Instructions:

1. Please make sure ALL team members contribute to the assignment. This assignment is an opportunity for everyone to learn and practice for Midterm 2. Please consider helping one another in the group to learn.

2. Please ensure you are submitting both the Team Assignment answers AND the Team work evaluation. The evaluation is to be discussed among group members and signed by every member before submission. If you do not submit the Team work evaluation, an equal mark will be assigned to all group members.

3. Only one submission for each group; if we receive multiple submissions, only the most recent one will be graded.

4. Make sure you show all your calculations. Markers will NOT rely on your excel file (if any) to mark your work. You can do all the calculations in Excel, but you should submit one WORD or PDF file containing answers to all of the specific questions - ensure that you copy and paste all of your Excel exhibits into submission.

5. If you upload an image of your handwritten solution, make sure it is clear, recognizable and well-organized.

6. Please read the questions carefully. If you are unsure and would like to make assumptions, please state your assumptions clearly.

7. Unless specifically instructed otherwise, provide final answers relating to percentage rates to 4 decimal places (e.g. 6.27% or 0.0627) and provide final answers involving dollar amounts to 2 decimal places (e.g. $98.27).

Questions:

1. (3 marks) Company TwoBee pays a dividend of $10 per share. How much should you expect the firm's stock price to fall on the ex-dividend date in each of the following cases? (Assume transactions costs are zero in each case.)
    (a) (1 mark) There are no taxes.
    (b) (1 mark) Each investor is subject to a 10% tax on dividends (no tax on capital gains).
    (c) (1 mark) Each investor is subject to a 10% tax on dividends and a 15% tax on capital gains, which are realized every year.

2. (12 marks) UW Inc. has 100,000 shares outstanding. The firm will be liquidated after 2 years. Earnings will be $500,000 at the end of year 1. In addition, an investment outlay of $200,000 at the end of year 1 has already been decided upon, to generate earnings of $800,000 at the end of year 2. UW is all-equity financed with a required rate of return of 16%. Assume that the firm operates in a world with perfect capital markets. The firm's policy is to pay out any surplus cash as dividends.
    (a) (2 marks) What is the current share price of UW's stock?
    (b) (5 marks) John owns 10% of UW Inc. and wants an income from the firm of $15,000 at the end of year 1. Show how she can achieve this (without a change in the firm's dividend policy). What percentage of the firm will she own after the end of year 1 if she follows this strategy?
    (c) (5 marks) How can John obtain the same income as in part (b) through changing the current dividend policy of the firm? Assume there is no other investment opportunity other than issuing or repurchasing shares. How many shares will UW Inc. have outstanding at the end of year 1 under the new policy? What percentage of the firm will John own at that time?

3. (9 marks) Fireworks Corporation is considering an investment which costs $100 today and produces free cash flows of $72 at the end of each of the next two years. The firm faces a corporate tax rate of 40%. Its cost of levered equity is 26%, and it can borrow at an interest rate of 10%. FireWorks has a target debt-equity ratio of 1.
    (a) (2 marks) Use the weighted average cost of capital method to determine the net present value of this investment.
    (b) (7 marks) Show how you can obtain the same answer as in part (a) by using the adjusted present value method.

4. (10 marks) Adam Smith Inc. has a target debt-equity ratio of 2/3. Its cost of equity is 16% and it can borrow at an interest rate of 9% (before tax). The firm is considering an expansion of its existing business which will cost $17 million today and generate pre-tax operating cash flows of $6 million per year at the end of each of the next 8 years. The corporate tax rate is 35%.
    (a) (5 marks) Use the weighted average cost of capital approach to determine the net present value of the proposed expansion.
    (b) (5 marks) Suppose that Adam Smith Inc. uses a different financing strategy. It borrows the same amount initially as in part (a) above, but uses a loan that stays constant until the end of the project and will be repaid after 8 years. The interest rate on this loan is the same as that in part (a). If the firm uses the APV approach to calculate the net present value of the project, would it be higher or lower than that found in part (a)? Explain why. (Do not do any calculations, just provide a short intuitive explanation.)

5. (10 marks) Northern Light Corp. is evaluating a potential investment project which costs $1,000 today and is expected to produce free cash flows of $60 at the end of each year in perpetuity. The firm uses a debt-equity ratio of 2 to finance its existing operations. This new project would be of similar risk as the firm's existing operations and would be financed in the same way as the firm's existing operations. Northern Light Corp. faces a corporate tax rate of 40%. The firm's equity beta is 1.2, and its debt beta is 0.2. The expected return on the market portfolio is 8% and the risk-free rate of interest is 3%.
    (a) (5 marks) Use the WACC approach to determine the NPV of the project.
    (b) (5 marks) Show how you can use the APV approach to calculate the same total project value as for the WACC approach in part (a).

6. (6 marks) Multiple choices: choose only the MOST correct answer:

a) (1.5 marks) Anyone who purchases the stock on or after the date will not receive the dividend but will receive the dividend if they purchase it before this date.
A. distribution
B. record
C. ex-dividend
D. declaration

b) (1.5 marks) Paying out excess cash through dividends or share repurchases can _____ the stock price by _____ managers' ability and temptation to waste resources.
A. lower; reducing
B. boost; reducing
C. boost; raising
D. lower; raising
E. none of the above pairs are correct.

c) (1.5 marks) Assume that today is July 04, 2021. ABC Group just announced today that it will pay a $0.54 cash dividend per share to shareholders on record as of Aug. 22, 2021 (which is a Monday). There is no holiday in August. Which of the following best describes the stock market reaction?
A. Stock price is most likely to decline more than $0.54 on Aug. 22, 2021.
B. Stock price is most likely to decline less than $0.54 on Aug. 22, 2021.
C. Stock price is most likely to decline more than $0.54 on Aug. 20, 2021.
D. Stock price is most likely to decline less than $0.54 on Aug. 20, 2021.
E. Stock price is most likely to decline less than $0.54 on Aug. 18, 2021.

d) (1.5 marks) The flow-to-equity (FTE) approach in capital budgeting is defined to be the:
A. discounting all cash flows from a project at the overall cost of capital.
B. scale enhancing discount process.
C. discounting of the levered cashflows to the equity holders at the required return on equity.
D. discounting of unlevered cashflows at the unlevered cost of capital and adding the PV of tax shields separately.
E. discounting of the unlevered cashflows of a project from a levered firm at the WACC.