Financial and Managerial Accounting 9th edition Miller Solutions Manual

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Chapter M:8

Flexible Budgets and Standard Cost Systems

Chapter M:8: Overview

The chapter begins with a comparison of the static budget, which is prepared for only one level of volume, to the flexible budget, which is a set of budgets covering a range of volumes. Budget variances, the differences between actual and budgeted amounts, are presented on a performance report based on the contribution format income statement. The budget variances are divided into two categories: flexible budget variance and sales volume variance.

Standard cost systems are introduced as an accounting system that uses standards for product costs. Standard costs and their benefits are explained. Then the chapter illustrates examples of computing price and efficiency variances for both direct materials and direct labor. The authors discuss how managers use variance information. Next, the manufacturing overhead (both variable and fixed) is analyzed and split into variances. After demonstrating how variances are reflected in the accounts and in the financial statements, the responsible parties for each of the variances are identified. Finally, the journal entries used in a standard cost system to account for variances and flows of costs through inventory are reviewed.

A Tying It All Together feature provides students a look into variance analysis at General Mills, Inc. A Decisions feature provides real-world perspective on full reporting of variances. The Review section includes Things You Should Know, which highlights the information students should have acquired from the chapter. The first Check Your Understanding problem gives students practice preparing a flexible budget performance report and analyzing income statement variances. The second Check Your Understanding problem allows students to calculate variances for direct materials, direct labor, and manufacturing overhead. A list of Key Terms is provided. A Quick Check gives students a chance to assess their knowledge of the chapter learning objectives.

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Chapter M:8: Learning Objectives

LO 1. Prepare flexible budgets and performance reports using static and flexible budgets

LO 2. Identify the benefits of a standard cost system and understand how standards are set

LO 3. Compute the standard cost variances for direct materials and direct labor

LO 4. Compute the standard cost variances for manufacturing overhead

LO 5. Describe the relationship among and responsibility for the product cost variances

LO 6. Record transactions in a standard cost system and prepare a standard cost income statement

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Chapter M:8: Teaching Outline with Lecture Notes

LO 1. Prepare flexible budgets and performance reports using static and flexible budgets

- Exhibit M:8-1: Budgeting Objectives

a) Performance reports using static budgets

- Exhibit M:8-2: Static Budget Performance Report

b) Performance reports using flexible budgets

- Exhibit M:8-3: Flexible Budget
- Exhibit M:8-4: Static Budget Variances
- Exhibit M:8-5: Flexible Budget Performance Report

Lecture Notes: Budget analysis is a two-step process: You must first flex the budget to the actual activity level and then compare the flexible budget to actual results to determine variances. Flexing the budget to actual provides an "apples to apples" comparison. Costs must be separated between variable and fixed in order to flex the budget. As previously discussed, total variable costs change with output, but total fixed costs do not. The sales volume variance is the difference between the flexible budget and the static budget amounts. The flexible budget variance is the difference between the flexible budget and the actual amounts.

Suggested In-Class Exercise: E-M:8-15, E-M:8-16

LO 2. Identify the benefits of a standard cost system and understand how standards are set

a) Setting standards

- Exhibit M:8-6: Standard Setting Issues Exhibit M:8-7: Standard Cost Calculations

b) Standard cost system benefits

c) Variance analysis for product costs

- Exhibit M:8-8: Cost and Efficiency Variances
- Exhibit M:8-9: Variance Relationships

Lecture Notes: Standard costs are an estimate of the expected production cost to make one unit. Each input (direct materials, direct labor, and overhead) has a quantity standard and a price standard. The data to create the standard is obtained from various people in the business; the accountant does not create the standard alone.

Point out that in a standard cost system, all inventories are valued at standard cost. That is, inventories

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are valued at the cost we expect them to have. When actual costs are incurred, we put expected costs (standard costs) into inventory, and we keep the differences between actual cost and expected cost (the variances) out of inventory. Instead, we take those differences directly to Cost of Goods Sold at the end of the period.

Suggested In-Class Exercise: S-M:8-5

LO 3. Compute the standard cost variances for direct materials and direct labor

- Exhibit M:8-10: Flexible Budget Variances for Production Costs

a) Direct materials variances

- Exhibit M:8-11: Direct Materials Variances

b) Direct labor variances

- Exhibit M:8-12: Direct Labor Variances

Lecture Notes: Students may do better if they have a system to follow. One system that can be used in standard cost variance analysis for all variable costs (direct materials, direct labor, and variable overhead) is a three-column format, as illustrated in Exhibits M:8-11, M:8-12, and M:8-13. Actual cost per unit × Actual quantity, Standard cost per unit × Actual quantity, and Standard cost per unit × Standard quantity are used every time for the column headings. Students then fill in the blanks.

Another system is to calculate the cost variance as the difference between actual and standard cost per unit times actual quantity and then calculate the efficiency variance as the difference between actual and standard quantities times standard cost per unit. Again, this approach can be used for all variable cost variances.

The total variance calculation is similar to debits and credits or positives and negatives in math class. Similar variances are added, and dissimilar variances are subtracted.

Suggested In-Class Exercise: E-M:8-19

LO 4. Compute the standard cost variances for manufacturing overhead

a) Allocating overhead in a standard cost system

b) Variable overhead variances

- Exhibit M:8-13: Variable Overhead Variances

c) Fixed overhead variances

- Exhibit M:8-14: Fixed Overhead Volume Variance
- Exhibit M:8-15: Fixed Overhead Variances

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Lecture Notes: Fixed cost variances are completely different from variable cost variances. While variable cost variances explain why actual variable costs are different from flexible budget variable costs, fixed cost variances explain why actual fixed costs are different from allocated fixed costs. Recall from Financial Chapter 15 that overhead is allocated based on a predetermined overhead allocation rate. At the end of the year, the difference between actual overhead and allocated overhead is adjusted to increase or decrease Cost of Goods Sold. The fixed cost variances explain why this adjustment is necessary with regard to fixed overhead costs. Fixed overhead volume variance is the difference between allocated fixed overhead and budgeted fixed overhead; fixed overhead cost variance is the difference between budgeted fixed overhead and actual fixed overhead. Thus, together these two fixed cost variances explain that the difference between allocated fixed overhead and actual fixed overhead is due to unexpected volume and cost differences.

Point out that the production volume variance is unfavorable if the standard overhead allocated is less than the flexible budget amount, which occurs only when actual volume is less than expected (budgeted) volume. This unfavorable volume variance represents unused production capacity, which is bad from a volume standpoint. One might think that the company would prefer to produce as much as possible from a production standpoint, resulting in a favorable volume variance. However, overproduction can result in excess inventory that cannot be sold. It may be interesting to ask students who have worked in manufacturing if they have experienced this and let them share their experiences.

Suggested In-Class Exercise: E-M:8-20

LO 5. Describe the relationship among and responsibility for the product cost variances

a) Variance relationships

- Exhibit M:8-16: Product Cost Variance Relationships

b) Variance responsibilities

- Exhibit M:8-17: Management by Exception

Suggested In-Class Exercise: S-M:8-11

LO 6. Record transactions in a standard cost system and prepare a standard cost income statement

a) Journal entries

- Exhibit M:8-19: Flow of Costs in a Standard Cost System

b) Standard cost income statement

- Exhibit M:8-20: Standard Cost Income Statement

Lecture Notes: Remember that cost accounting journal entries involve moving dollars of cost from one inventory account to another, increasing one inventory account with a debit and decreasing another inventory account with a credit. When actual costs are incurred, journal entries are prepared to take those actual costs (with a credit) and put standard costs into inventory (with a debit). The difference

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between actual and standard cost is a variance. If that variance has a credit balance, it is favorable because the standard cost put into inventory is greater than the actual cost. If that variance has a debit balance, it is unfavorable because the standard cost put into inventory is less than the actual cost. When favorable (credit balance) variances are moved into Cost of Goods Sold, they decrease Cost of Goods Sold with a credit. When unfavorable (debit balance) variances are moved into Cost of Goods Sold, they increase Cost of Goods Sold with a debit.

Suggested In-Class Exercise: E-M:8-22, E-M:8-23

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Chapter M:8: Handout for Student Notes

LO 1. How do managers use budgets to control business activities?

- Performance reports using static budgets
- Performance reports using flexible budgets
  - Preparing flexible budgets
  - Static budget variances

LO 2. Why do managers use a standard cost system to control business activities?

- Setting standards
  - Cost standards
  - Efficiency standards
- Standard cost system benefits
- Variance analysis for product costs

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LO 3. How are standard costs used to determine direct materials and direct labor variances?

- Direct materials variances
  - Direct materials cost variance
  - Direct materials efficiency variance
  - Summary of direct materials variances
- Direct labor variances
  - Direct labor cost variance
  - Direct labor efficiency variance
  - Summary of direct labor variances

LO 4. How are standard costs used to determine manufacturing overhead variances?

- Allocating overhead in a standard cost system
- Variable overhead variances
  - Variable overhead cost variance

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        - Variable overhead efficiency variance

        - Summary of variable overhead variances

    - Fixed overhead variances

        - Fixed overhead cost variance

        - Fixed overhead volume variance

        - Summary of fixed overhead variances

LO 5. What is the relationship among the product cost variances, and who is responsible for them?

    - Variance relationships

    - Variance responsibilities

LO 6. How do journal entries differ in a standard cost system?

    - Journal entries

        - Transaction 1—Direct materials purchased

        - Transaction 2—Direct materials used

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- Transaction 3—Direct labor incurred
- Transaction 4—Manufacturing overhead incurred
- Transaction 5—Manufacturing overhead allocated
- Transaction 6—Goods completed
- Transaction 7—Goods sold
- Transaction 8—Manufacturing overhead adjusted

- Standard cost income statement

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Chapter M:8: Student Chapter Summary

LO 1. Prepare flexible budgets and performance reports using static and flexible budgets

Variances are differences between budgeted amounts and actual amounts. Favorable (F) variances increase operating income. Unfavorable (U) variances decrease operating income. A static budget performance report shows the differences between the static budget and actual results. Flexible budgets help managers plan for various levels of sales. A flexible budget performance report includes the flexible budget variance—the differences between the actual results and the flexible budget—and the sales volume variance—the differences between the flexible budget and the static budget.

LO 2. Identify the benefits of a standard cost system and understand how standards are set

A standard is a price, cost, or quantity that is expected under normal conditions. A standard cost system uses standards for product costs—direct materials, direct labor, and manufacturing overhead. Managers must establish both cost and efficiency standards. Standard cost systems allow managers to efficiently record transactions related to production. The flexible budget variance can be further broken down into its two components:

$$\begin{aligned}\text{Cost Variance} &= (\text{Actual Cost} \times \text{Actual Quantity}) - (\text{Standard Cost} \times \text{Actual Quantity}) \\ &= (\text{Actual Cost} - \text{Standard Cost}) \times \text{Actual Quantity} \\ &= (\text{AC} - \text{SC}) \times \text{AQ}\end{aligned}$$

$$\begin{aligned}\text{Efficiency Variance} &= (\text{Standard Cost} \times \text{Actual Quantity}) - (\text{Standard Cost} \times \text{Standard Quantity Allowed}) \\ &= (\text{Actual Quantity} - \text{Standard Quantity Allowed}) \times \text{Standard Cost} \\ &= (\text{AQ} - \text{SQA}) \times \text{SC}\end{aligned}$$

A cost variance measures the difference in actual and standard costs, based on the actual amount used. An efficiency variance measures the difference in the actual amount used and the standard amount, based on the standard cost.

LO 3. Compute the standard cost variances for direct materials and direct labor

Direct materials cost variance measures how well the business keeps unit costs of material inputs within standards. Direct materials efficiency variance measures how well the business uses its materials. Direct labor cost variance measures how well the business keeps unit costs of labor inputs within standards. Direct labor efficiency variance measures how well the business uses its human resources.

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LO 4. Compute the standard cost variances for manufacturing overhead

Manufacturing overhead costs are allocated using the standard overhead allocation rate. The total manufacturing overhead allocation rate can be separated into variable overhead and fixed overhead components, as follows:

Standard Overhead Allocation Rate = Budgeted Overhead Cost / Budgeted Allocation Base
= (Budgeted Variable Overhead / Budgeted Allocation Base)
+ (Budgeted Fixed Overhead / Budgeted Allocation Base)

Variable overhead cost variance measures how well the business keeps unit costs of variable overhead inputs within standards. Variable overhead efficiency variance measures how well the business uses its variable overhead inputs. Fixed overhead cost variance measures how well the business keeps fixed overhead within standards. Fixed overhead volume variance measures how fixed overhead is allocated when actual volume is not equal to budgeted volume.

LO 5. Describe the relationship among and responsibility for the product cost variances

The net amount of the production variances (except the fixed overhead volume variance) equals the total production cost flexible budget variance. The fixed overhead volume variance is not a cost variance but a volume variance. Various managers are responsible for the variances. Sometimes decisions by one manager may affect variances for another manager (for example, purchasing cheaper materials may cause problems in production).

LO 6. Record transactions in a standard cost system and prepare a standard cost income statement

Work-in-Process Inventory, Finished Goods Inventory, and Cost of Goods Sold are recorded at standard quantity of inputs allowed for actual outputs, at the standard cost of inputs. Favorable variances are credited because they increase operating income. Unfavorable variances are debited because they decrease operating income. The manufacturing overhead variances account for the difference between the actual costs debited to Manufacturing Overhead and the standard costs allocated by a credit to Manufacturing Overhead. A standard cost income statement highlights the variances for management.

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