

**FINC 4531 Take Home Fall 2008.**

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).**

1. 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 = \$407	Liabilities = \$0
	Equity = \$407

The firm had \$46.00 in EBIT last year, and has just paid its annual dividend. The firm has 80 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 consists entirely of perpetual debt with annual interest payments. The firm's debt is risk-less, selling at par, and has a 5% current yield. If the firm were to change its capital structure, new debt would still have a 5% yield. The expected return on the market portfolio is 10%. Given this information, answer the following questions:

- (1 point) What is the firm's return on equity?
- (1 point) What is the firm's current weighted average cost of capital.
- (1 point) What is the current price per share?
- (1 point) What is the beta of the firm?
- (1 point) What is the firm's dividends per share?

Now assume that the above firm issues \$250 in debt and uses the funds to repurchase equity. This change in capital structure reveals no new information about future firm prospects.

- (1 point) What is the beta of the firm's levered equity?
- (1 point) What is the overall firm's new return on levered equity?
- (1 point) What is the firm's new Weighted Average Cost of Capital?
- (1 point) Now assume that you are at the end of 10 years, just before paying the annual dividend and interest, what is the expected stock price?
- (1 points) Now assume that you are at the end of 10 years, just before paying the annual dividend and interest, write out (with labels) the firm's expected balance sheet?

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 with corporate taxes theory of capital structure is true. Company Y is financed has the following market value balance sheet:

Assets = \$ 301	Liabilities = \$150
	Equity = \$151

The firm had \$37 in EBIT last year, and has just paid its annual dividend. 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 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 only 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 return on the market portfolio is 14%. Given this information, answer the following questions:

- (1 point) What is the value of the firm's perpetual debt tax shield?
- (1 point) What is the current weighted average cost of capital (WACC)?
- (1 point) What is the firm's dividends per share?

Now assume the firm redeems \$150 in debt and issues \$150 in equity.

- (1 point) What is the firm's Weighted Average Cost of Capital?
- (1 point) What is the firm's unlevered equity beta?
- (1 point) What is the firm's new stock price?
- (1 points) Now assume that you are at the beginning of 11 years, just after paying the annual dividend and interest, write out with labels the firm's balance sheet?
- (1 point) Now assume that you are at the beginning of 11 years, just after paying the annual dividend, what is the expected stock price?

Now assume the firm can change its capital structure to be any combination of debt and equity, but that the level of fixed assets cannot be changed. i. (1 point) Write out the balance sheet that corresponds with the maximum firm value?