

# Budget Analysis

**Unit:** Technical Skills

**Problem Area:** Cost Accounting

**Lesson:** Budget Analysis

- **Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:

- 1 Calculate budget variances.**
- 2 Evaluate and manipulate budget components.**

- **Resources.** The following resources may be useful in teaching this lesson:

E-unit(s) corresponding to this lesson plan. CAERT, Inc. <http://www.mycaert.com>.

Ashe-Edmunds, Sam. "Major Components of a Master Budget," *Chron*. Accessed June 7, 2016. <http://smallbusiness.chron.com/major-components-master-budget-59414.html>.

"Master Budget," *AccountingExplained*. Accessed June 7, 2016. <http://accountingexplained.com/managerial/master-budget/>.

"Variance Analysis," *Accounting-Simplified.com*. Accessed June 7, 2016. <http://accounting-simplified.com/management/variance-analysis/>.

"What Is Variance Analysis?" *AccountingTools®*. Accessed June 7, 2016. <http://www.accountingtools.com/questions-and-answers/what-is-variance-analysis.html>.



## ■ **Equipment, Tools, Supplies, and Facilities**

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials

## ■ **Key Terms.** The following terms are presented in this lesson (shown in bold italics):

- activity index
- budget
- budget variance
- favorable budget variance
- fixed expenses
- flexible budget
- static budget
- unfavorable budget variance
- variable expenses

## ■ **Interest Approach.** Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

*Ask students if they set goals for themselves. Some goals might be to get a certain grade in a class, log so many hours of volunteer work, or run a certain distance each week. How is progress measured for reaching these goals? Do they monitor their progress along the way by checking grades periodically, keeping a running log, etc.? A budget is a company's goal for sales and spending. If a company sets a budget but does not monitor its progress, the budget is of no use. An important aspect of the budget process is to compute variances and evaluate budget performance.*

# CONTENT SUMMARY AND TEACHING STRATEGIES

**Objective 1:** Calculate budget variances.

**Anticipated Problem:** How are budget variances calculated?

- I. Budget variances: A **budget** is an estimate of income and expense for a specific period of time. A budget is used to help management and employees of a business plan for the operations and finances of the company. A budget helps a company create benchmarks to measure efficiency and pinpoint areas of operations that need adjustment. A realistic budget can help improve business finances by reducing waste and improving cash flow. A budget may be created for any period of time. Companies usually create budgets annually and then break down the budget components into smaller time periods (e.g., quarters and months). The process of budgeting requires projections to be made about anticipated sales and costs in the future. Managers and employees will reflect on prior years to recognize shortfalls while looking ahead to make estimates.
  - A. A **static budget** is a spending plan created by a company that records the actual expenses and then compares actual spending to the budget. For example, a company budgets for sales revenue of \$100,000.00 and bases expenses on that sales revenue projection. If the company's sales revenues are actually \$75,000.00, the static budget variance for revenue is \$25,000.00.
  - B. A **budget variance** is the difference between what a company planned to spend and what it actually spent. A static budget variance is calculated by subtracting actual numbers from budgeted numbers. To calculate the percentage variance, it is necessary to divide the variance by the original budget amount. In the static budget example, the calculation would be  $(\$100,000 - \$75,000) \div \$100,000 = 0.25$  or 25 percent. With a static budget, the company would note the variance, but it would not adjust the expense budget.
  - C. A **flexible budget** is a finance document that adjusts for changes in sales activity. In contrast to a static budget, a company that uses a flexible budget adjusts its expense budget based on the reduction in sales. Typically, in a flexible budget, line items such as "Expenses" are stated as a percentage of another number so if one factor changes, the other factors dependent upon it are also adjusted. For example:
    1. Cost of goods sold (COGS) is set at 30 percent of sales. If sales are budgeted at \$100,000.00, COGS is budgeted at \$30,000.00.
    2. If sales drop from \$100,000.00 to \$75,000.00—a 25 percent decrease—the COGS budget would reduce by 25 percent (e.g.,  $\$30,000 \times 0.25$ ) or \$7,500.00. Therefore, if sales dropped to \$75,000.00, COGS would be adjusted to \$22,500.00 (e.g.,  $\$30,000 - \$7,500$ ).

**Teaching Strategy:** Many techniques can be used to help students master this objective. Project VM–A for guided practice calculating budget variance and percentage variance. Assign LS–A.

## **Objective 2:** Evaluate and manipulate budget components.

**Anticipated Problem:** How are budget components evaluated and manipulated?

### II. Analyze budgets

#### A. Budget components

1. The budget is a tool used for planning and monitoring progress toward company goals. An effective budget is consulted throughout a company's operating and accounting cycle.
2. Members of management regularly monitor the progress of the company's revenues and expenses in relation to the budget. Regular review and evaluation of budget to actual numbers creates several opportunities to advance the business. It is not enough for a company to set goals and prepare a budget that appears to meet those goals; the budget must be regularly evaluated and manipulated.

#### B. Variances

1. Managers can assess how well the business is meeting its goals by comparing the budget to actual numbers and calculating budget variances. Managers can tell if goals are being met and identify the specific areas where goals may or may not be met. Accountants often label variances as "favorable" or "unfavorable."
2. A **favorable budget variance** is an instance in which the actual results are better than budgeted. A favorable budget variance occurs when:
  - a. Actual revenues are greater than budgeted revenues.
  - b. Actual expenses are less than budgeted expenses.
3. An **unfavorable budget variance** is an instance in which the actual results are worse than budgeted. An unfavorable budget variance occurs when:
  - a. Actual revenues are less than budgeted revenues.
  - b. Actual expenses are greater than budgeted expenses.
4. Investigation and decision-making (manipulation)
  - a. Once variances are identified, accountants and managers must decide if the variance is significant. The company may have predetermined thresholds to make this determination. For instance, as long as costs are within 10 percent (the set threshold) of what is budgeted, the variance is not considered significant enough to investigate.
  - b. For variances considered substantial, managers seek to determine the cause of the variance. For example, if utility expenses are 25 percent above what was budgeted for the month, managers investigate the problem. They may ask employees whether equipment is running properly,

inquire whether changes in electricity rates have occurred, and/or whether electricity is being used inefficiently (e.g., leaving lights on in empty rooms and forgetting to turn off machinery). As a part of this process, managers classify expenses as fixed or variable.

C. Expenses: fixed or variable

1. **Fixed expenses** are budgeted costs that do not change based on sales volume. Usually, accountants know the fixed expense amounts when the budget is prepared. For instance, if a company leases a building, the budget for that line item is set according to the lease agreement. However, sometimes fixed expenses change unexpectedly. In that case, budget variances may occur. Examples of fixed expenses are:
  - a. Office salaries
  - b. Rent or lease expense
  - c. Depreciation
2. **Variable expenses** are budgeted costs that change based on sales volume. An **activity index** is the variable that determines the change in an expense line item (e.g., number of units sold and number of miles driven) for variable expenses. When a budget variance for variable expenses occurs, accountants and managers review the activity index and the components that make up the actual expense. Managers may investigate the cause of the variance through questioning employees, studying production processes and methods, and/or measuring efficiency levels of equipment. Examples of variable expenses include the following:
  - a. Sales commissions
  - b. Shipping costs

D. Manipulations to meet budget goals

1. Once accountants, managers, and employees have determined the cause of the variance, decisions are made regarding changes to existing methods and business structures to improve company performance. The budget variances are used as reflective tools to see what has already happened. Also, they are analyzed to plan for future spending. Measures are identified to lower costs in an attempt to meet budget goals. Options that may be considered to improve performance and/or to cut costs include, but are not limited to, the following:
  - a. Seeking alternate sources of raw materials (Managers may look for vendors who offer lower prices.)
  - b. Training employees in more efficient methods for production or other company processes
  - c. Reducing operations by cutting staff, limiting overtime, etc.
  - d. Purchasing more efficient equipment
  - e. Outsourcing components of operation
  - f. Eliminating product lines or branches of operations that are not cost effective
  - g. Negotiating lower prices with existing vendors

2. Accountants make projections for future budget and spending plans based on current variances and projected national and industry-specific economic conditions. Research is conducted to determine whether any significant changes in cost structures would impact the expense budget.
- E. Budget number comparisons
1. Aside from making variance comparisons for budget to actual, companies use budget numbers to make other comparisons regarding performance.
  2. Flexible budgets: Analysis of component percentages is made to monitor flexible budgets. Ask the students to assume that XYZ Corporation budgets sales are at \$100,000.00 and wages are budgeted at 20 percent of sales at \$20,000.00 ( $\$100,000 \times 0.20$ ).
    - a. XYZ Corporation's actual sales are \$110,000.00, and managers assume wages to be no more than \$22,000.00 ( $\$110,000 \times 0.20$ ). If actual wages are reported as \$25,000.00 for the same period, management investigates the variance to discover why actual wages are 23 percent ( $\$25,000 \div \$110,000$ ) of actual sales.
    - b. The answer may be related to equipment downtime (equipment that was not working properly and ultimately was not running), or maybe the company was required to add overtime to meet delivery deadlines. Executives seek to determine whether the issue is a one-time problem or if the budget percentage for wages must be permanently adjusted.
  3. Accountants compare budgets from one division of a company to similar divisions of the same company. For example, if the company has two production facilities, managers want to know if they are operating at similar efficiency levels.
  4. Accountants make comparisons from one product line to another to determine whether resource allocations have been correctly based on sales goals, profitability, etc.

**Teaching Strategy:** Many techniques can be used to help students master this objective. Display VM-B, and ask students to discuss which variances are favorable or unfavorable. Ask students to explore the possible reasons variances occur. Assign LS-B.

■ **Review/Summary.** Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. If a textbook is being used, questions at the ends of chapters may be included in the Review/Summary.

■ **Application.** Use the included visual master(s) and lab sheet(s) to apply the information presented in the lesson.

- **Evaluation.** Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

## ■ **Answers to Sample Test:**

### **Part One: Matching**

1. c
2. a
3. f
4. b
5. d
6. e

### **Part Two: Multiple Choice**

1. b
2. c
3. a
4. b
5. c
6. c

### **Part Three: Short Answer**

1. a. The budget variance is \$500.00 ( $15,000 - 15,500$ ).  
b. The variance is unfavorable.  
c. The percentage variance is 3.3 percent ( $500 \div 15,000 \times 100$ )
2. a. The budget variance is \$75,000.00 ( $250,000 - 325,000$ )  
b. The variance is favorable.  
c. The percentage variance is 30 percent ( $75,000 \div 250,000 \times 100$ )

# Budget Analysis

## ► Part One: Matching

**Instructions:** Match the term with the correct definition.

- |                              |                                |
|------------------------------|--------------------------------|
| a. favorable budget variance | d. unfavorable budget variance |
| b. variable expenses         | e. flexible budget             |
| c. budget                    | f. fixed expenses              |

- \_\_\_\_ 1. An estimate of income and expense for a specific period of time
- \_\_\_\_ 2. An instance in which the actual results are better than budgeted
- \_\_\_\_ 3. Budgeted costs that do not change based on sales volume
- \_\_\_\_ 4. Budgeted costs that change based on sales volume
- \_\_\_\_ 5. An instance in which the actual results are worse than budgeted
- \_\_\_\_ 6. A finance document that adjusts for changes in sales activity

## ► Part Two: Multiple Choice

**Instructions:** Circle the letter of the correct answer.

1. If XYZ Corporation's actual sales revenue is \$500,000.00 and budgeted sales revenue is \$400,000.00, XYZ has a/an \_\_\_\_\_ budget variance.
- a. unfavorable
- b. favorable
- c. flexible
- d. fixed



2. If XYZ Corporation's actual sales revenue is \$500,000.00 and budgeted sales revenue is \$400,000.00, XYZ has a budget variance of \_\_\_\_.
- a. \$400,000
  - b. \$500,000
  - c. \$100,000
  - d. \$900,000
3. If XYZ Corporation's actual sales revenue is \$500,000.00 and budgeted sales revenue is \$400,000.00, there is a budget variance percentage of \_\_\_\_.
- a. 25%
  - b. 50%
  - c. 78%
  - d. 80%
4. The type of budget that allows companies to adjust for changes in sales activity is \_\_\_\_.
- a. static
  - b. flexible
  - c. master
  - d. None of the above
5. An example of a favorable budget variance is \_\_\_\_.
- a. when actual revenues are greater than budgeted revenues
  - b. when actual expenses are less than budgeted expenses
  - c. Both *a* and *b*
  - d. None of the above
6. An example of an unfavorable budget variance is \_\_\_\_.
- a. when actual revenues are less than budgeted revenues
  - b. when actual expenses are greater than budgeted expenses
  - c. Both *a* and *b*
  - d. None of the above

### ► Part Three: Short Answer

**Instructions:** Answer the following.

1. A company's budget for rent expense is \$15,000.00, and the actual expense is \$15,500.00.
  - a. What is the budget variance?
  - b. Is it favorable or unfavorable?
  - c. How much is the percentage variance?
  
2. A company's budget for sales revenue is \$250,000.00 and the actual sales revenue is \$325,000.00.
  - a. What is the budget variance?
  - b. Is it favorable or unfavorable?
  - c. How much is the percentage variance?

# CALCULATING BUDGET VARIANCES

The following table is an excerpt from a static budgeted income statement.

| Account Title       | Budget   | Actual   | Variance | Computation<br>(Budget – Actual) | Percent<br>Variance | Computation<br>(Variance ÷ Budget<br>× 100) |
|---------------------|----------|----------|----------|----------------------------------|---------------------|---------------------------------------------|
| Rent expense        | \$10,000 | \$10,000 | 0        | \$10,000 – 10,000                | 0%                  | $0 \div 10,000 \times 100$                  |
| Advertising expense | \$5,000  | \$5,500  | –500     | \$5,000 – 5,500                  | –10%                | $-500 \div 5,000 \times 100$                |
| Supplies expense    | \$1,000  | \$800    | 200      | \$1,000 – 800                    | 20%                 | $200 \div 1,000 \times 100$                 |



# BUDGET VARIANCES: FAVORABLE VERSUS UNFAVORABLE

Which of the following accounts are favorable? Which are unfavorable? Explain your response.

| Account Title       | Budget Amount | Actual Amount | Variance |
|---------------------|---------------|---------------|----------|
| Sales revenue       | \$150,000     | \$175,000     | \$25,000 |
| Advertising expense | \$5,000       | \$6,500       | \$1,500  |
| Supplies expense    | \$1,000       | \$700         | \$300    |



# Calculating Budget Variances

## Purpose

The purpose of this activity is to calculate budget variances and percentage variances.

## Objectives

1. Calculate the budget variance for each provided account.
2. Calculate the percentage variance for each provided account provided.
3. Enter your results on the table provided.
4. Participate in a class discussion of budget variance computations.

## Materials

- ◆ lab sheet
- ◆ class notes
- ◆ VM-A
- ◆ writing utensil
- ◆ calculator

## Procedure

1. Review your class notes about budget variances.
2. Review the budget variance and percentage variance computations from VM-A.
3. Calculate the budget variance and percentage variance for each account line item provided below. Show your work in the cells labeled "Computation." Enter your results on the table below.



| <b>Account Title</b>  | <b>Budget</b> | <b>Actual</b> | <b>Variance</b> | <b>Computation</b> | <b>Percent<br/>Variance</b> | <b>Computation</b> |
|-----------------------|---------------|---------------|-----------------|--------------------|-----------------------------|--------------------|
| Rent expense          | \$5,000       | \$4,500       |                 |                    |                             |                    |
| Advertising Expense   | \$1,000       | \$750         |                 |                    |                             |                    |
| Supplies expense      | \$700         | \$800         |                 |                    |                             |                    |
| Utilities expense     | \$1,500       | \$1,650       |                 |                    |                             |                    |
| Postage expense       | \$200         | \$250         |                 |                    |                             |                    |
| Miscellaneous expense | \$100         | \$100         |                 |                    |                             |                    |

4. Participate in a class discussion of budget variance computations.
5. Turn in your completed lab sheet to your instructor.

# Calculating Budget Variances

| Account Title         | Budget  | Actual  | Variance | Computation     | Percent Variance | Computation                  |
|-----------------------|---------|---------|----------|-----------------|------------------|------------------------------|
| Rent expense          | \$5,000 | \$4,500 | 500      | $5,000 - 4,500$ | 10%              | $500 \div 5,000 \times 100$  |
| Advertising expense   | \$1,000 | \$750   | 250      | $1,000 - 750$   | 25%              | $250 \div 1,000 \times 100$  |
| Supplies expense      | \$700   | \$800   | -100     | $700 - 800$     | -14%             | $-100 \div 700 \times 100$   |
| Utilities expense     | \$1,500 | \$1,650 | -150     | $1,500 - 1,650$ | -10%             | $-150 \div 1,500 \times 100$ |
| Postage expense       | \$200   | \$250   | -50      | $200 - 250$     | -25%             | $-50 \div 200 \times 100$    |
| Miscellaneous expense | \$100   | \$100   | 0        | $100 - 100$     | 0%               | $0 \div 100 \times 100$      |

# Budget Variance Case Studies

## Purpose

The purpose of this activity is to explore the causes of and the decisions related to budget variances.

## Objectives

1. Read the budget case study.
2. Brainstorm and record possible reasons for the budget variances.
3. Explore options for resolving the budget variances.
4. Write recommendations to address the variances.
5. Participate in a class discussion in which you share your group's recommendation responses with the rest of your class.

## Materials

- ◆ lab sheet
- ◆ writing utensil
- ◆ class notes
- ◆ paper
- ◆ calculator

## Procedure

1. Review your class notes about budget variances.
2. Read the budget case study "T-Shirts-R-Us." Work with a partner to complete this lab sheet.



### T-Shirts-R-Us Budget Case Study

T-Shirts-R-Us just completed its fifth year of operations. The company designs and sells humorous T-shirts to patrons of all ages online and in three Washington D.C.-area stores. The company buys plain T-shirts from a manufacturer in Georgia. During the past year, the business had trouble with the manufacturing equipment used to imprint the shirts. The equipment broke down, and T-Shirts-R-Us had to purchase one new piece of equipment. Then the lead artistic designer left the company in July to work for a competitor: Bumper Stickers-R-Us. The accountants and managers met to review last year's budget and discovered the following variances:

| Account               | Budget    | Actual    | Variance  |
|-----------------------|-----------|-----------|-----------|
| Merchandise purchases | \$150,000 | \$175,000 | -\$25,000 |
| Design wages          | \$75,000  | \$60,000  | \$10,000  |
| Depreciation expense  | \$10,000  | \$13,000  | -\$3,000  |
| Utilities expense     | \$35,000  | \$40,000  | -\$5,000  |
| Silkscreen wages      | \$100,000 | \$110,000 | -\$10,000 |

3. Discuss possible reasons for budget variances with your partner. List those reasons on your paper.
4. Explore options for resolving the budget variances with your partner. Assume you are the chief financial officer (CFO) of T-Shirts-R-Us, what are your recommendations to address the variances? List your recommendations on your paper.
5. Participate in a class discussion in which you share your group's responses with the rest of your class.
6. Turn in your completed lab sheet to your instructor.

## Budget Variance Case Studies

1. Allow/encourage students to explore various options and scenarios that may not be specifically mentioned in the case study.
2. Answers may vary. Possible answers may include the following:

| Account               | Variance  | Potential Cause                                                                                                                                                                                   | Resolution                                                                                                                                  |
|-----------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Merchandise purchases | –\$25,000 | The shirt supplier increased prices.                                                                                                                                                              | <ul style="list-style-type: none"><li>• Seek another vendor.</li><li>• Negotiate a better price.</li></ul>                                  |
| Design wages          | \$10,000  | The lead designer left; they hired someone with less experience for a lower wage.                                                                                                                 | It is not necessarily a problem, as long as designs are good.                                                                               |
| Depreciation expense  | –\$3,000  | They purchased new equipment. Therefore, the depreciation base was higher for this year.                                                                                                          | New equipment is needed to avoid idle workers due to broken equipment.                                                                      |
| Utilities expense     | –\$5,000  | <ul style="list-style-type: none"><li>• Inefficient machines and downtime increased utility expenses.</li><li>• A possible increase in orders required more utility expense.</li></ul>            | <ul style="list-style-type: none"><li>• Resolution not needed if due to increased sales.</li><li>• Replace inefficient equipment.</li></ul> |
| Silkscreen wages      | –\$10,000 | <ul style="list-style-type: none"><li>• Idle time resulted from broken equipment.</li></ul> OR <ul style="list-style-type: none"><li>• More orders meant more work time and more wages.</li></ul> | Resolution depends on the perceived problem.                                                                                                |