**Module 7 Critical Thinking Assignment**

**The Meaning and Measurement of Risk and Return (100 Points)**

Complete the following problems. You will likely use a spreadsheet for this assignment but you may choose to type up your answers in a Word document. In either case, *be sure to show your work*.

**Problem 7-1: Standard Deviation**

Given the following probabilities and returns for Saudi Corporation, find the standard deviation.

|  |  |
| --- | --- |
| **DATA** |  |
| PROBABILITY | RETURNS |
| 0.35 | 6% |
| 0.30 | 5% |
| 0.20 | 16% |
| 0.15 | 12% |

**Solution**

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| Expected return |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **DEVIATION** | **Deviation Squared** | **Probability** | **Probability x Deviation Squared** |
|  |  | 0.35 |  |
|  |  | 0.30 |  |
|  |  | 0.20 |  |
|  |  | 0.15 |  |
|  |  | Variance |  |
|  |  | Standard Deviation |  |

**Problem 7-2: Holding Period Gain and Return**

Suppose you purchased 26 shares of Riyadh Corporation stock for SAR 50.60 per share on June 1. On October 1 of the same year, you sold 16 shares of the stock for SAR 52.12 per share. Calculate the holding-period SAR gain for the shares you sold, assuming no dividend was distributed, and the holding period rate of return.

|  |  |
| --- | --- |
| **DATA** |  |
| Purchase price | 50.62 |
| Selling price | 54.12 |
| Shares sold | 16 |

|  |  |
| --- | --- |
| **Solution:** |  |
| Holding-period gain |  |
| Holding-period return |  |

**Problem 7-3: Capital Asset Pricing Model**

Using the CAPM, estimate the appropriate required rate of return for the three stocks listed here, given that the risk-free rate is 4% (four percent) and the expected return for the market is 13% (thirteen percent).

|  |  |
| --- | --- |
| **DATA** |  |
|  |  |
| Stock | Beta |
| A | 0.70 |
| B | 0.85 |
| C | 1.50 |
|  |  |
| Risk-free rate | 4% |
| Market rate | 13% |

**Solution**

|  |  |
| --- | --- |
| Stock | Returns |
| A |  |
| B |  |
| C |  |

**Problem 7-4: Breakeven Point and Selling Price**

Medina Industries will manufacture and sell 400,000 units next year. Fixed costs will total SAR 550,000, and variable costs will be 54% (fifty-four percent) of sales.

a. The firm wants to achieve a level of earnings before interest and taxes of SAR 450,000. What selling price per unit is necessary to achieve this result?

b. Set up a pro forma income statement to verify your solution to part a.

|  |  |
| --- | --- |
| **DATA** |  |
| Sell | 400,000 |
| Fixed Costs | 550,000 |
| Variable Costs | 54% |

**Solution**

|  |  |
| --- | --- |
| A) |  |
| EBIT |  |
| Sales = |  |
| Avg selling price = |  |
|  |  |
| B) |  |
| Sales |  |
| Total VC |  |
| Revenue before FC |  |
| Total FC |  |
| EBIT |  |

**Problem 7-5: Operating Leverage**

Jeddah Company manufactures a complete line of electronics. The average selling price for the various products is SAR 800. The associated variable cost is SAR 550 per unit. Fixed costs for the firm average SAR 300,000 annually.

a. What is the break-even point in units for the company?

b. What is the dollar sales volume the firm must achieve to reach the break-even point?

c. What is the degree of operating leverage (i.e., the ratio of the percent change in EBIT divided by the corresponding percent change in sales) for a production and sales level of 5,000 units for the firm? (Calculate to three decimal places.)

d. What will be the projected effect ono earnings before interest and taxes if the firm's sales level should increase by 15 percent from the volume noted in part c.

|  |  |
| --- | --- |
| **DATA** |  |
| Avg selling price | 800 |
| Avg Variable Cost | 550 |
| Fixed costs | 300,000 |

**Solution**

|  |  |
| --- | --- |
| A) |  |
| Breakeven point in units = |  |
| B) |  |
| Sales volume = |  |
| C) |  |
| Sales level |  |
| Operating leverage = |  |
| D) |  |
| Sales increase |  |
| EBIT increase = |  |