

PROBLEM SET: Simulation

Exercise 1.

The company EZ computers has developed a new high speed computer specially for simulations in the oil industry. The company expects to keep the edge on the competition for the next three years, and sell 100 units a year. Each machine sells for 10 million, and has a production cost of 8 million. Startup costs in production are estimated at 400 million. The cost of capital for the project is 10%.

- Calculate the NPV of the project

There is uncertainty about the number of units that can be sold per year.

- Determine the minimum number of units per year that maintains profitability.
- Plot the NPV of the project as a function of units sold.
- Plot the NPV profile, NPV as a function of the cost of capital.

Exercise 2. *TM 3-4 Clayton Manufacturing Company*

The Clayton Manufacturing Company is considering an investment in a new automated inventory system for its warehouse that will provide cash savings to the firm over the next five years. The firm's CFO anticipates additional earnings before interest, taxes, depreciation, and amortization (EBITDA) from cost savings equal to \$200,000 for the first year of operation of the center; over the next four years, the firm estimates that this amount will grow at a rate of 5% per year. The system will require an initial investment of \$800,000 that will be depreciated over a five-year period using straight-line depreciation of \$160,000 per year and a zero estimated salvage value.

- Calculate the firm's annual free cash flow (FCF) for each of the next five years, where the firm's tax rate is 35%.
- If the cost of capital for the project is 12%, what is the projected NPV for the investment?
- What is the minimum year 1 dollar savings (i.e. EBITDA) required to produce a breakeven $NPV = 0$.