

**GOODMAN SCHOOL OF BUSINESS
BROCK UNIVERSITY
Department of Finance, Operations, and Information Systems (FOIS)
FNCE 2P91, Corporate Finance I
Winter 2014 Quiz #2**

Name: _____

Student Number: _____

Section: _____

Answer all questions on the quiz paper and hand it in at the completion of the quiz. No aids other than those specified are permitted. Use or possession of unauthorized materials will automatically result in the award of a zero grade for this quiz.

Question 1 (2 Marks)

Circle the correct answer for each of the following questions.

A. The market return on the Canadian Treasury bill is generally used as the measure of the:

- (a) real rate of market return.
- (b) real rate of return on a risk-free investment.
- (c) nominal risk premium rate of return.
- (d) risk-free rate of return.**
- (e) risk premium on government bonds.

B. Cash flow from assets:

- (a) is defined as the cash available for distribution to creditors and stockholders.**
- (b) is defined as the change in net fixed assets plus depreciation.
- (c) refers to the change in a firm's cash account over a stated period of time.
- (d) is defined as the net change in the total assets of a firm over a stated period of time.
- (e) is another term for the net cash flow from a firm's ongoing, normal business activities.

Answer the following questions in the space provided. Show all your work. No credit will be given for answers obtained using a financial calculator without the supporting formula and steps leading to the final answer.

Question 2 (2 Marks)

A company is considering a new project and believes its estimated price per unit of \$1,000 is accurate only to within $\pm 10\%$. What price per unit should be used in calculating the project's best-case scenario?

$$\text{Price per Unit} = 1,000(1 + .1) = \$1,100$$

Question 3 (4 Marks)

A stock had returns of 8% and 6% for two of the last three years.

- (a) If the arithmetic average return of the stock over this three-year period was 4%, what was the stock's return for the missing year? (2 marks)

$$.04 = \frac{R + .08 + .06}{3}$$

$$R = -2\%$$

- (b) If the stock's return for the missing year was 15%, what was the geometric average return for the stock over this three-year period? (2 marks)

$$\bar{R} = [(1 + .15)(1 + .08)(1 + .06)]^{1/3} - 1 = 9.6\%$$

Question 4 (9 Marks)

A company is considering a new system with an installed cost of \$450,000. The system would be depreciated at a rate of 20% per year over its six-year life, at the end of which it is expected to have no salvage value. The system would require an initial investment in net working capital of \$23,500 and is expected to save the firm \$105,000 per year in pre-tax operating costs. The company's tax rate is 37% and its discount rate is 12.5%. What is the NPV of this investment?

$$PVCCATS = \left(\frac{IdT_c}{d+k} \right) \left(\frac{1+.5k}{1+k} \right) - \left(\frac{S_n d T_c}{d+k} \right) \left(\frac{1}{(1+k)^n} \right)$$

$$PVCCATS = \left(\frac{450,000(.2)(.37)}{.2+.125} \right) \left(\frac{1+.5(.125)}{1+.125} \right) = \$96,769.23$$

$$PV \text{ of After-tax Savings} = 105,000(1-.37) \left[\frac{1 - \frac{1}{(1+.125)^6}}{.125} \right] = \$268,161.42$$

$$PV \text{ of NWC} = 23,500 - \left(\frac{23,500}{(1+.125)^6} \right) = \$11,908.15$$

$$NPV = -450,000 + 96,769.23 + 268,161.42 - 11,908.15 = -\$96,977.50$$

Question 5 (3 Marks)

A company has EBIT of \$7,000, depreciation expense of \$1,000, and taxes of \$2,000. What is the company's operating cash flow?

$$OCF = 7,000 + 1,000 - 2,000 = \$6,000$$

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Question 1 (2 Marks)

Circle the correct answer for each of the following questions.

A. The cash flow that results from the firm's ongoing, normal business activities is referred to as:

- (a) operating cash flow.**
- (b) capital spending.
- (c) net working capital.
- (d) cash flow from assets.
- (e) cash flow to creditors..

B. The excess return required on a risky asset over that earned on a risk-free asset is called a:

- (a) risk premium.**
- (b) return premium.
- (c) excess return.
- (d) average return.
- (e) variance.

Answer the following questions in the space provided. Show all your work. No credit will be given for answers obtained using a financial calculator without the supporting formula and steps leading to the final answer.

Question 2 (9 Marks)

A company is considering a new system with an installed cost of \$450,000. The system would be depreciated at a rate of 20% per year over its six-year life, at the end of which it is expected to be sold for \$100,000. The system is expected to save the firm \$105,000 per year in after-tax operating costs. The company's tax rate is 37% and its discount rate is 12.5%. What is the NPV of this investment?

$$PVCCATS = \left(\frac{IdT_c}{d+k} \right) \left(\frac{1+.5k}{1+k} \right) - \left(\frac{S_n d T_c}{d+k} \right) \left(\frac{1}{(1+k)^n} \right)$$

$$PVCCATS = \left(\frac{450,000(.2)(.37)}{.2+.125} \right) \left(\frac{1+.5(.125)}{1+.125} \right) - \left(\frac{100,000(.2)(.37)}{.2+.125} \right) \left(\frac{1}{(1+.125)^6} \right) = \$85,537.85$$

$$PV \text{ of After-tax Savings} = 105,000 \left[\frac{1 - \frac{1}{(1+.125)^6}}{.125} \right] = \$425,653.05$$

$$PV \text{ of Salvage} = \frac{100,000}{(1+.125)^6} = \$49,327.02$$

$$NPV = -450,000 + 85,537.85 + 425,653.05 + 49,327.02 = \$110,517.91$$

Question 3 (3 Marks)

A company's 2012 statement of financial position showed long-term debt of \$2.5 million. The company's 2013 statement of financial position showed long-term debt of \$3 million. The company's 2013 statement of comprehensive income showed an interest expense of \$350,000. What was the firm's cash flow to creditors during 2013?

$$CF \text{ to Creditors} = 350,000 - (3,000,000 - 2,500,000) = -\$150,000$$

Question 4 (2 Marks)

A company is considering a new project and believes its estimated variable cost per unit of \$500 is accurate only to within $\pm 10\%$. What variable cost per unit should be used in calculating the project's best-case scenario? (2 marks)

$$\text{Variable Cost per Unit} = 500(1 - .1) = \$450$$

Question 5 (4 Marks)

A stock had returns of 8%, 1%, and 6% over the last three years.

(a) What is the variance of the stock's return? (3 marks)

$$\bar{R} = \frac{.08 + .01 + .06}{3} = 5\%$$

$$\sigma^2 = \frac{(.08 - .05)^2 + (.01 - .05)^2 + (.06 - .05)^2}{3 - 1} = .00130$$

(b) What is the standard deviation of the stock's return? (1 mark)

$$\sigma = \sqrt{.00130} = 3.61\%$$