

Key

YOUR NAME _____

EXAM 2 FINC 4531

FALL 2010

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. Which of the following statements is most correct?

- E
- a. All else equal, if a bond's yield to maturity increases, its price will increase. ~~X~~
 - b. All else equal, if a bond's yield to maturity increases, its current yield will fall. ~~X~~
 - c. If a bond's yield to maturity exceeds the coupon rate, the bond will sell at a premium over par. ~~X~~
 - d. All of the answers above are correct
 - e. None of the answers above is correct.

2. The total return on a share of stock refers to the dividend yield less any commissions paid when the stock is purchased and sold.

- B
- a. True
 - b. False

3. Claims of preferred stock holders are junior to claims of debt holders, but senior to those of common stock holders. If a firm fails to pay preferred stock dividends, the preferred stockholders cannot force a firm into bankruptcy.

- A
- a. True
 - b. False

4. The required return on a project is determined by:

- C
- a. the riskless return, the project beta and the company's debt.
 - b. the project beta, the company's equity and the return on the market portfolio. ~~X~~
 - c. the riskless return, the project beta, and the return on the market portfolio.
 - d. the riskless return, the market return, and the company's equity. ~~X~~
 - e. None of the above.

5. Which of the following statements is false?

- 3D
- a. Operating leverage is usually measured above the EBIT line on the income statement. ~~X~~ T
 - b. Financial leverage is less controllable than operating leverage. ~~V~~ F
 - c. Value increases when the risk of a project decreases. T ~~F~~
 - d. Financial leverage can be attributable to the presence of fixed costs. ~~F~~ T
 - e. A firm's WACC is the required return on an average risk project. T

6. Briefly describe the logic and major conclusions of the M&M with taxes theory of capital structure?

- 3
1. As wd ↑ taxes go down (wealth transfer)
 2. thus optimal is close to 100% debt
 3. $V_L = V_U + TD$

7. A required return is a rate of return that would be required to be willing to make an investment. The required return exactly reflects the riskiness of the expected future cash flows of the investment. It is the return that the market would require from an investment of identical risk and therefore the required return is determined by market conditions.

- A
- a. True
 - b. False

8. 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
- a. True
 - b. False

9. Assume interest rates increase. Which of the following statements is false? Tough

- a. Bond prices fall because the present value of the expected future cash flows is reduced by the increase in the required return. T
- b. If stock prices rise, it means the required return increased more than any offsetting increases in the expected future dividends and growth in dividends. F
- c. Stock prices may fall because the higher cost of borrowing may lower the growth potential of firms' earnings and their dividends. T
- d. Bonds represent loans extended by investors to corporations and/or the government. T
- e. All of the above are true.

10. In the M&M without taxes view of capital structure, issuing hybrid securities with large proportions of equity are preferred to issuing hybrid securities with low proportions of equity. iv re/en

- a. True
- b. False

11. 2) A fixed coupon bond with par value of \$1,000 has a coupon of 8%, semiannually payable. The current annual nominal market interest rate (i.e., yield to maturity) for this bond is 6%. Therefore the bond is selling and the bond's current yield is

- a. at a discount; greater than 8%
- b. at a premium; greater than 8%
- c. at par value; at 8%
- d. at a discount; less than 8%
- e. at a premium; less than 8%

12. According to the Dividend Discount Model, the value of a stock that can absolutely never pay a dividend nor will ever be acquired is \$0.

- a. True
- b. False

13. What is the optimal capital structure? Why?

1. mix of D & E that minimizes WACC
2. ∴ maximizes firm value

14. In the real world (i.e., not theory world), GHI Corp. wants to increase its leverage ratio from 30% debt/assets to 50% debt/assets (measured in market values). The current equity beta (at a 30% debt/assets ratio) is 1.2, and the current cost of debt is 6% before tax. Which of the following statements is most correct?

- a. The unlevered equity Beta will be less than 1.2 ✓
- b. After the recapitalization the equity beta will be greater than 1.2 ✓
- c. After the recapitalization the cost of debt will be higher than 6% ✓
- d. The after-tax cost of debt is lower than the before-tax cost of debt ✓
- e. All of the above answers are correct

15. 5. 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-bonds, Corporate bonds, T-bills, Common Stocks, Preferred Stocks
- b. Preferred Stocks, T-bills, T-bonds, Corporate bonds, Common Stocks
- c. Common Stocks, Preferred Stocks, Corporate Bonds, T-bills, T-bonds
- d. T-bills, T-bonds, Corporate bonds, Preferred Stocks, Common Stocks
- e. T-bills, T-bonds, Corporate Bonds, Common Stocks, Preferred Stocks

11, 21, 18, 29, 22, 8, 20, 12, 18, 22, 16, 20, 11, 15, 18, 6, 21, 21, 19
 16, 24, 15, 30, 17, 5, 14, 13, 0, 10, 10, 7, 13

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1. (10 points) Rolling Corporation is constructing its Cost of Capital schedule. The firm is at its target capital structure. Its bonds have a 6.5 percent coupon, paid semiannually, a current maturity of 10 years, and sell for \$927.30. Rolling's beta is 1.1, the risk-free rate is 3.5%, and the market risk premium is 6.0%. Rolling is a constant growth firm, which just paid a dividend of \$1.10, sells for \$22.00 per share, and has a growth rate of 5%. The firm's tax rate is 30%.

The firm's book value balance sheet is as follows:

Asset \$27,800

Long Term Debt

\$31,000

Equity (\$.25 par)

\$5,700

Retained Earnings

-\$8,900

$$\begin{array}{r} 927.30 \\ \times 1000 \\ \hline \end{array}$$

28746

$$\begin{array}{r} \times 22 \\ \hline \end{array}$$

501600

a. What is the firm's leverage ratio?

$$\frac{28746}{501600 + 28746} = 5.4\%$$

b. What is the yield to maturity on Rolling's bonds?

$$PV = 927.30 \quad N = 20 \quad I = 3.77 \times 2 = 7.55\%$$

c. What is Rolling's cost of retained earnings using the Discounted Cash Flow/Constant Growth approach?

$\frac{10}{10} = -2$

$$\frac{1.10(1+5\%)^1}{.22} + 5\% = 8.7\% = 10.25\%$$

d. What is Rolling's cost of retained earnings using the Capital Asset Pricing Model approach?

$$3.5 + 1.1(6) = 10.1\%$$

e. Using your DCF estimate of the cost of retained earnings, what is Rolling's WACC?

$$(5.4\%)(7.55\%(1-30\%)) + (94.6\%)(10.25\%) = 9.98\% = 10\%$$

2. (4 points) Softech Ltd just declared a dividend of \$2 (D0). Equity analysts following the firm estimate that the growth rate will be 6% forever. The firm's required rate of return is 11%. You plan to buy the share today and sell it 10 years from now (at the end of year 10). What will be your capital gain over the ten year holding period?

- a. \$33.5 b. \$29.2 c. \$78.0 d. \$61.3 e. \$67.6

A

$$\frac{2(1+6\%)^n}{11\% - 6\%} = P_0 = 42.4$$

$$\begin{array}{l} PV = 42.4 \\ N = 10 \\ I = 6 \\ PMT = 0 \end{array}$$

$$\begin{array}{r} FV = 75.93 \\ - 42.4 \\ \hline 33.53 \end{array}$$

3. (4 points) Find the number of years remaining until maturity for a bond selling at \$1111.02, and a coupon rate of 9% per year paid semi-annually. Assume that the yield to maturity on the bond is 6.5% per year.

$$\begin{array}{l} PV = 1111.02 \\ FV = 1000 \\ PMT = 45 \\ I = 3.25 \end{array}$$

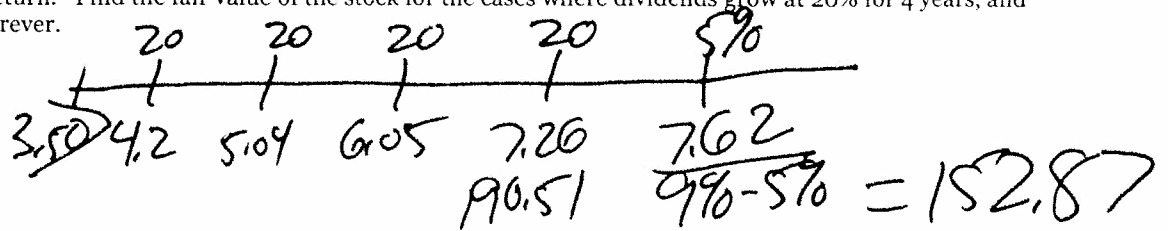
(2)

(2)

Double 3

$$N = 10649 \times 2 = 5324 \text{ yr } 5.5$$

4. (4 points) The ACB Company just paid per-share annual dividend on a common stock just is \$3.50. Stock holders require a 9% rate of return. Find the fair value of the stock for the cases where dividends grow at 20% for 4 years, and then at 5% per year forever.



5. (4 points) Today, long term (25 years) Aaa-rated bonds have a yield to maturity of 7.4%. Aa-rated bonds have a yield to maturity of 8.2%. If you own a 25 year, Aaa-rated bond with a 5% coupon (semi-annual payment), that is downgraded to Aa and follows the YTM-pattern described above, then the dollar amount of your gain or loss from a change in a \$1,000 face value bond's rating is closest to

- a. -\$66.31
- b. +\$66.31
- c. -\$65.95
- d. +\$65.95
- e. -\$64.24
- f. +\$68.02

$P_0 = 728.90$
 $FV = 1000$
 $r = 7.4\% / 2 = 3.7$
 $PMT = 50 / 2 = 25 \quad N = 50$

~~662.09~~
~~646.97~~
 1000
 $8.2\% / 2 = 4.1$
 25
 50

6. (10 points, 2 points each) Consider a 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 with corporate taxes theory of capital structure is true. Company Y is financed has the following market value balance sheet:

Assets = \$ 132 Liabilities = \$0
 Equity = \$132

The firm had \$25 in EBIT last year. The firm's shares are selling for \$6. 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 6% pre-tax yield. If the firm were to change its capital structure, new debt would still have a 6% pre-tax yield. The expected return on the stock market is 11%. The firm's tax rate is 40%. Given this information, answer the following questions:

a. What is the firm's current weighted average cost of capital?

$(100\% \times \frac{15}{132}) = 11.36\%$

$\frac{25}{6} = 4.17$
 $\frac{10}{15} = 0.67$

b. What is the beta of the firm's levered equity?

$11.36 = 6\% + B(11\% - 6\%) = 1.073$

Now assume that the above firm issues \$100 in debt and uses the money to repurchase equity. This change in capital structure reveals no new information about future firm prospects.

c. What is the overall firm's new return on equity?

$C_i T_{hr} = \frac{11.4}{72} = 15.83\%$

$\frac{25}{6} = 4.17$
 $\frac{19}{19} = 1$

d. What is the firm's WACC?

6.62
2.09

$(\frac{100}{172} \times 6\% \times (1 - 40\%)) + (\frac{72}{172} \times 15.83\%) = 8.71\%$

e. What is the value of the firm's tax shield?

$100 \times 40\% = 40$

f. Write out the firm's new balance sheet.

$132 + 40$

$172 = 100 + 72$

$\sqrt{6, 22, 26, 6, 16, 20, 16}$

$\frac{7.6}{11.4}$