

## exercise section 2

1. Phoenix Corporation manufactures smartphones, generally selling from 200,000 to 300,000 units per year. The following cost data apply to the activity levels shown:

Number of Units	200,000	250,000	300,000
Total costs			
Fixed	\$ 15,000,000		
Variable	24,000,000		
Total costs	\$ 39,000,000		
Cost per Unit			
Fixed	\$ 75		
Variable	120		
Total cost per unit	\$ 195		

Required: 1.) Complete the preceding table by filling the missing amounts for 250,000 and 300,000 units.

2.) Assume that Phoenix actually makes 280,000 units. What would be the total costs and the cost per unit at this level of activity?

3.) If Phoenix sells each unit for \$220, what is Phoenix's magnitude of operating leverage at sales of 280,000 units?

2. Grant Company and Lee Company compete in the same market. The following budgeted income statements illustrate their cost structures.

	Grant Company	Lee Company
Number of customers	200	200
Sales revenue (200 x \$150)	\$ 30,000	\$ 30,000
Less variable costs	<u>6,000</u>	<u>18,000</u>
Contribution margin	\$ 24,000	\$ 12,000
Less fixed costs	<u>19,000</u>	<u>7,000</u>
Net income	\$ 5,000	\$ 5,000

Required: (a) If Grant Company lowers its price to \$135, it will lure 80 customers away from Lee Company. Prepare Grant's income statement based on 280 customers.

(b) If Lee Company lowers its price to \$135 (assuming that Grant Company is still charging \$150 per customer), Lee would lure 80 customers away from Grant. Prepare Lee's income statement based on 280 customers.

(c) Which of the companies would benefit more from lowering its sales price to attract more customers, and why?

3. Income statements for three companies are provided below:

	Company A	Company B	Company C
Sales (20 units)	\$ 1,000	\$ 1,000	\$ 1,000
Less variable costs	600	300	-
Less fixed costs	200	500	800
Net income	\$ 200	\$ 200	\$ 200

Required: (a) Prepare new income statements for the firms assuming each sells one additional unit (i.e. each firm sells 21 units)

(b) Briefly describe the effect of cost structure on profitability.

4. Former NFL coach Joe Gibbs is highly sought after as a guest speaker. His fee can run as high as \$150,000 for a single two-hour appearance. Recently, he was asked to speak at a seminar offered by the National Sports in Education Foundation (NSEF). Due to the charitable nature of the organization, Mr. Gibbs offered to speak for \$100,000. NSEF planned to invite 350 guests who would each make a \$500 contribution to the organization. The Foundation's executive director was concerned about committing so much of the organization's cash to this one event. So instead of the \$100,000 fee she countered with an offer to pay Mr. Gibbs 50% of the revenue received from the seminar and no other payments.

Required:

(a) Classify the two offers in terms of cost behavior (fixed vs. variable).

Scenario A, NSEF pays Gibbs a \$100,000 fee:

Scenario B, NSEF pays Gibbs 50% of revenue:

(b) Compute the budgeted income (assuming there are no other expenses) under each of the following scenarios:

1) NSEF agrees to pay the \$100,000 fee, and 350 guests actually attend the seminar; and

2) NSEF pays Mr. Gibbs 50% of revenue, and 350 guests attend the seminar.

(c) For each scenario (\$100,000 fee vs. 50% of revenue), compute the percentage increase in profit that would result if the Foundation is able to increase attendance by 20 percent over the original plan (to a total of 420).

(d) For each scenario, compute NSEF's cost per contributor if 350 attend and if 420 contributors attend.

(e) Summarize the impact on risk and profits of shifting the cost structure from fixed to variable costs.

5. Assume that Microsoft and Sony both plan to introduce a new hand-held video game. Microsoft plans to use a heavily automated production process to produce its product while Sony plans to use a labor-intensive production process. The following revenue and cost relationships are provided:

	Microsoft Game	Sony Game
Selling price per unit	150	150
Variable costs per unit		
Direct materials	\$ 27.00	\$ 27.00
Direct labor	7.50	30.00
Overhead	7.50	30.00
Selling and administrative	3.00	3.00
Annual fixed costs		
Overhead	\$ 600,000	\$ 240,000
Selling and administrative	135,000	135,000

- Required: (a) Compute the contribution margin per unit for each company.  
 (b) Prepare a contribution income statement for each company assuming each company sells 8,000 units.  
 (c) Compute each firm's net income if the number of units sold increases by 10%.  
 (d) Which firm will have more stable profits when sales change? Why?

6. Cannon Company operates a clothing store that reported the following operating results for 2013:

Income Statement	
Sales revenue	\$2,000,000
Cost of goods sold	(1,200,000)
Gross margin	\$ 800,000
Employee commissions and bonuses (5% of sales)	( 100,000)
Depreciation expense	( 150,000)
Salaries expense	( 260,000)
Shipping and delivery expense (2% of sales)	( 40,000)
Advertising expense	( 80,000)
Net income	\$ 170,000

**Required:**

**Prepare an income statement for Cannon Company using the contribution margin format.**

7 . Contribution margin income statements for two competing companies are provided below:

	Yin Company	Yang Company
Revenue	\$ 750,000	\$ 750,000
Less variable costs	<u>300,000</u>	<u>525,000</u>
Contribution margin	\$ 450,000	\$ 225,000
Less fixed costs	<u>405,000</u>	<u>180,000</u>
Net income	\$ 45,000	\$ 45,000

Required: 1) Show each company's cost structure by inserting the percentage of the company's revenue represented by each item on the contribution income statement.

2) Compute each company's magnitude of operating leverage.

3) Using the operating leverage measures computed in requirement 2, determine the increase in each company's net income (percentage and amount) if each company experiences a 10 percent increase in sales.

4) Assume that sales are expected to continue to increase for the foreseeable future, which company probably has more desirable cost structure? Why?