**1. (48 points)** You graduated from college and started working at the Coca-Cola Company. The Coca-Cola Company is an American multinational beverage corporation incorporated under Delaware’s General Corporation Law and headquartered in Atlanta, Georgia. The Coca-Cola Company has interests in the manufacturing, retailing, and marketing nonalcoholic beverage concentrates and syrups. As a first job, your manager gives you a project. The Coca-Cola Company thinks about investing in a new area. You have the future cash flows from the project, but you need to calculate the appropriate discount rate to evaluate these cash flows. You learn that The Coca-Cola Company uses common stock, preferred stock, and debt as its sources of capital. Furthermore, the company pays 30% in taxes to the government.

**Common Stock:** The company has 4.31 billion shares outstanding with a par value of $20 per share. It has a beta of 0.75 while the market risk premium is 8% and the return on Treasury Bills is 4%. The company just distributed $1.6 per share as dividends to its common stockholders. The management plans to increase dividends by 25% next year and 15% the year after that. After the end of the second year, the company’s dividends will start to grow at a more modest level of 3.5% forever.

**Preferred stock:** The company has a $50 par value, 10.5% preferred stock with a $30 billion book value. The preferred stock is selling for $60 per share in the market today.

**Bonds**: Company has $80 billion worth of bonds on its balance sheet as of today. These bonds have a $1,000 par value and a 6% coupon rate with semi-annual coupon payments. The bonds have 10 years remaining to maturity and selling for $1,068 in the market today.

**a. (5 points) Calculate** the cost of common stock.

**b. (5 points) Calculate** the cost of preferred stock.

**c. (6 points) Calculate** the cost of debt.

**d. (18 points) Calculate** the weighted average cost of capital (WACC).

**e. (14 points)** You also learned that company has to change one of the machines used in its production process. There are two alternative machines available in the market: MC100 and MX100. The revenues will not change however the costs are different for these two machines. The company can use both of these machines in its production process for only five years. Usage of these machines does not have any effect on the revenues of the company therefore, you have calculated the after-tax total costs for these two machines presented in the table below. MC100 is similar to the company’s existing machine, and it has the same risk as that machine. On the other hand, MX100 uses more advanced technology, and therefore, experts

evaluate the investment in this machine to be riskier than the company’s existing machine. The company uses a subjective ±2% risk adjustment factor to evaluate projects with risks different from overall company risk. Given all this information and the WACC you calculated in part (d) of this question, **decide** which machine the company should select.

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**2. (52 points)** ABC company operates in a country where there are no corporate taxes. The company currently has 80% equity and 20% debt financing. The company’s stock has a beta of 1.5 with its current capital structure. The return on the market portfolio is 12% and the risk free asset is 3%. The perpetual EBIT of the company is $2,070,000 and company can also borrow at the risk free rate.

**a. (3 points) Calculate** the cost of equity for the ABC company.

**b. (6 points) Calculate** the unlevered beta and cost of equity for the unlevered company.

**c. (6 points) Calculate** the value of ABC company and value of company’s equity today .

**d. (3 points) Calculate** the WACC for the company with its current capital structure.

**e. (9 points)** Suppose the country’s tax law has changed, and now the company has to pay 30% taxes to the government. **Determine** the value of the company, the value of the company’s equity, and the debt to equity ratio of the company after this change in the tax law.

**f. (6 points) Calculate** the cost of equity and the WACC for the company.

**g. (12 points)** Suppose the company wants to change its capital structure to 60% equity and 40% debt. **Calculate** the value of the company, the value of the company’s equity, its cost of equity, and WACC after this change in its capital structure.

**h. (6 points)** Given your results in parts (e), (f) and (g) of this question, **briefly discuss** if this change in the company’s capital structure is beneficial for the company’s shareholders or not.