Test 3, Lecture 4 Review

Optimal Cycle Length

* How long should we run a project before terminating it?
  + The goal is to end a project when it maximizes value
* For a one-time project, continue the project until the year in which revenue is maximized
  + Value of quitting after year N > Value of continuing another year
    - >
* For a repeatable project, find the Effective Annual Annuity (EAA)
  + Convert the NPV of 1 cycle to an EAA
    - EAA = PMT or yearly value
  + Repeatable Cycle Steps:

1. Find the NPV of each years cycle
2. Convert each NPV to a yearly payment

Solve for PMT (EAA) using CF on calculator

1. Whichever year has the highest PMT (EAA) is the year in which you want to terminate the project

Project Risk

* So far, we’ve assumed that the CFs for projects are known with certainty
  + This is seldom the case in practice, so we need to account for uncertainty in projects
* The 3 Ways to Measure Uncertainty in Projects:

1. Sensitivity Analysis: pick one variable and adjust its value to see its impact on NPV
   1. What is the flexibility or robustness of the project?
2. Scenario Analysis: look at three possible outcomes for NPV (good, bad, average), assign probabilities to each outcome, and find the expected NPV

Break-Even Probability:

y = what the firm needs to break-even in profitability expectations

1. Monte Carlo Analysis: simulation in which we assign a range of outcomes for every variable and randomly pull a value for each variable to calculate the NPV for that trial
   1. Conduct 500-1000 trials
   2. Gives us an expected NPV and a probability that NPV 0