Assignment: CB Techniques and Cash Flow Estimation

Due by 3pm on Nov 9, 2015 in the TA room (FPM room) Block III
Please hand it over to Aleesha Mariya

Q1

Consider two streams of cash flows, A and B. Cash flow A consists of $5,000 starting three years from today and growing at 4 percent in perpetuity. Cash flows B consists of - $ 6,000 starting two years from today and continuing in perpetuity. Assume the appropriate discount rate is 12 percent.

a. What is the present value of each stream?
b. What is the IRR of the project C which is a combination of Project A and B; that is , C = A+B *(you may need to graph or use xls – this is to understand the concept)*
c. If it is assumed that the discount rate is always positive, what is the rule related to IRR for assessing project C that would correspond to the NPV rule?

Q2

The treasurer of Amaro Canned Fruits, Inc., has projected the CF of projects A,B and C as follows.

Year	Project A	Project B	Project C
0	-$100,000	-$200,000	-$100,000
1	70,000	130,000	75,000
2	70,000	130,000	60,000

Suppose the relevant discount rate is 12% a year.

a. Compute the profitability index for each of the 3 projects.
b. Compute the NPV for each of the three projects.
c. Suppose these 3 projects are independent. Which projects should Amaro accept based on the profitability index rule?
d. Suppose these 3 projects are mutually exclusive. Which projects should Amaro accept based on the profitability index rule? When there is a scale difference how can you apply the PI rule?
e. Suppose Amaro's budget for these projects is $300,000. The projects are not divisible. Which projects should Amaro accept?
f. Using PI = PV (Cash inflows)/Initial investment then,

Q3

The Titanic Shipbuilding Company has a non-cancelable contract to build a small cargo vessel. Construction involves a cash outlay of $250,000 at the end of each of the next two years. At the end of the third year the company will receive payment of $650,000. The company can speed up construction by working an extra shift. In this case there will be a cash outlay of $550,000 at the end of the first year followed by a cash payment of $650,000 at the end of the second year. Use the IRR rule to show the (approximate) range of opportunity costs of capital at which the company should work the extra shift.

Q4

Suppose Peach Paving Company invests $1 million today on a new construction project. The project will generate annual cash flows of $150,000 in perpetuity. The appropriate annual discount rate for the project is 10 percent.

a. What is the payback period for the project? If the Peach Paving Company desires to have a 10 year payback period, should the project be adopted?
b. What is the discounted payback period for the projects?
c. What is the NPV of the project?

Q 5 *(You may want to try this on xls and attach the printed worksheet, or you can show the cash flows in a columnar format in the assignment answer)*

Phoenix Pharma is considering the manufacture of a new drug, Torrexin, for which the following information has been gathered:

1. Torrexin is expected to have a product life cycle of five years after which it will be withdrawn from the market. The sales from this drug are expected to be as follows:

i. Year	1	2	3	4	5
ii. Sales (Rs in million)	100	150	200	150	100

2. The capital equipment required for manufacturing Torrexin is 120 million and it will be depreciated at the rate of 25 percent per year as per the WDV method for tax purposes. The expected net salvage value after 5 years is Rs.30 million
3. The working capital requirement for the project is expected to be 20 percent of sales. Working capital level will be adjusted at the beginning of the year in relation to the sales for the year. At the end of five years, working capital is expected to be liquidated at par, barring an estimated loss of Rs.5 million on account of bad debt which, of course, will be tax-deductible expense
4. The accountant of the firm has provided the following estimates for the cost of Torrexin
   i. Raw material cost : 40 percent of sales
   ii. Variable manufacturing cost : 10 percent of sales
   iii. Fixed annual operating and maintenance costs : Rs.8 million
   iv. Variable selling expenses : 10 percent of sales
5. The tax rate for the firm is 30 percent

   a. Estimate the post-tax incremental cash flows for the project to manufacture Torrexin
   b. What is the NPV of the project if the cost of capital is 15 percent?

Q 6

Gold star Industries is in need of computers. They have narrowed the choices to the PCOR 5000 and the MAC 1000. They would need 10 PCORs. Each PCOR costs $ $ 3,750 and requires $ 500 of maintenance each year. A t the end of the computer's eight –year life, Gold star expects to be able to sell each one for $ 500. On the other hand, Gold star could buy eight MACs. MACs cost $5,250 each and each machine requires $700 of maintenance every year. They last for six years and have a resale value of $ 600 for each one. Whichever Model Gold Star chooses, it will buy that model forever. Ignore tax effects, and assume that maintenance costs occur at year-end. Which model should they buy if the appropriate discount rate is 11 percent?

Q7

Ross Chapter 6 # 2

Q8

Ross Chapter 6 # 14