FM - Module 4 - Chap 5

Capital Budgeting

Capital Budgeting Process

1) Identificat° of Investment Project
2) Evaluat° of investment proposal
5) Selection of Investment Proposal
4) Preparation of capital budget & implementation
5) Performance review of investment project

Importance of capital Budgeting

1) involves outlay of large investment amts
2) helps to control cost of project by optimizing expenses
3) have long term on performance of company
4) irreversible in nature
5) involves element of risk or uncertainty
6) critical for shareholders wealth maximazation
7) involves review of performance of project & feedback

Type of Investment Project.

1) Independent Project
2) Mutually Exclusive Project
3) Complementary Project

Capital Budgeting Techniques

1) Accounting ROR (ARR)
2) Pay Back Period (PB)
3) Net Present Value Method (NPV)
4) Internal ROR (IRR)
5) Modified Internal ROR (MIRR)
6) Profitability Index (PI)

Accounting ROR (ARR)

- also called Avg ROR.
- measures profitability of investment using financial accounting information

$$ARR = \frac{\text{Avg Net Profit}}{\text{Avg Investment}}$$

$$\text{Avg NP} = \frac{\text{Total Net Profit for life of project}}{\text{Nb of yrs}}$$

$$\text{Avg Investment} = \frac{1}{2} \times \left(\text{Initial Investment} + \text{Salvage Value}\right)$$

Merits:
- simple method as its accounting Stmts are readily available
- ARR incorporates accounting profitability used by analysts.

Demerits
- ignores cashflow & only rely on accounting profit
- doesn't consider time value of money
- doesn't provide value added to shareholders
- doesn't consider the risk profile of different project.

Payback Period (PB)

Methodologies:
1) Calculate cash inflows - outflows for each period
2) Calculate cummulative cash flow at end of each period
3) Calculate point of time in year where Cumm. cashflow = 0.

Merits
- simple technique to select investment projects
- if focuses on near term return, then avoid uncertainty associated with projects with longer PB.
- easier to obtain funding for projects with lower payback period.

Demerits:
- ignores cashflow after PB
- ignores time value of money.
- ignores risk elements in project.
- inconsistent with shareholders value maximization

Discounted Payback Period

- simple cashflows are substituted by discounted cashflow to account for time value of money.
- cash flow in the project are discounted using appropriate discount rate

Merits:
- if focuses on near time return, then avoid uncertainty with project with longer payback period
- consider time value of money.

Demerits
- ignores cashflow after PB.
- involves estimation of additional variable, ie discounting rate
- inconsistent with shareholder value maximization

Net Present Value Method (NPV)

- sum of present value of all current & future cash flows

$$NPV = -CF_0 + \frac{CF_1}{(1+i)} + \frac{CF_2}{(1+i)^2} + \cdots + \frac{CFn}{(1+i)^n}$$

$$NPV = -CF_0 + CF_1(PVIF_1, i) + CF_2(PVIF_2, i) + \ldots + CF_n(PVIF_n, i)$$

CF = net indicated cashflow in each period
i = discounting rate
n = number of years
PVIF = present value invest factor.

Merits
- provide absolute value added to firm by choosing investment proj.
- consider time value of money and risk of investment
- considers cashflows over complete life of project.
- provide unambiguous methodology for selection of project.

Demerits
- Calculation Very substantially depending on assumption of discount rate
- considers same discount rate for cashflow in near and longer future of project.

Internal Rate of Return (IRR)

- ROR received by company by investing in project.

Steps to calculate IRR
1) Calculate Initial Investment Outflow
2) Calculate Net cashflow in each period (- : outflow, + : inflow)
3) Calculate discounted cashflow using IRR as discounting rate
4) Solve equation for IRR for which NPV = 0.

$$CFo = \sum_{t=1}^{n} \frac{CF_t}{(1+IRR)^t}$$

Merits
- investor can compare IRR with required ROR & take decisions on selection of project
- IRR measure can be used to compare projects with ≠ investment requirement

Demerits
- doesn't consider overall value added to firm
- IRR assumes that all future cashflows are reinvested at IRR.

Modified Internal Rate of Return (MIRR)

- modification of IRR to overcome 2 shortcoming of IRR method.

1) it is the assumption that + cashflows are invested at rate of IRR.
2) MIRR assumes that + cashflows are reinvested at reinvested rate.
3) IRR formula provide multiple values of IRR in project involving investment outflow in than period

$$MIRR = \sqrt[n]{\frac{FVCF}{PVCF}} - 1$$

PVCF = present value of -ve cashflow
FVCF = Future Value of +ve cashflow
n = nb of periods

Merits
- overcomes shortcoming of IRR by distinguishing IRR & reinvestment rate.
- by comparing MIRR & cut off, management can take decision for projects selection

Demerits
- complicated method
- difficult to understand
- like IRR, doesn't provide value added to shareholders

Profitability Index (PI)

- ratio of PV of future cash & Initial cost of project.

$$PI = \frac{PV}{CF_0}$$

$$PI = \frac{CF_1}{(1+i)} + \frac{CF_2}{(1+i)^2} + \ldots + \frac{CFn}{(1+i)^n}$$

$$PI = \sum_{t=1}^{n} \frac{CF_t}{(1+i)^t} \Big/ CF_0$$

Merits
- Considers time value of money
- consider risk associated with project
- projects where PI > 1, ie NPV is +ve & added to shareholder value
- can be used for evaluation project requiring immediate cash investment

Demerits
- doesn't provide value added to shareholders

FM - Module 4 - chapter 6

Working Capital Management

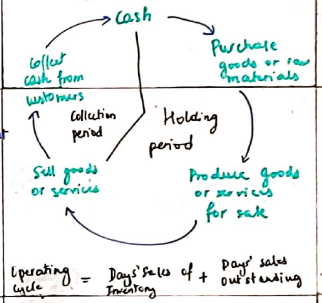
Gross Working Capital

- total of current asset involving inventory (stock), debtors (acc receivable) cash & marketable securities.

Net Working Capital

- difference between current assets and current liabilities

Operating cycle



Operating cycle = Days' Sales of Inventory + Days' sales Outstanding

$$= \left[\left(\frac{365}{\text{Purchases}} \times \text{Avg Inventories}\right) + \left(\frac{365}{\text{Receivables}} \times \frac{\text{Avg Acc. Receivable}}{}\right)\right]$$

Permanent / Fixed Working Capital

- min amt of current asset required by company

Temporary / Fluctuating Working Capital

- additional current assets required due to seasonal requirements.

Factors affecting Working Capital Needs

- nature of business
- seasonal factors
- cyclicality
- credit policy
- manufacturing cycle
- availability of credit
- operating efficiency
- scale of operations
- fluctuation in i/p prices

Issues in Working Capital Management

- optimum level of current assets
- financing mix between short term & long term financing

Return on Investment

$$ROI = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Total Assets = Current Asset + Non Current Assets

Estimation of Working Capital Requirements

1) Current Asset Holding Period
2) Ratio of sales
3) Ratio of fixed investment

Motive for holding cash

1) Transaction motive
2) Precautionary motive
3) Speculative motive
4) Other motive

Economic order quantity (EOQ)

- helps to determine how much to order
- 2 costs associated
  - ordering cost
  - caring cost

$$Q = \sqrt{\frac{2AO}{C}}$$

Q = Qty
O = ordering cost
A = demand of product
C = caring cost

Reorder point

- when to order

Reorder point = Lead time × Avg usage + Safety stock

Inventory Control Systems

- ABC method
- Just In time method

Receivable Monitoring

1) Avg Collection Period (ACP) = $\frac{\text{debtor} \times 365}{\text{Credit sales}}$
2) Aging Schedule
3) Collection Experience matrix
4) Credit utilization method

Cash Management Process

- forecasting cash flow
- managing cash collection & disbursement
- investment in marketable securities

Types of Short Term Instrument

- T-Bills
- Commercial Paper (CP)
- Bank Deposit
- Certificate of Deposit (CD)
- Inter Corporate Deposit (ICD)
- Money Market Mutual Funds (MMFs)

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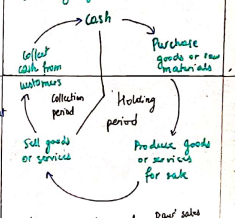

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