

Flexible Budgets and Standard Costs

© McGraw-Hill Education. All rights reserved. Authorized only for instructor use in the classroom. No reproduction or further distribution permitted without the prior written consent of McGraw-Hill Education.

1

Learning Objectives (1 of 2)

CONCEPTUAL

- C1** Define standard costs and explain how standard cost information is useful for management by exception.
- C2** Describe cost variances and what they reveal about performance.

ANALYTICAL

- A1** Analyze changes in sales from expected amounts.

2

Learning Objectives (2 of 2)

PROCEDURAL

- P1** Prepare a flexible budget and interpret a flexible budget performance report.
- P2** Compute materials and labor variances.
- P3** Compute overhead spending and efficiency variances.
- P4** Compute overhead spending and efficiency variances. (Appendix 21A)
- P5** Prepare journal entries for standard costs and account for price and quantity variances. (Appendix 21A)

Fixed and Flexible Budgets

Managers use budgets to control operations and see that planned objectives are met.

- A *master budget* based on a predicted level of activity for the budget period.
- Two alternative approaches: *fixed* or *flexible budgeting*.
- A **fixed budget**, or *static budget*, based on a single predicted amount of sales or other activity measure.
- A **flexible budget**, or *variable budget*, based on several different amounts of sales.

Fixed Budget Performance Report

A fixed budget is based on a single predicted amount of sales.

Exhibit 21.2

SOLCEL Fixed Budget Performance Report For Month Ended January 31, 2017			
	Fixed Budget	Actual Results	Variances*
Sales (in units)	10,000	12,000	
Sales (in dollars)	\$100,000	\$125,000	\$25,000 F
Cost of goods sold			
Direct materials	10,000	13,000	3,000 U
Direct labor	15,000	20,000	5,000 U
Overhead			
Factory supplies	2,000	2,100	100 U
Utilities	3,000	4,000	1,000 U
Depreciation—Machinery	8,000	8,000	0
Supervisory salaries	11,000	11,000	0
Selling expenses			
Sales commissions	9,000	10,800	1,800 U
Shipping expenses	4,000	4,300	300 U
General and administrative expenses			
Office supplies	5,000	5,200	200 U
Insurance expenses	1,000	1,200	200 U
Depreciation—Office equipment	7,000	7,000	0
Administrative salaries	13,000	13,000	0
Total expenses	88,000	99,600	11,600 U
Income from operations	\$ 12,000	\$ 25,400	\$13,400 F

* F = Favorable variance; U = Unfavorable variance.

© McGraw-Hill Education.

21-5

5

Purpose of Flexible Budgets

- Flexible Budgets
 - Show revenues and expenses that should have occurred at the actual level of activity.
 - May be prepared for several activity levels in the relevant range.
 - Reveal variances due to good cost control or lack of cost control.
 - Improve performance evaluation and helps managers focus on problem areas.

© McGraw-Hill Education.

21-6

6

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

Preparation of Flexible Budgets (1 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

- To **flex** a budget for different activity levels, we must know how costs behave with changes in activity levels.
 - **Total variable** costs **change** in direct proportion to changes in activity.
 - **Total fixed** costs remain unchanged within the relevant range.

Preparation of Flexible Budgets (2 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

SolCel Flexible Budgets For the Month Ended January 31, 2017					
	Flexible Budget		Flexible Budget for Unit Sales of		
	Variable Amount per Unit	Total Fixed Cost	10,000	12,000	14,000
Sales:	\$ 10.00		\$ 100,000	\$ 120,000	\$ 140,000
Total variable costs	4.80		48,000	57,600	67,200
Contribution margin	<u>\$ 5.20</u>		<u>\$ 52,000</u>	<u>\$ 62,400</u>	<u>\$ 72,800</u>
Total fixed costs		\$ 40,000	40,000	40,000	40,000
Income from operations			<u>\$ 12,000</u>	<u>\$ 22,400</u>	<u>\$ 32,800</u>

© McGraw-Hill Education.

21-9

9

Preparation of Flexible Budgets (3 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

- Variable costs are a constant amount per unit.
- Total variable cost = \$4.80 per unit × budget level in units
- Total Fixed costs **do not change** within the relevant range.

© McGraw-Hill Education.

21-10

10

Flexible Budget Performance Report (1 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

- A **flexible budget performance report** compares actual performance and budgeted performance based on actual sales. In SolCel's case, January's sales are 12,000 units.

Flexible Budget Performance Report (2 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

Optel Flexible Budget Performance Report For the Month Ended January 31, 2015					
	Variable Amount per Unit	Total Fixed Cost	Budget for 12,000 Units	Actual for 12,000 Units	Variances
Sales (12,000 units)	\$ 10.00		\$120,000	\$125,000	\$ 5,000 <i>F</i>
Total variable costs	4.80		57,600	59,400	1,800 <i>U</i>
Contribution margin	<u>\$ 5.20</u>		\$ 62,400	\$ 65,600	\$ 3,200 <i>F</i>
Total fixed costs		<u>\$40,000</u>	40,000	40,200	200 <i>U</i>
Income from operations			<u>\$ 22,400</u>	<u>\$ 25,400</u>	\$ 3,000 <i>F</i>

Flexible Budget Performance Report (3 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

- Favorable sales variance indicates that the average selling price was greater than \$10.00 per unit.
- Favorable variance because favorable sales variance is greater than unfavorable cost variances.

NEED-TO-KNOW 21-1 (1 of 2)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

A manufacturing company reports the fixed budget and actual results for the year as shown below. The company's fixed budget assumes a selling price of \$40 per unit. The fixed budget is based on 20,000 units of sales, and the actual results are based on 24,000 units of sales. Prepare a flexible budget performance report for the year. Label variances as favorable (F) or unfavorable (U).

NEED-TO-KNOW 21-1 (2 of 2)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

	Fixed Budget (20,000 units)	Actual Results (24,000 units)
Sales	\$800,000	\$972,000
Variable costs	160,000	240,000
Fixed costs	500,000	490,000

Budget assumptions:		
Selling price per unit	\$40.00	(\$800,000 divided by 20,000 units)
Variable cost per unit	\$8.00	(\$160,000 divided by 20,000 units)

	Budget Assumptions	Flexible Budget (24,000 units)
Sales	$\$40.00 \times 24,000 \text{ units} =$	\$960,000
Variable costs	$\$8.00 \times 24,000 \text{ units} =$	192,000
Fixed costs		500,000

© McGraw-Hill Education.

21-15

15

NEED-TO-KNOW 21-1 SOLUTION (1 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

A manufacturing company reports the fixed budget and actual results for the year as shown below. The company's fixed budget assumes a selling price of \$40 per unit. The fixed budget is based on 20,000 units of sales, and the actual results are based on 24,000 units of sales. Prepare a flexible budget performance report for the year. Label variances as favorable (F) or unfavorable (U).

© McGraw-Hill Education.

21-16

16

NEED-TO-KNOW 21-1 SOLUTION (2 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

	Fixed Budget (20,000 units)	Actual Results (24,000 units)
Sales	\$800,000	\$972,000
Variable costs	160,000	240,000
Fixed costs	500,000	490,000

	Budget Assumptions	Flexible Budget (24,000 units)
Sales	$\$40.00 \times 24,000 \text{ units} =$	\$960,000
Variable costs	$\$8.00 \times 24,000 \text{ units} =$	192,000
Fixed costs		500,000

© McGraw-Hill Education.

21-17

17

NEED-TO-KNOW 21-1 SOLUTION (3 of 3)

Learning Objective P1: Prepare a flexible budget and interpret a flexible budget performance report.

FLEXIBLE BUDGET PERFORMANCE REPORT

	Flexible Budget (24,000 units)	Actual Results (24,000 units)	Variance	
Sales	\$960,000	\$972,000	\$12,000	Favorable (F)
Variable costs	<u>192,000</u>	<u>240,000</u>	<u>48,000</u>	Unfavorable (U)
Contribution margin	768,000	732,000	36,000	Unfavorable (U)
Fixed costs	<u>500,000</u>	<u>490,000</u>	<u>10,000</u>	Favorable (F)
Net income	<u>268,000</u>	<u>242,000</u>	<u>26,000</u>	Unfavorable (U)

© McGraw-Hill Education.

21-18

18

Learning Objective C1: Define standard costs and explain how standard cost information is useful for management by exception.

Standard Costs

Learning Objective C1: Define standard costs and explain how standard cost information is useful for management by exception.

Standard costs can be used in a flexible budgeting system to enable management to better understand the reasons for variances

- Standard costs are
 - Based on carefully predetermined amounts.
 - Used for planning materials, labor, and overhead requirements.
 - The expected level of performance.
 - Benchmarks for measuring performance.

Identifying Standard Costs

Learning Objective C1: Define standard costs and explain how standard cost information is useful for management by exception.

- Managerial accountants, engineers, personnel administrators, and other managers combine their efforts to set standard costs.
- Standards should be challenging but attainable, and should acknowledge machine breakdowns, material waste, and idle time.
- Engineer
- Production Manager
- Human Resources Manager
- Managerial Accountant

Setting Standard Costs (1 of 3)

Learning Objective C1: Define standard costs and explain how standard cost information is useful for management by exception.

- **Direct Materials**
 - Price Standards
 - Quantity Standards
- **Direct Labor**
 - Rate Standards
 - Time Standards
- **Variable Overhead**
 - Rate Standards
 - Activity Standards

Setting Standard Costs (2 of 3)

Learning Objective C1: Define standard costs and explain how standard cost information is useful for management by exception.

The standard costs of direct materials, direct labor, and overhead for one bat, manufactured by *ProBat*, are shown below. This is called a *standard cost card*.

Exhibit 21.5

STANDARD COST CARD

Production factor	Standard Quantity	Standard Cost per unit	Total Standard Cost
Direct materials	1 kg	\$ 25 per kg	\$25
Direct labor	2 hours	\$ 20 per hour	40
Overhead	2 labor hours	\$ 10 per hour	20
Total			\$85

© McGraw-Hill Education.

21-23

23

Setting Standard Costs (3 of 3)

Learning Objective C1: Define standard costs and explain how standard cost information is useful for management by exception.

These standard cost amounts are then used to prepare manufacturing budgets for a budgeted level of production.

© McGraw-Hill Education.

21-24

24

Learning Objective C2: Describe cost variances and what they reveal about performance.

Cost Variances

Learning Objective C2: Describe cost variances and what they reveal about performance.

- *Cost variance* difference between actual and standard cost.
- if actual cost > standard cost Variance is unfavorable (U).
- If actual cost < standard cost Variance is favorable (F).

Cost Variance Analysis (1 of 2)

Learning Objective C2: Describe cost variances and what they reveal about performance.

- Prepare Reports → Analyze Variances → Questions and Answers → Take Action
- The process is repeated again.
- Variance analysis involves preparing a standard cost performance report and comparing actual costs with standard costs.
- We then investigate variances by asking for explanations and possible causes for the variances.

Cost Variance Analysis (2 of 2)

Learning Objective C2: Describe cost variances and what they reveal about performance.

- We should correct problems that caused unfavorable variances and possibly adopt and reward the practices that resulted in favorable variances.

Cost Variance Computation (1 of 2)

Learning Objective C2: Describe cost variances and what they reveal about performance.

Management needs information about the factors causing a cost variance, but first it must properly compute the variance. In its most simple form, a cost variance (CV) is computed as:

- $\text{Cost Variance (CV)} = \text{Actual Cost (AC)} - \text{Standard Cost (SC)}$
- $\text{Actual Cost (AC)} = \text{Actual Quantity (AQ)} \times \text{Actual Price (AP)}$
- $\text{Standard Cost (SC)} = \text{Standard Quantity (SQ)} \times \text{Standard Price (SP)}$

Cost Variance Computation (2 of 2)

Learning Objective C2: Describe cost variances and what they reveal about performance.

- **Actual quantity (AQ)** is the actual amount of material or labor used to manufacture the actual quantity of output.
- **Standard quantity (SQ)** is the standard amount of input for the actual quantity of output.
- **Actual price (AP)** is the actual amount paid to acquire the actual direct material or direct labor used during the period.
- **Standard price (SP)** is the standard price.

General Model of Price and Quantity Variances

Learning Objective C2: Describe cost variances and what they reveal about performance.

Two main factors cause a cost variance:

- **Cost Variance**

- Price Variance $(AQ \times AP) - (AQ \times SP)$
 - Difference between the actual **price** and standard **price**
- Quantity Variance $(AQ \times SP) - (SQ \times SP)$
 - Difference between actual **quantity** and standard **quantity**

Isolating these price and quantity factors in a cost variance lead to these formulas.

Cost Variance Computation (1 of 3)

Learning Objective C2: Describe cost variances and what they reveal about performance.

- **Standard quantity:** Standard quantity is the quantity that **should have been used** for the actual good output.
- Price Variance
 - Actual Quantity \times Actual Price
 - Actual Quantity \times Standard Price
- Quantity Variance
 - Actual Quantity \times Standard Price
 - Standard Quantity \times Standard Price

Cost Variance Computation (2 of 3)

Learning Objective C2: Describe cost variances and what they reveal about performance.

- **Standard Price:** Standard price is the amount that should have been paid for the resources acquired.

Cost Variance Computation (3 of 3)

Learning Objective C2: Describe cost variances and what they reveal about performance.

$$\begin{array}{cccc} \overbrace{\text{Actual Cost}} & & & \overbrace{\text{Standard Cost}} \\ \text{Actual Quantity} & \text{Actual Quantity} & \text{Actual Quantity} & \text{Standard Quantity} \\ \times & \times & \times & \times \\ \hline \text{Actual Price} & \text{Standard Price} & \text{Standard Price} & \text{Standard Price} \\ \hline \text{Price Variance} & & \text{Quantity Variance} & \end{array}$$

$$(\text{AP} - \text{SP}) \times \text{AQ}$$

$$(\text{AQ} - \text{SQ}) \times \text{SP}$$

AQ = Actual Quantity

SP = Standard Price

AP = Actual Price

SQ = Standard Quantity