Name:
Section:
Winter 2015

MBA 528
Midterm 2 Exam
Instructor: Rob Schonlau

The exam is closed-book and closed-note. There are 51 total problems. The first 20 are True/False questions, the next 10 are fill in the blank terminology questions, and the remaining questions are short answer. Please do not discuss this exam with students until after the exam period is over. You are welcome to use a calculator. Show your work on all problems that involve numbers. I give partial credit so if you can't solve a problem be sure to comment on the likely approach or logic you could use for the part of the problem you do understand.

Good Luck! – Rob Schonlau

Formulas:

$$FV = PV\left(1+\frac{r}{m}\right)^{m*n}$$

$$PV = \frac{FV}{\left(1+\frac{r}{m}\right)^{m*n}}$$

$$PV = \frac{CF}{r}$$

$$PV = PMT\left[\frac{1}{r} - \frac{1}{r(1+r)^t}\right]$$

$$(1+EAR) = \left(1+\frac{APR}{m}\right)^m$$

(1+nominal rate) = (1+real rate)(1+inflation)

$$\bar{r} = \frac{r_1+r_2+\cdots+r_n}{n}$$

$$r_g = [(1+r_1)(1+r_2)\ldots(1+r_n)]^{1/n} - 1$$

$$\hat{\sigma}^2 = \left(\frac{1}{n-1}\sum_i (r_i - \bar{r})^2\right).$$

$$B_{Levered} = B_{Unlevered}\left(1+(1-t)\frac{D}{E}\right)$$

$$E(r_j) = r_f + \beta_j(r_m - r_f)$$

$$WACC = \frac{E}{E+D}R_E + \frac{D}{E+D}R_D(1-t_c)$$

$R_{US} - h_{US} = R_{FC} - h_{FC}$

$V_L = V_U + t * D$ - PV(Financial distress)

$V_{New} = V_{Old} + \Delta Equity + \Delta Debt + \Delta PV_{TaxShield} + \Delta PV_{Fin\ distress}$ – Transaction Costs

$E(S_t) = S_0 * [1+(h_{FC} - h_{US})]^t$

$E(S_t) = S_0 * [1+(R_{FC} - R_{US})]^t$

True/False questions: **For questions 1 -20 write True (T) or False (F) next to each question. [1 point each]**

1. ______ADRs are securities issued in the US representing shares of a foreign stock that are traded in the US.
2. ______If you buy a forward trade contract today the forward exchange rate that will be used for the trade in the future is unknown as of today.
3. ______The international Fisher effect states that the nominal interest rates are equal across countries.
4. ______Depending on whether a firm is profitable or not, the same firm can achieve either higher EPS or lower EPS with higher financial leverage than the firm could with lower financial leverage. (EPS is earnings per share)
5. ______M&M proposition 1 claims that the value of a firm depends on its capital structure.
6. ______Financial distress costs only affect the value of the firm if the firm has already gone bankrupt.
7. ______Under the pecking order of capital structure, a firm will use equity first, then debt, and then internal funds.
8. ______The absolute priority rule indicates that as owners, equity holders, should get paid first before other claims in the event of bankruptcy.
9. ______Chapter 7 bankruptcy is for firms that need to liquidate.
10. ______Bankruptcy filings may be done by either the firm's management or by its creditors.
11. ______With dividends the record date is before the ex dividend date.
12. ______Except for accounting treatments, a stock split and a stock dividend can have essentially the same impact on the corporation and shareholder.
13. ______One of the disadvantages with an acquisition of assets is that a subset of target shareholders can oppose the acquisition and hold out.
14. ______The benefit of an interest tax shield is captured by the equity holders.
15. ______The average merger premium in the US over the past 20 years has been around 5 to 10%.
16. ______If Firm A is considering acquiring Firm B it should use Firm B's WACC when discounting Firm B's free cash flows and not Firm A's WACC.
17. ______Some US firms hold significant amounts of cash in foreign countries and don't plan to bring the cash back into the country because of tax reasons.
18. ______CEOs with a lot of employee options can have personal monetary reasons not to pay dividends.
19. ______Depreciation can cause a firm to save on it taxes because of the depreciation tax shield.
20. ______In the CAPM [i.e, $E(r) = r_f + B(r_m - r_f)$] the portion of the formula in parenthesis $(r_m - r_f)$ is measured using a historical average and not using the current difference between r_m and r_f.

Terminology: For questions 21 – 30 fill in the blank with the appropriate term. Write your answer directly on the exam. 1 point each

21. ___________________is the rate that large world banks charge each other overnight for short term loans.
22. The implied exchange rate between two currencies, when both currencies are quoted in terms of a third currency. _____________________
23. In lecture we talked about the price of apples in the US and in the UK. Let P_{US} and P_{UK} be the current US and UK prices on apples. Let S_0 be the spot exchange rate between pounds and dollars. In class we talked about a concept that implies that the British price for the apple would be approximately equal to the US price after applying the exchange rate. What is the name of this concept? _____________________
24. The name of the market where one country's currency is traded for another's currency. ____________________
25. A payment made by a firm to its owners from sources other than current or accumulated retain earnings. __________________
26. An attempt to gain control of a firm by soliciting a sufficient number of stockholder votes to replace existing management. ___________________
27. Going-private transactions in which a large percentage of the money used to buy the stock is borrowed. Often incumbent management is involved. _________________
28. An agreement between firms to create a separate, co-owned entity established to pursue a joint goal. ___________________
29. A measure of industry concentration used by the FTC for mergers. It is calculated by summing the squares of the individual firms' market share and has a highest possible value of 10,000. _____________________
30. _______________________ is a takeover offer designed to be so attractive that management has little choice but to accept.

Short Answer: For questions 31 – 51 write your answer directly on the exam.

31. What is the estimated present value of the tax shield for a profitable firm that anticipates a perpetual debt level of $10 million with an interest rate of 7% on the debt and a tax rate of 35%? [2pts]

32. Assume a firm only uses part of their tax shield, then does the WACC overestimate or underestimate the cost of capital? Explain. [2pts]

33. List two of the assumptions of M&M. [2pts]

34. What is the main takeaway from M&M's analysis? I.e., what is the value of their analysis? [2pts]

35. In the spot market, $1 is currently equal to £0.6211. Assume the expected inflation rate in the U.K. is 4.2 percent while it is 3.1 percent in the U.S. What is the expected exchange rate one year from now if relative purchasing power parity exists? [2pts]

36. Your company, PBR Inc. is considering the launch of a new product. It estimates that it will sell 800,000 units in year 1, 1 million units in the year 2, and 500,000 units in year 3. PBR will sell the product for $3 per unit and variable non-labor costs will be $1 per unit. PBR will close down production after year 3. New equipment costing $1 million will be required to pursue the project and would be purchased immediately. The equipment will be depreciated to zero on a straight-line basis over 10 years. PBR thinks it can sell the equipment at the end of year 3 for $400,000. Production will take place in part of PBR's primary plant. PBR has no other use for the space being used for production in these years. PBR will move experienced production workers to the new line. The total salary of those workers is $500,000 per year. PBR will need to hire new workers for 3 years to replace the workers being moved to the new line. The total cost of the new workers will be $400,000 per year. PBR's current level of working capital at its primary production facility is $300,000. The new product will require the working capital to increase to a level of $380,000 immediately, then to $400,000 in year 1. In year 2 the level will be $350,000, and finally in year 3 the level will return to $300,000. PBR's tax rate is 35%. The discount rate for this project is 10%. **Solve for the incremental cash flows for this project each year. Show your work using the table below. Below the table write the total incremental cash flows out in a NPV formula. You don't need to solve for the actual NPV – just set up the equation.** [8 pts]

Feel free to use however many rows or columns from the table as necessary.

37. The expected inflation rate in Finland is 2.8 percent while it is 3.2 percent in the U.S. A risk-free asset in the U.S. is yielding 4.9 percent. What approximate real rate of return should you expect on a risk-free Finnish security? [2pts]

38. Kihlstrom Equipment, a US-based company is evaluating an overseas investment. The project will cost €1 million to launch. The cash flows from the project are expected to be € 0.6 million per year for the next 2 years and 0 after year 2. The current spot exchange rate for euros is € 0.5. The risk free rate in the US is 5% and the risk free rate in Europe is 7%. Kihlstrom's required return on dollar investments of this sort is 10%. Set up the NPV equation so that you could answer the question of whether Kihlstrom should take this investment **but you don't need to solve for the actual NPV value – just set up the equation with numbers**. Show your work. [6 pts]

39. This question is meant to highlight one of the takeaways from two of the cases we discussed in class. Please describe what it means to forecast cash flows using a "percent of sales" approach. [3 pts]

40. Your firm's equity beta is currently 1.2 and your firm is currently worth $100 million. The firm has $20 million of debt. Your boss wants a full analysis of what will happen if you recapitalize by increasing the debt from $20 million to $30 million. The new debt will not be used to buyback equity. Based on your research it will cost $700,000 in fees and transaction costs to add the new $10 million in debt. The cost of debt is 8%. **Your boss wants you to consider (a) the effect the new debt will have on firm value assuming the new debt level will be permanent, and (b) how the expected return on equity will change?** Assume the market risk premium is 7%, the risk free rate is 4%, and the tax rate is 35%. Assume that increasing the debt will not affect the probability of distress. [8 pts]

41. You work for a company that has many divisions. What kind of mistakes would you make if you used the company's WACC as your discount rate for all projects in the company? [2pts]

42. Your firm has two divisions. One is wireless (cell phones) and the other is traditional phone services. The wireless division represents 40% of the value of your firm. Your firm is financed with 30% debt. The cost of debt is 8% and your equity beta is 1.5. Assume a risk-free rate is 5%, a market risk premium of 7%, and a 35% tax rate. The equity beta of a competing wireless company is 2.1. The competing wireless company is in excellent financial shape. That company has 20% debt and 80% equity financing and a 35% tax rate. What is the required return for the average project in the wireless division? [4pts]

43. In class, one of the ways we valued the PV of the tax shield was using the formula t*D where "t" was the tax rate "D" the debt level. Describe the assumptions necessary for this formula to provide a reasonable estimate of the value of the tax shield. [3pts]

44. List and describe 4 anti-takeover provisions or defenses that firms can use to try and not be acquired. [4pts]

45. Why do some people argue that a share repurchase is better than a cash dividend? [2pts]

46. In lecture and in the assigned reading we talked about 3 different legal forms of an acquisition. List the 3 forms below and 1 potential disadvantage of each approach. [3pts]

47. When is it a particularly bad assumption to assume that the debt beta of a firm is equal to zero? [2pts]

48. What is the main reason that managers say they do stock splits? [2pts]

49. After hearing about interest tax shields, your co-worker says that the company should switch to 100% debt in order to maximize the tax shields. What do you think? [3 pts]

50. There is information about the market's general expectations for a firm in the market price and changes in the market price. Briefly interpret each of these market reactions. [2pts]
    a. Firm A competes with Firm B. Yesterday another firm announced their intent to acquire Firm A. What does it mean that Firm B's stock price rose dramatically yesterday?
    b. It was announced today that Firm C would acquirer Firm D. What does it mean if Firm C's stock price falls immediately by 5%?

51. You have a choice for problem 51. You can either answer option 1 OR options 2. Answer one or the other question but not both.

    Option 1: Clearly write and answer a question that you expected to see on the exam but that was not asked. To get credit for this question, your question should be (1) clearly worded, (2) not too simple, (3) use topics that we covered in class, and (4) have a clearly worded solution. Your question should relate to material we covered since the last midterm. [2pts]

    Your question:

    Your solution:

    Option 2: Kelso Electric is debating between a leveraged and an unleveraged capital structure. The all equity capital structure would consist of 40,000 shares of stock. The debt and equity option would consist of 25,000 shares of stock plus $280,000 of debt with an interest rate of 7 percent. What is the break-even level of earnings before interest and taxes (EBIT) between these two options? Ignore taxes and show your work. [2pts]