# Chapter 11 Notes

## Capital Budgeting

The planned investments of a firms current and long term captial resources, deciding which projects need to be done and when.

### Categories in Capital Budgeting

1. Replacement - Things needed for continuing operations
2. Replacemnt - Cost reduction
3. Expansion of Existing Products or Markets - Usually descisions made by upper managment
4. Expansion into New products or Markets
5. Safety and/or environmental projects - Necessary to comply with government / labor agreements
6. Other Projects - Other things companys may spend money on
7. Mergers

#### Net Present Value

The Present Value of a projects free cash flows discounted at the cost of captial. Its considered the best and most accurate selection criterion.

$$NPV = CF_0 + \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + ... + \frac{CF_N}{(1+r)^N}$$

Comparing NPV's:

- Independent Projects - Fund all projects which have a positive NPV
- Mutually Exclusive Projects - Fund only the best or highest NPV as resources permit

#### Internal Rate of Return

A Projects IRR is the dicount rate that forces the PV of its inflows to equal its cost. Its an estiamte of the projects rate of return

$$0 = \sum_{t=0}^{N} \frac{CF_t}{(1+IRR)^t}$$

This measure matters becaue the difference between the projects rate of return and the cost of capital provides the additional return which is provided by the project.

- Independent Projects - if IRR exceeds the projects WACC, acceptt he project.

- Mutually Exclusive Projects - Accept the project with the Highest IRR greater than WACC

NPV and IRR can conflict, and when that happens, NPV is considered the better measure.

- Normal Cashflows - Start negative and then become positive
- Non-Normal Cashflows - Start Negative, Become Positive, then loose money again

### MIRR

Assumes the return generated throughout the project is invested at a specified rate, rather than the IRR of the project, giving a more accurate measure than IRR

### NPV Profile

Graphs the NPV over time at different cost of capital rates to see what is best at different costs of capital
Shows how in projects with differing sizes or timelines how the NPV and IRR can disagree, and how NPV actually represents added capital to the firm.

### Payback Period

Number of years required to recover the funds invested in a project from its cash flows.

- Payback = Num. of years prior to full recovery + Unrecovered Cost at start of year / Cash flow during full recovery

Where the shorter the payback, the better the project.
Flaws of Paycback:

1. All dollars are given the same weight, regardless of when they are recieved
2. Cash flows beyond the payback year are given no consideration
3. Unlike NPV or IRR, payback simply tells us when we will recover our investment. We don't know what actually maxemizes our investments value to us.

### Discounted Payback

Here cashflows are discounted at the WACC.

The shorter the payback period, the greater the liquidity of the project, which is generally considered less risky