Endymion

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Endymion Brewery Ltd is one of the few independent medium-sized breweries remaining on the international beer market. The very big players are AB Inbev, Heineken and Carlsberg, and among the medium-sized ones, similar to Endymion, are Duvel Moortgat, Guinness and Asahi, and a few others.

Endymion, which is based in Belgium, specialized in two different kind of internationally renowned beers: Abbey beers and Lambic beers. But the recent orientation of the consumer market towards bitter and hoppy beers such as IPAs (Indian Pale Ale) and NEPAs (New England Pale Ale) lead the CEO to consider a diversification in these products.

The project entails an investment in a new building on the land where the main factory is already located. There are no opportunity costs associated with the land which cannot be used for anything else. The new building would be equipped with the necessary machinery. The cost of the building would be 100,000 €, it would be depreciated straight line to zero over 10 years. The investment in equipment is estimated to 80,000 € and the assets would be depreciated straight line to zero over 5 years. Assume that the equipment will be worthless in the end of the project, and that the building will have 40% of its original value.

The raw materials to produce the beer (mainly water, barley malt, hops and yeast) would cost 0.40 € per liter. All other costs are fixed and estimated to 450,000 € per year. The average sell price is 4€ per liter and it is estimated that 300,000 liters of beer would be sold every year. The project is supposed to last 4 years, and would entail an immediate rise of 75,000 € in WCR. The WCR would then stay stable, and be recovered in the end of the project.

Endymion is listed on a European small caps market and its beta has recently been estimated to 1.45. There are 1,000,000 outstanding common stocks which last known price is 45.3 on the market. 3 years ago, Endymion issued 500,000 bonds with a 100 € face value, a 12 years maturity (repayment at par) and a 7.2% coupon rate. The bonds YTM today is 6.9% and they form the only debt of the company, but Endymion is determined to changed its leverage to 40% as soon as possible. Note that experts estimate that this would not impact the cost of its debt.

Finally, the coporate tax rate is 1/3, the market risk premium 7.8% and the risk free rate 1.8%. You may assume that the company is always profitable.

Questions

1. What is Endymion's bond price today? (2 decimal places)
2. What is Endymion's debt market value? (in €, no decimal places)
3. What is Endymion's leverage today? (in %, 2 decimal places)
4. What is Endymion's unlevered beta? (4 decimal places)
5. What will be Endymion's beta with the new leverage? (4 decimal places)
6. What will be Endymion's debt ratio with the new leverage? (in %, 2 decimal places)
7. What will be Endymion's cost of equity with the new leverage? (in %, 2 decimal places)
8. What will be Endymion's WACC with the new leverage? (in %, 2 decimal places)
9. Calculate the divestment cash flow. (in €, no decimal places)

10. Calculate the cash flow from operations that the project will provide every year (in €, no decimal places)
11. Finally, what is the project's NPV with the new leverage? (in €, no decimal places)
12. Which cash flow from operations every year would provide a 0 NPV (use the new leverage)? (in €, no decimal places)
13. Endymion is planning to borrow 4,000,000 over 5 years at the current bond's YTM. The loan would be repaid by constant annuities. What would be the unpaid balance on the loan after 3 years? (in €, no decimal places)