**Capital Budgeting**

**1.1 Capital budgeting:**

Capital budgeting is the process of evaluating and selecting long term investments consistent with the firm’s goal of owner wealth maximization. Stated another way, the process of determining both how much to spend on capital assets and which assets to acquire is called capital budgeting.

Capital budgeting (investment) and financing decisions are treated separately. Typically, once a proposed investment has been determined to be acceptable, the financial manager then chooses the best financing method.

In capital budgeting, the manager identify the opportunities that are available, estimate the cash flow to be generated by the project, evaluate and select from/ among the alternative course of action using the appropriate selection criteria implementing the investment project with proper follow up.

**1.2 Motives for Capital Expenditure:**

**1.3 Steps in capital budgeting decision:**

**1.** Proposal generation/ Identification of investment projects

**2.** Estimating cash flows

**3.** Review and analysis/ Evaluation of the alternative investment

**4.** Decision making/ Selection of the investment projects

**5.** Implementation of the project

**6.** Follow up/ Continuous evaluation of the selected projects.

**1.4 Basic Terminologies:**

* **Independent investments/ projects:**

Two projects are said to be independent if the acceptance or rejection of one project is not influenced by the acceptance or rejection of another project. From technical and financial perspective two projects are indifferent.

* **Dependent investments/ projects:**

If one investment decision/ project is positively affected by another one, it is known as dependent investment decision/ projects. In case of dependent investment decision/ project both the projects are mutually benefited through reduction of cost and increase of revenue.

Dependent investment decision/ projects are of different types:

**1. Complementary investment decision/ projects:**

If the acceptance of one project increases the expected benefits or profitability of a second project, they are said to be complementary investment decision/ projects.

**2. Substitute projects:**

If the acceptance of one project decreases the expected benefits or profitability of a second project, they are said to be substitute investment decision/ projects. Acceptances of project A decrease the cash flow of project B.

* **Mutually exclusive investment decisions /projects:**

Mutually exclusive investment decisions /projects are the projects that have the same function and therefore compete with one another, so that the acceptance of one project eliminates the others from consideration.

* **Conventional projects:**

A conventional investment project is defined as one in which the initial outflow is followed by a series of inflows. There is only one sign in cash flow sign. For example: - + + + ... .If the outlay takes place over a number of years, the cash flow has the form: - - + + + ... .

* **Non-conventional projects:**

A non-conventional cash flow pattern for a project is any pattern in which an initial outlay is not followed by a series of inflows. There are more than one change in the cash flow sign. for EXAMPLE: + - + + + or - + + + - + + .

* **Unlimited Funds vs. Capital Rationing:**

If a firm has unlimited funds for investment, making capital budgeting decisions is quite simple. All independent projects that will provide returns greater than some predetermined level can be accepted.

**Capital rationing**- means that firms have only a fixed number of dollars available for capital expenditures and that numerous projects will compete for these dollars. Therefore the firm must ration its funds by allocating them to projects that will maximize share value.

* **Accept-reject vs. Ranking Approaches:**

The accept-reject approach involves evaluating capital expenditure proposals to determine whether they meet the firm’s minimum acceptance criterion. This is the process of evaluating mutually exclusive projects.

**The ranking approach** involves ranking projects on the basis of some predetermined measure, such as the rate of return.

**1.5 Capital Budgeting Techniques:**

For proper investment decision it is very important to evaluate investment project accurately. For this purpose in capital budgeting different investment projects are evaluated on the basis of collecting necessary information.

There are fixed methods or techniques in capital budgeting.

1. **Traditional approach:**
* Payback period method
* Accounting/ average rate of return
* Discounted payback period method
* Self judgment
1. **Modern approach (Discounted cash flow method):**
* Net present value method
* Internal rate of return (IRR) method
* Profitability index method.
* Modified IRR method

**1.6 The decision criterion for different tools / techniques of capital budgeting:**

For proper investment decision it is very important to evaluate investment project accurately. For this purpose in capital budgeting different investment projects are evaluated on the basis of collecting necessary information.

The decision criterion for different capital budgeting techniques is given below:

**1. Payback period method:**

* If the payback period is less than the maximum acceptance payback period ----accept the project.
* If the payback period is greater than the maximum acceptance payback period ----reject the project.

If there are more than one project having period of less than the maximum acceptance payback period, we have to rank them in order of position and the project having lowest payback period will be accepted.

**2. Average / Accounting rate of return(ARR):**

* If ARR is greater than minimum expected rate of return --- accept theproject.
* If ARR is less than minimum expected rate of return --- reject theproject.

If there is more than one project having ARR greater than minimum expected rate of return, we have to rank them in order of position and the project having highest ARR will be accepted.

**3. Net present value (NPV) method:**

* If NPV is greater than $0 --- accept the project.
* If NPV is less than $0 --- reject the project.

If there is more than one project having positive NPV, we have to rank them in order of position and the project having highest NPV will be accepted.

**4. Internal rate of return (IRR) method:**

* If IRR is greater than the **cost of capital** ----accept the project.
* If IRR is less than the cost of capital ----reject the project.

If there is more than one project having IRR greater than cost of capital, we have to rank them in order of position and the project having highest IRR will be accepted.

**5. Profitability Index (PI) method:**

* If profitability index is more than 1 (PI>1) ---- accept the project.
* If profitability index is less than 1 (PI<1) ---- reject the project.

 If there are more than one project having PI>1, we have to rank them in order of position and the project having highest Profitability will be accepted.