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|  | **Flexible Budgets, Direct-Cost Variances, and Management Control** |
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**Transition Notes**

The discussion of the different levels of variance analysis has been streamlined, making for a more readable text. The links between the production variances and the sales-volume variances have been emphasized and tightened. Problem material in this chapter has been heavily revised, with a number of new problems and exercises introduced.

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| **Problem Material**  **Correlation Chart** |

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| --- | --- | --- | --- | --- | --- |
|  | **15th**  **Edition** | **14th**  **Edition** |  | **15th**  **Edition** | **14th**  **Edition** |
|  | 16 | 16 |  | 30 | 30 Revised |
|  | 17 | 17 |  | 31 | 31 Revised |
|  | 18 | 18 |  | 32 | 32 Revised |
|  | 19 | 19 |  | 33 | 33 Revised |
|  | 20 | 20 Revised |  | 34 | 34 Revised |
|  | 21 | 21 |  | 35 | 35 Revised |
|  | 22 | 22 |  | 36 | 36 Revised |
|  | 23 | 23 Revised |  | 37 | 37 Revised |
|  | 24 | 24 |  | 38 | 38 Revised |
|  | 25 | 25 Revised |  | 39 | 39 Revised |
|  | 26 | 26 Revised |  | 40 | 40 Revised |
|  | 27 | 27 Revised |  | 41 | 41 Revised |
|  | 28 | 28 Revised |  | 42 | 42 Revised |
|  | 29 | 29 Revised |  |  |  |

**I. LEARNING OBJECTIVES**

1. Understand static budgets and static-budget variances.
2. Examine the concept of a flexible budget and learn how to develop it.
3. Calculate flexible-budget variances and sales-volume variances.
4. Explain why standard costs are often used in variance analysis.
5. Compute price variances and efficiency variances for direct-cost categories.
6. Understand how managers use variances.
7. Describe benchmarking and explain its role in cost management.
8. **CHAPTER SYNOPSIS**

This chapter introduces the concept of flexible budgets and variances. Direct-cost variances—direct materials price and efficiency variances and direct labor price and efficiency variances are calculated and analyzed. In addition, managerial use of variances and benchmarking are discussed.

**III. Points of Emphasis**

1. Students will find this material difficult. It is not enough to lecture on the material, variance analysis must be demonstrated and the students must be engaged to the point of calculating variances on their own. It is helpful to walk through the variance exhibits given in the chapter. Also, Exhibit 7–1 can be a useful template for the students in performing variance analysis. The comprehensive variance analysis problems at the end of the chapter are good to reinforce these concepts.
2. Be certain the students understand the interrelationships of efficiency and effectiveness and how easy it may become to emphasize one to the detriment of the other. In addition, emphasize the other uses of variance analysis—organizational learning and continuous improvement. Students can tolerate variance analysis much more readily if they perceive their usefulness.

**IV. CHAPTER OUTLINE**

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| **LEARNING**  **OBJECTIVE** | 1 |
| Understand static budgets  … the master budget based on output planned at start of period  and static-budget variances  … the difference between actual result and the corresponding amount in the static budget | |
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1.1 A **variance** is the difference between the actual results and the expected performance otherwise known as **budgeted performance.**

1.2 Variances enable managers to utilize **management by exception** as they highlight areas that are not operating as expected.

1.3 A **static budget,** or master budget, is based on planned output and is prepared at the start of the budget period.

1.4 A **static-budget variance,** then, is the difference between actual results and the budgeted amounts in the static budget.

1.5 A **favorable variance** results when actual revenues exceed budgeted amounts or when actual costs are less than budgeted costs.

1.6 An **unfavorable variance** results when actual revenues are less than budgeted amounts or when actual costs exceed budgeted costs.

(Exhibit 7-1 illustrates the static-budget variance analysis for the Webb Company.)

Teaching Point. At this point it is good to emphasize two points about variances. First, variance analysis is not simple. In order to fully understand variance analysis, one needs to understand the terminology. However, variance analysis is very valuable in that it can provide much useful information about how the company is operating. Second, the variances illustrated in this chapter (and others) are only the beginning of variance analysis. Anytime there are budgeted and actual amounts, a variance can be calculated.

**Refer to Quiz Question 1**

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| **LEARNING**  **OBJECTIVE** | 2 |
| Examine the concept of a flexible budget  … the budget that is adjusted (flexed) to recognize the actual output level  and learn how to develop it  … proportionately increase variable costs; keep fixed costs the same | |
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* 1. A flexible budget adjusts the master budget using actual output to recalculate revenue and variable costs for the budget period. This allows management to compare actual results with budgeted results for that activity level. The three-step process for developing the flexible budget is as follows:
* Identify the actual output quantity.
* Calculate flexible budget revenues (budgeted selling price × actual quantity).
* Calculate flexible budget costs (budgeted per-unit variable cost × actual quantity plus fixed costs).

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| **LEARNING**  **OBJECTIVE** | 3 |
| Compute flexible-budget variances  … each flexible-budget variance is the difference between an actual result and a flexible-budget amount  and sales-volume variances  … each sales-volume variance is the difference between a flexible-budget amount and a static-budget amount | |
|  | |

* 1. The **sales-volume variance** is the difference between the flexible budget (at actual output) and the corresponding static budget amount.
  2. The **flexible-budget variance** is the difference between actual revenues or costs and the corresponding flexible budget amounts.
  3. The flexible-budget variance for revenues is called the **selling-price variance** as it arises only from the difference between the actual selling price and the budgeted selling price.

(Exhibits 7-2 and 7-3 display flexible-budget variance analysis for the Webb Company.)

(Exhibit 7-4 illustrates the relationship between static and flexible-budget variances.)

**Refer to Quiz Questions 2 and 3 Exercises 7-16 through 7-20**

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| **LEARNING**  **OBJECTIVE** | 4 |
| Explain why standard costs are often used in variance analysis  … standard costs exclude past inefficiencies and take into account expected future changes | |
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4.1 A **standard** is a carefully determined price, cost, or quantity that is used as a benchmark for judging performance. It is usually expressed on a per-unit basis.

* A **standard input** is a quantity of input such as 2 pounds of raw material or one direct labor hour for each completed unit.
* A **standard price** is the price a company expects to pay for a unit of input, such as $10 per direct labor hour.
* A **standard cost** is the cost to the company of a unit of output, such as direct material cost of a completed unit.

Teaching point. Involve the students in a discussion of standards. A good example of a standard is the speed limits on the interstate highway. There is both a minimum and a maximum standard, expressed as minimum speed and the speed limit.

4.2 A standard can be thought of as a budget for one unit of product.

4.3 Standards, as used in variance analysis, have two advantages:

* They seek to exclude past efficiencies.
* They take into account changes expected to occur in the budget period.

4.4 Standards also simplify product costing, enabling the company to cost a product immediately upon its completion.

**Refer to Quiz Question 4**

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| **LEARNING**  **OBJECTIVE** | 5 |
| Compute price variances  … each price variance is the difference between an actual input price and a budgeted input price  and efficiency variances  … each efficiency variance is the difference between an actual input quantity and a budgeted input quantity for actual output  for direct-cost categories | |
|  | |

5.1 The total variance for direct materials and direct labor can be subdivided into two components—price and efficiency. These two variances help explain the two reasons that the actual cost differs from the budgeted numbers.

Teaching point. Sometimes these variances go by other names. The direct-material variances may be called price and usage variances. The direct-labor variances may be called rate and efficiency variances. This should be pointed out to the students. As the variance for both direct cost categories are calculated in a similar manner, it is less confusing to the student to use the consistent terminology of price and efficiency.

5.2 The **price variance** (or input-price variance) reflects the difference between an actual input price and a budgeted input price. When referring to direct labor, this is sometimes called the rate variance.

Price Variance = (Actual Price/Unit – Budgeted Price/Unit) × Actual Quantity of Input (such as direct materials used)

5.3 The **efficiency variance** reflects the difference between an actual input quantity and a budgeted input quantity. For direct materials, this is sometimes referred to as the usage variance.

Efficiency Variance = (Actual Qty of Input – Budgeted Qty of Input) × Budgeted Price of Input

Teaching point. At this point it is important to demonstrate the calculation of the variances and get the students engaged in calculating them on their own.

5.4 In a standard cost system, inputs are recorded at standard. The impact of this is that the variances are isolated and recorded in the accounting system. In addition to simplifying product costing, this procedure draws attention to the variances. What becomes visible (variances) is more likely to receive management attention.

Teaching point. It is a good idea to walk the students through the journal entries for a standard costing system. This demonstrates the effects of recording inputs at standard cost. It also demonstrates drawing attention to the variances.

**Refer to Quiz Questions 5 and 6 Exercises 7-21 and 7-22; Problems 7-35 and 7-37**

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| **LEARNING**  **OBJECTIVE** | 6 |
| Understand how managers use variances  … managers use variances to improve future performance | |
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6.1 Managers use variances in three ways:

* To evaluate performance after decisions are implemented
* To trigger organizational learning
* To make continuous improvements

6.2 Variances should not be interpreted in isolation. The cause of a variance in one part of the value chain may be related to decisions made in another.

Teaching point. Discuss possible causes of variances and how one may affect another. For example, a favorable materials price variance may give rise to an unfavorable efficiency variance if the cheaper material is of lower quality. This may also result in an unfavorable labor efficiency variance as the workers find the lower-quality material more difficult to work with.

Also, a favorable direct materials efficiency variance may be due to an experienced workforce. However, experienced workers are paid more and there may be an unfavorable direct labor price variance as a result. The opposite can be true with inexperienced workers.

6.3 Variances should be investigated when they are considered material. Frequently, this may be a subjective judgment or rule of thumb. It is equally important to investigate favorable variances as unfavorable. For example, all variances resulting from defective raw materials might be investigated, regardless of amount.

6.4 Managerial performance evaluation occurs on two dimensions—effectiveness and efficiency.

* **Effectiveness** is the degree to which a predetermined objective or target is met.
* **Efficiency** is the relative amount of inputs used to achieve a given output level.

Teaching point. A manager of a restaurant once persuaded a group to have their annual banquet in his facility. However, in order to do so, he had to provide them with a degree of privacy. So he rented a portable partition to provide this privacy. Unfortunately, the cost of renting the partition almost equaled the revenue generated from the banquet (not even considering food and labor costs). The manager was effective in generating revenues, but he did not do it efficiently.

6.5 The second use of variances is organizational learning. Managers need to understand why variances arise, learn from them, and improve future performance.

6.6 Finally, variances are used to create a cycle of continuous improvement by identifying causes of the variances, initiating corrective actions, and evaluating the results of those actions.

6.7 Most companies utilize a combination of financial and nonfinancial measures for planning and control. Focusing on one or the other can result in an undue emphasis on that type of measure.

**Refer to Quiz Question 7 Problem 7-35**

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| **LEARNING**  **OBJECTIVE** | 7 |
| Describe benchmarking and explain its role in cost management  … benchmarking compares actual performance against the best levels of performance | |
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7.1 **Benchmarking** is the continuous process of comparing the levels of performance in producing products and services and executing activities against the best levels of performance in competing companies or in companies having similar processes.

7.2 Managers will know the company will be competitive if it can attain the standards set by benchmarking.

Teaching point. It may be difficult for a company to attain sufficient information from competitors to set a valid benchmark. The company should not hesitate to look outside the industry. For example, if they want to benchmark their accounts receivable function, find a company who is not a competitor and benchmark against that company. Another approach would be to benchmark against the best within the company. One hotel chain selected its own properties as benchmark properties. The downtown Atlanta property may have been the benchmark for customer service, for example.

(Exhibit 7-5 displays a benchmark comparison of airline costs/revenues per seat mile.)

**Refer to Quiz Question 9 Problem 7-38**

**V. OTHER RESOURCES**

To download these and other resources, visit the Instructor’s Resource Center [*www.pearsonhighered.com*](http://www.pearsonhighered.com/).

The following exhibits were mentioned in this chapter of the Instructor’s Manual, and have been included in the **PowerPoint Lecture presentation** created specifically for this chapter. You may use the PowerPoint Lecture presentations “as is”, or modify them to suit your individual needs.

Exhibit 7-1 illustrates the static-budget variance analysis for the Webb Company.

Exhibits 7-2 and 7-3 display flexible-budget variance analysis for the Webb Company.

Exhibit 7-4 illustrates the relationship between static and flexible budget variances.

Exhibit 7-5 displays a benchmark comparison of airline costs/revenues per seat mile.

**CHAPTER 7 QUIZ**

1. [CMA Adapted] Flexible budgets
2. accommodate changes in the inflation rate.
3. accommodate changes in activity levels.
4. are used to evaluate capacity utilization.
5. are static budgets that have been revised for changes in price(s).
6. [CMA Adapted] The following information is available for the Gabriel Products Company for the month of July:

Static Budget Actual

Units 5,000 5,100

Sales revenue $60,000 $58,650

Variable manufacturing costs $15,000 $16,320

Fixed manufacturing costs $18,000 $17,000

Variable marketing and administrative expense $10,000 $10,500

Fixed marketing and administrative expense $12,000 $11,000

The total sales-volume variance for the month of July would be

a. $2,550 unfavorable.

b. $1,350 unfavorable.

c. $700 favorable.

d. $100 favorable.

1. [CMA Adapted] Bartholomew Corporation’s master budget calls for the production of 6,000 units of product monthly. The master budget includes indirect labor of $396,000 annually; Bartholomew considers indirect labor to be a variable cost. During the month of September, 5,600 units of product were produced, and indirect labor costs of $30,970 were incurred. A performance report utilizing flexible budgeting would report a flexible-budget variance for indirect labor of

a. $170 unfavorable.

b. $170 favorable.

c. $2,030 unfavorable.

d. $2,030 favorable.

1. Which of the following is *not* an advantage for using standard costs for variance analysis?
2. Standards simplify product costing.
3. Standards are developed using past costs and are available at a relatively low cost.
4. Standards are usually expressed on a per-unit basis.
5. Standards can take into account expected changes planned to occur in the budgeted period.
6. Information on Pruitt Company’s direct-material costs for the month of July 2005 was as follows:

Actual quantity purchased 30,000 units

Actual unit purchase price $2.75

Materials purchase-price variance

—unfavorable (based on purchases) $1,500

Standard quantity allowed for actual production 24,000 units

Actual quantity used 22,000 units

[CPA Adapted] For July 2005 there was a favorable direct-materials efficiency variance of

a. $7,950.

b. $5,500.

c. $5,400.

d. $5,600.

1. Information for Garner Company’s direct-labor costs for the month of September 2005 was as follows:

Actual direct-labor hours 34,500 hours

Standard direct-labor hours 35,000 hours

Total direct-labor payroll $241,500

Direct-labor efficiency variance—favorable $ 3,200

[CPA Adapted] What is Garner’s direct-labor price (or rate) variance?

a. $21,000 favorable

b. $21,000 unfavorable

c. $17,250 unfavorable

d. $20,700 unfavorable

1. Performance evaluation using variance analysis should guard against
2. emphasis on a single performance measure.
3. emphasis on total company objectives.
4. basing effect of a manager’s action on total costs of the company as a whole.
5. highlighting individual aspects of performance.
6. The basic principles and concepts of variance analysis can be applied to activity-based costing
7. by application as to the levels of cost hierarchy.
8. through careful classification of costs as direct and indirect as applied to the product or job.
9. with use of standard costing systems only.
10. only through those activities related to individual units of product or service.
11. Benchmarking is
12. relatively easy to do with the amount of available financial information about companies.
13. best done with the best in their field regardless of type of company.
14. simply reporting the magnitude of differences in costs or revenues across companies.
15. making comparisons to direct attention to why differences in costs exist across companies.

**CHAPTER 7 QUIZ SOLUTIONS**

# 1. b

# 2. c

# 3. a

# 4. b

# 5. c

# 6. d

# 7. a

# 8. a

# 9. d

**Quiz Question Calculations**

2. 5,100 – 5,000 = 100 units × $7\* = $700F

Unit CM = 60,000 – 15,000 – 10,000/35,000 = $7

3. Actual DL $30,970

Flexible budget 5,600 × $5.50 30,800

Flexible budget variance 170 U

5. Actual price 30,000 × 2.75 82,500

Minus unfavorable price variance 1,500

Materials at standard 81,000

81,000/30,000 = $2.70 standard price per unit

Actual quantity 22,000 units

Standard quantity 24,000 units

Efficiency variance 2,000 × 1.70 = $5,400 F

6. Actual direct labor cost $241,500

Standard 34,500 × 6.40 $220,800

Price variance 20.700 U

Standard rate = 3,200/(35,000 – 34,500) = $6.40

**FLEXIBLE-BUDGET AND SALES-VOLUME VARIANCE ANALYSIS**

**Actual Results: Flexible Budget: Static Budget:**

Actual Units Sold Actual Units Sold Budgeted Units Sold

X Actual Sales Mix X Actual Sales Mix X Budgeted Sales Mix

X Actual CM/unit X Budgeted CM/unit X Budgeted CM/unit

| - - - - Flexible budget variance - - - - | - - - - Sales-volume variance - - - - |

| - - - - - - - - - - - - - - - - - - - Static-budget variance - - - - - -- - - - - - - - - - |

**SALES-MIX AND SALES-QUANTITY VARIANCE ANALYSIS**

**Flexible Budget: Static Budget:**

Actual Units Sold Actual Units Sold Budgeted Units Sold

X Actual Sales Mix X Budgeted Sales Mix X Budgeted Sales Mix

X Budgeted CM/unit X Budgeted CM/unit X Budgeted CM/unit

| - - - - - - Sales-mix variance - - - - - | - - - - Sales-quantity variance - - - - |

| - - - - - - - - - - - - - - - - - - - Sales-volume variance - - - - - - - - - - - - - - - |

**MARKET-SHARE AND MARKET-SIZE VARIANCE ANALYSIS**

**Flexible Budget: Static Budget:**

Actual Market Size Actual Market Size Budgeted Market Size

X Actual Market Share X Budgeted Market Share X Budgeted Market Share

X Budgeted CM/unit X Budgeted CM/unit X Budgeted CM/unit

| - - - - - - Market-share variance - - - - - | - - - - Market-size variance - - - - |

| - - - - - - - - - - - - - - - - - - - Sales-quantity variance - - - - - - - - - - - - - - - |

**INPUT PRICE AND EFFICIENCY VARIANCES**

**Actual Costs: Flexible Budget:**

Actual Input Actual Input Budgeted Input (for actual output)

X Actual Price X Budgeted Price X Budgeted Price

| - - - - - - - Price variance - - - - - - - | - - - - - - - Efficiency variance - - - - - - - |

| - - - - - - - - - - - - - - - - - - - Flexible-budget variance - - - - - -- - - - - - ----- - - - |

**INPUT YIELD AND MIX VARIANCES**

**Actual Input/Actual Mix : Flexible Budget:**

Actual Inputs Used Actual Input Used Budgeted Input (for actual output)

X Actual Input Mix X Budgeted Input Mix X Budgeted Input Mix

X Budgeted Price X Budgeted Price X Budgeted Price

| - - - - - - - - Mix variance - - - - - - - - | - - - - - - - - - Yield variance - - - - - - - |

| - - - - - - - - - - - - - - - - - - - Efficiency variance - - - - - - - - - - - - - - - - - - - - |