

Essays:

1
(15%)

Balance sheet completion using ratios Complete the 1997 balance sheet for O'Keefe Industries using the information that follows it.

Cash	\$ 30,000	Accounts payable	\$120,000
Marketable securities	25,000	Notes payable	-----
Accounts receivable	-----	Accruals	20,000
Inventories	-----	Total current liabilities	-----
Total current assets	-----	Long-term debt	-----
Net fixed assets	-----	Stockholders' equity	\$600,000
Total assets	-----	Total liabilities and stockholders' equity	-----

The following financial data for 1997 are also available:

- (1) Sales totaled \$1,800,000.
- (2) The gross profit margin was 25 percent.
- (3) Inventory turnover was 6.0.
- (4) There are 360 days in the year.
- (5) The average collection period was 40 days.
- (6) The current ratio was 1.60.
- (7) The total asset turnover ratio was 1.20.
- (8) The debt ratio was 60 percent.

2
(15%)

Book value, taxes, and initial investment Irvin Enterprises is considering the purchase of a new piece of equipment to replace the current equipment. The new equipment costs \$75,000 and requires \$5,000 in installation costs. It will be depreciated under MACRS using a 5-year recovery period. The old piece of equipment was purchased for an installed cost of \$50,000 4 years ago; it was being depreciated under MACRS using a 5-year recovery period. The old equipment can be sold today for \$55,000 net of any removal or cleanup costs. As a result of the proposed replacement, the firm's investment in net working capital is expected to increase by \$15,000. The firm pays taxes at a rate of 40 percent on both ordinary income and capital gains.

- a. Calculate the book value of the old piece of equipment.
- b. Determine the taxes, if any, attributable to the sale of the old equipment.
- c. Find the initial investment associated with the proposed equipment replacement.

Rounded Depreciation Percentages by Recovery Year Using MACRS for First Four Property Classes

Recovery year	Percentage by recovery year		
	3 years	5 years	7 years
1	33%	20%	14%
2	45	32	25
3	15	19	18
4	7	13	12
5		12	9
6		5	9
7			9
8			4

3. (20%) Certainty equivalents and risk-adjusted discount rates. The CAPM-type relationship linking a risk index to the required return (RADR) and the certainty equivalent factors applicable to CBA Company's mutually exclusive projects A and B follows:

Risk index	Required return (RADR)
0.0 (risk-free rate, R_f)	7.0%
0.2	8.0
0.4	9.0
0.6	10.0
0.8	11.0
1.0	12.0
1.2	13.0
1.4	14.0
1.6	15.0
1.8	16.0
2.0	17.0

Year (t)	Certainty equivalent factors (α_t)	
	Project A	Project B
0	1.00	1.00
1	.95	.90
2	.90	.85
3	.80	.70

The firm is considering two mutually exclusive projects, A and B. Project data are shown in the following table.

	Project A	Project B
Initial investment (I)	\$15,000	\$20,000
Project life	3 years	3 years
Annual cash inflow (CF)	\$ 7,000	\$10,000
Risk index	0.6	1.3

- Ignoring any differences in risk and assuming that the firm's cost of capital is 10 percent, calculate the net present value (NPV) of each project.
- Use NPV to evaluate the projects using *certainty equivalents* to account for risk.
- Use NPV to evaluate the projects using *risk-adjusted discount rates* to account for risk.
- Compare, contrast, and explain your findings in a, b, and c.

4. (40%) Common stock valuation Perry Motors' common stock currently pays an annual dividend of \$1.30 per share. The required return on the common stock is 12 percent. Estimate the value of the common stock under each of the following dividend-growth-rate assumptions.

- Dividends are expected to grow at an annual rate of 0 percent to infinity.
- Dividends are expected to grow at a constant annual rate of 5 percent to infinity.

5. (30%) Break-even point and all forms of leverage TOR most recently sold 100,000 units at \$7.50 each; its variable operating costs are \$3.00 per unit, and its fixed operating costs are \$250,000. Annual interest charges total \$80,000, and the firm has 8,000 shares of \$5 (annual dividend) preferred stock outstanding. It currently has 20,000 shares of common stock outstanding. Assume that the firm has a 40 percent tax rate.

- At what level of sales (in units) would the firm break even on operations (i.e., EBIT = \$0)?
- Calculate the firm's earnings per share (EPS) in tabular form at (1) the current level of sales and (2) a 120,000-unit sales level.
- Using the current \$750,000 level of sales as a base, calculate the firm's degree of operating leverage (DOL).
- Using the EBIT associated with the \$750,000 level of sales as a base, calculate the firm's degree of financial leverage (DFL).

6. (40%) Suppose the exchange rate for Japanese yen, $S_{\$}$, is currently $\text{¥}120 = \$1$. If the interest rate in the United States is $R_{US} = 10\%$ and the interest rate in Japan is $R_J = 5\%$, then what must the forward rate be to prevent covered interest arbitrage?

7. (40%) A call option on Swiss francs is available with a strike price of \$0.60 and is purchased by a speculator for the premium of \$0.05 per unit. Assume there are 62,500 units in this option contract. If the Swiss franc's spot rate is \$0.65 at the time the option is exercised, what is the net profit per unit to the speculator? What is the net profit for 1 contract? What would the spot rate need to be at the time the option is exercised for the speculator to break even? What is the net profit per unit to the seller of this option?