UNIT II- INVESTMENT DECISIONS

CASH FLOW ESTIMATION

Understanding Cash Flows in Capital Budgeting

Cash flow estimation in capital budgeting refers to forecasting the future cash inflows and outflows associated with a potential investment. These cash flows are crucial because they form the basis for evaluating the financial viability of the project. Unlike accounting profits, which can be influenced by non-cash items such as depreciation, cash flows provide a clear picture of the actual cash that will be generated or expended as a result of the investment.

In capital budgeting, cash flows are generally categorized into three types:

1. **Initial Outlay (Initial Investment):** This is the initial cash outflow required to start the project. It includes the cost of acquiring assets, installation expenses, working capital requirements, and any other initial costs. For example, if a company is purchasing new machinery, the initial outlay would include the purchase price of the machinery, transportation costs, installation charges, and any initial working capital needed to operate the machinery.

2. **Operating Cash Flows (Net Cash Flows):** These are the net cash inflows generated from the project's operations during its life. Operating cash flows are typically calculated as:

   $$\text{Operating Cash Flow} = \text{Revenues} - \text{Operating Expenses} + \text{Depreciation} - \text{Taxes}$$

   This reflects the cash generated by the project, considering revenues, costs, and tax impacts. Depreciation is added back because it is a non-cash expense.

3. **Terminal Cash Flow:** This is the cash flow that occurs at the end of the project's life. It includes the salvage value of any equipment or assets, the release of working capital, and any other cash inflows or outflows that occur when the project is terminated. For instance, if machinery is sold at the end of the project, the proceeds from the sale would be part of the terminal cash flow.

   The following ingredients of cash flow streams affect the estimation of cash flows:

Tax Effect: It has been already observed that cash flows to be considered for purposes budgeting are net of taxes. Special consideration needs to be given to tax effects on cash flows if the firm is incurring losses and, therefore, paying no taxes. The tax laws permit carrying losses forward to be set off against future income. In such cases, therefore, the benefits of tax savings would accrue in future years.

Effect on Other Projects: Cash flow effects of the project under consideration, if it is not economically independent, on other existing projects of the firm must be taken into consideration. For instance, if a company is considering the production of a new product which competes with the existing products in the product line, it is likely that as a result of the new proposal, the cash flows related to the old product will be affected. This is in conformity with the general rule of the incremental cash flows which involves identifying changes in cash flows as a result of undertaking the project being evaluated. Clearly, the cash flow effects of the project should not be evaluated in isolation, if it affects other project(s) in any way.

Effect of Indirect Expenses: Another factor which merits special consideration in estimating cash flows is the effect of overheads. The indirect expenses/overheads are allocated to the different products on the basis of wages paid, materials used, floor space occupied or some other similar common factor. The question that arises is: should such allocation of overheads be taken into account in the cash flows? The answer hinges upon whether the amount of overheads will change as a result of the investment decision. If yes, it should be taken into account. If, however, overheads will not change as a result of the investment decision, they are not relevant.

Effect of Depreciation: Depreciation affects cash flow estimation in capital budgeting by reducing taxable income, thereby lowering tax liabilities and increasing cash flow. Although depreciation itself is a non-cash expense, it enhances cash flows by providing tax shields. This effect is crucial when assessing project viability, as it can influence the net present value (NPV) and internal rate of return (IRR). Properly accounting for depreciation ensures a more accurate assessment of a project's financial performance and overall impact on cash flows over its life cycle.

Effect of Working Capital

Net Working Capital

In real world situations, the actual cash receipts and cash payments differ

from revenues (sales) and expenses as given in the profit and loss account. This difference is caused by changes in working capital items, which include trade debtors (accounts receivable), trade creditors (accounts payable) and stock (inventory). Consider the following situations:

Change in accounts receivable: The firm's customers may delay payment of bills which will increase receivable. Since revenues (sales) include credit sales, it will overstate cash inflow. Thus, increase (or decrease) in receivable should be subtracted from (or added to) revenues for computing actual cash receipts.

Change in inventory: The firm may pay cash for materials and production of unsold output. The unsold output increases inventory. Expenses do not include cash payments for unsold inventory, and therefore, expenses understate actual cash payments. Thus, increase (or decrease) in inventory should be added to (or subtracted from) expenses for computing actual cash payments.

Change in accounts payable: The firm may delay payment for materials and production of sold output (sales). This will cause accounts payable (suppliers' credit) to increase. Since accounts payable is included in expenses, they overstate actual cash payments. Thus, increase (or decrease) in accounts payable should be subtracted from (or added to) expenses for computing actual cash payments.

It is, thus, clear that changes in working capital items should be taken into account while computing net cash inflow from the profit and loss account. Instead of adjusting each item of working capital, we can simply adjust the change in net working capital, viz. the difference between change in current assets (e.g., receivables and inventory) and change in current liabilities (e.g., accounts payable) to profit. Increase in net working capital should be subtracted from and decrease added to after-tax operating profit.

Release of Net Working Capital

Cash flows will also include the release of net working capital. It is reasonable to assume that funds initially tied up in net working capital at the time the investment was undertaken would be released in the last year when the investment is terminated. In practice, it may not be possible for a firm to recover the entire net working capital at the end of the project's life. The actual amount of net working capital recovered should be considered as the cash inflow in the terminal year.

Effect of Salvage Value

Salvage value (SV) is the most common example of terminal cash flows. Salvage value may be defined as the market price of an investment at the time of its sale. The cash proceeds net of taxes from the sale of the assets will be treated as cash inflow in the terminal (last) year. The effects of the salvage values of existing and new assets may be summarized as follows:

- Salvage value of the new asset will increase cash inflow in the terminal (last) period of the new investment.
- Salvage value of the existing asset now It will reduce the initial cash outlay of the new asset.
- Salvage value of the existing asset at the end of its normal life It will reduce the cash flow of the new investment of the period in which the existing asset is sold.

Sometimes removal costs may have to be incurred to replace an existing asset. Salvage value should be computed after adjusting these costs.

Importance of Accurate Cash Flow Estimation

Accurately estimating cash flows is essential for several reasons:

1. **Project Evaluation:** The viability of a project is often assessed using techniques like Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period. These methods rely heavily on cash flow estimates. Inaccurate cash flow projections can lead to poor investment decisions, either by accepting unprofitable projects or rejecting profitable ones.

2. **Risk Assessment:** Estimating cash flows helps in identifying the risks associated with the project. By considering different scenarios—best case, worst case, and most likely case—

businesses can assess the potential variability in cash flows and thus the riskiness of the project.

3. **Financing Decisions:** Cash flow estimates are crucial in determining the financing needs of the project. Understanding when and how much cash will be required allows the company to plan its financing strategy, whether through equity, debt, or internal funds.