two actions that the business might undertake to correct any adverse variances

Labour variances

The total labour variance can be analysed into

- Labour rate variance
- Labour efficiency variance

These calculated in exactly the same way as the material variances

Example

A product has a standard requirement of 4 hours of direct labour per unit at a standard hourly rate of £6.50. During the last month production was 12,000 units using 45,000 hours at a total cost of £306,000

Required

1. Total labour variance (TLV)

TLV = LRV + LEV - this equation MUST always balance else there is a calculation error
 TMV – this variance shows the difference between what the ACTUAL units cost and the standard cost of those units produced

- The actual units were supposed to cost i.e the standard cost ($12000 \times 4 \text{ hours} \times £6.50$) = £312000
- But these actual units ACTUALLY cost (this is the actual cost) £306000
- The difference between the two is the variance ($312000 - 306000$) £6000 (F)
- This variance could be caused either by labour rate per hour or the efficiency of labour used – the TLV variance is therefore split/ divided into LEV and LRV

2. Labour rate variance (LRV)

LRV shows the difference between what the actual labour used was supposed to cost and what they actually cost i.e the standard cost of the actual labour used vs the actual cost of the ACTUAL labour used

LRV calculation:

- The actual labour hours used was supposed to cost (standard cost) ($45000 \times £6.50$) = £292500
- BUT These actual labour hours actually cost (actual cost) £306000
- The difference between the two is the variance ($306000 - 292500$) £13500 (A) more experienced staff, high demand for labour pushing labour rate higher etc

3. Labour efficiency variance (LEV)

LEV – shows the difference between what the actual units produced were supposed to consume in terms of labour (standard usage) vs what these actual units actually consume

LEV calculation:

- The actual units produced (12000) were supposed to use (4 hours per unit) (12000×4) = 48000 hours
- BUT these 12000 units actually consumed/ used (given the scenario) 45000 hours
- The difference between the two is the variance ($45000 - 48000$) 3000 (F)
- Convert these hours into money by multiplying it by the Standard Cost per hour

$$3000 \text{ hours} * £6.50 = £19500 \text{ (F)}$$

- e. This means, we used less labour hours per unit produced than planned. Think of possible practical reasons e.g more experienced staff etc

Testing the equation

$$TLV = LRV + LEV$$

$$£6000 \text{ F} = £13500 \text{ A} + £19500 \text{ F}$$

$$£6000 = -13500 + 19500 = £6000$$

Solution

Total Labour Variance

Total Standard Cost

12,000 x 4 hours x £6.50

£312,000

Actual Cost

(£306,000)

£ 6,000 (F)

Labour rate variance

To buy 45,000 hour should cost £6.50

£292,500

Did cost

(£306,000)

£ 13,500 (A)

(SR - AR) x actual hours

(6.50 – (306,000/45,000)) x 45,000

Labour efficiency variance

To make 12,000 units should take 4 hours

48,000 hours

Did take

(45,000) hours

3,000 hours (F)

@ standard rate £6.50

£19,500 (F)

(SH – AH) x SR

(48,000 – 45,000) x 6.50

Meaning of Labour Variances

Labour rate variance

A labour rate variance is normally the responsibility of the HR department manager, sometimes the general manager gets involved in the major wage negotiations. However this variance could be due could also be due to other external changes e.g. increase in the minimum wage. The following are some potential reasons behind such variances.

Favourable labour rate variance

- Negotiated wage increases being smaller than expected
- Hiring staff of a lower pay grade, this could impact on the efficiency of the workforce

Adverse labour rate variance

- Negotiated wage increases being larger than expected
- Unexpected increase in minimum wage

Labour efficiency variance

A labour efficiency variance is normally the responsibility of the manager of the production department. The following are some of the reasons behind why such variances might occur.

Favourable labour efficiency variance

- The purchase of superior quality materials could improve the efficiency of the workforce
 - this could cost more and have an adverse impact on the material price variance
- Investment in training which reduces wastage

Adverse labour efficiency variance

- This could be due to hiring lower grade staff, with lower than expected skill levels
- Poorly maintained machinery causing a loss in efficiency

Always remember to read the question carefully, as some reasons for variances may be given when the question gives some background regarding the business.

Practice Question

Times Limited has the following standard labour costs for 1,300 of product X. The standard cost of direct labour is £7.00 per hour and it is expected to take 1.5 hours to make a unit.

The results achieved were:

- The actual cost of direct labour was £15,500
- The actual production took 2,000 hours

Required

- Total labour variance (TLV)
 - The actual 1300 should have used 1.5 hours at £7/hour ($1300 \times 1.5 \times £7$)
£13650
 - But these actual 1300 units cost £15500
 - The difference is the variance $13650 - 15500$ £1850 A
- Labour rate variance (LRV)
 - The actual hours 2000 were supposed to cost £7/h (2000×7) £14000
 - But these actual 2000 hours actually cost £15500
 - The diff is the variance $14000 - 15500$ £1500 A
- Labour efficiency variance (LEV)
 - The actual units 1300 were supposed to consume 1.5 hours per unit (1300×1.5)
1950 hours
 - But these actual units actually consumed 2000 hours
 - The diff is the variance ($1950 - 2000$) 50 hours A
 - Convert this into cash/ money using the standard cost per hour ($50h \times £7$) £350 A

Test:

$$\begin{aligned} \text{TLV} &= \text{LRV} + \text{LEV} \\ 1850\text{A} &= 1500\text{A} + 350\text{A} \\ -1850 &= -1500 - 350 = -1850 \end{aligned}$$

- Explain what these variances mean and give two explanations each, as to why the above variances might have occurred.
- Suggest two actions that the business might undertake to correct any adverse variances

Fourth Labour ratio

Idle Time Variance (ITV) - this variance is as a result of paying for more labour hours than actually used
e.g Pluto Ltd paid for 4000 labour hours but actually used 3600 hours.

ITV = Actual labour hours paid for – Actual labour hours used

ITV is ALWAYS an adverse

- Idle Time variance (ITV)

- b) Times Limited paid for 2100 labour hours

ITV = Actual labour hours paid for – Actual labour hours used

ITV = 2000 hours – 2100 hours

ITV = 100 hours A

Convert this into money using the standard labour cost 100h *£7 = 700 A

$$\text{TLV} = \text{LRV} + \text{LEV} + \text{ITV}$$

Practice Question

Poogle Limited manufactures one product which has the following direct standard costs

	£
Direct materials 10 kg @ £5.00 per kg	50.0
	0
Direct labour 5 hours @ £6 per hour	30.0
	0
	80.0
	0

In July actual production was 10,000 units and the actual data for the month was

	£
Actual materials consumed 106,000 costing	530,500
Actual labour hours worked 50,200 costing	<u>307,200</u>

Total Prime Cost

837,700

Required

1. Calculate the material price and usage variance
2. Calculate the labour rate and efficiency

Practice question

Colette Limited manufactures handmade executive office desks. They operate a standard costing system and investigate all variances over £500. The following standard costs apply to all their products (with variations being associated with colour).

Materials	10 metres @ £3 per metre	30
Labour	20 hours @ £20 per hour	<u>400</u>
		£430

The monthly production/sales budget is 100 units at £600 selling price per unit. For December 2017 the following financial information is available

Produced/sold	106 units
Material purchased and used 1,050 metres	£ 3,045
Labour 2,040 hours	£39,780

Required

- a) Calculate the following variances
 - Material usage and price
 - Labour efficiency and rate
- b) Write a report for board of directors and explain what these variances mean, giving one reason why they might happen. Conclude by considering what management should do about as a result of the variances.

Fixed Overheads

Two ways of dealing with fixed overheads in a management accounting system

Marginal costing

Only direct costs are included in the cost of one unit. Fixed overheads are charged to the profit and loss account in their totality. In a marginal costing statement the only fixed overhead variance is the difference between what was budgeted to be spent and what was actually spent i.e. the fixed overhead expenditure variance

Absorption costing

In an absorption costing system fixed overheads are included into the cost of one unit via the Fixed Overhead Absorption Rate (FOAR). The FOAR is agreed in advance so that the planned level of output will cause enough overhead absorption to exactly match the expected overheads.

$$\text{Fixed Overhead Absorption Rate (FOAR)} = \frac{\text{Planned/Budgeted fixed overhead expenditure}}{\text{Planned/ Budgeted level of activity e.g. labour hours per unit}}$$

FOAR – is used to absorb FO during a production period.

Overabsorption - occurs when the actual absorbed overheads are more than the planned/ paid overheads. To adjust this, add back the overabsorbed FO to the profit.

Sales	400
COS	-350 (TFC 330 TVC 20): 30 overabsorbed
Gross profit	50
Less operating exp	-10
Adjustment for Over-absorbed overheads (add)	30
Profit 50-10+30	70

Under-absorption – happens when absorbed overheads are less than planned/ incurred/ actual FO. To adjust this, deduct the underabsorbed overhead from the profit.

Sales	400
COS	-310 (TFC 270 TVC 40): 30 underabsorbed
Gross profit	90
Less operating exp	-10
Adjustment for Under-absorbed overheads (deduct)	-30
Profit 90-10-30	50

In an absorption costing system, variances will occur if the elements of the overhead absorption rate are not in line with the actual figures.

- A Fixed Overhead Expenditure Variance (FOEV) will occur if the budgeted fixed overhead is different to the actual fixed overhead i.e compare budgeted to actual
- A Fixed Overhead Volume Variance (FOVV) will occur if the business absorbed more or less overhead than expected. This can be split further into
 - Fixed overhead efficiency variance, if the direct workforce operated more slowly or quicker than expected
 - Fixed overhead capacity variance, if more or less hours were worked than expected

Example

Cumfy Limited budgeted to produce 1,000 chairs during June 2022. The expected time to produce a chair is 4 hours, and the budgeted fixed overhead is £20,000. The actual fixed overhead expenditure in June 2022 was £20,450. The labour force managed to produce 1,100 chairs in 4,300 hours of work.

Total Fixed Overheads Variance (TFOV) = Total Fixed Expenditure Variance (TFEV) + Total Fixed Volume Variance (TFVV)

Required

- a) Calculate the standard fixed overhead cost of chairs (FOAR)

FOAR = Planned TFO/Planned quantity

FOAR = £20000/1000 = £20 = (4hours x £5)

Or

FOAR (per hour calc) = Planned FO/Planned total hours

= £20000/(1000*4hours)

=£20000/4000

=£5/hour

- b) Calculate the total fixed overhead variance (TFOV)

TFOV – the difference between the actual TFO and the standard expected TFO (FOAR x Actual output)

1. Actual TFO (given in question)	£20450
2. Standard TFO for 1100 units (1100*£20) or (1100*4hours * £5)	£22000
3. The difference is the variance	£1550 F

c) Calculate the fixed overheads expenditure variance (FOEV)

Total Fixed Overhead Expenditure Variance (TFOEV) - the difference between planned TFO and actual TFO.

1. Planned TFO (given in question)	£20000
2. Actual TFO (given in the question)	£20450
3. The difference is the variance	£450 A

d) Calculate the fixed overhead volume variance (FOVV)

Caused by the differences between planned out and actual output converted to money using the FOAR.

To calculate the FOVV,

- Calculate the difference between planned and actual volumes produced
- Convert to money by multiplying the volume difference by the FOAR

1. Planned volume (given in the question)	1000
2. Actual volume (given in the question)	1100
3. The difference is the variance	100 F because there is more production
4. Convert to money (100 units x FOAR) (100*£20)	£2000 F

$$\text{TFOV} = \text{TFEV} + \text{TFVV}$$

$$£1550 \text{ F} = £450 \text{ A} + £2000 \text{ F}$$

$$£1550 = -450 + 2000$$

Solution

$$\begin{aligned} \text{Overhead absorption rate} &= \frac{\text{Budgeted fixed overhead expenditure}}{\text{Budgeted level of activity e.g. labour hours per chair}} \\ &= \frac{20,000}{1,000 \times 4 \text{ hours}} \\ &= £5 \text{ per labour} \end{aligned}$$

hour Total costs is therefore £5 x 4 hours = £20 per

chair

Total fixed overhead variance (TFOV)

Total Standard cost 1,100 chairs x £5 x 4 hours

22,000

Total actual cost	(<u>20,450</u>)
	<u>£1,550</u> (F)

Fixed overhead expenditure variance (FOEV)

Budgeted fixed overhead	20,000
Actual Fixed overhead	(<u>20,450</u>)
	<u>£450</u> (A)

Fixed overhead volume variance (FOVV)

Budgeted level of activity (planned 1,000 chairs x 4 hours per chair)	4,000 hours
Standard level of activity (actual 1,100 chairs x 4 hours per chair)	(<u>4,400</u>) hours
	<u>400</u> (F)

@ standard rate £5 (convert to money using FOAR)	<u>£2,000</u> (F)
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NB: Check if correct using equation: $TFOV = FOEV + FOVV$

Practice Question 1 (individual task)

SubZero Limited has a monthly fixed overhead budget as follows

Budgeted fixed overhead cost	£100,000 per m
Budgeted monthly production	20,000 tables
Budgeted monthly machine hours	25,000 hours

A machine hour absorption rate is used. The actual overhead costs for May 2022 was £98,500, Actual production for the month was 20,300 units. 25,700 machine hours were used.

Required
Calculate

1. Calculate the cost per hour (Total FO/Total planned hours) =
 $\text{£}100000/25000 = \text{£}4$: FOAR (machine hours) = Total Planned FO/total hours
2. Calculate the planned hours per table (Total hours/total tables) =
 $25000/20000 = 1.25$ hours per table
3. Cost per table = Total Planned FO/number of tables = $100000/20000$
 $= \text{£}5 = 1.25 \text{ hours} * \text{£}4 = \text{£}5$

4. the total fixed overhead variance (TFOV)

TFOV – the difference between the actual TFO and the standard expected TFO (FOAR x Actual output)

4. Actual TFO (given in question)	£98500
5. Standard TFO for 20300 units ($20300 * \text{£}5$) or ($20300 * \text{£}4 * 1.25$)	£101500
6. The difference is the variance	£3000 F

5. the fixed overhead expenditure variance (FOEV)

Total Fixed Overhead Expenditure Variance (TFOEV) - the difference between planned TFO and actual TFO.

4. Planned TFO (given in question)	£100000
5. Actual TFO (given in the question)	£98500
The difference is the variance	£1500 F

6. the fixed overhead volume variance (TFOVV)

Caused by the differences between planned out and actual output converted to money using the FOAR.

To calculate the FOVV,

- c. Calculate the difference between planned and actual volumes produced
- d. Convert to money by multiplying the volume difference by the FOAR

5. Planned volume (given in the question)	20000
6. Actual volume (given in the question)	20300
7. The difference is the variance	300 F because there is more production
8. Convert to money (300 units x FOAR) ($300 * \text{£}5$)	£1500 F

TFOV = TFOEV + TFOVV
 $3000 \text{ F} = 1500 \text{ F} + 1500 \text{ F}$
 $3000 = 1500 + 1500$

Practice Question 2 (individual task)

Tattenhall Limited has extracted the following data in relation to its fixed overheads

Budgeted fixed overhead expenditure	£44,000
Budgeted production units	8,000
Budgeted labour hours	16,000 hours
Actual fixed overhead expenditure	£47,500
Actual production units	8,450
Actual labour hours	16,600 hours

Required
Calculate

1. the total fixed overhead variance (TFOV)

TFOV – the difference between the actual TFO and the standard expected TFO (FOAR x Actual output)

7. Actual TFO (given in question)	£47500
8. Standard TFO for 8450 * 2 hours * £2.75 (8450*£5.5)	£46475
9. The difference is the variance	£1025 A

2. the fixed overhead expenditure variance (TFOEV)

Total Fixed Overhead Expenditure Variance (TFOEV) - the difference between planned TFO and actual TFO.

6. Planned TFO (given in question)	£44000
7. Actual TFO (given in the question)	£47500
The difference is the variance	-£3500 A

3. the fixed overhead volume variance (TFOVV)

Caused by the differences between planned out and actual output converted to money using the FOAR.

To calculate the FOVV,

- e. Calculate the difference between planned and actual volumes produced
- f. Convert to money by multiplying the volume difference by the FOAR

9. Planned volume (given in the question)	8000
10. Actual volume (given in the question)	8450
11. The difference is the variance	450 F because there is more production
12. Convert to money (450 units x FOAR) (450*£5.5)	£2475 F

$$\text{TFOV} = \text{TFOEV} + \text{TFOVV}$$

$$1025 A = 3500 A + 2475 F$$

$$-1025 = -3500 + 2475$$

Interpreting Fixed Overhead Variances

Fixed overhead expenditure variance

The responsibility for this variance will depend on the cause of the variance e.g. if an adverse variance is mainly due to managerial salaries being higher than anticipated this would be the responsibility of the HR department or the general manager. Also whether the variance is controllable or uncontrollable will depend on the cause of the variance e.g. the previous example would be controllable by the organisation, however an adverse variance caused by a large increase in business rates would be uncontrollable.

The following are some potential reasons behind such

variances. Favourable fixed overhead expenditure variance

- Fixed costs being less than anticipated e.g. the price of stationery materials being less than expected
- More economical use of fixed overhead services e.g. a reduction in the use of stationery

Adverse fixed overhead expenditure variance

- Fixed costs being more than anticipated e.g. rent being higher than anticipated
- An increase in the use of certain resource e.g. rent increase because one more leased shop was added to the portfolio, which was not included in the budget

Fixed overhead volume variance

The volume variance arises because the actual volume of production was different from the planned volume.

Favourable fixed overhead volume variance

- An increase in demand requiring production levels to increase

Adverse fixed overhead volume variance

- Shortage of materials requiring the level of production to be reduced

Adverse economic conditions leading to a shrinkage of demand