**Modular Learning Outcomes**

Upon successful completion of this module, the student will be able to satisfy the following outcomes:

* Case

Apply break-even analysis to a business scenario.

* SLP

Identify special pricing issues.

**Module Overview**

Cost-volume-profit (CVP) analysis helps managers understand the interrelationships among cost, volume, and profit by focusing their attention on the interactions among the prices of products, volume of activity, per-unit variable costs, total fixed costs, and mix of products sold. It is a vital tool used in many business decisions such as deciding what products to manufacture or sell, what pricing policy to follow, what marketing strategy to employ, and what type of production facilities to acquire.

**The variable costing income statement**is helpful to managers in judging the impact on profits of changes in selling price, cost, or volume.

Sales, variable expenses, and contribution margin can also be expressed on a **per-unit basis** or as a percentage.

**Contribution margin ratio (CM ratio)**

The CM ratio is calculated by dividing the **total** contribution margin by **total** sales.

The CM ratio can also be calculated by dividing the contribution margin **per unit** by the selling price **per unit.**

**Break-even analysis**

The break-even point can be computed using either the **equation method** or the **contribution margin method**.

**The equation method** is based on the contribution approach income statement.

The equation can be stated in one of two ways:

**Profits = (Sales – Variable expenses) – Fixed Expenses**

or

**Sales = Variable expenses + Fixed expenses + Profits**

The contribution margin method **has two key equations:**

**Break-even point in units sold = Fixed expenses divided by CM per unit**

**Break-even point in sales dollars = Fixed expenses divided by CM ratio**

**The margin of safety**

The margin of safety is the **excess of budgeted (or actual) sales over the break-even volume of sales**.

**Cost structure** refers to the relative proportion of fixed and variable costs in an organization. Managers often have some latitude in determining their organization's cost structure.

There are **advantages and disadvantages** to high fixed cost (or low variable cost) and low fixed cost (or high variable cost) structures.

An advantage of a high fixed cost structure is that income will be higher in good years compared to companies with a lower proportion of fixed costs.

A disadvantage of a high fixed cost structure is that income will be lower in bad years compared to companies with a lower proportion of fixed costs.

Companies with low fixed cost structures enjoy greater stability in income across good and bad years.

**Operating leverage**

Operating leverage is a measure of **how sensitive net operating income is to percentage changes in sales**.

The degree of operating leverage is a measure, at any given level of sales, of how a percentage change in sales volume will affect profits. It is computed as follows:

**Degree of operating leverage = Contribution margin divided by net operating income**

The degree of operating leverage is not a constant—like unit variable cost or unit contribution margin—that a manager can apply with confidence in a variety of situations. The degree of operating leverage depends on the level of sales and must be recomputed each time the sales level changes. Also, note that operating leverage is greatest at sales levels near the break-even point and it decreases as sales and profits rise.