

NAME: _____ KEY _____

THIS IS A TWO HOUR FIFTEEN MINUTES EXAM. YOU MUST STOP WRITING IMMEDIATELY WHEN THE END OF THE EXAM IS ANNOUNCED – PLEASE REMAIN SEATED AND WAIT FOR THE PROCTORS TO COLLECT THE EXAMS.

YOU ARE ALLOWED TO LEAVE ONLY AFTER HALF AN HOUR HAS PASSED SINCE THE START OF THE EXAM.

YOU *ARE ALLOWED* TO LEAVE BEFORE THE EXAM IS OVER IF YOU FINISH MORE THAN FIVE MINUTES EARLY (TURN IN YOUR EXAM TO ONE OF THE PROCTORS ON YOUR WAY OUT).

DO NOT TURN THIS PAGE UNTIL THE INSTRUCTION TO BEGIN IS GIVEN.

DO NOT SEPARATE THE PAGES OF THIS EXAMINATION .

BE SURE TO PUT YOUR NAME AND STUDENT ID NUMBER ON THE TOP OF THE NEXT PAGE OF THIS EXAMINATION.

REMEMBER TO SHOW ALL WORK.

PLEASE FOLLOW ALL DIRECTIONS.

The next page contains general instructions.
There are instructions accompanying the individual questions.

Only Saif is able to answer your questions.
There are limits to the types of questions I will answer.

GOOD LUCK!

"A bank is a place that will lend you money if you prove that you don't need it."

Bob Hope

Name: _____

Student Number: _____

Finance FINA 395
Winter 2010
March 24, 2010

Mid Term 2
Professor Saif Ullah
70 points

This exam is composed of 10 multiple choice questions and 4 multi-part word problems. Some of the sub-questions rely on information calculated in other parts of the question. Carry through errors will not be penalized. You have access to a financial calculator and you may have one 8½×11 inch “cheat sheets” with material on both sides. These sheets must be in human handwriting and may not be mechanically altered (i.e. reduced by a photocopier).

Show all work. Credit will not be given for answers without supporting information. Please limit the amount of extraneous information in your answers since it makes it difficult to ascertain your understanding. Use the backs of the pages for scratch. Do not write answers outside of the allotted space (i.e., **I DO NOT READ THE BACKS OF EXAMS**).

Read through the exam before starting. Good luck!

Part 1 Multiple Choice _____ (30)

Part 2 Word Problems

Question 1: _____ (10)

Question 2: _____ (10)

Question 3: _____ (10)

Question 4: _____ (10)

Total: _____ (70)

FOR MULTIPLE CHOICE, PLEASE CIRCLE THE CORRECT ANSWER

1. You have deposited \$1,500 in an account that promises to pay 8% compounded quarterly for the next five years. How much will you have in the account at the end? -----
 - A) \$1,598.33
 - B) \$2,228.92**
 - C) \$2,203.99
 - D) \$6991.44
 - E) None of the above
2. The yield to maturity is: -----
 - A) the rate that equates the price of the bond with the discounted cashflows.
 - B) the expected rate to be earned if held to maturity.
 - C) the rate that is used to determine the market price of the bond.
 - D) equal to the current yield for bonds priced at par.
 - E) all of the above.**
3. The internal rate of return (IRR): -----
 - I. rule states that a typical investment project with an IRR that is less than the required rate should be accepted.
 - II. is the rate generated solely by the cash flows of an investment.
 - III. is the rate that causes the net present value of a project to exactly equal zero.
 - IV. can effectively be used to analyze all investment scenarios.
 - A) I and IV only
 - B) II and III only**
 - C) I, II, and III only
 - D) II, III, and IV only
 - E) I, II, III, and IV
4. You have been asked to evaluate an infinitely-lived project. Sales in the first year are projected to be \$100. Costs are projected at \$50. There is no depreciation, and the tax rate is 30%. The real required return is 10%. The inflation rate is projected to be 8%. Sales and costs will increase at the rate of inflation. The project costs \$300. What is the NPV? -----
 - A) \$ 142.03
 - B) \$ 36.36.
 - C) \$ 71.72.

D) \$ 24.07.

5. If the weak form of efficient markets hold, then: -----
- A) technical analysis is useless.
 - B) stock prices reflect all information contained in past prices.
 - C) stock prices follow a random walk.
 - D) all of the above.
 - E) none of the above.
- 6 . Investment bankers perform which services for corporate issuers:
- A) evaluate type of security to issue and how to issue it.
 - B) aid in pricing and selling the new issue.
 - C) engage in market stabilization.
 - D) all of the above.
 - E) none of the above.
7. Which of the following is not normally an example of the services offered by investment bankers?
- A) Aiding in the sale of securities.
 - B) Facilitating mergers.
 - C) Acting as brokers to both individuals and institutional clients.
 - D) Offering checking accounts to corporations.
 - E) Both c and d
8. Debt capacity is given as a reason when the value of the stock falls when equity is issued. The reason for this is:
- A) the high issue costs of a debt offering must be paid by the shareholders.
 - B) the priority position of the equity is lowered.
 - C) management has information that the probability of default has risen, limiting the debt capacity causing the firm to raise equity capital.
 - D) all of the above.
 - E) none of the above
9. The main difference between a positive and negative covenants is(are): -----
- A) a positive covenant is one you must not do while a negative covenant must be carried out.
 - B) actions that you must do regularly versus periodically.
 - C) a positive covenant is one you must do while a negative covenant is to limit actions the firm can take.

- D) no difference as they are both restrictive.
 - E) none of the above.
10. The six components that make up the total costs of a new issues are: -----
- A) the spread, other direct expenses such as filing fees, indirect expenses such as management time, economies of scale, abnormal returns and the Green-Shoe option.
 - B) the discount, other direct expenses such as filing fees, indirect expenses such as management time, due diligence costs, abnormal returns and the Green-Shoe option.
 - C) the spread, other direct expenses such as filing fees, indirect expenses such as management time, abnormal returns, underpricing and the Green-Shoe option.
 - D) the spread, other direct expenses such as filing fees, economies of scale, due diligence costs, abnormal returns and underpricing.
 - E) none of the above.

Problem 1:

Laufs inc play in Northern Humour League (NHL). Joe is an ardent fan of Laufs. He currently owns 1,000 shares. Laufs have 2 million shares outstanding. Last year, Laufs paid 8 million dollars as dividend. Next year, desert dogs are going to move into a nearby town and Laufs will get a onetime payment of 100 Million dollars from NHL to compensate them for future loss of revenue. At time 1, Laufs will earn an additional \$10 million from their current operations. After that, Laufs estimate that their earnings will decrease by 5% every year because of Desert Dogs. Laufs pay all of their earnings as dividends. Joe wants to liquidate his holdings in laufs inc in two years. However, he wants to get twice as much money at time one as compared to time two (i.e. his homemade dividend at time 1 should be twice as much as his homemade dividend at time 2). Joe uses a discount rate of 13% for Laufs Inc.

a) What is Joe's homemade dividend at time 1? **4 Marks**

Comment [ath1]: 1 mark for cash flows, 1 mark for P1, 1 mark for P2, 1 mark for the final answer

$$@ t=1, \text{Earning} = (100+10+8) \text{ M\$} = \$118\text{M}$$

$$D_1 = 118\text{M} / 2\text{M} = \$59 / \text{share}$$

$$D_2 = 18\text{M} (1 - 0.05) / 2\text{M} = \$8.55 / \text{share}$$

$$D_3 = 8.55 (1 - 0.05) = \$8.1225$$

$$P_2 = D_3 / (k - g) = 8.1225 / 0.18 = \$45.125$$

$$P_1 = D_2 / (k - g) = 8.55 / 0.18 = \$47.50$$

$$P_0 = (59 / 1.13) + (P_1 / 1.13) = 52.21 + 42.04 = \$94.24$$

$$\text{He currently owns, } 1,000 * 94.24 = \$ 94,240 = (2C / 1.13) + (C / 1.13^2)$$

$$C = \$36,912.56$$

$$@ t=1 \text{ he wants } 2C = \$73,825$$

Alternate answer: if you consider earning @t=1 to be \$110 million instead of \$118 million you will get the following numbers:

$$D_1 = \$55 / \text{share}, D_2 = \$4.75 / \text{share}, D_3 = \$4.5125 / \text{share}, P_0 = \$72.03, P_1 = \$26.39,$$

$$P_2 = \$25.07, C = \$28,211.66, 2C = \$56,423.32$$

b) How many shares of laugh inc should joe buy/sell at time 1? 3 Marks

$$\text{He wants } \$73,825; D_1 = \$59 * 1000 = \$59,000$$

$$\text{He needs} = 73,825 - 59,000 = \$14,825$$

$$P_1 = \$47.50 \Rightarrow \text{Sell} = 14,825 / 47.50 = 312.11 \text{ shares}$$

Alternate answer: SELL 53.93 shares

Comment [ath2]: They either get 3 mark or zero; carry over mistakes is not penalized

c) How many shares he will sell at time 2? 3 Marks

@t=2 he is liquidating

$$\text{So, sell rest of his shares, i.e., } 1,000 - 312.11 = 687.89 \text{ shares}$$

Alternate answer: 946.07 shares

Comment [ath3]: They either get 3 mark or zero; carry over mistakes is not penalized

Problem 2.

Consider two firms, U and L, both with \$50,000 in assets. Firm U is unlevered, and firm L has \$20,000 of debt that pays 8% interest. Firm U has 1,000 shares outstanding, while firm L has 600 shares outstanding. Mike owns 20% of firm L and believes that leverage works in his favor. Steve tells Mike that this is an illusion, and that with the possibility of borrowing on his own account at 8% interest, he can replicate Mike's payout from firm L.

- a. Given a level of operating income of \$2,500, show the specific strategy that Steve has in mind. [Assume no tax]

$$V_U = V_L = \$50,000$$

$$\text{Mike owns 20\% of Levered firm} = 20\% \text{ of } \$30,000 = \$6,000$$

$$\text{Opt. Inc} = \$2,500$$

$$\text{Mike gets} = [2500 - (20,000 * 0.08)] * 0.20 = \$180$$

Steve's strategy:

Buy 20% of U for \$10,000;

Invest own \$6,000;

Borrow \$4,000 @ 8%;

$$\text{Steve gets} = (2500 * 0.20) - 4000 * 0.08 = 500 - 320 = \$180$$

SAME PAYOFF

Comment [ath4]: 6 marks; 1 mark for mentioning M&M; Maximum 4 marks if they don't show same payoff; Deduct 2 marks if right strategy but wrong numbers;

b. Suppose the tax authorities allow firms to deduct their interest expense from operating income.

Both firm U and firm L are in the 34% tax bracket. Show what happens to the market value of both firms if the debt held by firm L is permanent.

Comment [ath5]: 4 marks; 1 to figure out V_U is \$50,000; 3 marks to calculate the tax advantage of levered firm = $0.34 * 20,000 = 6,800$

$$V_U = 50,000$$

$$V_L = V_U + T_C B$$

$$= 50,000 + 0.34 * 20,000$$

$$= \$56,800$$

Problem 3

a) The Holyoke Corporation has 120,000 shares outstanding with a current market price of \$8.10 per share. The company needs to raise an additional \$36,000 to finance new expenditures, and has decided on a rights issue. The issue will allow current stockholders to purchase one additional share for 20 rights at a subscription price of \$6 per share. How many rights they have to **issue**?

Comment [ath6]: 3 MARKS for this one; they either get 3 or zero

They are issuing $36,000 / 6 = 6,000$ new shares

20 rights / share

So, they have to issue $6,000 * 20 = 120,000$ rights

b) If the Ex-Rights price were set at \$7.90, would you as a potential new stockholder choose to buy shares ex-rights or buy shares at the old price and exercise your **rights**?

Comment [ath7]: 7 marks; 5 marks to calculate the actual value of rights, to show that ex-rights price is undervalued, to show the value of rights based on the difference between \$8.10 and \$7.90 i.e. \$0.20; 2 marks for the correct decision.

If the ex-rights price = \$7.90 then Value of right = $\$8.10 - \$7.90 = \$0.20$

Actual value of right = $(8.10 - 6) / (20 + 1) = \0.10

To buy one share, you have to buy 20 shares @ \$8.10 to get the rights to be able to acquire 1 share @ \$6;

Total cost = $(8.1 * 20) + 6 = \$168$ for 21 shares \Rightarrow \$8 / share

However, if you wait till new shares are traded then,

Cost = \$7.90 / share

Total cost for 21 shares = $7.90 * 21 = \$165.90$

You are better off waiting. BUY SHARES EX-RIGHTS

Problem 4)

- a) Tree Top Toys needs to finance their new production facility for spyglasses. The cost is \$12 million. They expect to payout \$6 million or 40% of their net cashflow. Any external financing will be raised 80% borrowings and the remainder equity. Unfortunately, the company has no internal excess short-term funds to use. How much total equity cashflow will be used?

Comment [ath8]: 6 marks; 2 marks each to figure out how much money will be left after the payout; how much money to borrow for the new production; how much equity cash flow for the new production;

Total CF = \$6M / 0.4 = \$15M

After payout,

Remaining CF = 15M – 6M = \$9M

For the new production, shortfall = 12 – 9 = \$3M

So, they will first use the \$9M

Comment [ath9]: 2 marks

They will borrow 80% of the remaining \$3M that is needed = \$2.4 M

Comment [ath10]: 2 marks

New equity for the 20% of \$3M = \$600,000

Comment [ath11]: 2 marks

- b) The Knot Knit Corporation needs to elect 9 directors. There are 120,000 shares outstanding. Under cumulative voting, how many shares would you need to own to guarantee that your favorite candidate is elected?

Comment [ath12]: 4 marks; they either get 4 or zero

Assume all shares are voting shares;

$$(1/(N+1)) \% \text{ of shares} + 1 = (1/(9+1))\% \text{ share} + 1 = 10\% \text{ share} + 1 = 12,001 \text{ shares}$$

Comment [ath13]: 12,000 is also acceptable