

CHAPTER - II

THEORETICAL FRAME WORK

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CHAPTER : 2THEORETICAL FRAME WORK2.1 MEANING AND DEFINITIONS OF INVESTMENT

" Investment " or investing like 'value' is a word of many meanings. Investment is the employment of funds with the aims of achieving additional income or growth in value. The essential quality of an investment is that it involves "waiting" for a reward. It involves the commitment of resources which have been saved or put away from current consumption in the hope that some benefits will accrue in future.

The term 'Investment' like it's associated term 'capital' appears to have a simple intuitive meaning, but actually it has not been accurately defined, so much so, in the study of investment problems and development planning confusions are likely to arise.

A) FINANCIAL MEANING :

Investment is the allocation of monetary resources to assets that are expected to yield some gain or positive return over a given period of time. These assets may range from safe investment to risky investment. Investment in this form are also called ' Financial Investment '.

Under India's plans, the term 'Financial Outlay', 'Investment' and 'Current Outlay', are used. According to the Government of India, planning commission 'Investment is

expenditure on the creation of physical assets (e.g. building, plant and equipment) including expenditure on personnel required for putting up these assets. The expression corresponds broadly to expenditure on capital account. Current outlay corresponds broadly to expenditure on revenue account on the plan schemes, it is expenditure other than that classified as 'Investment'. Investment and current outlay in the above sense together constitute what is called " Financial Outlay ".

B) ECONOMIC MEANING

The nature of investment in the financial sense differs from it's use in the economic sense to the economist 'Investment' means the net additions to the economy's capital stock which consists of goods and services that are used in the production of other goods and services.

C) DEFINITIONS

Number of definitions of the term 'Investment' have been formulated but the essential idea common to all the definitions. Some of the important definitions of the term investment are presented in the following way :-

- (1) The orthodox economic theory defines 'Investment' as expenditure on 'Capital' which in turn is usually defined as the value of the stock of physical capital goods (e.g. durable assets machinery, equipment, roads or docks, with an average life of over one year)

plus the annual change in business inventories.

(2) A great economist H.G.Johnson proposed in 1964 that we go back to the concept whereby 'Investment' would be defined, " To include such diverse activities as adding to material capital, increasing the health, discipline, skill and education of the human population moving labour into more productive occupations and locations and applying existing knowledge of discovering and applying new knowledge to increase the efficiency of productive process".

(3) Andrew M.Kamarck has defined ' Investment as any expenditure that results income in the future".

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IMPORTANCE OF INVESTMENT

Investment is both important and useful in the context of present day conditions. Once the funds are invested in the capital expenditure project, it becomes very difficult to ~~reverse~~ reverse the decision. Hence from the very beginning the investor has to be very careful in controlling the capital expenditure. Hence some of the factors that have made investment decisions increasingly important. These factors are described as under-

(1) LONGER LIFE EXPECTANCY

One of the first and most important factor is longer life expectancy. While making the final choice investment decisions have become more significant. The earnings from employment should be calculated in such a manner that a portion should be put away as savings. Savings by themselves do not increase wealth, these must be invested in such a way that the principal and income will be adequate for a greater number of longer life.

(2) HIGH RATE OF INFLATION

Now-a-days Inflation is the serious enemy being faced by the entire world. In fact, heart of every country is being eaten away by inflation. Inflation represents a share increase in prices of permanent nature. This increase in prices is basically due to more demand and short supply. Kenyes explains the situation as 'Too much money chasing

too few goods.' This situation affects capital Investment also.

When the capital investment is made, certain rate of return is anticipated. But because of inflation, the purchasing power of the return declines e.g. If an investment is made with the expectation that, it would yield Rs. 100 this year and Rs. 100 next year and if price index goes up from 100 to 150 in the next year and become Rs. 100 \div 1.10 i.e. 90.90 (approx.) Therefore, the real earnings would be less than the anticipated one. And all the calculations made while making the capital investment would be defeated by the inflation.

(3) INTEREST RATE

Interest Rate is also one of the crucial factor in any country which introduces an element of compulsion, in a persons savings. Interest rate vary between one investment to another. These may vary between risky and safe investment also they may differ due to different schemes offered by the investments. These aspect must be considered before actually allocating any amount. A high rate of interest may not be the only factor favouring the portfolio several kinds of investments. Stability of interest is as important as receiving a high rate of interest.

(4) INCREASING RATE OF TAXATION

The taxes payable on each of the alternative

capital projects should be considered. Profits after deduction of tax is the real revenue which recovers the cost of the project. And also savings is the most important outlets in our country in the form of investments which help in bringing down the tax level by offering deductions in personal income.

(5) INCOME

Another important factor is 'income'. There are various investment decisions have assumed importance is the general increase in employment opportunities in India. After independence with the stages of development in the country a number of new organisations and services came into existence. The Banking Recruitment services, The Indian Administrative Services, Public Sector Enterprises, Expansion in Private Corporate Sector, Establishing of financial Institutions. Educational Institutions are some of the examples of employment generation. The employment opportunities gave rise to both the male and female working force. More income and more avenues for investment have led to the ability and willingness of working people to save and invest their funds.

(6) OTHER FACTORS

Besides the above factors, many other factors such as-

- (i) Depreciation of capital project,
- (ii) Interest on cost of new assets less scrape

value of old project.

- (iii) Enhancement to the goodwill and prestige which would result from establishing the capital project.
- (iv) Effect of project on reducing labour force compensation and other benefits such as provident fund, gratuity etc. payable at the time of termination or retirement of employees etc. should also be considered while investing in the capital project.

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2.3 TYPES OF INVESTMENT

In this chapter attempt was made to analyse the different types of Investments. A sound investment programme can be constructed if the investor familiarizes himself with the various alternative investments available. Investment media are of several kinds. These media has been classifide into two groups such as - (1) Direct Investment and (2) Indirect Investment. Thest two groups of Investment again categorised in many ways are shown in the following chart:-

INVESTMENT MEDIA

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I) <u>DIRECT INVESTMENT</u>	II) <u>INDIRECT INVESTMENT</u>
A) Fixed principal Investment	A) Pension Fund
1) Cash	B) Provident Fund
2) Savings account	C) Insurance
3) Savings Certificates	D) Investment Commission.
4) Government Bonds	E) Unit Trust & Other trust
5) Government Bonds & Debentures	Funds.
B) Variable Principal Securities	
1) Preference Shares	
2) Equity Shares	
C) Non-security Investment	
1) Real Estate	
2) Mortgages	
3) Commodities	
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From the above Chart, it becomes clear that investment media alternatives have basically been categorised as direct and indirect investment alternatives. Direct investment are those investment where the individual makes his own choice and investment decision. And indirect investments are those investment in which the individual has no direct hold on the amount he invests.

The ultimate objective of the investor is to derive a variety of investments that meet his preference for risk and expected return. The investor will select the portfolio which will maximise his utility. For that purpose the investor contributes his savings to certain organisations like life Insurance or unit Trust of India and depends upon them to make investments on his and other peoples behalf. So there is no direct responsibility or hold on the securities.

It becomes clear from the above that both the categories of fixed and variable investment are involved according to the basic principles of fixed and variable investment. The explanation of fixed and variable investment alternatives are given below.

Fixed principal investment are those whose principal amount and terminal value are known with certainty. Cash has a definite and constant rupee value whether it is deposited in a bank or kept in a cash box. It does not earn any return. Savings account have a fixed return, they differ only in terms of time period. The principal amount is fixed plus interest earned.

The examples of savings certificates, are being National Saving Certificate, Bank Savings Certificates and Postal Savings Certificates etc.

The variable principal Securities and the Fixed Principal Securities are not same things. They are different some Characteristics. The variable principal securities are differ from the fixed principal securities because their terminal values are not known with certainty, the price of preference share is determined by demand and supply forces eventhough preference shareholders have a fixed return. Equity shares also have no fixed return or maturity date. Convertable securities such as convertible debentures or preference shares can convert themselves into equity shares according to certain prescribed conditions and thus have features of fixed principal securities supplemented by the possibility of a variable terminal value.

There are various examples to which the necessary funds are raised by the organisation, these are, Debentures, preference shares and equity shares etc.

Also the individual makes indirect investment, for retirement benefits, there are various examples of indirect investment on which the individual gets benefits by investing the money in the form of Provident Fund, and pension funds, Life Insurance policy, Investment company securities and securities of unit trust of India, etc.

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2.4 NEED OF SOUND CAPITAL INVESTMENT

Capital investment is one of the most important decision which is affected over a period of time. Capital expenditure decision is the decision which decides whether or not money should be invested in long term projects such as :-

- 1) Setting up of the factory,
- 2) Installing additional machinery, or
- 3) Creating an additional capacity to manufacture a part etc.

Benefits from such projects are available over several time periods. The principle underlying the capital expenditure decisions is to relate the benefits available over a period of time to costs in such a manner that the influence of the capital expenditure over the profitability of the business may be judged.

The need for a sound policy to guide capital expenditure decision arises because of the following reasons :-

1) FINANCIAL FLEXIBILITY

Financial flexibility is one of the most important factor which is affected while investing the money in capital nature when the businessman incurs capital expenditure, he uses cash resources in process. The funds of the business get locked up into fixed assets. The results from such action always workout in future period and as such

the investor is at the mercy of future events. And it is not possible for the businessman to take the advantage of opportunities which accrue at present, hence because of investment cash resources the financial flexibility of the concern is affected.

2) POSSIBILITY OF UNDER/OVER INVESTMENT :

Capital expenditure decision is taken by considering the returns available during the economic life of the asset. Any mistake in accurately forecasting the future revenues results in over investment or under investment in fixed assets. If the firm has too much capital investment as compared with the π return then there will be excessive unavoidable burden of heavy maintenance and running charges. While if the firm has not spent enough on fixed assets and if in future there is possibility of more returns the productive operations will be affected by inadequate capacity. Hence the policy has to be sound.

3) POSSIBILITY OF OBSOLESCENCE

With rapid scientific inventions and technological advances in the industrial sector and in the presence of severe competition, Capital assets are likely to become obsolete. There is a possibility of change in the method of production also. If such situations are not properly foreseen and guarded against heavy capital losses are likely to be incurred.

4) POSSIBILITY OF CHANGE IN PRODUCT DESIGN :

If costly special purpose or automatic machines specially designed to meet particular product requirements are installed, difficulties arise if subsequently there is any change in the product design. The possibility of change in product design should also be foreseen. Because firm is likely to become less flexible.

5) EFFECT OVER PROFITS OF NUMBER OF YEARS :

In any business, the commitment of funds in land, building, equipment, stocks and other types of asset must be very carefully made once a decision to acquire capital asset is taken, then it becomes very difficult to reverse that decision affects operations over a series of years. Both the returns as well as the length of the period over which they accrue are uncertain. Hence, the risk in capital investments is larger and any errors in capital investment may have a serious financial effect.

6) RELATION WITH NATIONAL ECONOMY :

Proper investment in funds not only benefits the business, but it is important for the national economy as a whole. Expansion programmes and other capital expenditure projects guided by sound investment policy, increase the productivity of the industry and economic growth of the country.

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2.5 FACTORS TO BE CONSIDERED IN CAPITAL INVESTMENT ANALYSIS :

In capital investment analysis, cost data of the past periods is considered only as guideline for estimating the future costs. Otherwise historical costs are not important. The selection of capital expenditure project expected future returns and expected future costs during the working life of the asset.

Various other factors which are also considered while making a final choice may be described as under :

1) EXPECTED RETURN :

This is the most important factor of investment analysis. While investing the money in capital assets more consideration should be given to a return from them. That means the amount and timing of the expected return is one of the most important factor of investing the amount in a particular asset.

2) THE RELATIVE IMPORTANCE & NECESSITY OF THE PROJECT

Some project do not give any return on capital employed. But such projects may be given preference on the grounds of urgency and necessity e.g. establishing a hospital or starting a canteen for the welfare of employees may be preferred even before any other project which would yield a fair return on capital employed.

3) TECHNICAL FACTORS

How far the project is useful in the manufacturing process ? How it would satisfy the needs of production ? Such considerations should be seen from technical view point. Thought should be given to point like :-

(i) Make (ii) Capacity (iii) Working Life (iv) Power requirement, (v) Adequacy of space (vi) Cost of repairs, (vii) Availability of spare parts and maintenance facilities. It should be seen that volume of production is sufficient or not to keep the new capital asset profitably busy. At the same time it should be seen that the capital asset is capable of fulfilling the production requirement or not.

4) COST OF PRODUCTION :

Different capital investment proposals may have different effect on the material cost, labour cost, wastage, scraps, fixed and variable overheads, supervision, maintenance, power and other operating costs. The effect of alternative proposals over future costs of production should be studied.

5) COST OF INVESTMENT :

The effective cost of purchasing and installation of the asset, available cash, resources, any external arrangements required to be made for raising funds for the asset.

If internal resources are not sufficient and external resources i.e. borrowings are going to be used, then it would not be a correct policy to invest in the project if rate of interest payable is more than the rate of return. At the same time, cash required to be spent during different period of its working life should also be kept in view. Because such costs of operation would have a great impact over working capital position during future periods.

6) PRODUCT DEMAND :

Where there is a possibility of increase in production because of capital asset acquired, it should be seen that whether there is sufficient demand for the increased production without decreasing prices or not.

7) Alternative uses of the new asset and its effect on the sales of other products.

8) OPPORTUNITY COSTS :

Opportunity cost means income or any other advantage sacrificed due to adoption of action e.g. If funds are invested somewhere else instead of investing in the capital project, what would have been possible income is the opportunity cost of the capital project. Such costs should be considered.

9) TAXATION :

The taxes payable on each of the alternative capital projects should be considered. Profits after deduction of tax is the real revenue which recovers the cost of the project.

10) OBSOLESCENCE :

This factor is difficult to assess. It has the effect of prematurely cutting down the working life of the asset. The probability of asset becoming obsolete should be considered by taking into account the past experience. However, optimistic approach should be always kept. If too pessimistic view is kept, it may result in projection of a profitable project.

11) OTHER FACTORS :

Besides the above factors, many other factors such as :

- i) Depreciation of capital project,
- ii) Interest on the cost of new asset less scrap value of old project;
- iii) Enhancement to the goodwill and prestige which would result from establishing the capital projects;
- iv) Effect of project on reducing labour force, compensation and other benefits such as Provident Fund, Gratuity etc. payable at the time of termination of employment etc. should also be given consideration while investing in the capital project.

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2.6 VARIOUS METHODS OF EVALUATING THE CAPITAL INVESTMENT PROJECT

There are various methods available for evaluating of capital investment project may be described as under:-

1) COMPARATIVE COST METHOD :

In this method comparison is made between the initial costs of projects and project with least possible cost is selected. This method is very easy to understand and also it is very easy to calculate. Hence this method has very limited application because it becomes helpful in the situation only when:-

- a) Cost of the assets;
- b) Working line;
- c) Selling price of the output ;
- d) Output potentials;
- e) Selling price of the output;
- f) Possibility of scrap etc. are just the same.

It is very difficult to get such assets for comparison.

2) PAY-BACK METHOD :

It is one of the most important and widely used method of evaluating capital expenditure projects. It is sometimes called pay out or pay off period method.

Pay-back period may be defined as the 'Number of years required to recover the original cash outlay invested

in the project'. For the purpose of computing pay back period, the annual cash inflows (earning) of the project itself or the set savings in costs which result in application of the project are worked out with the help of return available from the project itself by using the following formula pay back period is calculated as :

$$\text{PAY-BACK PERIOD} = \frac{\text{Cash outlay for the project}}{\text{Amount saving /Annual cash Inflows}}$$

OR

$$\text{PAY BACK PERIOD} = \frac{\text{Cost of Asset}}{\text{Savings per annum}}$$

While calculating the cash inflows, depreciation is added back to the profit after tax since it does not result in cash outflow. The cash generated from a project is equal to profit after tax plus depreciation.

When the cash inflows are not constant, the above formula can not be used. In such case the payback period is found out by adding up the cash inflows until the total is equal to the initial cash outlay.

This method assumes that the real profit is earned from any project only when pay back period is over.

Sometimes, the management prescribes maximum pay back period. In such case only when the project under consideration shows less pay back period than set by management, then only such project is recommended while selecting between the two

alternative proposals, the proposal having shorter pay back period is considered.

To make this method more objective in its approach, the concept of pay back profitability has been developed. Pay back profitability gives idea about the profit or returns which are available during the working life of the asset. It is worked out as under:

$$\text{ANNUAL CASH INFLOWS} = (\text{Working life} - \text{Pay back period})$$

And in that case the project having maximum pay back profitability is selected.

ADVANTAGES OF PAYBACK PERIOD

The advantages of pay-back method may be described as under :-

- 1) This method is simple to understand and easy to apply.
- 2) This the most suitable method, when there is shortage of funds and it is very difficult to obtain the funds in such case, it becomes necessary to select such project which gives quick returns i.e. the project with shorter pay back period.
- 3) This method is helpful where the risk of obsolescence of assets are high. In such case, it becomes desirable to select the projects having shorter periods. If other projects are selected, there is a possibility of other projects becoming obsolete even before the costs are recovered.
- 4) The use of pay back period method is preferred on the grounds that, returns beyond three or four years are also uncertain that. they may be regarded in a planning decision.

DISADVANTAGES :

- 1) It does not take into account the returns from project affect the pay back period e.g. project A, may have a pay back period of 4 years and project B, may have a pay back period of two years. According to this method project B will be selected. However it is quite possible that project A, may give returns for 4 years after pay back period, say @ 20% while B may give returns after pay back period for only 2 years @ 20%. And in such case the method may give incorrect results.
- 2) This method is likely to give misleading results when the cash inflows are uneven. The method fails to consider the pattern of cash inflows i.e. the magnitude and timing of cash inflows. In other words, it gives equal amount eventhough they occur in different periods.
- 3) Under this method, money at all points of time now as well as in future is considered to be having equal value whereas it can be so.
- 4) Sometimes administrative difficulties are faced in determining maximum acceptable pay back period. There is no rational basis available for determining the maximum acceptable pay back period. It becomes generally a subjective decision etc.

Inspite of the above weaknesses, the method is very popular in American and British industries for selecting

investment proposals. A recent survey conducted by machinery and allied product Institute of U.S.A. indicates that nearly 60% of the surveyed firms used the pay back method for analysing the alternative methods.

3) RETURN ON INVESTMENT METHOD:

Under pay back period the emphasis is on capital recovery. Under Return on Investment method 'YIELD' is considered as the primary factor for the purpose of selecting the project.

The main principle is that the net income resulting from the new investment is expressed as a percentage of investment. Such rate of return of alternative capital expenditure proposals is compared and the project yielding maximum return on investment is selected.

The formula for computing return on investment is :

$$\text{RETURN ON INVESTMENT} = \frac{\text{Earnings}}{\text{Investment}} \times 100$$

Earnings may be :-

- a) Total Earnings, b) Average Annual Earnings,
- c) Total net Earnings, d) Average Annual net earnings,
- e) Additional Earnings, while investment may be taken as total investment as average investment.

Under pay back period method net cash inflow is considered. Hence profit after tax is increased to the extent of depreciation because depreciation does not result in cash outflow. But under return on investment method,

profit after tax and depreciation is considered.

Under rate of return method, the cost analysis gets only numericle percentage. This percentage is compared with the maximum rate of return established by management whether to accept or reject the capital expenditure project depends upon such the conclusions of such comparison.

Under this method, it has been stated that, 'profit after taxes' should be considered. But even if profit before taxes is considered there will be no effect on the conclusion. Because in the present Indian conditions taxation is at blanket rate (Flat Rate). Only in some of the foreign countries, where there is progressive concept proves to be very significant.

ADVANTAGES OF THE METHOD :

The advantages of Return on Investment method can be described are as under :

- 1) The method is very simple to use and easy to understand and apply.
- 2) Some people consider average return on investment method to be superior to the pay back method because it takes into account saving over entire economic life of the asset etc.

DISADVANTAGES OF THIS METHOD :

This method suffers from the same weaknesses that of pay back period method, which may be described as under:

- 1) It ignores the fact, receipts occur at different

time intervals and thus, it does not take into consideration time value of money. Profit occurring at different periods are valued equally.

- 2) It does not take into consideration the life of the project.
- 3) It does not think about the fact that profit earned can be reinvested.
- 4) It is not matching with the firms objective of maximising the market value of share.

Furthermore some people are of the opinion that the method takes into consideration accounting profit. It does not take into account the cash inflows in appraising profits of the project.

4) THE NET PRESENT VALUE METHOD :

The Net Present value method is one of the best method of evaluating investment proposals. It is also slightly different versions is called 'Discounted Cash Flow Method'.

Time is always a crucial factor for investor because the amount received today is always worth more than the same sum to be received even tomorrow. Hence evaluating the investment proposals, it is important to take into consideration TIMINGS of the return on investments. And Discounted Cash-Flow Method gives the necessary time dimension to returns available from the project.

Under this method, the first thing to determine is cash out-flow. Each project will involve certain

investment and commitments of cash at certain points of time. These are taken as cash out-flows.

The second thing to determine is cash-in-flows. This can be calculated by adding depreciation to profit after tax arising out of that particular project.

Once the cash inflows and outflows are determined the next step is to discount each cash inflow and workout its present value for this purpose, the discounting equals the cost of capital. Since a project must earn at least that much as is paid out on the funds blocked in the project.

Some important points in connection with this method are :-

- a) Method gives valied results only if, monies can be immediately reinvested at the chosen rate of interest.
- b) Sometimes while selecting from the alternative proposals, with the help of discounted cash flow technique one of the method employed is to workout what is known as 'desirability factor', or 'profitability index'.

The desirability factor is worked out with help of following formulas:-

$$\frac{\text{Sum of discounted cash inflows}}{\text{Sum of discounted cash outflows}}$$

The project giving highest factor is selected.

ADVANTAGES :

- 1) Conceptually discounted cashflow method is superior of all the other methods because the conclusion arrived at from application of the method are not directly affected by the factors like depreciation policy, capitalisation versus expenses decision.
- 2) The method takes into consideration all the direct figures of revenues and expenses over the working life of the asset.
- 3) The method gives sufficient importance to the value of money.
- 4) The method enables comparison of projects having different timings of cash inflows because the discounting progress brings down all future earnings at the same point of time.
- 5) It takes into consideration the cost of capital to the firm.

DISADVANTAGES :

- 1) This method is difficult to understand and apply as compared with the other methods of ranking investment proposal. Hence it is less popular.
- 2) The method does not correspond with the accounting concepts of recording costs against revenue, hence a special analysis is required to be made.

3) The method gives correct result only when the firm is in a position to reinvest the cash inflows at the rate of saving anticipated.

4) It ignores the variations in the interest rates and their affect on the firms cost of capital in future etc.

5) INTERNAL RATE OF RETURN METHOD :

This method is slight variation of discounted internal rate cash inflow method. Internal rate of return is that rate at which the discounted cash flows are equal to the discounted cash outflows. It can be found by trial and error method. e.g. cut off rate @6% give the present value of net cash inflows more than discounted total cash outflows. If we use higher discounted total rated then the total value of present inflows goes down and if we use lower discount rate then the total value of present inflows increases. By trial and error, we can reach rate at which discounted cash inflows and outflows will be equal. This would be the internal rate of return.

This internal rate of return computed is compared with expected rated rate of return and only when it is more than the expected rate of return, the project is selected. This internal rate of return may be computed of alternative proposals and the proposal which yields maximum internal return is selected.

Internal rate of return method is slight variation of discounted cash flow method. As such it possesses all the strengths of discounted cash-flow method and also suffers from all the weaknesses of it furthermore, it is more tedious in its working because the internal rate of return is to be calculated by taking into account the present value of inflows and outflows at different discount rates.

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