2-48 CVP and Financial Statements for a Mega-Brand Company

Procter & Gamble Company is a Cincinnati-based company that produces household products under

brand names such as Gillette, Bounty, Crest, Folgers, and Tide. The company’s 2006 income statement

showed the following (in millions):

Net sales $68,222

Costs of products sold $33,125

Selling, general, and administrative expense $21,848

Operating income $13,249

Suppose that the cost of products sold is the only variable cost; selling, general, and administrative expenses are fixed with respect to sales.

Assume that Procter & Gamble had a 10% increase in sales in 2007 and that there was no change in costs except for increases associated with the higher volume of sales.

Compute the predicted 2007 operating income for Procter & Gamble and its percentage increase. Explain why the percentage increase in income differs from the percentage increase in sales.

2-61 CVP in a Modern Manufacturing Environment

A division of **Hewlett-Packard Company** changed its production operations from one where alarge labor force assembled electronic components to an automated production facility dominated by computer-controlled robots. The change was necessary because of fierce competitive pressures. Improvements in quality, reliability, and flexibility of production schedules were necessary just to match the competition. As a result of the change, variable costs fell and fixed costs increased, as shown in the following assumed budgets:



Expected volume is 600,000 units per month, with each unit selling for $3.10. Capacity is 800,000

units.

1. Compute the budgeted profit at the expected volume of 600,000 units under both the old and the

new production environments.

2. Compute the budgeted break-even point under both the old and the new production environments.

3. Discuss the effect on profits if volume falls to 500,000 units under both the old and the new production

environments.

4. Discuss the effect on profits if volume increases to 700,000 units under both the old and the new

production environments.

5. Comment on the riskiness of the new operation versus the old operation.

2-65 CVP and Break-Even

Goal: Create an Excel spreadsheet to perform CVP analysis and show the relationship

between price, costs, and break-even points in terms of units and dollars. Use the results to answer questions about your findings.

Scenario: Phonetronix is a small manufacturer of telephone and communications devices. Recently, company management decided to investigate the profitability of cellular phone production. They have three different proposals to evaluate. Under all the proposals, the fixed costs for the new phone would be $110,000. Under proposal A, the selling price of the new phone would be $99 and the variable cost per unit would be $55. Under proposal B, the selling price of the phone would be $129 and the variable cost would remain the same. Under proposal C, the selling price would be $99 and the variable cost would be $49. When you have completed your spreadsheet, answer the following questions:

1. What are the break-even points in units and dollars under proposal A?

2. How did the increased selling price under proposal B impact the break-even points in

units and dollars compared to the break-even points calculated under proposal A?

3. Why did the change in variable cost under proposal C not impact the break-even points in units and dollars as significantly as proposal B did?

Step-by-Step:

1. Open a new Excel spreadsheet.

2. In column A, create a bold-faced heading that contains the following:

Row 1: Chapter 2 Decision Guideline

Row 2: Phonetronix

Row 3: Cost-Volume-Profit (CVP) Analysis

Row 4: Today’s Date

3. Merge and center the four heading rows across columns A through D.

4. In Row 7, create the following bold-faced, right-justified column headings:

Column B: Proposal A

Column C: Proposal B

Column D: Proposal C

Note: Adjust cell widths when necessary as you work.

5. In Column A, create the following row headings:

Row 8: Selling price

Row 9: Variable cost

Row 10: Contribution margin

Row 11: Contribution margin ratio

Skip a row

Row 13: Fixed cost

Skip a row

Row 15: Break-even in units

Skip a row

Row 17: Break-even in dollars

6. Use the scenario data to fill in the selling price, variable cost, and fixed cost amounts

for the three proposals.

7. Use the appropriate formulas from this chapter to calculate contribution margin,

contribution margin ratio, break-even in units, and break-even in dollars.

8. Format all amounts as:



9. Change the format of the selling price, contribution margin, fixed cost, and break-even in dollars amounts to display a dollar symbol.

10. Change the format of both contribution margin headings to display as indented:



11. Change the format of the contribution margin amount cells to display a top border,

using the default line style.

Border tab: Icon: Top Border

12. Change the format of the contribution margin ratio amounts to display as a percentage

with two decimal places.

Number tab: Category: Percentage

Decimal places: 2

13. Change the format of all break-even headings and amounts to display as bold-faced.

14. Activate the ability to use heading names in formulas under Tools → Options:

Calculation tab: Check the box: Accept labels in formulas

15. Replace the cell-based formulas with “word-based” equivalents for each formula used

in Proposal A.

Example: Contribution margin for proposal B would be:

= (‘Selling price’ ‘Proposal B’) − (‘Variable cost’ ‘Proposal B’)

Note: The tic marks used in the example help avoid naming errors caused by data having similar titles (i.e., “contribution

margin” and “contribution margin ratio”). The parentheses help clarify groupings.

Help: Ask the Answer Wizard about “Name cells in a workbook.”

Select “Learn about labels and names in formulas” from the right-hand panel.

16. Save your work to a disk, and print a copy for your files.

3-38 Mixed Cost, Choosing Cost Drivers, and High-Low and Visual-Fit Methods

Cedar Rapids Implements Company produces farm implements. Cedar Rapids is in the process of measuring its manufacturing costs and is particularly interested in the costs of the manufacturing maintenance activity, since maintenance is a significant mixed cost. Activity analysis indicates that maintenance activity consists primarily of maintenance labor setting up machines using certain supplies. A setup consists of preparing the necessary machines for a particular production run of a product. During setup, machines must still be running, which consumes energy. Thus, the costs associated with maintenance include labor, supplies, and energy. Unfortunately, Cedar Rapid’s cost accounting system does not trace these costs to maintenance activity separately. Cedar Rapids employs two fulltime maintenance mechanics to perform maintenance. The annual salary of a maintenance mechanic is $25,000 and is considered a fixed cost. Two plausible cost drivers have been suggested: “units produced” and “number of setups.” Data had been collected for the past 12 months and a plot made for the cost driver—units of production. The maintenance cost figures collected include estimates for labor, supplies, and energy. Cory Fielder, controller at Cedar Rapids, noted that some types of activities are performed each time a batch of goods is processed rather than each time a unit is produced. Based on this concept, he has gathered data on the number of setups performed over the past 12 months. The plots of monthly maintenance costs versus the two potential cost drivers follow.

1. Find monthly fixed maintenance cost and the variable maintenance cost per driver unit using the visual-fit method based on each potential cost driver. Explain how you treated the April data.

2. Find monthly fixed maintenance cost and the variable maintenance cost per driver unit using the high-low method based on each potential cost driver.

3. Which cost driver best meets the criteria for choosing cost functions? Explain.

