UNIT 11 CAPITAL BUDGETING CONCEPT & PROCESS - AN OVERVIEW

11.1 INTRODUCTION

In the previous unit you learnt about EBIT- EPS analysis and its relevance in financial decision making. You also learnt the importance of leverages in determining capital structure of the company. In this unit you will learn about the various techniques that will help you in valuing various project proposals. Capital budgeting is itself is the most crucial decision as these decision require heavy investments and they are also irreversible decisions; therefore these decisions are taken with utmost care and with proper calculations. Further, these decisions also require measuring of cash flows associated with each alternative available in terms of incremental cash flows, terminal cash flows and net operating cash flows. This unit shall introduce you with the concept of capital budgeting. Further, the measurement of capital flows shall be dealt in the next unit. After discussing the importance and features of capital budgeting, the unit shall also discuss important elements of capital budgeting process. The unit shall also apprise you with the various investment decisions that are relevant for the growth and development of the organisation.

11.2 OBJECTIVES

After reading this unit you will be able to:

- Understand the meaning of Capital Budgeting.
- Know the features of Capital Budgeting Decisions.
- Identify important steps in Capital Budgeting Process.
- Learn the types of investment decisions.

11.3 MEANING OF CAPITAL BUDGETING

Capital Budgeting is basically concerned with long term planning for capital expenditures and their financing decisions. It therefore deals with both raising of long term funds for the organisation as well as with their effective utilisation. In capital budgeting decisions, managers are basically concerned with how large funds can be invested effectively in projects or in fixed assets that may result into profitable returns over a long period of time. These decisions could therefore be for purchase of fixed assets, addition of fixed assets, and modification of fixed assets, replacement of fixed assets and even for disposition of fixed assets.

Accordingly, capital budgeting decisions may relate to;

a) Purchase of new plant, equipment or land or building.
b) Replacement of Machinery or Plant with new effective ones.
c) Research and Development Projects.
d) Diversification of Product Line.
e) Promotion of Products and Services i.e. amount invested in advertising and promotion.

Thus, capital budgeting is a process that requires crucial decision making with respect to the investments of large amount of funds. Further, returns from such investments are expected over a long time horizon. Hence, such decision making is related to the allocation of funds in various long-term assets. Let us learn about the concept of capital budgeting through few definitions.

- "The process of identifying, analysing and selecting investment projects whose returns (cash flows)are expected to extend beyond one year". Horne and Wachowicz
- "The firm's formal process for the acquisition and investment of capital." Hampton, JohnJ.
- "Capital Budgeting is a decision making situation where large funds are committed (invested) in the initial stages of the project and the returns are expected over a long period of time". Rustagi R. P.

- "Capital budgeting involves planning of expenditure for assets and return from them which will be realized in future time period". Milton
- Capital budgeting is "a process for evaluating proposed long-range projects or courses of future activity for the purpose of allocating limited resources."{Institute of Management Accountants (formerly National Association of Accountants)}, Statements on Management Accounting Number 2: Management Accounting Terminology (Montvale, N.J.: NAA, June 1, 1983), p. 14)
- "Capital budgeting refers to the total process of generating, evaluating, selecting, and follows up of capital expenditure alternative". Pandey I.M

Therefore from the above definitions we can infer that, Capital Budgeting is the process of determining which investment proposal should be accepted with a given allocation of funds. Therefore, capital budgeting decisions are so vital for organisations that these can determine growth, survival, competitive position and structure of the company.

Although, Capital Budgeting is a continuous process that involves contribution of various functional units such as Production, Marketing, Sales, Human Resource, Information Technology and other relevant functional units, but the role of financial manager is crucial in the investment appraisal process as it requires critical, thorough and comprehensive analysis of various alternative investment proposals. Accordingly, the finance manager should have to keep in mind the goal of shareholder wealth maximisation in each step of capital budgeting process.

11.4 IMPORTANCE OF CAPITAL BUDGETING

Capital Budgeting decisions are important for companies and firms; it is not only vital for large organizations but is equally relevant to the small firms as well. It is a technique for chalking out decisions about capital projects having life of more than 12 months. The investment proposals majorly constitute the long term assets of the balance sheet and they are of considerable importance, size, and worth and hence they eventually determine the future of corporations. Therefore, reversing capital decisions in case of erroneous decisions is not easily feasible and accordingly, they are very costly for an organisation. Indeed, the real capital investments also greatly impacts working capital or capital structure of the company. Capital Budgeting principles are also applicable to other corporate decisions, such as investments in working capital position, valuation of equity and debt, leasing, mergers and acquisitions, and debt repayment. Therefore, investment appraisal assists managers in forecasting additional funds required. It also enables top management in establishing coordination among various divisions and departments while implementing plans and targets. Capital budgeting decisions directly contributes in the maximizing shareholder's value therefore it is important for an analyst to ensure valuation of assets in the broader interest of stakeholders. Further, in the present scenario where building a mall or apartments, or extending a product line, require extensive analysis for accurate forecasting, it is therefore imperative to apply various techniques of capital budgeting using simulation analysis, decision tree analysis, sensitivity analysis, CAPM and other related tools and techniques. These techniques are evolved from the fields of mathematics, logic, economics and psychology and they that help decision makers in drawing conclusions about risk or uncertainty. However, you would learn in detail about their relevance later in unit XIV. Thus, the importance of capital budgeting can be emphasized in the light of types of capital expenditures, long-term consequences, irreversible choices and complicated decision-making.

Therefore, on the basis of the above discussion, we can infer that capital budgeting decisions are the decisions that involve detailed insights, calculations and aspirations of top level management. Further, if such decisions are delegated then the control from top management is also required for selecting the best proposal out of the given or available alternatives as significant amounts of cash and debt funding are often involved in these investment decisions. Therefore, poor investment choices can have a catastrophic impact on the business.

11.5 NATURE AND FEATURES OF CAPITAL BUDGETING DECISIONS

Capital budgeting is a multi fold activity which requires exploring new investment proposals, identifying profitable ventures, examining manufacturing, engineering and marketing considerations for assessing the implications of accepting any investment proposal in terms of revenue stream, profits, sales, income and social impact. Capital Budgeting decisions generally involve decisions of longer time span, cost more funds, and require much more data to be gathered as part of their assessment than the current assets management. Therefore, on the basis of the above discussion, the following basic features of capital budgeting are identified;

1. **Irreversible in Nature-** Capital Budgeting decisions are irreversible in nature. Therefore, these decisions require careful examination and assessment. In case of wrong decisions, the only alternative shall be sale of capital assets as scrap at a substantial loss and hence, this will result into huge abandonment cost and multifarious detrimental effects for an organisation.
2. **Large Initial outlays-** Investment appraisal decisions require heavy investment in the capital expenditure. Accordingly, it is rational for a company to plan its investment programmes carefully with strategic arrangements for raising funds for such programmes. The initial investments for such projects are extremely enormous and are generally followed by cash inflows over a series of years. Hence, capital budgeting involves exchange of present resources particularly cash for future benefits as these would be received by the firm over a number of years.

3. **Requires in-depth and critical analysis-** Capital Budgeting decisions requires in-depth and critical analysis as these decisions have far reaching impact on company's profitability, sustainability and flexibility over the long term. Therefore, managers have to carefully chalk out these decisions because it is not only going to affect long term assets but it will have subsequent impact on the current assets as well as working capital position of an enterprise.
4. **Determines future growth of the organization-** Capital budgeting decisions determine the growth, expansion and fortunes of the company as these are intricate decisions that have the potential of making large anticipated returns in the future. Further, capital budgeting decisions helps management in forecasting requirements for funds and help top management in deciding about operating targets of various Departments, Plants and Divisions.
5. **Strategic and Risky Decisions**- Since large amount of capital budgeting decisions require assessment of probable future events that are uncertain and difficult to predict in terms of probable benefits and probable cost. Therefore, capital budgeting decisions requires assessmement of nature and scope of the unexpected setbacks that may undermine the attainment of investment objectives. The basic threat in capital budgeting decisions is that they have very high probability of not producing cash flows as anticipated by the finance or project managers. Therefore, capital budgeting embodies various strategic, human, technological and technical aspects that require tremendous, systematic, and careful planning together with cautious uncertainties assessment. This forces somewhere managers to also reckon on intuition, skills, past experiences on similar ventures and situations.
6. **Long term implications-** The impact of capital budgeting decisions are realized over a long period, and therefore these decisions are of paramount importance in influencing rate and direction of the growth of a firm. In case of erroneous decisions, a firm has to lose a sustainable amount of resources that are committed to a specific project. For example in case of unprofitable venture, a company has to bear the burden of fixed cost as well as heavy operating costs to the firm.

Check Your Progress-A

Q1. What do you mean by Capital Budgeting?

Q2. Why capital budgeting decisions are important for an organization?

Q3. What are the various features of Capital Budgeting Decisions?

Q4. Fill in the Blanks with appropriate word or words.

i. ________________is the process of determining which investment proposal should be accepted with a given allocation of funds.

ii. The impact of capital budgeting decisions is realized over a long period, and therefore these decisions are of paramount importance in influencing ________________of the growth of a firm.

11.6 PROCESS OF CAPITAL BUDGETING

The process of capital budgeting involves devising appropriate plans and process for allocating capital expenditure. It also helps managers in maintaining closed liaison with the operating plans and goals of different Divisions and Departments. Therefore, before initiating for capital budgeting process, the organization needs to finalize the following aspects pertaining to capital expenditure. These are;

a) Duration of the Project.
b) Amount of funds required to be ploughed in the project.
c) Amount of funds available or going to be available with an organization.
d) Identifying phases when available funds shall be invested at various stages.

Let us now have a look at the capital budgeting process which is important in yielding returns that accrue over the life span of the projects. The capital process start with identifying various investment alternatives and ends with reviewing or reassessing the project implemented.

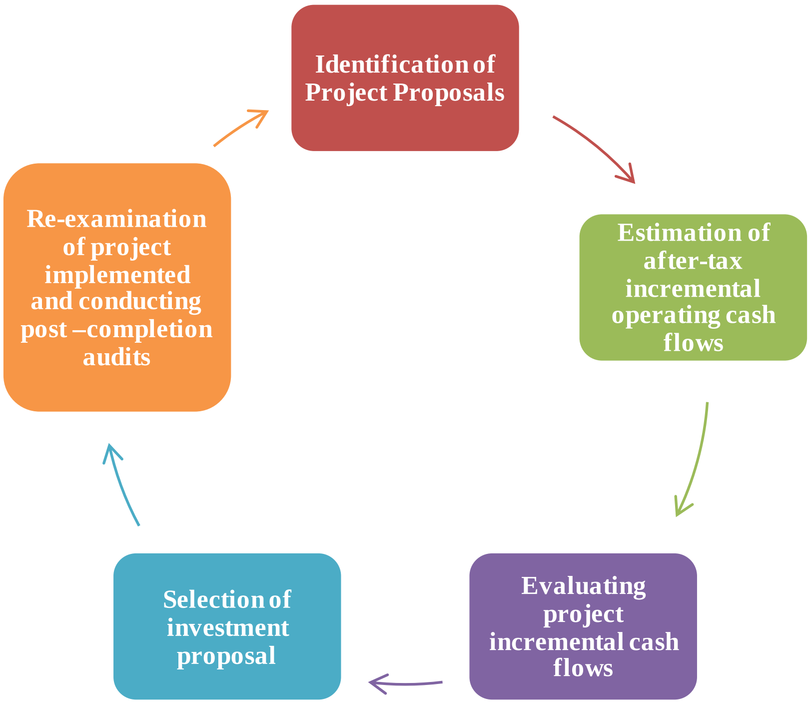


Fig 11.1 Process of Capital Budgeting

a) **Generation of Investment Project Proposals in lieu of the strategic objectives of the organization-**

The investment projects are identified on the basis of the studies conducted for assessing SWOT, SWOC, ETOP and the other environmental appraisal techniques. The organization tries to identifies funds availability and requirement *vis-a-vis* priorities within the broad framework of company's objectives and goals

The project proposals are assessed on the basis of market feasibility, technical feasibility and financial feasibility. Demand and price estimates are decided for market feasibility on the basis of economic factors and indicators, demand and supply prediction, critical success factors and others. Technical feasibility is explored for estimating commercial viability of the project. Financial feasibility is generated for the project proposal on the basis of operating cost, debt-service coverage ratio, net present value or internal rate of return, liquidity, pattern of cash flows and the likes. Further, organizations do estimate shadow prices also for conducting social-cost benefit analysis.

b) Estimating after-tax incremental operating cash flows for investment projects-

Timings of cash inflows and cash outflows are also important in selecting projects because these are directly associated with company's financial position. Estimating project cash flow is a difficult exercise as applying capital budgeting techniques to wrongly computed cash flows will give dubious results. Therefore, finance managers have to put in lot of efforts, time and money in estimating correct cash inflows and outflows pattern. The cash inflows are calculated on the basis of data fetched from production, marketing accounting, human resources and research departments. Therefore, finance manager need to check the information received for assessing relevance and accuracy. However, generally accounting data serve as the basis for estimating the cash flows.

Since, cash flows are series of cash receipts and payments that are spread over the life of investment, therefore estimates of funds and timings of cash inflows should be assessed on incremental basis.

c) Evaluating project incremental cash flows-

Organizations need to consider that additional cash flows that results due to investment project should be taken into account while considering the project proposals, the incremental cash flows should be considered on the basis of absolute cash flows and relative cash flow. Generally, when the incremental cash flows for a certain proposal are calculated by comparing with a hypothetical cash flow project, it is called as absolute cash flow; on the contrary when incremental cash flows are calculated on the basis of comparison between two real alternatives; it is called as relative cash flows. The project's appropriate cash flows are those that are incremental to the identified parameters of firm's acceptance of the project. The principles of incremental cash flows are quite relevant for the replacement decisions. Incremental cash flows for project assessment consist of all adjustments to the future cash flows of the company resulting directly from the project.

d) Selecting investment proposal on the basis of shareholder's wealth maximization objectives-

Capital budgeting decisions needs to be selected with the given parameters to ensure that the investments are in reasonable limits so that most desirable projects gets superiority over the other. Further, in replacement decisions normal wear and tear or obsolescence are also considered while selecting projects. The selections of projects are made generally on the basis of the following categories;

i) Necessity of selection due to satisfactory operations.
ii) Replacement due to obsolesces, wear and tear and infusion of new technology or equipment.
iii) Desirability due to increase in revenues.
iv) Desirability due to expansion and development.
v) Retaining or extending share of the market.

e) Re-examining of implemented project and conducting post –completion audits-

For reexamining and reviewing selected projects, many companies formulate committees to assess departmental or divisional priorities in context to urgency, desirability, profitability, social relevance and alternatives available. After this, a consolidated report is forwarded to the top management for its final approval. The top management reviews the proposal from the overall point of view and grants authority to commit funds to the proposals. Once, the approval is received, steps are initiated to receive funds from banks, sponsors and other financial institutions. After the project is implemented, time to time reviews are conducted to assess that how the project is able to achieve targets as specified for various phases. Later post completion audit is performed by top management for estimating whether project is able to achieve the yardsticks set for the project in terms of timings, revenues, profits and social contribution. The purpose of the post-completion audit is to assess the efficiency and effectiveness of the management's capital budgeting decision. Post-completion auditing (PCA) of capital investments is a formal method that monitors the results of individual investment projects after the original investment has been finished and the project is operational.

Thus, due to its complexity in capital budgeting decisions, the step by step process should be followed by the finance manager for maximizing long term profitability of the organization.

11.7 TYPES OF INVESTMENT DECISIONS

For evaluation purposes, projects can be classified into various categories and accordingly the selection of evaluation criteria, approach for handling the projects, information to be gathered and decision making approach accordingly varies as per the category. The various ways of classifying projects are listed as under;

- **Small and Large Projects**

Small projects are the one which generally require fewer investments of funds and cost and generally have to spend less resources, time, efforts and resources. Further such projects require small development and implementation team and generally have a span of couple of weeks, months, or maximum of few years. Such projects require less reliability and accuracy in data analysis and selection of projects. However, large projects require careful examination of facts and figures as these requires heavy investment of funds, resources, time and energy. These projects require accurate reliability and analysis of data with appropriate selection criteria. Company may face with serious repercussions if company takes wrong decisions for such projects.

- **Expansion of Existing Projects Vs New Projects**

Companies generally opt for expanding its product line or production capacities due to high demand for its products in the market or due to insufficient manufacturing capacities. Adopting expansion project requires further investment of funds. Generally company undertakes small projects and with increase in revenues and demand, companies go on to expand their production capacities. For example, if a company producing fast moving consumer goods and wants to expand its capacity then the alternative available for the company shall be either to explore opportunities for forward or backward integration or may enter into new product line in FMCG Sector. However, in case of exploring new project alternatives, the same company may plan for entering into telecom or consumer durables sector.

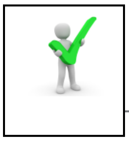
Therefore, undertaking capital budgeting decisions for new and expansion projects requires little bit different approach. In the sense, expansion project requires less ease and pace in data collection and analysis in comparison to new projects. However, new project requires accurate information, analysis and forecasting regarding project proposals.

- **Replacement Vs Modernization Projects**

Replacements and Modernization projects generally are for increasing the operational or production capacities of plants, machinery and equipments. They are undertaken with an intention of cost reduction. In such cases, a firm shall have to decide either to replace the old machine with the latest one or shall modernize the existing assets with the new capabilities. Replacement Projects are undertaken for the fixed assets if they are worn, outdated or obsolete due to change in the technologies. Replacement decisions are also called as cost reduction investments as these decisions contribute in introducing efficient and economical asset. Modernization decisions generally contribute in expanding revenues as well as in reduction of operational cost.

- **Independent Vs Mutually Exclusive Projects**

Independent projects do not compete with one another rather acceptance of one project results into possibility of losing another. These are accept or reject proposals which are selected by the analyst on the basis of various tools and techniques of capital budgeting. These projects serve altogether different purposes. For example, selection of expanding capacity through manually aided machine or computerized aided machinery shall be undertaken by the company on the basis of profitability and availability of funds. However, mutually exclusive projects are for same purpose and they compete with each other Acceptance of one proposal will lead to rejection of other. For example, company has to decide to select one of the technologies out of many for manufacturing a product. These projects require critical evaluation of proposals as only one proposal shall be selected and others shall be rejected at the same point of time.



Check Your Progress- B

Q1. Narrate the steps in Capital Budgeting Process.

Q2. What are the various types of investment decisions?

Q3. Write True/False against the following;

i. Large projects are the one which generally require fewer investments of funds and cost and generally have to spend less energy, efforts and resources.
ii. Modernization decisions are also called as cost reduction investments as these decisions contribute in introducing efficient and economical asset.
iii. Independent projects do not compete with one another rather acceptance of one project preludes the possibility of losing another
iv. The cash inflows are calculated on the basis of data fetched from production, marketing accounting, human resources and research departments.

11.8 SUMMARY

In this unit, you learnt why capital budgeting process is important for project selection, expansion and replacement decisions. You also learned that it is important for a company to evaluate proposed project accurately as it will determine the growth of the company. In the next unit, you will learn how to estimate cash flows for a project which is again an important step in evaluating project proposals.

11.9 GLOSSARY

Capital Budgeting deals with both raising of long term funds for the organisation as well as with their effective utilisation.

Replacements and Modernization projects generally are for increasing the operational or production capacities of plants, machinery and equipments.

Backward Integration It involves creation of facilities, raw material components, part or equipment that is required for existing production.

Forward Integration It involves establishing manufacturing units where products currently produce serve as a raw material or basic inputs for other products.

11.10 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress –A

Q4. Fill in the Blanks with appropriate word or words.

i. Capital Budgeting
ii. rate and direction

Check Your Progress –B

i. False
ii. False
iii. True
iv. True

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11.13 TERMINAL QUESTIONS

Q1.What is Capital Budgeting? Why it is so important for a finance manager to take appropriate capital budgeting decision?

Q2. Explain the nature and features of Capital Budgeting Decisions.

Q3. What are the various types of investment decisions?

Q4. Why is capital budgeting important for an organization?

Q5. Discuss the steps involved in the capital budgeting process