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## **UNIT 12 ESTIMATING PROJECT AFTER TAX INCREMENTAL OPERATING CASH FLOWS**

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### **12.1 Introduction**

### **12.2 Objectives**

### **12.3 Project Cash Flow Analysis**

### **12.4 Incremental Cash Flows**

### **12.5 Terminal Cash Flows**

### **12.6 Cash Flow Estimates for Replacement Decisions**

### **12.7 Other Aspects to be considered while projecting for cash flows**

### **12.8 Cash Flows from the point of view of Different Perspectives**

### **12.9 Summary**

### **12.10 Glossary**

### **12.11 Answer to Check Your Progress**

### **12.12 References**

### **12.13 Suggested Readings**

### **12.14 Terminal & Model Questions**

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## **12.1 INTRODUCTION**

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In the previous unit you learnt that capital budgeting is the most crucial decisions for a company as it requires heavy investments and hence these decisions are taken with utmost care and accuracy. Assessment of projects proposals are based on existing data as well as they are also based on future projections. Therefore, these decisions require the measuring of cash flows in terms of incremental cash flows, terminal cash flows and net operating cash flows.

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## **12.2 OBJECTIVES**

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After reading this unit you will be able to:

- Prepare cash flow estimation for the projects
- Measure incremental cash flows.
- Calculate cash flow estimates for Replacement Decisions

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## 12.3 PROJECT CASH FLOW ANALYSIS

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The most important and crucial decision in project evaluation is to estimate project cash flows. It is crucial because it requires assessment of risk and incorporation of uncertainty into project analysis as company has to chalk out appropriate decisions pertaining to projects selection. Peeping into future for the assessment of correct cash flows is the most difficult and challenging task, but as a Project Manager or as a Finance Manager you need to identify, categorize and estimate cash flows and investment outlays. As a Project Manager or as a Finance Manager, one have to coordinate various departments for fetching information and on the basis of information so obtained, the projections are made on the basis of consistent economic assumptions, assessing relevant variables and minimizing dispositions. For evaluating a project, one need to assess the correct cash flows which are incremental after-tax cash flows associated with the project.

However, cash flows should not be assessed as profits. There is difference between cash flows and profits. Profits which are also termed as net income, is the difference between sales revenue and expenses of a firm. It is based on the accrual concept, it is recognized when it is earned not when cash is received and expense is recognized when it is incurred than when cash is paid. Cash flow is the difference between cash received and cash disbursed. Profit assess your income and expenses at a specific point in time whereas Cash Flow is more dynamic, looking at the timing of the movement of money in and out of your business every day. Depreciation is not a cash outlay but it is deducted when net income is calculated. Cash flows considers time value of money however accounting income ignores it.

Therefore, the above may be written in terms of equation;

$$\text{Profits} = \text{Revenues} - \text{Expenses} - \text{Depreciation}$$

$$\text{Cash Flows} = \text{Revenues} - \text{Expenses} - \text{Capital Expenditure}$$

Cash flows does not consider depreciation as it does not requires any cash payments whereas it includes cash paid for capital expenditures.

The above equation may also be written as;

$$\text{Cash Flows} = (\text{Revenues} - \text{Expenses} - \text{Depreciation}) + \text{Depreciation} - \text{Capital Expenditure}$$

$$\text{Cash Flows} = \text{Profits} + \text{Depreciation} - \text{Capital Expenditures}$$

For the assessment of project's value, project net cash flows are considered and not the accounting income.

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## 12.4 INCREMENTAL CASH FLOWS

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The cash flows of a project are assessed in incremental terms. The estimation of the cash inflows and outflows and the timing of these cash flows should be assessed on incremental basis. For calculating incremental cash flows, you in the capacity of Finance Manager have to estimate the cash flows of a firm with project and the cash flows of a firm without the project.

### **Incremental Cash Flows = Company's Cash Flows with the Project- Company's Cash Flows without the Project**

As per Ross, Westerfield and Jordan, Incremental Cash Flows for project evaluation consist of any or all changes in the firm's future cash flows that are direct consequence of taking the project.

Further, when the incremental cash flows for an investment are calculated in juxtaposition with the hypothetical zero-cash-flow project, then it is termed as absolute cash flows whereas, incremental cash flows calculated on the basis of comparison of cash flows of two projects then such analysis is termed as relative cash flows.

Cash Flow of Project 1 of Year 1–Cash Flow of Project 2 of Year 1= Incremental Cash Flow for year 1.

### **Components of Cash Flows**

The following are the components of cash flows;

For calculating cash flows the following aspects shall be estimated;

**Initial Investment** is the cash outflows at the time of establishment of a project. In other words, it is the amount required to start a project. It is also called initial investment outlay or simply initial outlay. In case of Plant and Machinery or other Long Term Assets, it consists of original value of the asset together with the freight and installation charges. In case of Project, initial investment shall be equal to gross investment plus increase in net working capital. The present value of the initial outlay is simply the cost of the outlay since it occurs today (year 0). Net working capital requirement is projected in the initial year also because investing in project also demands investment in working capital in form of cash, inventories and receivables.

Other expenditure which is occurred while establishing a project for example installation, electrification, water supply, vehicle charges, fire fighting etc. shall be included in initial investment. Further, preliminary and operative expenses shall be clubbed in initial investments as they have happened before the starting of a project. Any contingency associated in the establishment of a project shall also be counted into initial investment.

## Net Cash Flows

Net cash flow is the difference between a company's cash payments and cash receipts at a particular period of time. It is estimated on after tax basis. It is basically consist of annual cash flows occurring from the operation of the project but it also takes into consideration the changes in net working capital and capital expenditures. (Pandey I.M.) For the calculation of Net Cash Flows, Expenses and Taxes are deducted from the revenues.

$$\text{Net Cash Flows} = \text{Revenues} - \text{Expenses} - \text{Taxes}$$

## Depreciation and Taxes

Non cash charges do impact on cash flows and these needs to be carefully considered as they affect tax liability. Depreciation is the assigning or allocating of a Plant Asset's cost to Expense over the accounting periods that the asset is likely to be used. Depreciation is a non cash expense from the perspective of cash flows and hence it has an indirect effect on the taxation as it reduces tax liability of a company. This provides tax shield to the company as increase cash flow because cash outflows which are saved can be assessed as cash inflows. Some authors narrate depreciation tax shield as tax saving from tax allowable depreciation. The tax benefit of depreciation is assessed as depreciation multiplied with marginal tax rate.

Depreciation is often calculated under different methods for financial accounting standards than for tax purposes. The amount of the tax shield at a particular time is estimated by multiplying the tax-basis depreciation expense by the marginal tax rate applicable for that period. This tax shield is then added back to the after-tax operating cash flow forecast.

$$\text{Net Cash Flows} = \text{Revenues} - \text{Expenses} - \text{Taxes}$$

$$\text{Net Cash Flows} = \text{Revenues} - \text{Expenses} - \text{Taxes} (\text{Revenues} - \text{Expenses} - \text{Depreciation})$$

$$\text{Net Cash Flows} = \text{Profit before Depreciation, Interest and Taxes (PBDIT)} (1 - \text{Tax}) + \text{Tax (Depreciation)}$$

## Net Working Capital

Another item that needs consideration to ascertain cash flows is the working capital. Changes in the working capital affects the cash flows, therefore working capital requirement should considered while assessing cash received from the revenues and cash paid for the expenses. The actual cash received and cash paid while carrying operating activities differs from revenues and expenses as given in Profit and Loss Account. Therefore, this difference shall be offset by adjusting the changes in the net working capital. The difference between the increase in current assets and the increase in current liabilities is the change in the net working capital. If this increase is positive then it is subtracted from after tax operating profit and if there is a decrease then it is added to after tax operating profit.

The increase in the working capital is basically cash outflow that must be incorporated in the cash flow projections.

**Net Cash Flows= Profit before Depreciation, Interest and Taxes (PBDIT) (1-Tax)+Depreciation-Net Working capital**

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## 12.5 TERMINAL CASH FLOWS

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Terminal cash flows accrue in the last year of project. It refers to the cash flow that takes place at the end of the project life. Terminal cash flow takes into consideration net salvage value collected at the time of liquidation of the project. Three aspects need to be considered while calculating cash flows in terminal year; these are;

- a) Salvage Value
- b) Net Working capital
- c) Effects of Taxes

Terminal cash flows not only include operational cash flow in the terminal year but, it also includes cash inflows arise due to release of working capital. Increment in net working capital is considered as cash outflow while decrement in networking capital is considered as cash inflow. Basically, funds invested in net working capital at the time of starting of a project would be released in the last year when the project shall come to the end. Further, Terminal Cash Flows incorporates any tax advantage or disadvantage that may arise on the completion or discontinuation of a project. Depending upon the tax conditions, there could be tax savings or tax incidence on the disposal of fixed assets.

### Salvage Value

Salvage Value is the amount recovered from the sale of assets. Pandey (2010) describes Salvage value as the market price of an investment at the time of the sale. He further states that the cash proceeds net of taxes from the sale of the assets shall be treated as cash inflow in the last year. The cash flow estimation of the tax is the written down value of the block of asset that is reduced by the amount of the salvage value realized. The firm does not get depreciation for subsequent period on the asset sold to the extent of differential of book and salvage value. When salvage value is greater than book value then the resultant is the tax loss that is equivalent to the present value of tax shield on the resultant amount of salvage value minus book value. This tax loss is deducted from the salvage value for the purpose of determination of cash flow from the sale of an asset. If the salvage value is less than book value then tax benefit shall be equal to the present value of tax shield on the resultant amount of difference between book value and salvage value. This is added back to the Salvage Value for calculating cash flows from the asset so disposed. Further, at the time of replacement decisions, salvage value of the newly purchased asset shall increase the cash inflow in the last year. Further, salvage value of the existing asset in the present time shall reduce the initial cash outlay of the new asset and salvage value of the existing asset at the end of the normal

life shall reduce the cash flow of the new investment in which the existing asset is sold.(Pandey I.M)

If Salvage Value (SV) > Book Value (BV)

Cash flow from the sale of asset= Salvage value-PV of tax shield on (Salvage Value-Book Value)

If Salvage Value (SV) <Book Value (BV)

Cash flow from the sale of asset= Salvage value+ PV of tax shield on (Book Value- Salvage Value)

By adjusting book value of the block of asset the tax benefit is deferred (presuming that the book value is greater than salvage value) with progressive reduction in the benefit each year. Depreciation under the written down value is perpetual and hence the present value of depreciation tax shield is;

$$\text{PV of Depreciation Tax Shield} = \frac{Txd}{r+d}(BV-SV)$$

Where tx- Tax rate

d= Depreciation rate

r=Cost of capital (discount rate)

### **Release of Net Working Capital**

At the time of termination of a project the funds at the time of initial investment tied up in the form of working capital shall be released. If there is increase in net working capital then it shall be taken as cash outflow and *vice versa* i.e. if there is decrease in net working capital then it is cash inflows.

To illustrate, let's take an example to determine the cash flows,

Company Aspirations Ltd. is considering a capital project in which the following data is available;

The initial investment of the project will be 500,000,000 which require investment of Rs. 400,000,000 in Building and Plant and Machinery and Rs 100,000,000 in Net Working Capital. Further, the project has employed 200,000,000 of equity capital, 10% preference share capital of Rs. 200,000,000 and 15% Redeemable Debentures of Rs 100,000,000. The life of the project is expected to be 5 years and a salvage value of Rs 300,000,000 and net working capital shall fetch Rs 100,000,000 i.e. at its book value. Revenues from the project are expected to 360,000,000. The fixed cost on the account for the project is expected to be 4,000,000 and the variable cost is expected as 150,000,000 in the first year, Rs 200,000,000 in the second year , Rs 205,000,000 in the third year, 215,000,000 in the fourth year and Rs 225,000,000 in the fifth year. The tax rate shall be 30%. Further, the plant and machinery shall be depreciated with Rs 80,000,000 every year. Calculate the project cash flows.

	<b>0 Year</b>	<b>1 Year</b>	<b>2 Year</b>	<b>3 Year</b>	<b>4 Year</b>	<b>5 year</b>
<b>Initial Investment</b>	- 5000000 00					
<b>Fixed Assets</b>	- 4000000 00					
<b>Net Working capital</b>	- 1000000 00					
<b>Revenues</b>		360000 000	3600000 00	3600000 00	360000 000	3600000 0
<b>Fixed Cost</b>		4,000,0 00	4,000,00 0	4,000,00 0	4,000,0 00	4,000,000
<b>Variable Cost</b>		150,00 0,000	200,000, 000	205,000, 000	215,00 0,000	225,000,0 00
<b>Total Cost (other Depreciat ion and interest</b>		154,00 0,000	204,000, 000	209,000, 000	219,00 0,000	229,000,0 00
<b>Depreciat ion</b>		80,000, 000	80,000,0 00	80,000,0 00	80,000, 000	80,000,00 0
		234,00 0,000	284,000, 000	289,000, 000	299,00 0,000	309,000,0 00
<b>Profit before tax</b>		126,00 0,000	76,000,0 00	71,000,0 00	61,000, 000	51,000,00 0
<b>Less Tax</b>		378000 00	2280000 0	2130000 0	183000 00	15300000
<b>Profit after Tax</b>		88,200, 000	53,200,0 00	49,700,0 00	42,700, 000	35,700,00 0
<b>Add Depreciat ion</b>		80,000, 000	80,000,0 00	80,000,0 00	80,000, 000	80,000,00 0

<b>Cash Flows</b>		168,20 0,000	133,200, 000	129,700, 000	122,70 0,000	115,700,0 00
<b>Net Salvage Value</b>						300,000,0 00
<b>Recovery of Net Working Capital</b>						100,000,0 00
<b>Terminal Cash Flows</b>	- 500,000, 000					400,000,0 00
<b>Net Cash Flows</b>	- 500,000, 000	168,20 0,000	133,200, 000	129,700, 000	122,70 0,000	515,700,0 00
<b>Book Value of Investment</b>	500,000, 000	420,00 0,000	340,000, 000	260,000, 000	180,00 0,000	

The Net Cash Flows for the company in first year is Rs 168,20,000 , Rs 133,200,00 in second year, Rs 129,700,000 in the third year, Rs 122,70,000 in the fourth year and 515,700,000 in the fifth year.



### *Check Your Progress- A*

**Q1. What do you mean by Incremental Cash Flows?**

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**Q2. What do you mean by Terminal Cash Flows?**

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**Q3. How do you account for Release of Working Capital?**


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**Q4. Fill in the blanks using appropriate word/words;**

- i. \_\_\_\_\_ are calculated by comparing alternative investments options.
- ii. \_\_\_\_\_ takes into consideration net salvage value collected at the time of liquidation of the project.
- iii. \_\_\_\_\_ is the assigning or allocating of a plant asset's cost to expense over the accounting periods that the asset is likely to be used.

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## **12.6 CASH FLOW ESTIMATES FOR REPLACEMENT DECISIONS**

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The estimation of the cash flows for the replacement purpose is tricky as you have to first estimate the incremental cash outflows and inflows in relation to the existing project. Therefore, you will face tremendous challenge while going for replacement analysis as the relevant cash flows shall be the differential cash flows between existing project and replacement project. Replacement decisions are made regarding the existing machine equipment or asset that needs to be replaced by the newer version of the equipment or the different type of machine solving the same purpose. These decisions are taken for reduction in cost or for quality improvement. For such decisions you have to determine the cash flows that new asset generate and the impact on eliminating the cash flows generated by the replaced asset. The overall net effect of purchasing new assets to replace the older version of the asset shall be assessed.

**Initial Investment= Cost of new assets+ Net Working capital required for new asset- After tax salvage value recovered from the old asset-Net working capital required for the old asset**

**Or**

**Initial Investment= Initial investment needed to acquire new asset-After tax cash flows from liquidation of old asset**

**Operating Cash Flows= Operating Cash Flows from the new asset- Operating cash inflows from the old asset, if such decision has not been opted for**

**Or**

**Operating Cash flow= Operating Cash Flows from the new asset- Operating cash inflows from the old asset**

**Terminal Cash Flows= After tax Salvage value of the new assets+ Net Working capital release with the new asset- After tax salvage value of the old asset , if such decision has not been opted for- Net Working capital released from the old asset**

**Or**

**Terminal Cash Flows= After tax cash flows from termination of new asset-After tax cash flows from termination of old asset**

Let us take a hypothetical example to understand the above concept;

XYZ Ltd. is considering a proposal to replace the manual food processing machine costing Rs 1,00,000 with the fully automatic food processing machine worth Rs 1,50,000. The written down value of the old machine is Rs 50,000. The plant is expected to still function to 4 years after which it will have no salvage value. However, if sold today, then it will fetch salvage value of Rs 10,000. The expected life of fully automatic machine is 4 years which yield salvage value of Rs. 30,000. Due to fully automatic in nature, the new machine is projected to supplement additional benefit (before depreciation and tax) of Rs 60,000. As a Finance Manger, you are given the responsibility to calculate cash flows associated with this decision. The tax rate applicable is 30% to the Company. (Capital gain or loss, may be ignored for tax purposes.)

<b>Initial cash Outflow</b>		
Cost of new machine		150000
Scrap value of Old Machine		10000
		140000
Subsequent Cash Inflows (Annual)		
Incremental Benefit		60,000
Less Incremental Depreciation		17500
Depreciation on New Machine	30000	
Depreciation on Old Machine	-12500	
Profit before tax		42,500

Less Tax		12750
Profit after Tax		29,750
Add Depreciation		17500
Annual Cash Inflows		47,250
Terminal Cash Flows		77,250

Therefore, annual cash flows for the company are calculated as 47,250.

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## 12.7 OTHER ASPECTS TO BE CONSIDERED WHILE PROJECTING FOR CASH FLOWS

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You should also be aware of the other aspects to be considered while projecting cash flows. These are;

### Installation Cost

The initial cash outlays shall include installation cost, shipment, transportation etc. as these cost helps in bringing projects and equipments in working condition.

### Sunk Cost

Sunk costs are the cost that has incurred in the past and that cannot be recovered in the future. These are not incremental cost and they are irrecoverable. Further, these are not relevant in capital budgeting analysis as they do not impact the cash flows relevant for the present decisions.

### Opportunity Cost

While estimating project cash flows, you as a finance manager have to consider the opportunity cost related to the assets of the firm that it already owns. These are the cost of the resources which are already with the firm or are procured. This opportunity cost provides advantage to the firm which otherwise could have required additional outlays. This opportunity cost should be charged to the project as cost of alternative investment that has been forgone because of utilization of resources by the firm for the project and allocating these resources to a particular venture prevents their use for other projects at the same time. Therefore, these cost should be accordingly considered.

### Incidental Effects

Contingent Costs are the cost with have some sought of uncertainty on the basis of past experience these costs may occur during the project. For example, if project is established in the outskirts of a city and therefore approach roads, residential houses, school and basic

amenities for the workers shall be developed by the company. Accordingly, such expenses shall be considered as contingent cost.

### **Cannibalization**

Cannibalization is the reduction in the sales volume and revenue in an existing brand when a new product is introduced in a product line or in a product family is introduced. This may reduce the sales revenue of the existing product. This may lead to negative incremental effect on the new product and hence rejecting the old product. If firm is facing extreme competitive conditions and is not protected by entry barriers, then cost due to product cannibalization is not considered in incremental analysis. However, if there are entry barriers then costs pertaining to product cannibalization should be incorporated.

### **Revenue Enhancement**

Increment in revenues due to newly created opportunities from the project and it should be included in the cash flows of the new project.

## **12.7.1 BASIC PRINCIPLES OF CASH FLOW ESTIMATION**

There are four types of principles followed for assessing cash flows of a project, these are ;

### **12.7.1.1 Principle of Incremental Cash Flows**

This principle holds that cash flows should be measured in incremental terms. This principle states that a project proposal have chances of viability if it increases total profit more than total cost. This principle tries to ensure profitability outcomes from the project. An incremental cash flow is the additional operating cash flow that an organization receives after adopting new venture. A positive incremental cash flow denotes that the company's cash flow will magnify if project is accepted.

### **12.7.1.2 Principle of Consistency**

This principle holds the view that there should be consistency in the cash flows and discount rates applicable to the cash flows. Two aspects to be considered in this principle is investor's group and inflation. There are different types of investors in a firm like the lenders or the stockholders and so on. Again, if it is not possible to consider every kind of investors' view, then the stockholder's view regarding the cash flow may be considered. The cash flows from all the investors' point of view shall be;

Cash Flow to all investors=  $PBIT (1-t) + \text{Depreciation and non cash charges} - \text{Capital Expenditure} - \text{Changes in Net Working capital}$

The cash flow of project from the equity shareholders point of view shall be estimated as per the following;

Cash flow to equity shareholder= $\text{Profit after tax} + \text{Depreciation and other noncash charges} - \text{Preference dividend} - \text{capital expenditures} - \text{change in net working capital} - \text{Repayment of debt} + \text{Proceeds from debt issues} - \text{Redemption of preference capital} + \text{Proceeds from preference issue}$

Now, as per this principle you should ensure consistency of the discount rate that is to be applied on the project cash flow. There are two types of discount rate known as the weighted average cost of capital and cost of equity. Weighted average cost of capital is taken while calculating cash flows to all investors and cost of equity is taken when calculating cash flows from the perspective of equity shareholders.

There are two ways of incorporating the inflation in the project cash flow estimates. The first option is to incorporate likely inflation in the project cash flow estimates. After this, a nominal discount rate is applied on the amount. The other way out is to calculate the project cash flows of the future in real terms with real discount rates.

$$\text{Nominal Cash Flow}_t = \text{Real Cash Flow}_t (1 + \text{Expected inflation rate})^t$$

$$\text{Nominal discount rate} = (1 + \text{Real discount rate})(1 + \text{expected inflation rate}) - 1$$

The relationship between real rates and nominal rates is well explained by Fisher Effect.

$$(1 + \text{Nominal Rate}) = (1 + \text{Real rate}) \times (1 + \text{Inflation rate})$$

### 12.7.1.3 Principle of Financing Costs Exclusion or Separation Principle

This principle holds that the cash flows occurring to the company should be separated into investing and financing activity. As the initial investment funds can be raised from the various modes of financing like from debt, equity or hybrid financing. This principle examines that cash that may analyzed are those generated by the assets. These decisions are concerned with the ability of the asset in generating cash benefit rather than how these benefits shall be shared. This principle holds that while bringing out the profit, if the applicable interest is subtracted, the same amount should be added to the profit that remains after paying the applicable tax. On the other hand, if the tax rate is imposed directly on the profit (from which interest and taxes are not adjusted) the results shall be the same.

$$\text{Profit before interest and tax (1-t)} = \text{Profit before tax} + \text{Interest (1-t)} = \text{Profit after tax} + \text{Interest (1-t)}$$

### 12.7.1.4 Post Tax Principle

Post Tax Principle states that cash flows shall be measured on after tax basis as this will help in measuring cash flows with accuracy. Some firms follow the practice of neglecting the tax aspects and compensating the same by adopting higher discount rate. However, these discount rates are difficult and cumbersome to adjust and thus the after-tax rate of discount and after-tax cash flows should be used jointly. The following aspect should also be considered;

- a) The average tax rate and the marginal tax rate are two different tax rates. The average tax rate is considered as the entire tax in proportion to the overall earning from the business. On the other hand, the marginal tax rate represents those taxes that are imposed on the marginal earnings income. Since, the tax rates are

progressive therefore generally; the average tax rates are always on the lower side of the marginal tax rate. Marginal tax rate is generally considered as more appropriate for the estimation of the tax liability.

- b) The post tax principle explains that there can be possibility of losses for the firm as well as the project.
- c) The post tax principle also holds that noncash charges like depreciation can affect project cash flows if such expenses affect tax liability of the company.



### ***Check Your Progress- B***

#### **Q1. What are the Basic Principles of cash flow estimation?**

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#### **Q2. How Cash Flow Estimates are calculated for Replacement Decisions?**

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#### **Q3. State True or False against the following;**

- i. Principle of Incremental Cash Flows holds the view that there should be consistency in the cash flows and discount rates applicable to the cash flows.
- ii. Post Tax Principle states that cash flows shall be measured on after tax basis as this will help in measuring cash flows with accuracy.
- iii. Cannibalization is the reduction in the sales volume and revenue in an existing brand when a new product is introduced in a product line or in a product family is introduced

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## **12.8 CASH FLOWS FROM THE POINT OF VIEW OF DIFFERENT PERSPECTIVES**

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There are several perspectives from which the cash flows may be viewed;

### **Cash Flows relating to equity**

Cash Flows to equity shareholders are the cash inflows or cash outflows estimated from the perspective of equity shareholders. Thus, the preference dividend is an outflow from the point of equity shareholders.

**Initial Outflow= Equity component of initial investment**

**Annual cash flows= PAT-Preference Dividend +Depreciation+ Other Non cash Expenses**

**Terminal Cash inflows = Salvage Value (Net of tax) +Release of working capital – Repayment loans-Redemption of preference share capital**

### **Cash flows to long term funds**

Cash flow to long term funds shall include cash flow from the perspective shareholders as well as lenders. Long term funds shall include long term debt, equity share capital, Reserve and Surplus, Debentures etc.

**Initial out flow= Long term funds+ working capital margin**

**Subsequent Annual Inflows= PAT+ Int (1-t) +Depreciation +Non cash expenses**

**Terminal inflows= Salvage Value + Release of working capital margin**

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## **12.9 SUMMARY**

In this unit you learnt that estimation of cash flows for a project is an important step in evaluating project proposals. You also learnt that peeping into distant future for the assessment of correct cash flows is the most difficult and challenging task, but as a Project Manager or as a Finance Manager you need to identify, categorize and estimate cash flows and investment outlays. In the next unit, you will be studying how to evaluate proposed project accurately using various capital budgeting techniques.




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## **12.10 GLOSSARY**

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**Initial Investment** is the cash outflows at the time of establishment of a project.

**Contingent Costs** are the cost which have some sought of uncertainty on the basis of past experience and these costs may occur during the project.

**Cannibalization** is the reduction in the sales volume and revenue in an existing brand when a new product is introduced in a product line or in a product family. This may reduce the sales revenue of the existing product.



## 12.11 ANSWERS TO CHECK YOUR PROGRESS

### Check Your Progress –A

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

- i. Incremental
- ii. Terminal cash flow
- iii. Depreciation

### Check Your Progress –B

Q4. State True or False against the following;

- i. False
- ii. True
- iii. True



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## 12.14 TERMINAL QUESTIONS

- Q1. What are mutually exclusive projects?
- Q2. What are the different cash flows associated with the projects?
- Q3. How cash flows differ from the profit? Explain the relevance of estimating cash flows for a project.
- Q4. What do you mean by incremental cash flows? What is the process of calculating incremental cash flows?
- Q5. A cosmetic company is planning to launch an Aloe Vera cream within a year. The cost of the manufacturing plant is Rs 10,00,000, installation cost shall be Rs 1,00,000 and working capital required shall be around Rs 50,000. The annual capacity of the plant is to manufacture 20,000 cream sachets. The price per cream sachet in the first year would be around Rs. 500. The variable cost to sales ratio is expected to 65%. The fixed cost per annum would be Rs 60,000 (excluding depreciation). The company calculates that the promotion cost of Rs 12000 shall also accrue in the first year. Written down depreciation rate for tax purposes is 25%. It is also estimated that working capital requirement shall be 25% of the sales. The company expects that the plant's capacity utilization over its economic life of 7 years will be as follows;

Year	1	2	3	4	5	6	7
Capacity Utilization (%)	40%	40%	50%	75%	100%	100%	100%

The terminal value of the project is expected to be 20% of its original cost. The corporate tax rate is 30% and profit from the sale of the asset is taxed as the ordinary income. Net working capital is assumed to be released at the end of the economic life of the project.