Case study: Variance investigation: a surprise result

This is the solution to the case study found at the end of:

- Chapter 17 *Standard costing, flexible budgeting and variance analysis*

Part 1

(i) Flexed budget for 1650 units for March 20X4

	£
Sales: 1 650 units × £103	169 950
Costs	
Direct materials: 1 650 units × (12 metres × £2.50 per metre)	(49 500)
Direct materials: 1 650 units × 1 bag of metal components × £4.50	(7 425)
Direct materials: 1 650 units × 1 packaging box × £3.50	(5 775)
Direct labour: 1 650 units × (2.5 hours × £6.00 per hour)	(24 750)
Variable production overheads: 1 650 units × (1.5 machine hours per unit × £4)	(9 900)
Fixed production overheads: 1 650 units × (1.5 machine hours per unit × £10)	(24 750)
	47 850
Selling and administration overheads	(16 600)
Net profit	31 250

The summary of original budget, flexed budget and actual statements is as

follows:

	Original budget	Flexed budget	Actual
	£	£	£
Sales	164 800	169 950	169 9
Costs			
Direct materials: wood	(48 000)	(49 500)	(54 3
Direct materials: components	(7 200)	(7 425)	(7 4
Direct materials: packaging	(5 600)	(5 775)	(5 7
Direct labour	(24 000)	(24 750)	(23 7
Variable production overheads	(9 600)	(9 900)	(10 6
Fixed production overheads	(24 000)	(24 750)	(23 9
	46 400	47 850	44 6
Selling and administration overheads	(16 600)	(16 600)	(16 4
Net profit	29 800	31 250	28 2

(ii) Calculation of variances

Sales volume profit variance

	£	
Flexed budget net profit		
Original budget net profit		
Sales volume profit variance		(F)

There are no variances for sales price or for direct materials (components and packaging).

Direct materials price variance

	£	
Actual quantity at actual price		
12.2 metres was used for each of 1 650 units		
actual quantity used is 12.2 metres × 1 650 = 20 130 metres		
20 130 metres × price actually paid (£2.70)	54 351	
Actual quantity at standard price		
20 130 metres × standard price (£2.50)	50 325	
Direct materials price variance	4 026	(A)

Direct materials quantity variance

	£	
Actual quantity at standard price		
Actual quantity used (already worked out): 20 130 metres		
Standard price per metre: £2.50		
Actual quantity at standard price = 20 130 × £2.50	50 325	
Standard quantity at standard price		
Standard quantity: 12 metres × 1 650 units = 19 800 metres		
Standard price per metre: £2.50		
Standard quantity at standard price = 19 800 × £2.50	49 500	
Direct materials quantity variance	825	(A)

There is no variance for direct labour rate (because the actual rate of £6.00 is the same as the budget).

Direct labour efficiency variance

	£	
Actual hours at standard rate		
Actual hours used: 1 650 units × 2.4 hours = 3 960 hours		
Standard rate per hour: £6.00		
Actual hours at standard rate = 3 960 ×£6.00	23 760	
Standard hours at standard rate		
Standard hours: 1 650 units × 2.5 hours = 4 125 hours		
Standard rate per hour: £6.00		
Standard hours at standard rate = 4 125 × £6.00	24 750	
Direct labour efficiency variance	990	(F)

Variable overhead variance

	£
Actual expenditure	
Expenditure	10 050
Overhead absorbed at standard machine hours	
1 650 units at 1.5 hours of machine time (standard rate) = 2 475 hours	
At the absorption rate of £4.00 per hour: £4.00 × 2 475	9 900

Variable overhead variance	150	(A)

Fixed overhead variance

	£	
Actual expenditure		
Expenditure	23 960	
Expenditure absorbed		
Standard machine hours used in production x absorption rate: 1 650	24 750	
× 1.5 machine hours × £10		
Fixed overhead variance	790	(F)

Selling and administration overhead variance

	£	
Actual expenditure	16 420	
Originally budgeted	16 600	
	180	(F)

We can now insert the variance figures for March into the quarterly statement:

Francis & Follett Limited: Standard cost operating statements for the quarter ending 31 March 20X4

	January	February	March
	£	£	£

Budget net profit (original)	28 350	29 800	29 800
Sales profit volume variance	1 450	1 450	1 450
Flexed budget net profit	29 800	31 250	31 250
Sales price variance	—	—	—
Direct materials price variance	(3 904)	(3 934)	(4 026)
Direct materials quantity variance	(360)	(413)	(825)
Direct labour rate variance	—	—	—
Direct labour efficiency variance	990	990	990
Variable overhead variance	(592)	(460)	(150)
Fixed overhead variance	776	750	790
Selling and administration overhead variance	210	(26)	180
Actual net profit	26 920	28 157	28 209

Part 2

Sylvie arranges a meeting with Andrea, Phil and Faroukh to discuss the first quarterly standard cost operating statement. The discussion runs as follows:

Sylvie: In each of the three months we've been using the standard costing system we've had better than budgeted sales, so the sales profit volume increase has been positive.

Phil: Yes, I think actually we were a bit on the cautious side in setting the sales budget; the market's looking good, and realistically I think we can expect to do better than budget for most of the rest of the year.

Sylvie: I don't see anything really to worry about in the overheads variances. Actual spend has been very close to budget levels across the various classes of overhead.

Faroukh: Yes, I think we're doing well on production overhead control. One of the cutting machines is getting a bit old and tired and I think we should be looking to replace it by the end of the year – it's causing a few problems on the shop floor. But, generally, morale is very good, especially now that everybody's had their annual bonus. That's why we're doing better than expected on labour efficiency.

Sylvie: The big problem area, as I'm sure you can see from the statement, is in direct materials. We've got smallish usage variances – no more than around 3% of flexed budget – and I actually now think we perhaps were a bit overambitious when we set the budget usage. But what about the price variance?

Faroukh: I had a word with Perry in January about this and he said that he's been using Lambert's almost exclusively for wood, because of delivery problems with the other suppliers. Unfortunately, Lambert's seems to charge more than the others.

Andrea: But I don't quite understand this – I met Chris Lambert at the Chamber of Commerce dinner the other night and he said the market for timber is very competitive and they've had to cut most of their prices to stay competitive.

Faroukh: It doesn't really make sense. I'll have another word with Perry and see if I can get to the bottom of the problem.

A few days after the meeting Faroukh asks Perry again about the raw materials costs. Perry gives him the same answer as before, but Faroukh is now sure that there's a real problem with the purchasing. He asks Perry for more detailed information, but Perry says that he'll discuss it further tomorrow – he has to leave early for a doctor's appointment.

Faroukh rings Chris Lambert to discuss pricing. Chris looks up the price of the timber and confirms that it has been steady at £2.50 per metre since the start of the year. He has no immediate answer to the question of why Lambert's invoices to Francis & Follett show a price of £2.70 per metre, but he promises to look into it straight away. Two hours later Chris Lambert turns up in person holding a bundle of recent copy invoices, all showing a price of £2.50, and Faroukh realises that something is seriously wrong. His suspicions are strengthened when Perry does not come to work on the following day.

Upon further investigation, it emerges that Francis & Follett has been the victim of a purchasing fraud cooked up between Perry and his very close friend, Judith, who is Chris Lambert's office administrator. Judith, who deals with all the invoicing and receipts of cash, has also stopped turning up for work. The operation of the fraud has been as follows: Perry has ensured that Lambert's receives a large number of the company's orders for timber. Judith has invoiced Francis & Follett for the correct quantities of timber, but at an inflated price. Copy invoices kept at Lambert's, however, show the correct price. When Francis & Follett pay their monthly timber bill, Judith pays all of their cheques into a bank account she has opened in the name of 'Lamberts' and writes out cheques for a lower amount to pay into the genuine Lambert's business account. Because she controls both paying in of receipts and

invoicing, her boss is very unlikely ever to notice that anything is wrong. The proceeds of the scam, which, it emerges, goes back over several years, have been split 50:50 between Judith and Perry.

Discussion

The second part of the case demonstrates the importance of investigating all variances thoroughly, and of tracking variances from period to period to see if they indicate persistent problems. Francis & Follett has not previously had a standard costing budgetary system and it seems likely that the identification of this problem has only emerged because of the tighter control that is now being exercised over the company's activities.

Purchasing frauds, of the type described here, occur relatively frequently, but are difficult to detect. Because Judith is responsible for so many aspects of the administration of what is, presumably, quite a small business, she has been able to carry out the fraud successfully over a long period. Collusion between employees of different companies makes detection even more difficult. Also, from Francis & Follett's point of view, Perry has been an employee for a long time, and throughout a period of growth. It is quite likely that his activities are not tightly controlled and that he has had a high level of autonomy in decision making about purchases.

The costs of such a fraud can be substantial. In this case, 20p was added to the price of a metre of wood; each unit of product requires 12 metres, so the additional cost would be 12 × 20p = £2.40 per unit. Even though, presumably, not all of the timber would be purchased from Lambert's, the amount of cash siphoned off by the criminals could have been very significant indeed over a period of years.

In conclusion, the case study demonstrates how useful a system of full budgetary control can be, and how important it is for management to keep a tight control over the activities of the business.