YOU HAVE 75 MINUTES TO COMPLETE BOTH PARTS OF THIS EXAM

Instructions:
1) The part of the exam is closed book and closed notes. No scrap paper is allowed; use the back of the exam if necessary.
2) Partial points are based on readily observable evidence that you know at least part of the solution concept. The more evidence presented (and the clearer the evidence), the better the chance for partial points. In other words, SHOW ALL WORK!
3) If you have additional time remaining, give your work one last check.
4) True/False questions are worth 2 points. Multiple-choice questions are worth 3 points. Short answer/Fill in the Blanks questions usually take less than three sentences and are worth 4 points.

1. Historically which of the following BEST describes the correct order of returns? (lowest to highest)? Assume the corporate bonds, preferred stock and common stock is for a single (the same) company.
   a. T-bills, T-bonds, Corporate Bonds, Preferred Stocks, Common Stocks
   b. T-bills, T-bonds, Corporate Bonds, Preferred Stocks, Common Stocks
   c. T-bonds, Corporate bonds, T-bills, Common Stocks, Preferred Stocks
   d. Preferred Stocks, T-bills, T-bonds, Corporate bonds, Common Stocks
   e. Common Stocks, Preferred Stocks, Corporate Bonds, T-bills, T-bonds
   
   A) True  B) False

2. It is generally easier for management to control financial risk than operating risk.
   a. True
   b. False

3. Which of the following statements is false?
   a. Operating leverage is usually measured above the EBIT line on the income statement.
   b. Financial leverage is less controllable than operating leverage.
   c. Value increases when the risk of a project decreases.
   d. Financial leverage can be attributed to the presence of fixed costs.
   e. A firm’s WACC is the required return on an average risk project.
   
   A) True  B) False

4. Which of the real world considerations in setting capital structure is the most important? Why?
   
   Many answers accepted - Most likely: Ability to service the debt as it becomes more
good high = 0  median = -2  Low = -3

5. If a firm utilizes debt financing, a decrease in earnings before interest and taxes (EBIT) will result in a more than proportionate decrease in earnings per share.
   a. True
   b. False

6. In the Personal Taxes Dividend Theory, paying a 4% stock dividend is preferred to a 4% cash dividend.
   a. True
   b. False

7. In the Bird in Hand Dividend Theory, and assuming book values equals market values, repurchasing 5% of outstanding stock is preferred to a 5% cash dividend.
   a. True
   b. False

7. What is the optimal dividend policy? Why?

LH: residual implies c. B. & S: are correct, so that are maximize share holders wealth
8. Comparing two otherwise equal firms, the beta (assuming beta is greater than 0) of the common stock of a unlevered firm is _______ than the beta of the common stock of a levered firm.
   a. Equal to
   b. Less
   c. Slightly Greater
   d. much Greater
   e. Less (if beta is less than 1) or greater (if beta is greater than 1)

9. (2 points, all or none scoring) Match the relevant dividend term with the date:
   Ex-Dividend Date _______ a. April 3, 2011
   Declaration Date _______ b. March 18, 2011
   Record Date _______ c. February 28, 2011
   Payment Date _______ d. March 21, 2011

10. A call provision gives bondholders the right to demand, or "call for," repayment of a bond. Typically, calls are exercised if interest rates rise, because when rates rise the bondholder can get the principal amount back and reinvest it elsewhere at higher rates.
   a. True
   b. False

11. Which of the following statements is most correct?
   a. The constant growth model takes into consideration the capital gains earned on a stock.
   b. It is appropriate to use the constant growth model to estimate stock value even if the growth rate never becomes constant.
   c. Two firms with the same dividend and growth rate must also have the same stock price.
   d. The constant growth model can be applied when the growth rate exceeds the required rate of return on the common stock.
   e. All of the statements above are correct.

12. Five years ago an investor purchased a stock for $25.00 which had a book value of $10.00, a par value of $1.00, and an annual dividend of $1.25. Today, i.e. five years after the purchase, the book value has doubled to $20.00, while the par value, market value, and dividend are unchanged. For this stock, the required return is 10%. Based on this information which of the following answers is correct:
   a. The actual annual return on the investment over the five years is 10%.
   b. Since the book value doubled, the five year total return exceeds 15%.
   c. Since the par value is unchanged, the firm has been unprofitable over the past five years.
   d. Since the market value is unchanged, the firm has been unprofitable over the past five years.
   e. The capital gains yield on this stock is 0%.

13. If Wolves Entertainment Company is acting in the best interests of stockholders (following the primary goal of the firm), which of the following is the optimal (best) capital structure for the firm?
   a. Debt = 40%, Equity = 60%  EPS = $2.95  Stock price = $16.50  Cost of Debt = 3.0%
   b. Debt = 50%, Equity = 50%  EPS = $3.05  Stock price = $28.90  Cost of Debt = 3.5%
   c. Debt = 60%, Equity = 40%  EPS = $3.18  Stock price = $30.20  Cost of Debt = 4.0%
   d. Debt = 70%, Equity = 30%  EPS = $3.42  Stock price = $31.40  Cost of Debt = 5.0%
   d. Debt = 80%, Equity = 20%  EPS = $3.28  Stock price = $29.70  Cost of Debt = 5.8%
YOUR NAME ___________________ TEST 2 FINC 4531 FALL 2011

YOU HAVE 75 MINUTES TO COMPLETE BOTH PARTS OF THIS EXAM

Instructions:
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1. (3 points) The Greek government has - among others - a bond issue outstanding which is denominated in Swiss Francs, matures in 3 years, has a coupon of 8.3% (paid annually), and has a YTM of 36.1%. The current yield of this bond is closest to:
   a. 7%  b. 9.5%  c. 11%  d. 12.5%  e. 15%  f. 17.5%  g. 20%  h. 22.5%

\[ \frac{PV}{N} = \frac{533.38}{3} \]

\[ \frac{I}{FV} = \frac{36}{1000} \]

\[ \frac{88}{533.38} = 15.00\% \]

2. (3 points) SOL Company is experiencing a period of rapid growth. Next year, SOL Company expects to pay a per-share annual dividend on common stock of $1.50. Dividends are expected to grow at 10% for the next two years, then 15% for one year, and then at 5% per year forever. Stockholders require a 9% rate of return. What is the fair value of the stock now?

\[ \frac{0.15}{1 + 0.10} = 0.14 \]

\[ \frac{0.165}{1 + 0.15} = 0.1429 \]

\[ \frac{0.190}{1 + 0.05} = 0.1806 \]

\[ NPV = 9.05 + 1.50 + 1.65 + 1.90 + 4.980 = 42.68 \]

\[ 42.68 + 0.09 = 42.69 \]

3. (10 points) In 2010, the Lissa Company paid dividends of $12 on after-tax income (cash flow) of $25. Capital budget projects totaled $15 in 2010. 2010 was a normal year for earnings, dividends, and capital budgets. For the past 9 years, earnings have grown at a constant rate of 3%. However, in 2011, earnings are expected to rise to $28 and the firm expects to have profitable investment opportunities will fall to 10. It is predicted that Lissa will not maintain the 2011 level of earnings growth, and the company will return to the 2010 earnings ($25), capital budget ($12), and growth rate (3%) in 2012. Lissa's target market value leverage ratio is 50% and it is at the target.

a. Calculate Lissa's total dividends for 2011 if its dividend payment is set to force dividends to grow at the long-run growth rate in earnings.

\[ 12 \times (1 + 3\%) = 12.36 \]

b. Calculate Lissa's total dividends for 2011 if it continues its 2010 dividend payout ratio.

\[ 28 \times \frac{12}{25} = 13.44 \]

c. Calculate Lissa's total dividends for 2011 if it uses a pure residual dividend.

\[ 28 - (10 \times 50\%) = 23 \]

d. Calculate Lissa's Special Dividend if the Total Dividend is the pure residual, and the Regular Dividend is based on the 2010 dividend payout ratio?

\[ 23 - 13.44 = \text{SpecDiv} = 9.56 \]

c. Choosing only among a, b, and c, What is Lissa's optimal dividend policy? Why?

Choose long run residual, which is closest to C

B does not send signal
4. (Point values are as listed) Use the following information for the next several questions. Consider a world of perfect capital markets. This world has no corporate or personal taxes, all investors have homogeneous expectations, no bankruptcy costs, and M&M’s no-tax theory of capital structure is true. Company Y is financed has the following market value balance sheet:

Assets = $452
Liabilities = $178
Equity = $274

The firm had $17.63 in EBIT last year. The firm has 20 shares outstanding. The firm expects this same return for the foreseeable future. The firm is a zero growth firm, that pays out all excess earnings as dividends. Any time the firm changes its capital structure, it changes only the debt/equity mix and does not change its total assets. The firm’s liabilities consists entirely of perpetual debt. The firm’s debt is riskless, selling at par, and has a 3% yield. If the firm were to change its capital structure, new debt would still have a 3% yield. The expected return on the market portfolio is 8.5%. Given this information, answer the following questions:

a. (3 points) What is the firm’s return on equity?

\[ \frac{17.63}{20} = 0.8815 \]

b. (3 points) What is the firm’s current weighted average cost of capital (WACC)?

\[ \frac{142}{142} \cdot 3 \cdot \frac{12}{142} \cdot (1 - 0.30) + \frac{42}{142} \cdot 8.5 = 7.9\% \]

(c) (3 points) What is the current price per share?

\[ \frac{17.63}{20} = 0.8815 \]

2. Now assume that the above firm issues enough equity to repurchase all of the firm’s debt. This change in capital structure reveals no news about future firm prospects.

\[ \frac{17.63}{20} = 0.8815 \]

2. (3 points) Write out the firm’s new balance sheet?

\[ \frac{17.63}{20} = 0.8815 \]

5. Now consider a DIFFERENT COMPANY in a world that of perfect capital markets, with one change, CORPORATE TAXES DO EXIST. This world has no personal tax, all investors have homogeneous expectations, no bankruptcy costs, and M&M’s with corporate taxes theory of capital structure is true. Company Y is financed has the following market value balance sheet:

Assets = $142
Liabilities = $80
Equity = $62

The firm had $10.67 in EBIT last year. The firm has 20 shares outstanding. The firm expects the same return/profits for the foreseeable future. The firm is a zero growth firm, that pays out all excess earnings as dividends. Any time the firm changes its capital structure, it changes only the debt/equity mix and does not change its physical/fixed assets. Liabilities consist only of the firm’s debt. The debt is riskless, perpetual, selling at par, and has a 3% pre-tax yield. If the firm were to change its capital structure, new debt would still have a 3% pre-tax yield. The firm’s tax rate is 40%. Given this information, answer the following questions:

a. (3 points) What is the current weighted average cost of capital (WACC)?

\[ \frac{10.67}{20} \cdot 3 \cdot \frac{12}{10.67} \cdot (1 - 0.30) + \frac{42}{10.67} \cdot 8.27 = 4.5\% \]

b. (3 points) What is the firm’s stock price?

\[ \frac{10.67}{20} \cdot 3 \cdot \frac{12}{10.67} \cdot (1 - 0.30) + \frac{42}{10.67} \cdot 8.27 = 4.5\% \]

Now assume the firm issues $80 in equity and repurchases $90 in debt.

c. (3 points) Write out the firm’s new balance sheet, with labels, after all of the changes.

\[ \frac{122}{30} = 30 + 90 \]

d. (3 points) What is the firm’s Weighted Average Cost of Capital?

\[ \frac{4.91}{10} = 5.8\% \]

e. (3 points) What is the new stock price?

\[ \frac{4.91}{10} = 4.91 \]

72.23 shares
FINC 4531 Take Home Fall 2011

Your Name

Each question is all or none on grading. To receive credit you must show each percent answer to 2 decimal places (e.g., 12.24%) and each price answer to the nearest $.01 (e.g., $5.16). 20 points, each miss counts off 1 point. In other words, you must get at least 5 correct answers to score 1 point on this assignment. All or none on each question, with carry-through errors counted as incorrect. YOU ARE TO DO YOUR OWN WORK, NO COLLABORATION; EVIDENCE OF CHEATING WILL BE GIVEN A 0 ON EXAM 2.

1. Use the following information for the next seven questions. Consider a world of Perfect Capital Markets. This world has no corporate or personal taxes, all investors have homogeneous expectations, no bankruptcy costs, and M&M’s no-tax theory of capital structure is true. Company Y is financed has the following market value balance sheet:

<table>
<thead>
<tr>
<th>Assets</th>
<th>$590</th>
<th>Liabilities</th>
<th>$250</th>
<th>Equity</th>
<th>$300</th>
</tr>
</thead>
</table>

The firm had $55.00 in EBIT last year, and has just paid its annual dividend. The firm has 50 shares outstanding. The firm expects these same returns for the foreseeable future. The firm is a zero growth firm that pays out all excess earnings as a once per year end of year dividend. Any time the firm changes its capital structure, it changes only the debt/equity mix and does not change its total physical assets. The firm’s liabilities consist entirely of perpetual debt with annual interest payments. The firm’s debt is riskless, selling at par, and has a 6% current yield. If the firm were to change its capital structure, new debt would still have a 6% yield. The expected return on the market portfolio is 10%. Given this information, answer the following questions:

a. (1 point) What is the firm’s WACC? 10.00%

b. (1 point) What is the firm’s Earnings Per Share? .88

c. (1 point) What is the firm’s Dividends Per Share? .88

d. (1 point) What is the firm’s current stock price? 6.00

e. (1 point) What is the firm’s Return on Equity 14.67%

f. (1 point) What is the Beta of the firm’s levered equity? 2.17

g. (1 point) What is the Beta of the firm’s debt? 0

Now assume that the above firm redeems $350 in debt and uses the funds to issue equity. This change in capital structure reveals no new information about future firm prospects.

h. (1 point) What is the new beta of the firm’s equity? 1

i. (1 point) What is the new return on equity? 10.00%

j. (1 point) What is the firm’s new Weighted Average Cost of Capital? 10.00%

k. (1 point) What is the firm’s new stock price? 6.00

l. (1 point) Now assume that you are at the end of 10 years, just before paying the annual dividend. Write out (with labels) the firm’s expected balance sheet?

\[ \begin{align*}
\text{Assets} & = 522.50 \\
\text{Liabilities} & = 80.00 \\
\text{Equity} & = 442.50
\end{align*} \]

2. Now consider a DIFFERENT COMPANY in a world that of perfect capital markets, with one change, CORPORATE TAXES DO EXIST. This world has no personal taxes, all investors have homogeneous expectations, no bankruptcy costs, and M&M’s corporate taxes theory of capital structure is true. Company Y is financed has the following market value balance sheet:

<table>
<thead>
<tr>
<th>Assets</th>
<th>$422.50</th>
<th>Liabilities</th>
<th>$0.00</th>
<th>Equity</th>
<th>$422.50</th>
</tr>
</thead>
</table>

The firm had $65 in EBIT last year, and has just paid its annual dividend. The firm has 50 shares outstanding. The firm expects the same return/profits for the foreseeable future. The firm is a zero growth firm that pays out all excess earnings as a once per year end of year dividend. Any time the firm changes its capital structure, it changes only the debt/equity mix and does not change its physical/fixed assets. Liabilities consist entirely of the firm’s debt. The debt is riskless, perpetual, selling at par, has annual payments and has a 7% pre-tax yield. If the firm were to change its capital structure, new debt would still have a 7% pre-tax yield. The firm’s tax rate is 35%. The market risk premium is 4%. Given this information, answer the following questions:

a. (1 point) What is the firm’s Dividends Per Share? .845

b. (1 point) What is the firm’s current stock price? .845

c. (1 point) What is the firm’s Return on Equity 10%

d. (1 point) What is the Beta of the firm’s equity? .75

e. (1 point) What is the current weighted average cost of capital (WACC)? 10%

Now assume the firm issues $422.5 in debt and redeems $422.5 in equity.

f. (1 point) Write out the firm’s new Balance Sheet, with labels.

\[ \begin{align*}
\text{Assets} & = 570.38 \\
\text{Liabilities} & = 92.25 \\
\text{Equity} & = 478.13
\end{align*} \]

g. (1 point) What is the firm’s new stock price? 11.92

h. (1 point) What is the firm’s Dividends Per Share? 1.17

i. (1 point) What is the new Beta of the firm’s assets? 1

j. (1 point) What is the firm’s Weighted Average Cost of Capital? 7.4%

k. (1 point) What is the Beta of the firm’s new debt? 0

l. (1 point) What is the new Beta of the firm’s equity? 2012
FINC 4331 Take Home Fall 2011

Your Name

each question is all or none on grading. To receive credit you must show each percent answer to 2 decimal places (e.g., 12.24%) and each price answer to the nearest $0.01 (e.g., $51.16). 20 points, each miss counts off 1 point. In other words, you must get at least 5 correct answers to score 1 point on this assignment. All or none on each question, with carry-through errors counted as incorrect. YOU ARE TO DO YOUR OWN WORK, NO COLLABORATION; EVIDENCE OF CHEATING WILL BE GIVEN A 0 ON EXAM 2.

e. Use the following information for the next several questions. Consider a world of Perfect Capital Markets. This world has no corporate or personal taxes, all investors have homogeneous expectations, no bankruptcy costs, and M&M’s no-tax theory of capital structure is true. Company Y is financed has the following market value balance sheet:

Assets = $650
Liabilities = $350
Equity = $300

The firm had $65 in EBIT last year, and has just paid its annual dividend. The firm has 50 shares outstanding. The firm expects these same returns for the foreseeable future. The firm is a zero growth firm that pays out all excess earnings as a once per year end of year dividend. Any time the firm changes its capital structure; it changes only the debt/equity mix and does not change its total physical assets. The firm’s liabilities consist entirely of perpetual debt with annual interest payments. The firm’s debt is riskless, selling at par, and has a 6% current yield. If the firm were to change its capital structure, new debt would still have a 6% yield. The expected return on the market portfolio is 10%. Given this information, answer the following questions:

4. (1 point) What is the firm’s WACC? In M&M no-tax world, EBIT/Assets = WACC = 65/650=10.0%.

Alternatively, create an income statement to find ROE, HINT, ALWAYS START BY CREATING AN INCOME STATEMENT

EBIT 65
-Interest (350*6%)=21
=EBIT 44
-Taxes 0
=Net Income 44
-Dividends 44
=Change in Retained Earnings 0. Thus ROE=k=NI/E=44/300=14.67%. NOTE, YOU WILL ALWAYS NEED TO CREATE AN INCOME STATEMENT.

Then with the ROE solve for WACC, WACC = wd*kd*(1-t)+ ws*kw = 350/650*6%*(1-0%) + 300/650*14.66% = 10.0%

b. (1 point) What is the firm’s Earnings Per Share? 44/50=.88

c. (1 point) What is the firm’s Dividends Per Share? 44/50=.88

d. (1 point) What is the firm’s current stock price? 300/50 = $6.00

e. (1 point) What is the firm’s Return on Equity? See part A, 44/300 = 14.67%

f. (1 point) What is the Beta of the firm’s levered equity? Use CAPM, kw = kr+(B-km-kw) => 14.67 = 6 + B (10-6) => B=2.17

g. (1 point) What is the Beta of the firm’s debt? By theory, 0, since debt is riskless/riskfree.

Now assume that the above firm redeems $350 in debt and uses the funds to issue equity. This change in capital structure reveals no new information about future firm prospects.

h. (1 point) What is the new beta of the firm’s equity? The firm is now all equity, so most of the below can be answered based on theory. The firms is now all equity. Firm value and WACC are constant in M&M no-tax world. Also, it may be easier to answer later questions before answering this question. ANSWER THIS THIRD, 10% * 6 + (10-6)B => B = 1

10% is cost of capital

i. (1 point) What is the new return on equity? ANSWER THIS SECOND, Since the firm is all equity, the WACC equals the Cost of Stock/Return on Equity, 10%.

j. (1 point) What is the firm’s new Weighted Average Cost of Capital? ANSWER THIS FIRST, 10% is cost of capital, since by theory there is no change.

k. (1 point) What is the firm’s new stock price? By theory, no change, $6.00

l. (1 points) Now assume that you are at the end of 10 years, just before paying the annual dividend, write out (with labels) the firm’s expected balance sheet? Just before paying the dividend the firm will have earned the cost of capital, but not paid it to investors. $650*10%=65 earned.

Assets = Debt (-65) + Dividends Payable (-65) + Equity (=650)

2. Now consider a DIFFERENT COMPANY in a world of perfect capital markets, with one change, CORPORATE TAXES DO EXIST. This world has no personal taxes, all investors have homogeneous expectations, no bankruptcy costs, and M&M’s with corporate taxes theory of capital structure is true. Company Y is financed has the following market value balance sheet:

Assets = $422.50
Liabilities = $0.00
Equity = $422.50

The firm had $65 in EBIT last year, and has just paid its annual dividend. The firm has 50 shares outstanding. The firm expects the same returns for the foreseeable future. The firm is a zero growth firm that pays out all excess earnings as a once per year end of year dividend. Any time the firm changes its capital structure, it changes only the debt/equity mix and does not change its physical/fixed assets. Liabilities consist entirely of the firm’s debt. The debt is riskless, perpetual, selling at par, has annual payments and has a 7% pre-tax yield. If the firm were to change its capital structure, new debt would still have a 7% pre-tax yield. The firm’s tax rate is 35%. The market risk premium is 4%. Given this information, answer the following questions:

a. (1 point) What is the firm’s Dividends Per Share? HINT, ALWAYS START BY CREATING AN INCOME STATEMENT

Ebit 65
-Interest (65*7%)=-4.55
=EBIT 60.45
-Taxes (65*35%)=22.75
= Net Income 42.75
-Dividends 42.25
= Change in Retained Earnings 0.

b. (1 point) What is the firm’s current stock price? 422.5/50=$8.45
c. (1 point) What is the firm's Return on Equity? \( \frac{42.25}{422.5} = 10\% \)

d. (1 point) What is the Beta of the firm's equity? \( 10\% = 7 + B(4) \Rightarrow B = .75 \)

e. (1 point) What is the current weighted average cost of capital (WACC)? Since all equity, \( \text{WACC} = \text{Cost of Stock/ROE} = 10\% \)

Now assume the firm issues $422.5 in debt and redeems $422.5 in equity.

**FIRST CREATE A NEW INCOME STATEMENT**

Ebit 65
- interest \( (422.5 \times .07) = 29.58 \)
- EBIT 35.42
- Taxes \( (35.42 \times .35) = 12.40 \)
- Net Income 23.02
- Dividends 23.02
- Change in Retained earnings 0.

f. (1 point) Write out the firm's new Balance Sheet, with labels. Step 1, Value of a levered Firm = Value of unlevered firm + Tax Shield (Amount of debt \times tax rate) => Value of levered firm = \( 422.5 \times (1 + 422.5 \times .35\%) = 570.38 \)

Step 2, \( 570.38 = 422.5 + \text{Equity} \), therefore equity = 147.88. Therefore, new balance sheet is Assets \( 570.38 = \text{Debt} (422.5) + \text{Equity} (147.88) \)

g. (1 point) What is the firm's new stock price? You must do this in three steps. The value of the stock will change when the capital structure change announcement is made, but before the change in capital structure is made.

Before Announcement, 422.5 = 0 + 422.5

After announcement, but before change, 422.5 + \( (\text{TD}=422.5 \times .35\%=147.88) = 570.38 \). New stock price is 570.38/50 = 11.42. To repurchase 422.5 of stock at a price of 11.42, the firm will repurchase 37 shares.

After Announcement, 570.38 = 422.5 + 147.88, where the 147.88 is 13 shares at 11.42. Note, due to rounding the answer is not exact.

h. (1 point) What is the firm's Dividends Per Share? 23.02/13 = $1.77

i. (1 point) What is the new Beta of the firm's assets?

\[ 29/7 + B(4) \Rightarrow B = 1 \]

j. (1 point) What is the firm's Weighted Average Cost of Capital? **COMPLETE J BEFORE I.** Step 1, find the ROE/Cost of Stock = 23.02/147.88 = 15.56\% WACC = \( 422.5/570.38 \times (1-35\%) + 147.88/570.38 \times 15.56\% = 7.40\% \)

k. (1 point) What is the Beta of the firm's new debt? Since riskless, by theory, 0.

l. (1 point) What is the new Beta of the firm's equity? 15.56 = 7 + (4)B \Rightarrow B = 2.12