Homework #4
BUSI 408 Summer II 2013

This assignment is due 19 July 2013 at the beginning of class. Answer each question with numbers rounded to two decimal places. For relevant questions, identify the cash flows and their timing. To receive full credit, you will need to right down the formulas underlying your answers and show your work.

1. MiniMo Corporation's stock is currently trading at $36.78 per share. It has 1,250,000 shares outstanding. The company has issued 30,000 bonds, each with market value $1,012.53 and yield to maturity 6.25%. The stock's beta is 1.3, the risk free rate is 3%, and the expected market risk premium is 7%. What is the firm's weighted average cost of capital (WACC), ignoring corporate taxes?

2. Suppose the Kumar Corporation has no debt and is asking whether issuance of debt can increase the company's value. The firm has annual earnings before interest and taxes of $8,000,000. Their proposal is to borrow $6,000,000 in the form of perpetual debt (i.e., debt that never matures). The company's management decides that the cost of equity for the company is 12%. Kumar is planning to buy back its stock with the entire amount borrowed. The company's tax bracket is 35%.

   (a) Compute the company's value if they borrow.

(b) You know the company's financial data and conclude that they made a mistake while computing the cost of equity. You estimate the correct beta for unlevered firm to be 1.2. Assume the risk-free interest rate is 7% and the market risk premium is 5%, Re-calculate the value of the company with borrowing.

3. You are interested in the value of Gemini Corporation and its cost of capital. Suppose you believe that the assumptions of Miller-Modigliani's Proposition 1 (without taxes) are valid.

   (a) Find the value of the company, the new cost of equity and WACC if the currently unlevered company, valued at $2,400,000 issues debt of $850,000 at 7% interest rate. You can assume that the company uses this borrowing to repurchase stocks. Assume also that the initial cost of equity was 12%.

   (b) Consider your answer this time with a corporate tax rate of 35%. You may assume that the value of the unlevered firm is still $2,400,000 even though taxes have gone from 0 to 35%.

4. Suppose a levered firm has a current value (VL)of $650,000,000. Suppose that the firm currently has $242,000,000 in debt. Suppose the firm would have a value (VU) of $565,300,000 without debt. Ignore the cost of financial distress.

   (a) If the firm goes to a debt-to-equity ratio of 2/3, what will the firm be worth?

   (b) If the firm goes to a debt-to-equity ratio of 3, what will the firm be worth?

5. Cage Co. currently uses no debt. In other words, it is an all-equity firm. The current market

value of the company is $50 million. The corporate tax rate is 40%. What is the new value of the company if Cage converts to debt-equity ratio of 1? What if the debt-equity ratio is 2?

6. Scotty Doesn't Know, a unique t-shirt company, has 1,000,000 shares of stock currently trading at $60 per share. The company has issued 20,000 bonds, each with market value $974.50 and yield to maturity 8.5%. SDK's asset beta is 1.3, the risk free rate is 5%, and the expected market risk premium is 7%.

   (a) Assuming there are no corporate taxes, what is the firm's weighted average cost of capital (WACC)?

   (b) Now, assume that a 35% corporate tax rate applies to this firm. All of the information given in the introduction still applies, but your answer to part (a) doesn't necessarily apply. Recalculate the WACC under this assumption and state whether this firm would be willing to invest in a project that costs $1,000,000 today and that will have a net (after-tax) payoff of $1,350,000 exactly one year from now? (You may assume the project is as risky as the rest of the firm)

7. Reed's Cycles is considering a capital restructuring to allow $350 Million in debt. Currently, RC is an all-equity firm with earnings before interest and taxes of $420 Million. Suppose unlevered firms in the same industry have betas of 0.80. Assume the market risk premium is 6.5% and the risk-free interest rate is 4%. Assume that the corporate tax rate is 35%. You may assume that all earnings are paid out as dividends, and you may assume that the debt is used to buy back stock. For simplicity, assume that cash flows are perpetual as are payments on the debt. How would the proposed restructuring change the value of RC as a whole? (Hint: You may not need to compute the new cost of capital to find the new firm value.)

8. If RC (from the previous question) was considering issuing $2 Billion in debt instead of $350 Million, would the methodology you used in the previous question be equally appropriate? Why or why not?

9. Mojo Jojo's Jellybeans (MJJ) is a candy firm with 20,000 shares outstanding currently trading at $65.10 per share. They also have 3,000 bonds selling in the market for $94 each and yielding 7%.

   Bubble's Buttercup Blossoms (BBB) is a competitor in the same industry. BBB has an equity beta of 1.3 and a debt to equity ratio of 35%. BBB's debt also yields 7%.

   The risk free rate is 4%, the market risk premium is 6%, and the corporate tax rate is 40% for all firms. You can assume the cost of debt stays constant in the future.

   (a) What is MoJo Jojo's weighted average cost of capital (WACC)?

   (b) If Mojo Jojo changed their debt to equity ratio to 55%, what would their new WACC be?

(c) Mojo Jojo decided to go ahead with changing their debt to equity ratio to 55%, as described in part (b). They are then presented with the opportunity to invest in a new candy called Mad Monkeys. The project will cost $55,201 and provide returns of $9,770 (post-tax) for ten years. Should Mojo Jojo undertake the project?

10. The JuneBug (JB) Corporation has a perpetual EBIT of $450,000. The firm is entirely equity financed. The beta of the firm's stock is 1.24. You may assume that the risk free interest rate is 2% and that the market risk premium is 4.5%. The company's tax rate is 39%.

    (a) What is the value of this unlevered company?

    (b) Now suppose that the corporation wants to increase its market value to $5,000,000 by issuing bonds as a perpetuity. Calculate the total market value of bonds that the JB Co. should issue to accomplish this goal.

    (c) Assume the corporation issues $3,000,000 in perpetual debt (i.e. ignore your answer to part (b)). If the corporation's marginal tax rate decreases by 10%, what would you expect the new firm value to be?