Fulton Enterprise Project Analysis

Prepare the three cash flows required and answer the questions listed on the Fulton Enterprise Project Analysis.

* 1. Develop the cash flow for each scenario, by year, for the 5 year period.
  2. The company has a hurdle rate, or required rate of return of 11%. Develop the Present Value of each cash flow
  3. Based on the probabilities estimated by management, what is the expected Present Value of the project?
  4. What would you recommend?

“Fulton Enterprises is deciding on a project which will require an investment of $800,000, will last 5 years, and at the end of the period, the equipment purchased will be scrapped out at no resale value. There are three different scenarios for this project. In all three, the Cost of Goods Sold is expected to run about 65% of the sales volume. Sales and Administrative Costs will be $45,000 per year.

The investment will be depreciated using straight-line depreciation over the 5-year period. Working capital, which consists of increases in inventory, accounts receivables and accounts payable will be 10% of the first year sales amount and will be recovered (reversed) in year 5. Fulton has $1,000,000 debt associated with this project, which is being financed by a 6% loan. The tax rate for Fulton is 35%.”

**Scenario 1**

Sales in year 1 are $700,000 per year and do not change through year 5. This scenario has a probability of 20%.

1. **Cash flow for scenario 1, by year, for the 5-year period** (All are in $000's)

**Year** 0 2013 2014 2015 2016 2017

**Cash Flow** $(800.00) $137.00 $207.00 $207.00 $207.00 $277.00

1. **The company has a hurdle rate, or required rate of return of 11%.**

**The Present Value of each cash flow** (All are in $000's)

**Year** 0 2013 2014 2015 2016 2017

**PV of Cash Flows** $(800.00) $123.42 $168.01 $151.36 $136.36 $164.39

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (All are in $000's) Year | 0 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Sales |  | $ 700.00 | $ 700.00 | $ 700.00 | $ 700.00 | $ 700.00 |
| Cost of Sales |  | $ 455.00 | $ 455.00 | $ 455.00 | $ 455.00 | $ 455.00 |
| Sales and Admin |  | $ 45.00 | $ 45.00 | $ 45.00 | $ 45.00 | $ 45.00 |
| Depreciation |  | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 |
| Operating Expense |  | $ 660.00 | $ 660.00 | $ 660.00 | $ 660.00 | $ 660.00 |
| Operating Profit |  | $ 40.00 | $ 40.00 | $ 40.00 | $ 40.00 | $ 40.00 |
| Interest |  | $ 60.00 | $ 60.00 | $ 60.00 | $ 60.00 | $ 60.00 |
| Pre-Tax Profits |  | $ (20.00) | $ (20.00) | $ (20.00) | $ (20.00) | $ (20.00) |
| Tax @ 35% |  | $ (7.00) | $ (7.00) | $ (7.00) | $ (7.00) | $ (7.00) |
| Net Income |  | $ (13.00) | $ (13.00) | $ (13.00) | $ (13.00) | $ (13.00) |
| Operating Profit |  | $ 40.00 | $ 40.00 | $ 40.00 | $ 40.00 | $ 40.00 |
| + Depreciation |  | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 |
| -Tax |  | $ 7.00 | $ 7.00 | $ 7.00 | $ 7.00 | $ 7.00 |
| -Investment | $ (800.00) |  |  |  |  |  |
| +/- Working Capital |  | $ (70.00) |  |  |  | $ 70.00 |
| Cash Flow | $ (800.00) | $ 137.00 | $ 207.00 | $ 207.00 | $ 207.00 | $ 277.00 |
| PV of Cash Flows | $ (800.00) | $123.42 | $168.01 | $151.36 | $136.36 | $164.39 |
| Cumulative Cash Flow | $ (56.47) |  |  |  |  |  |

**Scenario 1 has a 20% probability**.

Project Analysis

Tax rate = 35% COGS = 65% of sales

Hurdle rate = 11% S&A = $45,000 per year

**Scenario 2**

Sales in year 1 are $900,000 per year and will increase 5% per year through year 5. This scenario has a probability of 50%.

1. **Cash flow for scenario 1, by year, for the 5-year period** (All are in $000's)

**Year** 0 2013 2014 2015 2016 2017

**Cash Flow** $(800.00) $162.50 $262.74 $273.49 $284.77 $386.62

1. **The company has a hurdle rate, or required rate of return of 11%.** (All are in $000's)

**Year** 0 2013 2014 2015 2016 2017

**PV of Cash Flows** $(800.00) $146.40 $213.24 $199.97 $187.59 $229.44

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (All are in 1000's)  Year | 0 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Sales |  | $ 900.00 | $ 945.00 | $ 992.25 | $ 1,041.86 | $ 1,093.96 |
| Cost of Sales |  | $ 585.00 | $ 614.25 | $ 644.96 | $ 677.21 | $ 711.07 |
| Sales and Admin |  | $ 45.00 | $ 45.00 | $ 45.00 | $ 45.00 | $ 45.00 |
| Depreciation |  | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 |
| Operating Expense |  | $ 790.00 | $ 819.25 | $ 849.96 | $ 882.21 | $ 916.07 |
| Operating Profit |  | $ 110.00 | $ 125.75 | $ 142.29 | $ 159.65 | $ 177.88 |
| Interest |  | $ 60.00 | $ 60.00 | $ 60.00 | $ 60.00 | $ 60.00 |
| Pre-Tax Profits |  | $ 50.00 | $ 65.75 | $ 82.29 | $ 99.65 | $ 117.88 |
| Tax @ 35% |  | $ 17.50 | $ 23.01 | $ 28.80 | $ 34.88 | $ 41.26 |
| Net Income |  | $ 32.50 | $ 42.74 | $ 53.49 | $ 64.77 | $ 76.62 |
| Operating Profit |  | $ 110.00 | $ 125.75 | $ 142.29 | $ 159.65 | $ 177.88 |
| + Depreciation |  | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 |
| -Tax |  | $ (17.50) | $ (23.01) | $ (28.80) | $ (34.88) | $ (41.26) |
| -Investment | $ (800.00) |  |  |  |  |  |
| +/- Working Capital |  | $ (90.00) |  |  |  | $ 90.00 |
| Cash Flow | $ (800.00) | $ 162.50 | $ 262.74 | $ 273.49 | $ 284.77 | $ 386.62 |
| PV of Cash Flows | $ (800.00) | $ 146.40 | $ 213.24 | $ 199.97 | $ 187.59 | $ 229.44 |
| Cumulative Cash Flow | $ 176.64 |  |  |  |  |  |

**Scenario Two has a 50% probability.**

Project Analysis Equipment = $800,000

Depreciated over 5 years Debt = $1,000,000 at 6%

Tax rate = 35% Hurdle rate = 11%

COGS = 65% of sales S&A = $45,000 per year

**Scenario 3**

Sales in year 1 are $800,000 per year and will increase 7% per year through year 5. This scenario has a probability of 30%.

1. **Cash flow for scenario 1, by year, for the 5-year period** (All are in $000's)

**Year** 0 2013 2014 2015 2016 2017

**Cash Flow** $(800.00) $149.75 $242.49 $256.12 $270.71 $366.31

1. **The company has a hurdle rate, or required rate of return of 11%.**

**The Present Value of each cash flow** (All are in $000's)

**Year** 0 2013 2014 2015 2016 2017

**PV of Cash Flows** $(800.00) $134.91 $196.81 $187.27 $178.32 $217.39

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (All are in $000's)  Year | 0 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Sales |  | $ 800.00 | $ 856.00 | $ 915.92 | $ 980.03 | $ 1,048.64 |
| Cost of Sales |  | $ 520.00 | $ 556.40 | $ 595.35 | $ 637.02 | $ 681.61 |
| Sales and Admin |  | $ 45.00 | $ 45.00 | $ 45.00 | $ 45.00 | $ 45.00 |
| Depreciation |  | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 | $160.00 |
| Operating Expense |  | $ 725.00 | $ 761.40 | $ 800.35 | $ 842.02 | $ 886.61 |
| Operating Profit |  | $ 75.00 | $ 94.60 | $ 115.57 | $ 138.01 | $ 162.02 |
| Interest |  | $ 60.00 | $ 60.00 | $ 60.00 | $ 60.00 | $ 60.00 |
| Pre-Tax Profits |  | $ 15.00 | $ 34.60 | $ 55.57 | $ 78.01 | $ 102.02 |
| Tax @ 35% |  | $ 5.25 | $ 12.11 | $ 19.45 | $ 27.30 | $ 35.71 |
| Net Income |  | $ 9.75 | $ 22.49 | $ 36.12 | $ 50.71 | $ 66.31 |
| Operating Profit |  | $ 75.00 | $ 94.60 | $ 115.57 | $ 138.01 | $162.02 |
| + Depreciation |  | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 | $ 160.00 |
| -Tax |  | $ (5.25) | $ (12.11) | $ (19.45) | $ (27.30) | $ (35.71) |
| -Investment | $ (800.00) |  |  |  |  |  |
| +/- Working Capital |  | $ (80.00) |  |  |  | $ 80.00 |
| Cash Flow | $ (800.00) | $ 149.75 | $ 242.49 | $ 256.12 | $ 270.71 | $366.31 |
| PV of Cash Flows | $ (800.00) | $134.91 | $196.81 | $187.27 | $178.32 | $217.39 |
| Cumulative Cash Flow | $ 114.71 |  |  |  |  |  |

**Scenario Three has a probability of 30%.**

Project Analysis

Equipment = $800,000 Depreciated over 5 years

Debt = $1,000,000 at 6% Tax rate = 35%

Hurdle rate = 11% COGS = 65% of sales

S&A = $45,000 per year

**3- Based on probabilities:**

1 - Cumulative cash flow is

$ -56470 - 20% probability – from scenario 1 = - $ 56470 x 0.2 = $-11294

2- Cumulative cash flow is

$ 176640 - 50% probability - from scenario 2 = $ 176640 x 0.5 = $ 88320

3- Cumulative cash flow is

$ 114710 - 30% probability - from scenario 3 = $ 114710 x 0.3 = $ 34413

Therefore based on the probabilities estimated by management, **EXPECTED PV of the project = $111439 or $111.44 (in 000's)**

**Conclusion**

**4. Recommendation**

Based on all the three scenarios and the probabilities estimated by management,  Team B recommends applying scenario B, as it provides with the largest PV cash flow contribution for the project at $88320 or $ 88.32  (in $000's) with 50 % probability. Overall, the cumulative cash flow from Scenario B is $176640 or $ 176.64 (in 000's) before multiplying the probability factor of 50%.

References

Emery, D., Finnerty, J., & Stowe, J. (2007). *Corporate financial management* (3rd ed.). Morristown, NJ. Wohl Publishing Inc.