

Problem Set 3

You are required to turn in an **Excel file**, i.e., all work must be completed in Excel. Please submit through Brightspace. You are allowed to work in groups of 2-4 students and turn in one assignment for the group. You can work alone, if desired. Please submit your own work, do not copy from classmates, the internet, or any other sources. Plagiarism will result with a grade of zero for this problem set.

1. You are considering renovating your “Nuts for Doughnuts” store. This renovation will take several years and generate the cash flows below. When should you undergo this renovation? Why? To receive full credit your answer should include an NPV profile, i.e. a graph showing the NPV at various discount rates.

Year	Cash Flows
0	-3,024
1	17,172
2	-36,420
3	34,200
4	-12,000

2. You have an unused garage on your property. Your significant other wants to renovate the garage into a loft-style apartment in order to rent the space. Alternatively, your neighbor says he will rent the space for his workshop if you make some minor improvements. You calculate the expected cash flows below. You and your spouse sit down to make the decision. Having taken BCOR 3410 with such an amazing professor you remember you can calculate NPV, IRR, and Payback period to help make your decision. Your required return is a conservative 5% and your spouse wants to recover your initial investment in 2.5 years. Based on each criteria what should you do? What criteria/tool should you use? Why not use the other tools? Calculate the crossover rate for these projects and graph the NPV profile. Briefly describe the NPV profile.

Year	Loft-style	Neighbor
0	-80,000	-8,000
1	26,400	3,200
2	30,000	3,400
3	33,000	3,600
4	36,000	4,800
5	37,200	4,800
6	37,800	4,800

3. Your boss prefers IRR since it is simple to understand. You are writing a short memo to argue for the use of NPV. Please write a draft of that email.
4. Your consulting firm, “Very good consultants”, have been hired by Lil’ Sebastian’s (LILS), a manufacturer of children toys. LILS is evaluating manufacturing and selling a line of toy horses. Three years ago, the company paid \$3.1 million to acquire a building downtown in anticipation of opening a indoor playground, the plans for this project have been put on

hold. Based on a recent appraisal, the company believes it could sell the building for \$2.3 million on an after-tax basis. In four years, the building could be sold for \$2.4 million after taxes. The company also hired a marketing firm to analyze the market for toy horses at a cost of \$525,000. The marketing firm believes that the company will be able to sell 3,600, 4,300, 5,200, and 3,900 units each year for the next four years, respectively. They believe that we can capitalize on the strong market for toy horses and the "Lil Sebastian" name and charge a premium price of \$750. Though they believe this is a fad and that sales should be discontinued after four years. The fixed costs per year for this project are \$415,000 and variable costs are expected to be 15% of sales. The equipment to produce to toy horses will cost \$2.5 million and will be depreciated according to a three-year MACRS schedule. We believe we can scrap this equipment for \$350,000 at the end of the project. The toy horses would be sold manufactured and sold in the downtown building. LILS will require an immediate \$125,000 from NWC. The marginal tax rate is 22% and they require a 11% return. Should LILS build toy horse? Why?

5. You and your best friend are considering dropping out of college to pursue a new business venture. You've calculated expected future cash flows if you stay in college and if you pursue your business venture. Your friend thinks you should include the cost of college to this point in your calculation. Should you? Why or why not?
6. You work for the Los Angeles Rams and are considering signing the top free agent RB on the market. Estimate the relevant cashflows for this capital budgeting decision and make a yes/no decision on signing the player. Your answer should include a discussion of the relevant cash flows as well as a calculations used to make your decision.