FNCE 20005 Corporate Financial Decision Making 2021

TUTORIAL 6: Advanced topics in capital budgeting: Sensitivity, break even and decision-tree analyses

Answers to Section B questions to be submitted on Canvas by **10am on Monday, September 13th**

SECTION A

Question 1

Outline possible problems that you might have in implementing sensitivity analysis in practice.

SECTION B – PRIORITY QUESTIONS
REMEMBER ALSO THAT ALL ANSWERS MUST BE HANDWRITTEN AND YOUR NAME CLEARLY WRITTEN AT THE TOP OF EACH SUBMITTED PAGE.

Question 2

It is the end of your final year of study as a student in the Master of Finance program and you are trying to determine what you are going to do over the remaining 35 years of your working life. You are trying to decide whether you should remain at university and do your PhD in finance or alternatively leave university and become a consultant.

You anticipate that it will take you 5 years to complete your PhD during which time you will earn a real net cash flow of $25,000 p.a. At the end of these 5 years you must decide whether to remain at the university as an academic or take up a career as a consultant. There is a 10% chance that you will enjoy great success as an academic earning a salary of $85,000 p.a., a 50% chance that you will have a moderately successful career earning a salary of $65,000 p.a. and a 40% chance that you will have an unsuccessful academic career earning a salary of only $45,000 p.a. If you decide to become a consultant then it will initially cost you $100,000 to set up your business and there is an 80% chance of generating $60,000 p.a. and a 20% chance of generating $120,000 p.a.

If you decide not do a PhD and instead become a consultant immediately, there is a 60% chance that you will earn $70,000 p.a. and a 40% chance that you will earn $50,000 p.a. over the remainder of your working life.

Assume that all cash flows (other than those specified otherwise) occur at year-end, are expressed in real terms (that is in terms of purchasing power today) and that the real opportunity cost of capital is 10%.

a) Draw the decision tree relating to this problem.
b) If you choose to do your PhD would you then choose to continue on to an academic career?
c) Will you stay and do your PhD or leave and become a consultant?
d) What is the implicit assumption made with respect to relative risk in this question?

Question 3 (Question C2 from 2019 semester 2 exam)

You are an analyst for a financial services firm that was engaged one month ago to conduct sensitivity analysis on a new project for a client. Fortunately, the client is an alum of the University of Melbourne and has asked that the approach taught in Corporate Financial Decision Making be used. The project involves a contract with a high quality and low risk customer who has guaranteed that they will pay $60 per unit of the product to your client at the end of each of each of the eight years of the project's life. The

only uncertainty your client faces is how many units their customer will purchase (as determined by the quality of your item relative to competitors) and the variable cost per unit your client faces in producing the product – with most of that variable cost being taken up by the cost of labour. You collect the following information.

Variable	Pessimistic estimate	Expected	Optimistic estimate
Sales volume demanded p.a.	40,000	60,000	80,000
Variable cost per unit	$55	$40	$35

You also know that the project will require an initial investment of $500,000 at the commencement of the project and then another investment of $500,000 six months into the project. The required rate of return from the project is 13% p.a.

(a) Utilising the principles discussed during class, provide a ranking of the variables from most to least important (show all workings). [5 marks]

(b) Provide a plausible specific (i.e. real-world linked) explanation as to why the distance between the pessimistic and expected values of the variable cost per unit is not the same as the distance between the variable's optimistic and expected values. [3 marks]