

# Capital Budgeting

Initial Outlay = Fixed capital investment and Net Working capital

**After tax cash flow** = (Sales – Cash Expenses – Depreciation)\* (1-Tax Rate)  
+ Depreciation.

**Terminal Non-Operating Cash Flow (TNOCF)** =  
Salvage Value + Net Working Capital – (Salvage – Book value) \* Tax Rate

Two common methods used in selecting mutually exclusive projects with 2 different life cycles are

1. Least common multiple of life cycles approach:  
Make both projects with equal life and estimate NPV, select highest one.
2. Equivalent annual Annuity approach  
Calculate annuity payment for their life times with required rate as interest rate and select project with highest payment.

Both will result in same conclusion.

Always select projects with highest NPV incase capital rationing exists.  
Inflation overstates the effect of depreciation, helps the tax receiver hurts the tax payer.

Project Specific Discount rate:  $R_{Project} = R_f + \beta(R_m - R_f)$

**Options on projects** allow future decisions to make changes to the value of the capital budget decision taken at present time.

Overall NPV = NPV (present) – Option Cost + Option Value.

NPV present is based on both optimistic and pessimistic outcome.

**Expected NPV with abandonment option** is combined value of probability of successful project NPV and failed project NPV.

Abandonment Option Value = Expected NPV with abandonment Option –  
NPV at Beginning of the project.

Economic Income: Cash Flow after Tax – Economic depreciation.

Economic Income: CF (after tax) – (Beginning Market Value – Ending Market Value).

Accounting Profit: Net Income from Financial statements.

Accounting depreciation is based original value not based on Market value.

Economic Profit (EP): Net Operating Income after tax (NOPAT) - \$WACC  
= EBIT (1-T) - WACC\* Capital Invested.

Market Value added: Net present value of Economic Profit.

$$\sum_{t=1}^{\infty} \frac{EP_t}{(1+WACC)^t}$$

Residual Income: Net Income – Cost Equity.

$$= NI - R_e B_{t-1}$$