Assignment 1
(Due on April 15, 2015)

Please solve the following questions. Please make sure that you **write down the names of all of your group members**. The assignment is due at the **beginning of class** on the due date. Please show all the intermediate steps and calculations when solving the problems and state your assumptions (if any). Please **type** your answers.

1. Which of the following observations *appear* to indicate market inefficiency? For each case, explain whether the inefficiency is weak, semi-strong, or strong and ***explain why briefly***. (Note: If the market is not weak-form-efficient, it is said to be *weak-form-inefficient*; if it is not semi-strong-form efficient, it is *semi-strong-form-inefficient*; and so on)

    a. Managers make superior returns on their purchases of their company's stock.
    b. There is a positive relationship between the return on the market in one quarter and the change in aggregate corporate profits in the next quarter.
    c. There is disputed evidence that stocks which have appreciated unusually in the recent past continue to do so in the future.
    d. Stocks of companies with unexpectedly high earnings appear to offer high returns for several months after the earnings announcement.
    e. Very risky stocks on the average give higher returns than safe stocks.

2. World Cellfone Co. is considering the purchase of a new telecommunications system for $60 million. This system will boost the firm's productivity so that its operating earnings will increase by $12 million per year over the next 8 years. World Cellfone Co. corporate tax rate is 35% and its debt and equity costs are 7% and 14%, respectively. The manufacturer of the telecommunications system is willing to loan the firm $25 million for the purchase at a subsidized rate of 5% (with World Cellfone Co. putting up the remainder from its retained earnings account). The loan principal is to be paid off in 5 equal installments over 5 years with interest being paid every year on the loan outstanding. If the firm's required rate of return under all-equity financing is 10%, should it go ahead with the purchase?

3. The SSR Co. is planning to build a factory. The beta, systematic risk, of this project alone is 15% less than they currently manage. The beta of the assets currently managed is 1.5. The corporate tax rate the firm faces is 34%. The company has a target debt-to-value (Not debt-to-equity) ratio of 30%. The initial investment cost is $30 million and the expected operating after-tax cash flows are $10 million per year for five years. The risk-free rate is 3% and the historical market risk premium of 8% is a reasonable estimate.

    a. What is the all-equity value of this investment?
    b. If the company finances it with a five-year non-amortizing loan with 11% interest, should it accept the project (USE APV approach, You need to find the debt amount.)?
    c. If the local government approaches the SSR Co. with an offer to loan the needed amount in b at 8%, should the company accept this offer?

4. The common stock and debt of Northern Sludge are valued at $50 million and $30 million, respectively. Investors currently require a 16% return on the common stock and an 8% return on the debt. If Northern Sludge issues an additional $10 million of common stock and uses this money to retire debt, what happens to the expected return on the stock?

Assume that the change in capital structure does not affect the risk of the debt and that there are no taxes. If there exists 35% of corporate tax, how does your answer change?

5. Massey-Moss Corporation has a perpetual EBIT of $3 million and a 40% tax rate. Let's assume that depreciation expense is zero. It is able to borrow at an interest rate of 14%, whereas its required rate of return on equity in the absence of borrowing is 18%.

   a. In the absence of personal taxes, what is the value of the firm when it has no debt? When it has $4 million in debt?
   b. If the marginal personal tax rates on stock and bond income are 25% and 30%, respectively, determine the value of the firm when it has no debt and when it has $4 million in debt.

6. KIM Inc. is currently an all equity firm. It is considering a capital restructuring to allow $500 in debt. The company expects to generate EBIT of $151.52 in perpetuity. Its cost of debt is 10 percent and the corporate tax rate is 34 percent. All equity firms in the same industry have a cost of equity of 20 percent (Hint: You need the market value of the firm for FTE and WACC method. Use the firm value you estimated using APV.)

   Using APV, FTE, and WACC approach, what will be the new value of KIM Inc.?

7. Gold Star Company has a debt-equity ratio of 0.5 and required rates of return on debt and equity of 7% and 14%, respectively. The firm is considering an expansion of its operations that will require an initial investment of $7 million and will provide an after-tax net cash flow of $600,000 in perpetuity. The firm is in the 35% corporate tax bracket. Assume that the project's operating risk is identical to the firm's and its cost of debt stays constant at 7%.

   a. What would be the project's NPV if the firm and the project were all-equity financed?
   b. What would be the project's NPV if the project were financed with a debt-equity ratio of 0.5, exactly like the firm?