

Mobilization and Management of Finance Course

Quiz 3 Solution Date:

1.
 - a) Project A would have a higher IRR since initial investment for Project A is less than that of Project B, if the cash flows for the two projects are identical.
 - b) Yes, since both the cash flows as well as the initial investment are twice that of Project
2. Before the fact, for most assets, the risk premium will be positive; investors demand compensation over and above the risk-free return to invest their money in the risky asset. After the fact, the observed risk premium can be negative if the asset's nominal return is unexpectedly low, the risk-free return is unexpectedly high, or if some combination of these two events occurs.

3. We first need to find the weighted average flotation cost. Doing so, we find:

$$f_T = .65(.08) + .05(.05) + .30(.03) = .064, \text{ or } 6.4\%$$

And the total cost of the equipment including flotation costs is:

$$\text{Amount raised } (1 - .064) = \$55,000,000$$

$$\text{Amount raised} = \$55,000,000 / (1 - .064) = \$58,729,311$$

4. To find the return on the zero coupon bond, we first need to find the price of the bond today. Since one year has elapsed, the bond now has 24 years to maturity. Using semiannual compounding, the price today is:

$$P1 = \$1,000 / 1.04548$$

$$P1 = \$120.90$$

There are no intermediate cash flows on a zero coupon bond, so the return is the capital gains, or:

$$R = (\$120.90 - 109.83) / \$109.83$$

$$R = .1008, \text{ or } 10.08\%$$

5. Using the tax shield approach, the OCF at 90,000 units will be:

$$OCF = [(P - v)Q - FC](1 - t_c) + t_c(D)$$

$$OCF = [(\$37 - 23)(90,000) - 195,000](0.66) + 0.34(\$480,000/4)$$

$$OCF = \$743,700$$

We will calculate the OCF at 91,000 units. The choice of the second level of quantity sold is arbitrary and irrelevant. No matter what level of units sold we choose we will still get the same sensitivity. So, the OCF at this level of sales is:

$$OCF = [(\$37 - 23)(91,000) - 195,000](0.66) + 0.34(\$480,000/4)$$

$$OCF = \$752,940$$

The sensitivity of the OCF to changes in the quantity sold is:

$$\text{Sensitivity} = \Delta OCF / \Delta Q = (\$743,700 - 752,940) / (90,000 - 91,000)$$

$$\Delta OCF / \Delta Q = +\$9.24$$

OCF will increase by \$9.24 for every additional unit sold.

6. Using the dividend discount model, the cost of equity is:

a) $RS = [(0.95)(1.045)/\$64] + .045$

$$RS = .0605, \text{ or } 6.05\%$$

- b) Using the CAPM, the cost of equity is:

$$RS = .043 + 1.30(.11 - .043)$$

$$RS = .1301, \text{ or } 13.01\%$$

- c) When using the dividend growth model or the CAPM, you must remember that both are estimates for the cost of equity. Additionally, and perhaps more importantly, each method of estimating the cost of equity depends upon different assumptions.