

WILFRID LAURIER UNIVERSITY

WATERLOO, ONTARIO

Session: Fall 2013 Midterm Exam

Course No.: BU383

Title: Financial Management I

Professor(s):

W. McNally, P. Freire, B. Everitt

Number of pages: 14

Length of examination: 2 hours

Examination aids allowed: Calculator (no keyboard), Dictionary (if foreign student)

The doors of the examination room will be opened approximately 10 minutes before the start of the examination. Candidates will be permitted to enter the examination room quietly up to one half hour after the scheduled start of the exam. Candidates arriving late will not be allowed any extra time.

Candidates must not begin the examination or attempt to read the examination questions until instructed to do so.

Candidates once having entered, may not leave the exam room before completing and submitting the exam unless accompanied by a Proctor. Candidates are not permitted to submit their examination and leave the examination room until 1 hour after the examination has begun, and in no case before their attendance has been taken. In no case may a candidate leave the room temporarily, for any reason, until 30 minutes after the start of the examination. In order that remaining candidates are not disrupted, candidates must remain seated and may not leave the examination room during the last 15 minutes of the examination session.

At the close of the examination period, candidates must stop writing immediately. The Presiding Officer may seize the papers of candidates who fail to observe this requirement, and a penalty may be imposed at the discretion of the instructor. Candidates must submit all their work, according to the instructions of the Presiding Officer, including all materials and a copy of the examination paper with their name and student ID number written on it. Unused examination booklets may not be taken from the examination room.

A candidate who leaves before the examination is over must hand in all completed and attempted work, notes made during the exam, and a copy of the examination paper with their name and student ID number on it.

Talk or any form of communication between candidates is absolutely forbidden. No information of any kind is to be written on the question paper or on scrap paper for the purpose of assisting other candidates. Responses to questions must not be done in an exaggerated way or in a manner that will involve transmission of information to others.

Candidates must remain seated during the examination period. A candidate needing to speak to the proctor (e.g. to ask for additional supplies or to request permission to leave the examination room for any reason) should so indicate by raising his or her hand.

Questions concerning possible errors, ambiguities or omissions in the examination paper must be directed to the proctor who will investigate them through the proper channels. The proctor is not permitted to answer questions other than those concerning the examination paper.

Candidates must not use or attempt to use any improper source of information. No candidates for an examination may bring into the examination room any books, notes or other material containing information pertaining to the examination unless the examiner has given instructions that such material will be allowed and this instruction is specified on the examination paper. Any item brought into the examination room is subject to inspection.

No briefcases, backpacks or other bags and carriers may be brought to the desk site where the candidate is writing the examination. These bags should be left outside the examination room. If books, notes etc. cannot be left outside the examination room, they must be put at the front of the examination room in a place designated by the proctor before a candidate takes a seat. Candidates are advised not to bring valuables to the examination room.

No electronic or communication devices will be allowed in the examination room, including cell phones, blackberries, pagers, etc. Calculators are not allowed unless specified by the instructor and indicated on the examination paper. Only non-programmable models authorized by the instructor will be allowed. It is the candidate's responsibility to ascertain whether the use of calculators is permitted, and, if it is, whether any restrictions are imposed on the types of calculators that may be brought to the examination.

Translation dictionaries (e.g. English-French) or other dictionaries, (thesaurus, definitions, technical) are not allowed unless specified by the instructor and indicated on the examination paper. Electronic dictionaries are never allowed.

Except for bottled water, no food or drink is allowed in the examination room. Candidates with health problems that warrant relaxation of this regulation should provide medical documentation to the presiding officer prior to the beginning of the examination. Such students should restrict themselves to those items and packaging that will least distract other examinees.

Candidates are expected to write their examinations in an honest and straightforward manner. Where there are reasonable grounds for believing a violation of exam protocol has occurred, the candidate will be subject to the disciplinary procedures and sanctions according to the University Calendar.

Only currently registered students will be permitted to write the final exam.

Examinations conducted at Wilfrid University will be bound by WLU regulations, regardless of where the candidate is registered.

Approved by Senate (Oct. 27/2003)

ADDITIONAL INSTRUCTIONS

1 BEFORE THE EXAM

1. Complete the personal identification portion of the multiple choice answer card. Shade in the boxes below your student number on BOTH sides of the Scantron card.
2. Your student number should be left-aligned in the field.
3. UofW students should create a 9-digit number by adding a '0' at the END of their UofW student number.
4. Make sure that you shade the letter 'A' Under "Test Form".

2 DURING THE EXAM

5. Count the pages to be certain that there are no missing pages.
6. **No** questions will be answered by the proctors or the Professor during the exam, except in the case of missing pages.
7. If, for any reason, you think that the correct answer is missing from the multiple choices, then select the best available answer-- that is, the multiple choice which has the closest value to the correct answer.
8. Students are NOT allowed to speak to one another during the exam or exam collection period.
9. You must sign the identification sheet before leaving.
10. You are not allowed to use your own paper for rough work. If you need scrap paper, use the back side of each page or ask a proctor for paper.
11. Closed book. No notes or books are permitted.
12. Stop writing immediately upon being told that the exam is over.

3 AFTER THE EXAM

13. Students may NOT leave the exam hall in the last 15 minutes.
14. The Scantron card MUST be handed in. Only the Scantron responses will be graded.
15. At the end of the exam, the proctors will collect the Scantron cards. Please remain seated quietly.
16. Students may keep their copy of the exam.

Sections, Questions, Marks and Time

	# Questions	Marks	Minutes
Section 1 – Instructions	10	1	2
Section 2 – Short Questions	13	13	40
Section 3 – Long Questions	14	21	78
TOTAL	37	35	120

1 Exam Instructions

(10 Questions worth 0.10 marks each)

- 1 What is the colour of your exam paper? (There are 4 versions of the midterm and we use your response to select the marking key.)
 - A) Red
 - B) White
 - C) Blue
 - D) Yellow

- 2 Which letter should you shade under “Test Form” on your Scantron card?
 - A) A

- 3 Should your shaded student number be left-aligned or right-aligned on the Scantron card?
 - A) Left-aligned

- 4 True or False? The Scantron cards are the only item that will be marked and will be collected by the proctor at the end of the exam.
 - A) True

- 5 True or False? I should complete the Scantron card using a pencil.
 - A) True

- 6 True or False? If I am confused about an ambiguous exam question, then I can ask the Professor a question.
 - A) False.

- 7 If the correct answer appears to be missing from the multiple choices then I should:
 - A) Select the best available answer.

- 8 If I finish my exam in the last 15 minutes of the exam period, then:
 - A) I should wait quietly in my seat until I am dismissed by the proctors.

- 9 Can students talk during the exam or exam collection period?
 - A) No

- 10 Can students continue to write after the end of the exam? (For example, to complete the Scantron card.)
 - A) No. Students who continue writing will have their incomplete Scantron cards collected by the Proctor and will be marked on the basis of the incomplete card.

2 Short Questions (13 Questions. 1 Mark Each.)

If you think that the correct answer is missing from the multiple choices, then select the best available answer.

2.1 Time Value of Money

- 11 Gary has \$1,400 to invest with the goal of having \$4,000 available to purchase a used car. If he can earn 12% compounded semiannually on his investment, how long will he have to wait to acquire his car?
- A) Nine months
 - B) Eighteen months
 - C) *Nine years
 - D) Eighteen years
 - E) Four years
- 12 Julian was given a gold coin originally purchased for \$1 by his great grandfather 50 years ago. Today the coin is worth \$450. The rate of return realized on the sale of this coin is approximately equal to:
- A) 50%
 - B) 10%
 - C) *13%
 - D) 15%
 - E) 7.5%

2.2 Short-Term Financing

- 13 Your supplier offers a cash discount for early payment. The terms of sale are 2/15 net 60. If you skip the early payment discount and keep the funds, then what is the effective interest rate on your self-made loan?
- A) 16.2%
 - B) 16.6%
 - C) 17.0%
 - D) 17.4%
 - E) *17.8%

2.3 Bonds

- 14 Based on the table of bond prices, below, what is the shape of the yield curve? (\$100 face value.)

maturity	price
1	95.24
2	90.70
3	86.38
4	82.27

- A) *Flat
 B) Upward sloping
 C) Downward sloping
 D) Not enough information

Maturity (Years)	Yield
1	2.75%
2	3.25%
3	3.65%
4	4.00%
5	4.15%

- 15 The current yields for zero-coupon bonds with varying maturities are outlined in the table above. Find the forward rate from the end of year 2 to the end of Year 3.
- A) *0.0445
 B) 0.0454
 C) 0.0475
 D) 0.0506
 E) 0.0722

<i>Bond</i>	<i>Coupon Rate</i>	<i>Maturity</i>	<i>Price</i>	<i>Yield</i>
T-Note Strip	0	10	70.69	3.5%
T-Bill	0	1	96.62	3.5%
8—year T-Note	5%	8	110.31	3.5%
7—year T-Note	6.5%	7	118.34	3.5%

- 16 Each bond in the table has a face value of \$100. The coupon bonds pay annual coupons, and the next coupon is due in one year. Assume that the yield curve is flat and all yields are currently 3.5%. If interest rates are forecast to rise to 4% from 3.5%, then which bonds price will decline by the greatest percentage amount?
- A) *T-Note Strip
 B) T-Bill
 C) 8—year T-Note
 D) 7—year T-Note
- 17 The nominal rate of interest is 6% and the real rate of interest is 3%. What is the expected inflation rate?
- A) 4.91%
 B) 4.04%
 C) *2.91%
 D) 2.51%
 E) 3.00%
- 18 To raise funds for Gravina Island Bridge, the Government of Alaska issued bonds. The bonds have a face value of \$1,000, 15 years to maturity and a 7% coupon rate (annual coupons with the first coupon due in one year). The bonds are priced to yield 10%. U.S. Government T-Bonds with a 7% (annual) coupon rate and 15 years to maturity currently yield 7%. What is the default risk premium applied to the Gravina Bridge Bonds? (Assume that the Gravina bonds have the same liquidity risk premium as the T-Bonds.)
- A) 1%
 B) 2%
 C) *3%
 D) 4%
 E) 5%

- 19 A US Government 4% coupon bond has 25 years remaining to maturity. The bond pays annual coupons and the next coupon is due in one year. The face value of the bond is \$100. The bond is currently trading for \$74.43 and yields 6%. Calculate your capital gain return if you buy the bond today, hold it for one year and sell it after the next coupon. (Assume that yields are expected to remain constant at the current level over the bond's life.)
- A) 2.6%
 - B) 4%
 - C) *0.6%
 - D) 6%
 - E) 1.6%

2.4 Stocks

- 20 All of the following are characteristics of common stock EXCEPT:
- A) Claims on income and assets which are subordinate to the creditors of the firm
 - B) That there is no fixed payment obligation
 - C) Voting rights which permit selection of the firm's directors
 - D) *Tax-deductible dividends
- 21 Leonardo's broker called him recently with an offer to buy Downliner Waterproof Furnishings Corp. common stock for \$40 per share. His broker promised to repurchase the shares in one year for \$45 per share. If Leonardo accepts this deal, what is his expected return? The stock is not expected to pay a dividend next year.
- A) *12.5%
 - B) 10.0%
 - C) 15.3%
 - D) 30.6%
 - E) 15.1%

- 22 Molson Coors has expected earnings per share of \$4.47. Financial data for its two closest competitors are given in the table below. If their average performance (and valuation) represents the best benchmark for Molson Coors, then what is the best estimate of Molson Coors' fair stock price?

Selected Financial Information for selected brewing companies		
	Anheuser Busch	Heineken
Net Income	\$4,820M	\$1,981M
# Shares Outstanding	1,590M	563M
EPS	3.0314	3.5187
Price	\$54	\$50

- A) \$53.46
B) \$79.63
C) \$63.52
D) \$52.00
E) *\$71.56
- 23 Assuming g will stay constant, the dividend yield is a good measure of the required return on a common stock under which of the following circumstances?
- A) $g > 0$
B) $g < 0$
C) $*g = 0$
D) Never

3 Long Questions (14 Questions. 1.5 Marks Each.)

3.1 Time Value of Money

- 24 You want to lease a Nash Rambler which sells for \$26,990. The lease has a term of 48 months at a rate of 3.9% APR. At the end of the term the lease buyout is \$12,955.20. You can afford to make a \$2,000 down payment. What are the monthly lease payments?
- A) *\$312.29
 B) \$335.36
 C) \$341.57
 D) \$357.21
 E) \$365.59
- 25 You want to drive a BMW 535i but you really can't afford it. So, your plan is to lease it for four years and then borrow the money for the buyout. The loan for the buyout will have monthly (end-of-period) payments over a four year term with a rate of 6%. How much interest will you pay over the eight year period? (Ignore taxes.)

Model	BMW 535i
Horse Power	300hp
MSRP	\$69,800
Lease Info	
Down Payment	\$0
Buyout	\$36,296
Term	48 months
Lease Rate	6.9%
Lease Payment	\$1,003.67

- A) \$18,392
 B) \$18,692
 C) \$18,992
 D) *\$19,292
 E) \$19,592
- 26 Your mortgage loan has a principal of \$700,000, an amortization period of 20 years and a quoted rate of 5%. You elect to make 24 payments per year. What is the size of each mortgage loan payment?
- A) *\$2,298
 B) \$2,302
 C) \$2,306
 D) \$2,310

3.2 Short-Term Financing

- 27 The Saco Bay Savings and Loan offers local businesses a loan with a standard term of 1 year and a nominal interest of 6%. The loan requires a compensating balance equal to 10% of the principal of the loan. What is the effective annual rate of the loan?
- A) 6.33%
 - B) 6.50%
 - C) *6.67%
 - D) 7.00%
 - E) 7.33%
- 28 The Cash Mart offers a payday loan with a one month term. The loan fee plus interest is \$17.65 per \$100 borrowed. You intend to borrow \$100 and use your next paycheque to repay the principal, interest and the fee. What is the effective annual rate of the loan?
- A) 303%
 - B) 403%
 - C) 503%
 - D) *603%
 - E) 703%

3.3 Bonds

- 29 Consider a two year coupon bond issued today with a face value of \$1,000 and a 6% coupon rate. Suppose that yields on zero coupon bonds with terms one and two are 6% and 7% respectively. What is your best estimate of the price of the bond next year after the first coupon?
- A) *\$981.40
 - B) \$982.45
 - C) \$985.25
 - D) \$992.50
 - E) \$962.25
- 30 Acme Inc. just issued a bond with a \$10,000 face value and a coupon rate of 7%. If the bond has a life of 30 years, pays semi-annual coupons, and the yield to maturity is 9%, what will the bond sell for?
- A) *\$7,936.20
 - B) \$7,904.45
 - C) \$10,000
 - D) \$4,349.49
 - E) \$7,945.27
- 31 The US Government has a 3-year 5% coupon bond with a face value of \$1,000. The bond pays annual coupons and the first coupon is due in one year. Using the data on zero coupon US Government bond yields in the table, below, what is the price of the coupon bond?

Term	Yield
t = 1	8.11%
t = 2	5.41%
t = 3	4.55%

- A) \$1,000
- B) *\$1,010
- C) \$1,040
- D) \$1,020
- E) \$1,030

- 32 Consider a 35 year coupon bond with a face value of \$1,000 that pays \$80 annual coupons (beginning one year from today). Assume that you invest each coupon in a bank that pays 8% interest. By the maturity date of the bond, how much interest have you earned by investing the coupons? Express your answer as a proportion of all of the money that you have received from owning the bond by the maturity date.
- A) 59%
 - B) 69%
 - C) 54%
 - D) *74%
 - E) 64%
- 33 A semi-annual coupon matures in one year. It has a face value of \$1,000, a coupon rate of 4%, and the next semi-annual coupon is due in six months. The bond trades for \$971.50. What is the yield to maturity of the bond?
- A) 3.50%
 - B) 8.00%
 - C) 4.00%
 - D) *7.00%
 - E) 3.56%

3.4 Stocks

- 34 Ramble-On-Rose Florists Inc. common shares are priced at \$39.96 today and are expected to pay the next annual dividend of \$1.85 in one year's time. Investors have historically required an 11% return for holding Ramble-On stock. Assume that the dividends grow at a constant rate in perpetuity, and calculate the growth rate implicit in today's stock price. Then, calculate the fair price for the stock after the \$1.85 dividend in one year's time. Finally, calculate the capital gain rate. That is, the percentage change in the stock price between today and one year from now.
- A) 4.63%, \$30.39, 31.50%
 - B) 4.63%, \$40.64, 5.38%
 - C) 6.37%, \$42.55, 6.48%
 - D) *6.37%, \$42.51, 6.37%
 - E) 6.37%, \$39.96, 0.00%

- 35 Universal Export's Preferred shares will pay their first dividend in five years. The dividend will be 6.5% on a \$50-par value. Assume that the dividends will continue annually in perpetuity at that level. The required return of preferred shareholders is 9%. What is the fair price for the preferred shares?
- A) \$49.04
 - B) *\$25.58
 - C) \$50.00
 - D) \$23.47
 - E) \$36.11
- 36 Yesterday, McDonald's Corp paid out \$1.7308B in dividends and repurchased \$4.3983B worth of shares. McDonald's has 1.12B shares outstanding. Analysts expect total payouts to grow at an annual perpetual rate of 2% and investors require a 10% rate of return on McDonald's shares. What is the Total Payout model estimate of the stock price today assuming that all payouts occur annually? (The next payout will occur in one year.)
- A) \$50
 - B) \$55
 - C) \$60
 - D) \$65
 - E) *\$70
- 37 Yesterday, Initech paid out \$0.86B in dividends and repurchased \$4.475B worth of shares. Initech has 1.22B shares outstanding and pays all of its dividends and makes its repurchases at the end of each year. Because of the slow-down in the economy, analysts expect that next year Initech will hold dividend payments constant at yesterday's level and cancel its stock repurchase program. Two years from now, analysts forecast that total payouts will return to the level of yesterday. After that date analysts expect that total payouts will grow at an annual rate of 2.5% in perpetuity. Assume that investors require a 9.5% rate of return on Initech shares. What is the Total Payout model estimate of the stock price today?
- A) *\$57.69
 - B) \$63.18
 - C) \$69.60
 - D) \$70.39
 - E) \$77.07

4 Midterm Exam Formula Sheet

$$PVIF_{n,i} = \frac{1}{(1+i)^n} = (1+i)^{-n}$$

$$FVIF_{n,i} = (1+i)^n$$

$$i = \left[\frac{FV_n}{PV_0} \right]^{1/n} - 1$$

$$PVIFA_{n,i} = \frac{1}{i} [1 - (1+i)^{-n}]$$

$$FVIFA_{n,i} = \frac{1}{i} [(1+i)^n - 1]$$

$$PVIFA - Due_{n,i} = \frac{1}{i} [1 - (1+i)^{-n}] (1+i)$$

$$FVIFA - Due_{n,i} = \frac{1}{i} [(1+i)^n - 1] (1+i)$$

$$PV = FVe^{-in}$$

$$f_t = \frac{(1+k_t)^t}{(1+k_{t-1})^{t-1}} - 1$$

$$EIR = \left(1 + \frac{i}{m} \right)^m - 1$$

$$j = \left[1 + \frac{i}{2} \right]^{2/m} - 1$$

$$i_{EIR} = \left[1 + \frac{(\text{Interest} + \text{Fees} - \text{Savings})}{\text{Net Amount Borrowed}} \right]^{365 / \text{Days to maturity}} - 1$$

NAB \neq Principal for front-end fees, discount interest and compensating balance.

$$\text{Bond Equivalent Yield} = \frac{FV - \text{Price}}{\text{Price}} \cdot \frac{365}{\text{Term}}$$

$$k_n = k_r + \pi + k_r \pi$$

$$YTM = k_r + INF + MRP + LRP + DRP$$

$$P_{\text{bond}} = \frac{C}{(1+k_1)} + \frac{C + FV}{(1+k_2)^2}$$

$$P_{\text{zero}} = \frac{\$FV_n}{(1+i_n)^n}$$

$$P_{\text{bond}} = \$C \cdot \frac{1}{k_d} [1 - (1+k_d)^{-n}] + \frac{\$FV}{(1+k_d)^n}$$

$$\text{Holding Period Return} = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{D_t}{P_{t-1}}$$

$$\text{Holding Period Return} = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{C_t}{P_{t-1}}$$

$$P = \sum_{t=1}^{\infty} \frac{D}{(1+k)^t} = \frac{D}{k}$$

$$P = \sum_{t=1}^{\infty} \frac{D_0(1+g)^t}{(1+k)^t} = \frac{D_0(1+g)}{k-g} = \frac{D_1}{k-g}$$

$$P = \frac{TP_0(1+g)}{k-g} = \frac{TP_1}{k-g}$$

$$k = \frac{D_1}{P_0} + g$$

$$\frac{P_0}{\text{EPS}_1} = \frac{\text{Payout Ratio}}{k-g}$$

$$\frac{P_0}{\text{BVPS}} = \frac{\text{Price}}{\text{Book value per share}}$$