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FNCE 301 CAPITAL BUDGETING ASSIGNMENT

Due date: December 1, 2017 – You can do this assignment in pairs or individually

Amadeus Corporation is considering the issue of a new product to be added to its product mix. They hired you, a recent business graduate from MacEwan, for conducting the analysis. The production line would be set up in an unused space at the company's main plant. The plant space could be leased out to another firm for \$25,000 per year. They have to buy new machinery. The approximate cost of the machine would be \$200,000, with another \$10,000 in shipping and handling charges. It would also cost an additional \$30,000 to install the equipment. The machinery has an economic life of 5 years and would fall under Class 8 with a CCA rate of 20%. The machinery is expected to have a salvage value of \$25,000 after 5 years of use.

The new product line would generate incremental sales of 1,250 units per year for 5 years and they are expected to grow 10% per year. The cost per unit is estimated in \$75 per unit in the first year. Each unit can be sold for \$200 in the first year. The sales price and cost are both expected to increase by 2.5% per year due to inflation. The fixed costs are estimated to be \$100,000 per year and would increase with inflation. To handle the new product line, the firm's net operating working capital would have to increase by an amount equal to 15% of sales revenues. The firm tax rate is 35%, and its overall weighted average cost of capital (WACC) is 14%. The project is considered by the financial department to be as risky as the company.

Requirements

1. Using an Excel spreadsheet:

- Find the NPV, IRR and MIRR of the project by using the pro forma financial statement method to determine cash flows.
- Enter the input variables in cells of their own at the top of the spreadsheet (so it is easier to do sensitivity analysis calculations).
- Set up the necessary equations by referencing to the input variable cells. The spreadsheet must be formula driven; do not put any numbers in equations, only cell references.
- Use Excel's built-in functions wherever possible (e.g. PV and IRR functions).

2. Breakeven analysis (cash B/E point only)

Set up a formula in Excel (this formula is not built-in) to calculate the cash breakeven point for the base case.

3. Sensitivity analysis

Consider the following scenarios for the company and for each scenario calculate the NPV and the IRR and include these analyses in your final recommendation.

- (a) Perform sensitivity analysis on the unit sales, variable costs and the cost of capital for the project. Assume that each of these variables can vary from its base-case value by $\pm 10\%$ and $\pm 20\%$. Summarize the results in a table (NPVs for each sensitivity analysis).

4. Assume that you are confident of your estimates of all variables that affect the project's cash flows except unit sales and sales price. If product acceptance is poor, unit sales will be only 900 units a year and the unit price will be only \$160; a strong demand will produce sales of 1,600 units and a unit price of \$240. The marketing department told you that there is a 25% chance of poor acceptance and 25% chance of excellent acceptance, and a 50% chance of average acceptance (the base case).
 - (a) What is the worst case NPV and the best case NPV?
 - (b) What is the expected NPV for this project considering all possibilities?

5. Recommendation

Use the results you obtained in the NPV, IRR, breakeven, sensitivity and scenario analysis above to write a one page report on your findings and recommend whether or not the company should proceed with the project.

6. Present this assignment in a **professional way**. It is your responsibility to communicate clearly to the marker.

7. Hand in (**FOLLOW THESE INSTRUCTIONS STRICTLY**):
 - Page 1, cover page with your name, section number and your signature.
 - Page 2, Excel spreadsheet showing basic problem NPV, IRR and breakeven values (Requirements 1 and 2)
 - Page 3, Excel spreadsheet showing formulas of the above spreadsheet. Use Page Preview to make sure that this is printing on one page.
 - Page 4
 - A table showing the NPV and IRR for each sensitivity analysis
 - Pages 5 and 6
 - Excel spreadsheet showing NPV and IRR for each scenario (worst and best case)
 - Page 7, Executive Summary of interpretation and recommendation (Requirement 5). **Try to not exceed one page.**
 - Please **STAPLE all pages**.

8. You must sign the cover page of the assignment.

EVALUATION GUIDE

Marking	Max. Mark
1. Excel NPV, IRR, B/E and supporting formula sheet	15
2. Sensitivity analysis	10
3. Scenario analysis	8
4. Interpretation of results/recommendation	12
5. Presentation (spelling, grammar, organization)	5
TOTAL	50



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