

Chapter 12

FLEXIBLE BUDGETS, OVERHEAD COST VARIANCES AND MANAGEMENT CONTROL

12-1 Effective planning of variable overhead costs involves:

1. Planning to undertake only those variable overhead activities that add value for customers using the product or service, and
2. Planning to use the drivers of costs in those activities in the most efficient way.

12-2 At the start of an accounting period, a larger percentage of fixed overhead costs are locked-in than is the case with variable overhead costs. When planning fixed overhead costs, a company must choose the appropriate level of capacity or investment that will benefit the company over a long time. This is a strategic decision.

12-3 The key differences are how direct costs are traced to a cost object and how indirect costs are allocated to a cost object:

	Actual Costing	Standard Costing
Direct costs	Actual prices × Actual inputs used	Standard prices × Standard inputs allowed for actual output
Indirect costs	Actual indirect rate × Actual inputs used	Standard indirect cost-allocation rate × Standard quantity of cost-allocation base allowed for actual output

12-4 Steps in developing a budgeted variable-overhead cost rate are:

1. Choose the period to be used for the budget,
2. Select the cost-allocation bases to use in allocating variable overhead costs to the output produced,
3. Identify the variable overhead costs associated with each cost-allocation base, and
4. Compute the rate per unit of each cost-allocation base used to allocate variable overhead costs to output produced.

12-5 Steps in developing a budgeted fixed-overhead rate are:

1. Choose the period to use for the budget,
2. Select the cost-allocation bases to use in allocating fixed overhead costs to output produced,
3. Identify the fixed-overhead costs associated with each cost-allocation base, and
4. Compute the rate per unit of each cost-allocation base used to allocate fixed overhead costs to output produced.

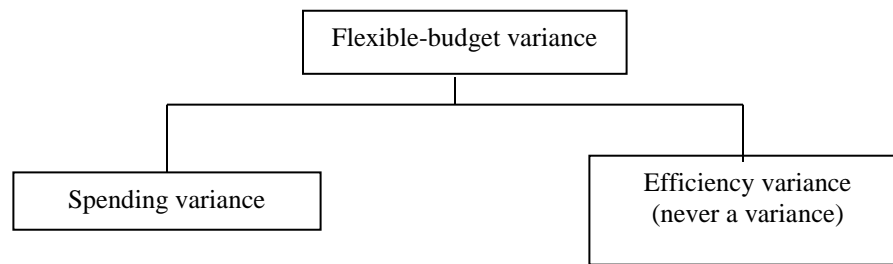
12-7 Possible reasons for a favourable variable-overhead efficiency variance are:

- Workers were more skilful in using machines than budgeted,
- Production scheduler was able to schedule jobs better than budgeted, resulting in lower-than-budgeted machine-hours,

- Machines were operated with fewer slowdowns than budgeted, and
- Machine time standards were overly lenient.

12-8 A direct materials efficiency variance indicates whether more or less direct materials were used than was budgeted for the actual output achieved. A variable manufacturing overhead efficiency variance indicates whether more or less of the chosen allocation base was used than was budgeted for the actual output achieved.

12-9 The relationship for fixed-manufacturing overhead variances is:



There is never an efficiency variance for fixed overhead because managers cannot be more or less efficient in dealing with an amount that is fixed regardless of the output level. The result is that the flexible-budget variance amount is the same as the spending variance for fixed-manufacturing overhead.

- 12-10** (a) For planning and control purposes, fixed overhead costs are a lump sum amount that is not controlled on a per-unit basis.
 (b) For inventory costing purposes, fixed overhead costs are allocated to products on a per-unit basis.

12-11 An important caveat is what change in selling price might have been necessary to attain the level of sales assumed in the denominator of the fixed manufacturing overhead rate. For example, the entry of a new low-price competitor may have reduced demand below the denominator level if the budgeted selling price was maintained. An unfavourable production-volume variance may be small relative to the selling-price variance had prices been dropped to attain the denominator level of unit sales.

12-14 Interdependencies among the variances could arise for the spending and efficiency variances. For example, if the chosen allocation base for the variable overhead efficiency variance is only one of several cost drivers, the variable overhead spending variance will include the effect of the other cost drivers. As a second example, interdependencies can be induced when there are misclassifications of costs as fixed when they are variable, and vice versa.

12-18 (30 min.) Variable manufacturing overhead variance analysis

1. Denominator level = (3 200 000 × 0.02 hours) = 64 000 hours
- 2.

	Actual Results	Flexible Budget Amounts
1. Output units (baguettes)	2 800 000	2 800 000
2. Direct manufacturing labour-hours	50 400	56 000 ^a
3. Labour-hours per output unit (2 ÷1)	0.018	0.020
4. Variable manuf. overhead (MOH) costs	A\$680 400	A\$560 000
5. Variable MOH per labour-hour (4 ÷2)	A\$13.50	A\$10
6. Variable MOH per output unit (4 ÷1)	A\$0.243	A\$0.200

^a2 800 000 × 0.02= 56 000 hours

Variable manufacturing overhead variance analysis for French Bread Company for 2014:

Actual Costs Incurred Actual Input Qty. × Actual Rate (1)	Actual Input Qty. × Budgeted Rate (2)	Flexible Budget: Budgeted Input Qty. Allowed for Actual Output × Budgeted Rate (3)	Allocated: Budgeted Input Qty. Allowed for Actual Output × Budgeted Rate (4)
(50 400 × A\$13.50) A\$680 400	(50 400 × A\$10) A\$504 000	(56 000 × A\$10) A\$560 000	(56 000 × A\$10) A\$560 000
↑ A\$176 400 U Spending variance	↑ A\$56 000 F Efficiency variance	↑ Never a variance	↑ Never a variance
↑ A\$120 400 U Flexible-budget variance		↑ Never a variance	

3. Spending variance of A\$176 400U. It is unfavourable because variable manufacturing overhead was 35% higher than planned. A possible explanation could be an increase in energy rates relative to the rate per standard labour-hour assumed in the flexible budget.

Efficiency variance of A\$56 000F is favourable because the actual number of direct manufacturing labour-hours required was lower than the number of hours in the flexible budget. Labour was more efficient in producing the baguettes than management had anticipated in the budget. This could occur because of improved morale in the company, which could result from an increase in wages or an improvement in the compensation scheme.

Flexible-budget variance of A\$120 400 U. It is unfavourable because the favourable efficiency variance was not large enough to compensate for the large unfavourable spending variance.

12-19 (30 min.) **Fixed manufacturing overhead variance analysis (continuation of 12-18)**

1. Budgeted standard direct manufacturing labour used = 0.02 per baguette
 Budgeted output = 3 200 000 baguettes

Budgeted standard direct manufacturing labour-hours:
 = 3 200 000 × 0.02
 = 64 000 hours

Budgeted fixed manufacturing overhead costs:
 = 64 000 × A\$4.00 per hour
 = A\$256 000

Actual output = 2 800 000 baguettes

Allocated fixed manufacturing overhead:
 = 2 800 000 × 0.02 × A\$4.00
 = A\$224 000

Fixed manufacturing overhead variance analysis for French Bread Company for 2014:

Actual Costs Incurred (1)	Same Budgeted Lump Sum (as in Static Budget) Regardless of Output Level (2)	Flexible Budget: Same Budgeted Lump Sum (as in Static Budget) Regardless of Output Level (3)	Allocated: Budgeted Input Qty. Allowed for Actual Output × Budgeted Rate (4)
A\$272 000	A\$256 000	A\$256 000	(2 800 000 × 0.02 × A\$4) = A\$224 000

2. The fixed manufacturing overhead is underallocated by A\$48 000.

3. The production-volume variance of A\$32 000 U captures the difference between the budgeted 3 200 000 baguettes and the lower actual 2 800 000 baguettes produced—the fixed cost capacity not used. The spending variance of A\$16 000 unfavourable means that the actual aggregate of fixed costs (A\$272 000) exceeds the budget amount (A\$256 000). For example, monthly leasing rates for baguette-making machines may have increased above those in the budget for 2014.

12-40 (30–40 min.) **Comprehensive review of Chapters 11 and 12, working backward from given variances**

1. Solution Exhibit 12-40 (on the following page) outlines the framework underlying this solution:
 - a. Kilograms of direct materials purchased = $A\$176\,000 \div A\1.10
= 160 000 kilograms
 - b. Kilograms of excess direct materials used = $A\$69\,000 \div A\11.50
= 6000 kilograms
 - c. Variable manufacturing overhead spending variance = $A\$10\,350 - A\$18\,000$
= A\$7650 F
 - d. Standard direct manufacturing labour rate = $A\$800\,000 \div 40\,000$ hours
= A\$20 per hour
Actual direct manufacturing labour rate = $A\$20 + A\$0.50 = A\$20.50$
Actual direct manufacturing labour-hours = $A\$522\,750 \div A\20.50
= 25 500 hours
 - e. Standard variable manufacturing overhead rate = $A\$480\,000 \div 40\,000$
= A\$12 per direct manuf. labour-hour
Variable manuf. overhead efficiency variance of $A\$18\,000 \div A\12
= 1500 excess hours
Actual hours – Excess hours = Standard hours allowed for units produced
 $25\,500 - 1500 = 24\,000$ hours

- f. Budgeted fixed manufacturing overhead rate = $A\$640\,000 \div 40\,000$ hours
 = $A\$16$ per direct manuf. labour-hour
 Fixed manufacturing overhead allocated = $A\$16 \times 24\,000$ hours
 = $A\$384\,000$

$$\begin{aligned} \text{Production-volume variance} &= A\$640\,000 - A\$384\,000 \\ &= A\$256\,000 \text{ U} \end{aligned}$$

2. The control of variable manufacturing overhead requires the identification of the cost drivers for such items as energy, supplies, and repairs. Control often entails monitoring non-financial measures that affect each cost item, one by one. Examples are kilowatts used, quantities of lubricants used, and repair parts and hours used. The most convincing way to discover why overhead performance did not agree with a budget is to investigate possible causes, line item by line item.

Individual fixed overhead items are not usually affected very much by day-to-day control. Instead, they are controlled periodically through planning decisions and budgeting procedures that may sometimes have planning horizons covering six months or a year (for example, management salaries) and sometimes covering many years (for example, long-term leases and depreciation on plant and equipment).

SOLUTION EXHIBIT 12-40

	Actual Costs Incurred (Actual Input Qty. × Actual Rate)	Actual Input Qty. × Budgeted Rate Purchases Usage	Flexible Budget: Budgeted Input Qty. Allowed for Actual Output × Budgeted Rate
Direct Materials	160 000 × A\$10.40 A\$1 664 000	160 000 × A\$11.50 A\$1 840 000	96 000 × A\$11.50 A\$1 104 000
		3 × 30 000 × A\$11.50 A\$1 035 000	
	↑ A\$176 000 F Price variance		↑ A\$69 000 U Efficiency variance
Direct Manuf. Labour	25 500 × A\$20.50 A\$522 750	25 500 × A\$20 A\$510 000	24 000 × A\$20 A\$480 000
		↑ A\$12 750 U Price variance	↑ A\$30 000 U Efficiency variance
		↑ A\$42 750 U Flexible-budget variance	

	Actual Costs Incurred Actual Input Qty. × Actual Rate	Actual Input Qty. × Budgeted Rate	Flexible Budget: Budgeted Input Qty. Allowed for Actual Output × Budgeted Rate	Allocated: Budgeted Input Qty. Allowed for Actual Output × Budgeted Rate
Variable MOH	25 500 × A\$11.70 A\$298 350	25 500 × A\$12 A\$306 000	24 000 × A\$12 A\$288 000	24 000 × A\$12 A\$288 000
	↑ A\$7 650 F Spending variance		↑ A\$18 000 U Efficiency	↑ Never a variance
	↑ A\$10 350 U Flexible-budget variance		↑ Never a variance	

	Actual Costs Incurred (1)	Same Budgeted Lump Sum (as in Static Budget) Regardless of Output Level (2)	Flexible Budget: Same Budgeted Lump Sum (as in Static Budget) Regardless of Output Level (3)	Allocated: Budgeted Input Qty. Allowed for Actual Output × Budgeted Rate (4)
Fixed MOH	A\$597 460	A\$640 000	40 000 × A\$16 A\$640 000	24 000 × A\$16 A\$384 000
	↑ A\$42 540 F Spending variance		↑ Never a variance	↑ A\$256 000 U
	↑ A\$42 540 F Flexible-budget variance		↑ A\$256 000 U Production volume variance	