ISM 80C: Starting a New Technology Company (SNCTC)

Homework #4: Cash Flow analysis

Due Thursday, 19 May 2011

Reading: Startup, Chapters 7-9; “NPV Analysis for Product Development Project” handout.

Homework Problems:

Important: To receive credit for your work, it must be (a) be your own work, and (b) you must clearly document your thought process (approach) and show all the details of your solution.

1. **One-period investment**: (15 minutes)
   A. Consider the following investment. A parcel of land is available for sale (today only) at $10,000. You expect (based on expert advice) to sell the land a year from now at $11,000. What is your return on investment (ROI)?

   C. You receive notification that you have inherited 10,000 dollars, which is available immediately. Would you invest in the parcel of land or invest the money in a savings account with a 2% annual interest rate? Explain your choice.

   D. Suppose the annual interest rate for the savings account is 10%. Would you invest in the parcel of land or in a savings account? Explain your decision.

2. **A two period investment with intermediate cash flows.** (15 minutes)
   Be sure to explain your approach before providing the required answer.

   Consider a two-year land investment. A plot of land costs $10,000 today, and you will be able to lease it (to a farmer) over a two-year period (starting now) for $1000 per year payable at the end of each year. The resale value of the land at the end of two years is expected to be $11,000. Assume that the discount factor is 6%.

   Would you go ahead with this investment if you purchased this land today, leased it for 2 years, and then sold it at the end of 2 years? Explain your decision.

3. **Cash Flow Analysis for a robotic vacuum cleaner** (estimated time: 45 minutes)
   • Describe a step-wise (i.e., Step 1......; Step2......; etc.) procedure for performing cash flow analysis for the development of a product from idea all the way to a marketable product that generates revenue. How would you use the cash flow analysis to decide whether to go ahead with the project or not?
   • Here are the primary expected cash flows for the 2-year development of a robotic vacuum cleaner (all numbers are in thousands of dollars) developed in HW #3.

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<thead>
<tr>
<th>Period</th>
<th>Y1, Q1</th>
<th>Y1, Q2</th>
<th>Y1, Q3</th>
<th>Y1, Q4</th>
<th>Y2, Q1</th>
<th>Y2, Q2</th>
<th>Y2, Q3</th>
<th>Y2, Q4</th>
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<tbody>
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<td>Development Cost</td>
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<td>Production Cost</td>
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<td>Revenue</td>
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<td>Net Present Value</td>
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</table>
Determine the Net Present Value of the cash flows (Assume a discount factor of 12% per annum.)
• Should your startup go ahead with the development of the robotic vacuum cleaner. Explain your answer.

4. **Financial Accounting for Apple** (estimated time: 20 minutes)
   • Locate Apple’s Financial Report for the Year 2010 (filed with the US Securities and Exchange Commission). Study the income statement and balance sheet for the Year 2010, and then answer the following questions:
   A. First examine the income statement for 2010. What was Apple’s sales revenue during 2009? What was Apple’s income (net profit) during 2010? What is the return on sales (%) for 2010?
   B. Now examine the balance sheet. What is Apple’s cash asset in 2010? What is the total equity for 2010? What is the shareholder’s equity for 2010? What is the return on equity (%) for 2010?

5. **Go Corporation Case Study** (estimated time: 90 minutes)
   Chapters 7-9 of “Startup”. Make a list of at least 12-15 important points (facts) from your reading (at least 3 per chapter). **Synthesize** these points into 3-5 key lessons that you have learned from your reading. Present your solution in the form of a table.
   (Suggestion: As mentioned in class, try to skim through the whole book and get a sense for the overall flow of events for the Go Corporation. Also, review the Chronology of Events at the back of the book.)

Please note the following important dates:

**Final Examination**: Monday, June 6, 8-11 AM

**Project Presentations**: Thursday, 26 May 2011, and Tuesday, 31 May 2011.