Ryerson University

Ted Rogers School of Management

FIN300
Final Exam
Fall 2013

Version A

Student Name _____ (Please print)

Student Number _____

Instructor Name _____

Notes:

1. This is a 3-hour exam. There are 15 pages in this exam, including the cover page.
2. This is a closed book exam. You should only have writing instruments, calculators, and a double-sided note sheet (8.5x11") at your desk.
3. Please fill out the scanner sheet as you go during the exam – there is no extra time to fill it out at the end.
4. Select the best possible answer for each multiple-choice question.
5. Each of the 50 MC questions is worth 1 mark. Therefore, the exam is out of 50.

Use the following to answer questions 1-3:

You are considering investing in two projects. Details regarding each project's cash flows from the assets are shown in the table below. Project A has a required rate of return of 13%. Project B has a required rate of return of 15%.

Year	Project A's Cash Flows	Project B's Cash Flows
0	-5,000	-2,500
1	1,000	550
2	1,500	950
3	2,800	1,350
4	3,500	1,900

1. The discounted payback period for the project A is:
   A) 3.29 years
   B) 3.58 years
   C) 3.38 years
   D) 3.47 years
   E) 3.74 years

2. What is the NPV of the project B?
   A) $953.87
   B) $670.58
   C) $831.64
   D) $1,146.83
   E) $845.96

3. What is the IRR of the project A?
   A) 21.55%
   B) 21.82%
   C) 22.69%
   D) 23.45%
   E) 25.32%

4. You are the CFO of an Ontario-based firm and are analyzing two mutually exclusive projects of similar size. Your analyst has prepared the following data. Both projects have 5 year lives:

	Project A	Project B
NPV	$15,090	$14,693
Payback	2.76 years	2.51 years
Average Accounting Return	9.3 %	9.6%
IRR	8.0%	8.3%

You have been asked for your best recommendation given this information. Your recommendation should be to accept:

A) project B and reject project A based on their average accounting returns.
B) project B because it has the higher internal rate of return.
C) project B and reject project A based on both the payback period and the average accounting return.
D) project A and reject project B based on their net present values.
E) both projects as they both have positive net present values.

5. The payback method:
A) Is generally used only for large projects.
B) Adjusts for the risk level inherent in a project.
C) Is biased towards short-term projects.
D) Entails difficult computations.
E) Always applies a ten year cut-off point for cash flows.

6. ABC Inc is looking to set up a new manufacturing plant to manufacture widgets. The plant will be built on a piece of vacant land the company bought for $1 million, 8 years ago. The company has not used the land in the past 8 years. Today the land is worth $3 million. The company will build its manufacturing plant on the vacant land. The plant will cost $10.5 million to build. The site, the vacant land, requires $1.5 million of grading before it is suitable for construction. What is the proper cash flow amount to use as the initial investment when evaluating this project?
A) $15.0 million
B) $10.5 million
C) $11.5 million
D) $13.0 million
E) $13.5 million

Use the following to answer questions 7-9:

A company will purchase a new machine with a cost of $750,000. The machine requires an initial investment in net working capital of $25,000. Net working capital will remain at this level during the life of the machine and will be recovered at the end. The machine will be operating for 3 years. There is no salvage value associated with the machine. The company does not pay any taxes, the tax rate is zero. The machine will produce 10,000 units per year. The price per unit will be $30. The variable cost per unit is $7. There are fixed costs of $50,000 per year. The required rate of return is 12%.

7. What is the present value of the net working capital recovered at the end of the project?
   A) $35,589.01
   B) $15,588.95
   C) $19,929.85
   D) $25,000.00
   E) $17,794.51

8. What is the present value of the operating cash flow?
   A) $627,575.86
   B) $698,590.35
   C) $552,421.19
   D) $546,722.88
   E) $432,329.63

9. What is the NPV?
   A) -$307,081.35
   B) -$299,875.86
   C) -$342,670.37
   D) -$367,670.37
   E) -$324,875.86

Use the following to answer questions 10-11:

Your firm is thinking about purchasing a new machine. The new machine would cost $4,500,000 today. The new machine would operate for 4 years at which time it could be sold for $900,000. The CCA rate is 30%. The asset class will remain open. The new machine will generate revenues of $1,750,000 per year. The annual operating costs associated with the new machine are $1,100,000 per year. The corporate tax rate is 45%. The required rate of return is 9%.

10. What is the present value of the salvage value for this investment?
    A) $286,912.21
    B) $637,582.69
    C) $779,267.73
    D) $350,670.50
    E) $414,556.84

11. What is the present value of the CCA tax shield? Be certain to include any necessary adjustments due to salvage value.
    A) $1,272,682.21
    B) $1,336,990.61
    C) $1,493,383.91
    D) $1,246,153.85
    E) $1,181,845.45

12. A firm purchases a Class 8 equipment for $1,000,000 (CCA Rate 20%) for a 10 year project. What will be the CCA tax shield in year 4? The tax rate is 35%. The half-year rule is in effect and the asset class will remain open.
    A) $40,320
    B) $201,600
    C) $35,000
    D) $50,400
    E) $144,000

13. Loblaws has annual sales of $1.9 million, depreciation of $238,000, and net working capital of $196,001. The firm has a tax rate of 35% and a profit margin of 8.2%. The firm has no long-term debt. What is the amount of the annual operating cash flow?
    A) $284,585
    B) $393,800
    C) $197,800
    D) $521,200
    E) $88,585

14. Marti purchased a stock one year ago at a price of $23.89. Over the past year she has received a total of $1.63 in dividends. Today she sold the stock for $22.84. What total percentage return did Marti earn on this investment?
    A) 4.40%
    B) 6.82%
    C) 2.54%
    D) 7.14%
    E) 2.43%

15. If capital markets are semi-strong form efficient, then:
    A) individuals can identify mispriced stocks using publicly available information.
    B) studying past prices will help predict the future performance of a security.
    C) traders can earn exceptional profits using publicly available information.
    D) stock analysts have a trading advantage because of their access to vast amounts of public information.
    E) company insiders can profit based on the inside information.

16. Which one of the following is a correct ranking of securities based on their volatility over the period of 1957 to 2011? Rank from highest to lowest.
    A) long-term bonds, large company stocks, small company stocks
    B) large company stocks, Treasury bills, long-term bonds
    C) small company stocks, long-term bonds, large company stocks
    D) small company stocks, Treasury bills, long-term bonds
    E) large company stocks, long-term bonds, Treasury bills

17. What are the arithmetic and geometric average returns for a stock with annual returns of 21 percent, 8 percent, -32 percent, 41 percent, and 5 percent?
    A) 8.6 percent; 5.6 percent
    B) 8.6 percent; 6.3 percent
    C) 5.6 percent; 6.3 percent
    D) 5.6 percent; 8.6 percent
    E) 8.6 percent; 8.6 percent

18. Which one of the following stocks is correctly priced based on CAPM, if the risk-free rate of return is 3.8 percent and the market risk premium is 8.5 percent?

Stock	Beta	Expected Return
A	0.72	9.6%
B	1.04	13.1%
C	1.35	14.9%
D	1.20	14.0%
E	0.97	12.2%

    A) A
    B) B
    C) C
    D) D
    E) E

19. If portfolio weights are positive: 1) Can the return on a portfolio ever be less than the smallest return on an individual security in the portfolio? 2) Can the variance of a portfolio ever be less than the smallest variance of an individual security in the portfolio?
    A) 1) yes; 2) no
    B) 1) no; 2) yes
    C) 1) no; 2) no
    D) 1) maybe; 2) no
    E) 1) yes; 2) yes

20. Your portfolio has a beta of 1.08. The portfolio consists of 20 percent Treasury bills, 45 percent in stock A, and 35 percent in stock B. Stock A has a risk-level equivalent to that of the overall market. What is the beta of stock B?
    A) 1.61
    B) 1.54
    C) .79
    D) 1.80
    E) 1.25

21. Which one of the following statements is correct?
    A) Treasury bills have a beta of zero.
    B) The beta of a diversified portfolio will approach zero as the number of stocks in the portfolio is increased.
    C) A beta of 1.2 indicates that a security has less risk than the overall market.
    D) A stock with a beta of 1.4 has less systematic risk than a stock with a beta of .9.
    E) The risk premium associated with a stock will decrease as the beta of the stock increases.

22. Which of the following describes a portfolio that plots below the security market line?
    A) The security is providing a return that is greater than expected.
    B) The security's beta is too low.
    C) The security provides a return that exceeds the average return on the market.
    D) The security's reward to risk ratio is too low.
    E) The security is undervalued.

23. What is the expected return for the following portfolio?

Asset	Investment	Return
A	$200	0.15
B	$300	0.10
C	$500	0.25

A) 0.1850
B) 0.1000
C) 0.1550
D) 0.1150
E) 0.1225

24. Angela invested $10,000 six years ago at 5% simple interest. Michelle invested $10,000 six years ago at 5% interest which was compounded annually. Which one of the following statements is true concerning these two investments?
I. Angela. has an account value of $13,400.96 today.
II. Angela will have an account value of $13,400.96 six years from now.
III. Michelle earned $525 interest in the second year.
IV. Both Angela and Michelle earned $500 interest in the first year.
A) II and IV only
B) I and III only
C) II, III and IV only
D) III and IV only
E) I, III and IV only

25. You need $2,000 to buy a new stereo for your car. If you have $800 to invest at 5% per year compounded annually, how long will you have to wait to buy the stereo?
A) 14.58 years
B) 18.78 years
C) 15.75 years
D) 8.42 years
E) 6.58 years

26. The financial planning method in which accounts are varied depending on a firm's predicted sales level is called the:
A) Time-trend approach.
B) Percentage of sales approach.
C) Sales dilution approach.
D) Sales reconciliation approach.
E) Common-size approach.

27. Jacob Money Inc. has a profit margin of 11% and a retention ratio of 70%. Last year, the firm had sales of $500 and total assets of $1,000. The desired total debt ratio is 75%. What is the firm's sustainable growth rate?
    A) 7.1%
    B) 2.5%
    C) 18.2%
    D) 4.0%
    E) 11.3%

Use the following to answer questions 28-29:

The following balance sheet and income statement should be used:

J&F, Inc.
2012 Income Statement

Net Sales	$28,900
Less: Cost of Goods Sold	23,400
Less: Depreciation	1,600
Earnings Before Interest and Taxes	3,900
Less: Interest Paid	280
Taxable Income	$3,620
Less: Taxes	1,230
Net Income	$2,390
Dividends	$956
Additions to retained earnings	$1,434

J&F, Inc.
Dec 31, 2012 Balance Sheet

Cash	$1,530	Accounts payable	$2,750
Accounts rec	2,780	Long-term debt	4,000
Inventory	3,410	Common stock	8,000
Total	$7,720	Retained earnings	5,810
Net fixed assets	12,840		
Total assets	$20,560	Total liabilities & equity	$20,560

28. Assume that J&F, Inc. is operating at 85 percent of capacity. All costs and net working capital vary directly with sales. What is the amount of total fixed assets required if sales are projected to increase by 20 percent?
    A) $13,397.24
    B) $13,414.14
    C) $13,096.80
    D) $13,108.68
    E) $12,840.00

29. Assume that all costs, assets, and current liabilities of J&F, Inc. increase directly with sales. Also assume that the tax rate and the dividend payout ratio are constant. The firm is currently operating at full capacity. What is the external financing need if sales increase by 8 percent?
    A) -$9.20
    B) $108.14
    C) -$12.87
    D) -$123.92
    E) $11.68

30. Which of the following is the BEST description of the goal of the financial manager in a corporation where shares are publicly traded?
    A) Maximize profits.
    B) Avoid financial distress.
    C) Maintain steady earnings growth.
    D) Maximize the current value per share of the existing stock.
    E) Maximize sales.

31. A Windsor Ontario firm has a net income of $32,000 which provides a 12% return on assets. The firm has a debt-equity ratio of .40. What is the return on equity?
    A) 12.00%
    B) 11.67%
    C) 7.20%
    D) 8.57%
    E) 16.80%

32. Using the Du Pont Identity Method, calculate the equity multiplier given the following information: profit margin 14%; total asset turnover 1.7; return on equity 29.08%.
    A) 1.5
    B) 1.4
    C) 1.1
    D) 1.3
    E) 1.2

33. Current assets of the Smart Inc. are $94,700. Accounts payable is $36,200, net income is $12,400 and sales are $110,800. What is the net working capital turnover rate for Smart Inc.?
    A) 1.68
    B) 0.21
    C) 1.89
    D) 1.17
    E) 0.85

34. Which of the following is/are true about common stock dividends?
    I. Payment of dividends is a tax deductible business expense for a corporation.
    II. Dividends that have been declared but are not yet paid are liabilities of the corporation.
    III. Dividends received by both individuals and corporations are fully taxable.
    A) I, II, and III
    B) II and III only
    C) II only
    D) I and III only
    E) III only

35. DEF's common stock just paid a dividend of $3 per share. You expect the dividend to increase by 5% per year in perpetuity. If you require a 15% rate of return what is the price of the stock today?
    A) $21.00
    B) $31.50
    C) $30.00
    D) $20.00
    E) none of the above

36. XYZ's stock is currently selling for $51. The expected dividend one year from now is $1.50 and the required return is 10%. The dividends are expected to grow at a constant rate in perpetuity. What is this firm's dividend growth rate assuming the constant dividend growth model is appropriate?
    A) 9%
    B) 11%
    C) 8%
    D) 7%
    E) 10%

37. XYZ Company's preferred shares will pay a constant dividend of $2.00 per year forever, starting in 1 year. Given the risk of the shares you think the appropriate discount rate should be 20% per year for the first 3 years. You then think the discount rate should drop to 12% per year in year 4 and will last forever. How much would you be willing to pay for these preferred shares?
    A) $12.25
    B) $9.65
    C) $13.86
    D) $16.67
    E) $10.71

38. Carol Singer holds a 5.4% coupon bond that has a quoted price of $995 and will make its next semi-annual payment in one month. What is the accrued interest for this bond?
    A) $45.00
    B) $2.25
    C) $22.50
    D) $4.50
    E) $11.25

39. Canadian Treasury bills with 1-year to maturity have a yield to maturity of 0.98% per year. If you expect inflation to be 1.4% per year over the upcoming year, what is your expected real rate of return?
    A) -0.420%
    B) -0.446%
    C) -0.433%
    D) -0.414%
    E) -0.406%

40. You buy a 10-year bond with a 4% coupon rate (paid annually) and a $1,000 face value at par. If the yield to maturity increases to 5% per year compounded annually one year from now, what is your 1-year holding period return?
    A) -3.1%
    B) 3.1%
    C) 11.1%
    D) -7.1%
    E) Not enough information to calculate

41. A bond with a $5,000 face value and 20 years to maturity has a coupon rate of 5% per year (paid semi-annually). If its yield to maturity is 3.6% per year compounded semi-annually, what is its value today?
    A) $5,991.90
    B) $6.001.42
    C) $5,997.18
    D) $5,985.93
    E) $5,979.79

42. Everything else equal, the price of which of the following bonds would be least sensitive to interest rates falling by 2%?
    A) A bond with ten years to maturity and a 6% coupon rate.
    B) A bond with five years to maturity and a 4% coupon rate.
    C) A bond with five years to maturity and a 6% coupon rate.
    D) A bond with ten years to maturity and a 4% coupon rate.
    E) Cannot be determined.

43. Choose the term that best matches the following description: "The relationship between nominal interest rates on default free, pure discount instruments and time to maturity".
    A) Liquidity Risk Premium
    B) Term Structure of Interest Rates
    C) Default Risk Premium
    D) Inflation Risk Premium
    E) Real Interest Rates

44. You have borrowed $12,000 from Rob M. Blind lenders. If they require you to make payments of $400 at the end of each month for a period of six years in order to pay off this loan, what annual percentage rate (APR) compounded monthly are they charging on this loan?
    A) 41.1%
    B) 37.6%
    C) 39.2%
    D) 32.8%
    E) 34.9%

45. The grand prize in the OMG Lottery is a choice between $1,000 paid at the beginning of each month for a period of 10 years and a lump sum paid immediately. If you can invest at an effective annual interest rate of 5%, what is the minimum lump sum you would be willing to accept as winner of this lottery?
    A) $94,766
    B) $95,152
    C) $94,282
    D) $94,675
    E) $93,847

46. What annual percentage rate (APR) compounded monthly is equivalent to an interest rate of 6.25% per year compounded semi-annually?
    A) 6.33%
    B) 6.21%
    C) 5.99%
    D) 6.17%
    E) 6.03%

47. Candy Kane has taken out a $250,000 mortgage at a quoted rate of 6.3% compounded semi-annually. If the mortgage requires monthly payments over a term of 20 years, with each payment made at the end of the period, what is the required monthly payment?
    A) $1,834.61
    B) $1,813.39
    C) $1,822.79
    D) $1,850.26
    E) $1,825.03

48. You wish to establish a scholarship fund for students at Clever College. The fund would pay an annual scholarship that would start at $5,000 awarded one year from now and increase by 3.5% per year forever. If the fund could earn an effective annual return of 6%, how much would you need to contribute to the scholarship fund today for it to be fully funded?
    A) $205,000
    B) $207,000
    C) $210,000
    D) $214,000
    E) $200,000

49. Holly Daze has taken out a ten-month zero-coupon loan of $3,000. If the lender charges 7.2% per year compounded quarterly, what is the amount she must pay back at the end of the loan?
    A) $3,183.81
    B) $3,174.19
    C) $3,044.93
    D) $3,169.47
    E) $3,180.00

50. You are considering two perpetuities which are identical in every way, except that perpetuity A will begin making annual payments of $P to you two years from today while the first $P payment for perpetuity B will occur one year from today. Suppose the annual rate of return is r. It must be true that the present value of perpetuity:
    A) B exceeds that of A by the PV of $P for one year, i.e. $P/(1+r).
    B) A is greater than that of B by $P.
    C) A exceeds that of B by the PV of $P for one year, i.e. $P/(1+r).
    D) B is greater than that of A by $P.
    E) B is equal to that of perpetuity A.

Answer Key

1. D
2. B
3. A
4. D
5. C
6. A
7. E
8. E
9. E
10. B
11. A
12. A
13. B
14. E
15. E
16. E
17. A
18. D
19. B
20. D
21. A
22. D
23. A
24. D
25. B
26. B
27. C
28. C
29. D
30. D
31. E
32. E
33. C
34. C
35. B
36. D
37. C
38. C
39. D
40. A
41. A
42. C
43. B
44. E

45. B
46. D
47. C
48. E
49. A
50. A