

Unit -2 Capital Budgeting

❖ Introduction to Capital

Capital is a wealth in the form of money or assets, taken as a sign of the financial strength of an individual, organization, or nation, and assumed to be available for development or investment.

In Accounting capital is considered as money invested in a business to generate income. It is accumulated asset of a business that can be used to generate income for the business. In the most basic terms, it is money. All businesses must have capital in order to purchase assets and maintain their operations.

Business capital comes in two main forms: debt and equity. Debt refers to loans and other types of credit that must be repaid in the future, usually with interest. Equity, on the other hand, generally does not involve a direct obligation to repay the funds. Instead, equity investors receive an ownership position in the company which usually takes the form of stock.

Characteristics of Capital:

The following are the main characteristics of capital:

- Capital is man-made. It is, therefore, possible to increase its supply when the situation requires.
- It involves the element of time, as it renders its service over a period of time. That is why payment for capital is calculated in terms of so much per cent per annum.
- The use of capital makes roundabout methods of production possible. Its application increases efficiency and the productive power of all the factors with which it is combined and used.

❖ Types of Capital

Every enterprise needs money to run business, which is termed as capital. In general, capital can be of two types **fixed capital** and **working capital**, where the former refers to the capital, which is invested in acquiring fixed assets for business while the latter represents the amount of money utilized for financing day to day business operations. For a layman, these terms sound same but in accounting glossary, these are different in many respects.

Simple formula of calculating capital

$$\text{Capital} = \text{Total Assets} - \text{Total outside liabilities (Outside loan + current liabilities)}$$

Definition of Fixed Capital

Fixed Capital refers to the capital investment made in the long term assets of the company. It is a compulsory requirement of a firm during its initial stage, i.e. to commence a business or to conduct the existing business. It is that part of the total capital, which is not used for production but they are kept in business for more than one accounting year. Its nature is almost permanent which exist in the form of tangible and intangible assets of the company.

The need of fixed capital in any business depends on its nature, i.e. manufacturing entities, railways, telecommunication, and infrastructure companies requires high fixed capital as compared to the companies conducting wholesale and retail business. It is used for business promotion, expansion, modernization and so on.

As the fixed capital is invested in purchasing non-current assets like plant & machinery, land & building, furniture & fixtures, vehicles, patents, goodwill, trademark, copyright, etc. of the company, hence depreciation is charged on such assets due to a reduction in their value over time.

Fixed Capital = Fixed Assets – Fixed Liability

Factors Determining Fixed Capital Requirements

The amount of fixed capital required varies from business to business because of the following factors: (1) Nature of industry business, (2) Kinds of products, (3) Size of the business unit, (4) Methods of handling production, (5) Mode of acquiring fixed assets, (6) Diversity of manufacturing lines

(1) Nature of industry business:

The business enterprises engaged in rendering personal services, merchandise, commerce and trade may need very little fixed investment, while industries manufacturing heavy and capital goods are likely to invest a major part of their funds in fixed assets.

Similarly, a public utility undertaking (say, an electricity supply company, water supply undertaking or a railway company) would need heavy investment in fixed assets and equipment. Thus the nature of business determines the amount of fixed capital to a large extent.

(2) Kinds of products:

If the company is engaged in the manufacture of complicated goods like refrigerators, T.V. sets, motor vehicles, engines etc., it may need large amount of fixed capital than a business enterprise which produces simple consumer items like powder, cream, toothpaste etc. Thus the type of product manufactured also governs the amount of fixed capital.

(3) Size of the business unit:

A large scale firm requires more fixed capital than a small enterprise. The bigger the size of plant, the larger would be the amount of fixed investment. For instance, capital-intensive

companies require huge amount to be invested in fixed assets as compared to labor-intensive companies.

(4) Methods of handling production:

If a company is manufacturing all parts of a product, its fixed capital needs will be more, in comparison to an enterprise which is assembling parts produced by other concerns. For example, a bicycle factory which manufactures its own parts and then assembles them into a bicycle, needs huge amount of fixed capital. On the other hand, if a company assembles the parts manufactured by other firms, it will require small amount of fixed capital. Thus, the method of handling production also affects the magnitude of fixed capital.

(5) Mode of acquiring fixed assets:

Fixed assets can be either purchased or acquired on lease basis or taken on rent. In the first case, the requirement of fixed capital will be very high.

(6) Diversity of manufacturing lines:

If a company manufactures and markets its goods itself, it needs more fixed capital than a company engaged only in manufacturing a product. A trading concern buying and selling the goods produced by others will need very little fixed capital. Thus diversity of production lines also determines the fixed capital requirements.

Definition of Working Capital

Working Capital is the barometer that measures financial soundness and operational efficiency of the company. It is the outcome of current assets less current liabilities, where current assets are those assets which can be converted into cash within one year, such as inventories, debtors, cash, etc. while current liabilities are the liabilities which falls due for payment within one year, i.e. creditors, tax provision, short term loans, bank overdraft, etc.

Working capital is used to finance day to day business operations. It determines the short-term solvency position of the company. It can be classified on the following basis:

On the basis of time:

- **Gross Working Capital:** Investment made in the current assets of the firm.
- **Net Working Capital:** Deduction of current liabilities from current assets.

On the basis of Concept:

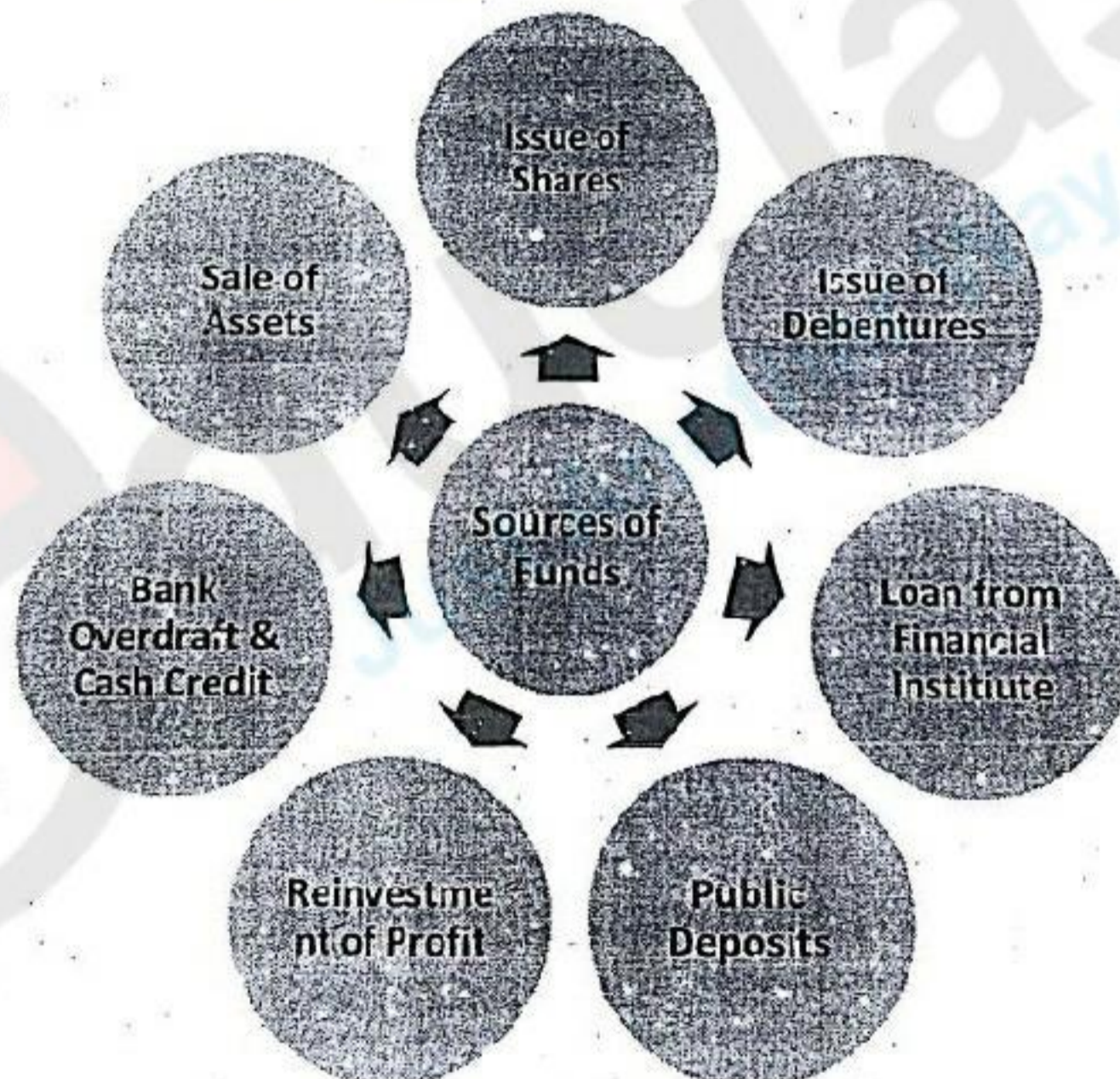
- **Permanent Working Capital:** It represents the hardcore business capital, i.e. the least investment needed in the working capital of the firm.
- **Temporary Working Capital:** It is the fluctuating working capital. The working capital needed by the firm over and above the permanent or fixed working capital.

❖ Methods of Raising Capital

A company may raise funds for different purposes depending on the time periods ranging from very short to fairly long duration. The total amount of financial needs of a company depends on the nature and size of the business. The scope of raising funds depends on the sources from which funds may be available. The business forms of sole proprietor and partnership have limited opportunities for raising funds. They can finance their business by the following means:-

- Investment of own savings
- Raising loans from friends and relatives
- Arranging advances from commercial banks
- Borrowing from finance companies

Companies can raise finance by a Number of Methods. To Raise Long-Term and Medium-Term Capital, they have the following options:-



Issue of Shares

It is the most important method. The liability of shareholders is limited to the face value of shares, and they are also easily transferable. A private company cannot invite the general public to subscribe for its share capital and its shares are also not freely transferable. But for public limited companies there are no such restrictions.

There are two types of shares:-

- **Equity shares:** the rate of dividend on these shares depends on the profits available and the discretion of directors. Hence, there is no fixed burden on the company. Each share carries one vote.
- **Preference shares:** dividend is payable on these shares at a fixed rate and is payable only if there are profits. Hence, there is no compulsory burden on the company's finances. Such shares do not give voting rights.

Issue of Debentures

Companies generally have powers to borrow and raise loans by issuing debentures. The rate of interest payable on debentures is fixed at the time of issue and are recovered by a charge on the property or assets of the company, which provide the necessary security for payment. The company is liable to pay interest even if there are no profits. Debentures are mostly issued to finance the long-term requirements of business and do not carry any voting rights.

Loans from Financial Institutions

Long-term and medium-term loans can be secured by companies from financial institutions like the Industrial Finance Corporation of India, Industrial Credit and Investment Corporation of India (ICICI), State level Industrial Development Corporations, etc. These financial institutions grant loans for a maximum period of 25 years against approved schemes or projects. Loans agreed to be sanctioned must be covered by securities by way of mortgage of the company's property or assignment of stocks, shares, gold, etc.

Public Deposits

Companies often raise funds by inviting their shareholders, employees and the general public to deposit their savings with the company. The Companies Act permits such deposits to be received for a period up to 3 years at a time. Public deposits can be raised by companies to meet their medium-term as well as short-term financial needs. The increasing popularity of public deposits is due to :-

- The rate of interest the companies have to pay on them is lower than the interest on bank loans.
- These are easier methods of mobilizing funds than banks, especially during periods of credit squeeze.
- They are unsecured.
- Unlike commercial banks, the company does not need to satisfy credit-worthiness for securing loans.

Reinvestment of Profits

Profitable companies do not generally distribute the whole amount of profits as dividend but, transfer certain proportion to reserves. This may be regarded as reinvestment of profits or ploughing back of profits. As these retained profits actually belong to the shareholders of the company, these are treated as a part of ownership capital. Retention of

profits is a sort of self financing of business. The reserves built up over the years by ploughing back of profits may be utilized by the company for the following purposes :-

- Expansion of the undertaking
- Replacement of obsolete assets and modernization.
- Meeting permanent or special working capital requirement.
- Redemption of old debts.

The benefits of this source of finance to the company are :-

- It reduces the dependence on external sources of finance.
- It increases the credit worthiness of the company.
- It enables the company to withstand difficult situations.
- It enables the company to adopt a stable dividend policy.

Bank Overdraft and Cash Credit

It is a common method adopted by companies for meeting short-term financial requirements. Cash credit refers to an arrangement whereby the commercial bank allows money to be drawn as advances from time to time within a specified limit. This facility is granted against the security of goods in stock, or promissory notes bearing a second signature, or other marketable instruments like Government bonds. Overdraft is a temporary arrangement with the bank which permits the company to overdraw from its current deposit account with the bank up to a certain limit. The overdraft facility is also granted against securities. The rate of interest charged on cash credit and overdraft is relatively much higher than the rate of interest on bank deposits

Sale of Fixed Assets:

Helps in generating funds by selling fixed assets, such as land, buildings, plants, and machineries to finance short-term and long-term projects. However, the usage of this method may hamper the goodwill and creditworthiness of the organization.

❖ Introduction to Capital Budgeting

An organization undertakes multiple projects with different capital requirements, rates of return, and time duration. For example, some projects may need investment over a longer period of time, whereas others need investments only in the initial years.

Since every project requires investment; therefore, an organization should take project selection decisions very prudently to ensure the optimum utilization of funds invested.

Any wrong selection of a project may incur heavy losses for the organization. In addition, the reputation and goodwill of the organization may also get affected. An organization needs to evaluate the capital requirements of a project and the returns generated from it, before selecting a project. This can be done with the help of capital budgeting, which is a process of determining the actual profitability of a project. In other words, capital budgeting is a process that helps in planning the investment projects of an organization in

the long run. The long-term investments of an organization can be purchase and replacement of fixed assets, new product launching or expansion of existing products, and research and development.

The capital budgeting process can be effective if an organization determines the total capital expenditure for a project that is expected to generate returns over a particular period of time. An organization uses various techniques to determine the total expenditure for a project and rate of return yielded from it. Some of the popular techniques are net present value, internal rate of return, payback period, sensitivity analysis, and decision tree analysis.

Concept of Capital Budgeting:

Capital budgeting is a planning process that is used to determine the worth of long-term investments of an organization. The long-term investments of the organization can be made in purchasing a new machinery, plant, and technology.

In other words, capital budgeting is a method of identifying, evaluating, and selecting long-term investments. The concept of capital budgeting has a great importance in project selection as it helps in planning capital required for completing long-term projects. Selection of a project is a major investment decision for an organization.

Therefore, capital budgeting decisions are included in the selection of a project. In addition, capital budgeting helps in estimating costs and benefits involved in a particular project. A project is not worth investing, if it does not yield adequate return on invested capital.

Some of the management experts have defined capital budgeting in the following ways:

According to Charles T. Homgreen, "Capital Budgeting is long-term planning for making and financing proposed capital outlays."

As per Richards and Greenlaw, "The capital budgeting generally refers to acquiring inputs and long-run returns."

From the aforementioned definitions, it can be concluded that capital budgeting is an important process for any organization.

❖ Importance/Features of Capital Budgeting Decisions

1. Long term application

Implies that capital budgeting decisions are helpful for an organization in the long run as these decisions have a direct impact on the cost structure and future prospects of the organization. In addition, these decisions affect the organization's growth rate.

Therefore, an organization needs to be careful while making capital decisions as any wrong decision can prove to be fatal for the organization. For example, over-investment in various assets can cause shortage of capital to the organization, whereas insufficient investments may hamper the growth of the organization.

2. Involvement of large amount of funds

Capital budgeting decisions need substantial amount of capital outlay. This underlines the need for thoughtful, wise and correct decisions as an incorrect decision would not only result in losses but also prevent the firm from earning profit from other investments which could not be undertaken.

3. Irreversible decisions

Capital investment decisions, once made, are not easily reversible without much financial losses to the firm because there may be no market for second hand plant and equipment and their conversion to other uses may not be financially viable.

4. Risk and uncertainty

Capital budgeting decision is surrounded by great number of uncertainties. Investment is present and investment is future. The future is uncertain and full of risks. Longer the period of project, greater may be the risk and uncertainty. The estimates about cost, revenues and profits may not come true.

5. Difficult to make decision

Capital budgeting decision making is a difficult and complicated exercise for the management. These decisions require an overall assessment of future events which are uncertain. It is really a marathon job to estimate the future benefits and cost correctly in quantitative terms subject to the uncertainties caused by economic-political social and technological factors.

6. Long term Effect on Profitability

Capital expenditures have great impact on business profitability in the long run. If the expenditures are incurred only after preparing capital budget properly, there is a possibility of increasing profitability of the firm.

❖ Purpose of Capital Budgeting

The capital budgeting decisions are crucial and critical business decisions due to following reasons:

Substantial Expenditure:

Capital budgeting decisions involves the investment of substantial amount of funds. It is therefore necessary for a firm to make such decisions after a thoughtful consideration so as to result in the profitable use of its scarce resources.

The hasty and incorrect decisions would not only result into huge losses but may also account for the failure of the firm.

Long Time Period

The capital budgeting decision has its effect over a long period of time. These decisions not only affect the future benefits and costs of the firm but also influence the rate and direction of growth of the firm.

Irreversibility

Most of the investment decisions are irreversible. Once they are taken, the firm may not be in a position to reverse them back. This is because, as it is difficult to find a buyer for the second hand capital items.

Complex Decisions

The investment decision involves an assessment of future events, which in fact is difficult to predict. Further it is quite difficult to estimate in quantitative terms all the benefits or the costs relating to a particular investment decision.

❖ Types of Capital Budgeting Decisions

If you have a business then you understand that the key factor in maintaining your business is to find revenue in which your business can maximize the capital of that business. A company, regardless of its size must invest in new opportunities as well as reinvent older methodologies in order to run more efficiently. Generally, a business will have its own department to implement changes, research, development, and allocate funds to various capital investments. Yet, it is still important to understand the different categories in which capital projects can be formulated. Where there are multiple types of capital investment projects and each of these can be developed with its own creativity and sub-types, here are the core categories.

1. On the basis of firm's existence

- a. Cost Reduction decision
 - i. Replacement and Modernization decision
- b. Revenue expansion decision
 - i. Expansion decision
 - ii. Diversification decision

2. On the basis of situation

- a. Accept/Reject decision

- b. Mutually Exclusive decision
- c. Contingent decision

1. On the basis of firm's existence

The capital budgeting decisions are taken by both newly incorporated firms as well as by existing firms. The new firms may be required to take decisions in respect of selection of a plant to be installed. The existing firm may be required to take decisions to meet the requirement of new environment or to face the challenges of competition. These decisions are classified as follows.

a. Cost Reduction decision

These type of decisions are taken to reduce the cost of production of the company

Replacement or modernization decision—a decision concerning whether an existing asset should be replaced by a newer version of the same machine or even a different type of machine that does the same things as the existing machine. Such replacements are generally made to maintain existing levels of operations, although profitability might change due to changes in expenses (that is, the new machine might be either more expensive or cheaper to operate than the existing machine).

b. Revenue Expansion Decision

These types of decisions are taken to increase the revenue of the business.

Expansion decision—a decision concerning whether the firm should increase operations by adding new products, additional machines, and so forth. Such decisions would expand operations.

Diversification decision—a new product or new market has been introduced. It requires detailed financial analysis. It is important for the growth and expansion of company. It is also important for the economy at large as it means research and development. This type of project is one that is either for expansion into a new product line or into a new product market, often called the target market.

2. On the basis of situation

a. Accept - Reject decision

This is the fundamental decision in capital budgeting. If the project is accepted, the firm would invest in it; if the proposal is rejected the firm does not invest in it. In general all those proposals which yield a rate of return greater than a certain required rate of return or cost of capital are accepted and the rest are rejected. By applying the criteria all independent projects are accepted. Independent project are projects that does not compete with one another that

means the acceptance of an independent project does not affect the acceptance of any other project. Under the accept reject criteria all independent projects that satisfy the minimum investment criterion should be implemented.

For example, if you have a large sum of money in the bank that you would like to spend on yourself, say, \$50,000. You decide you are going to buy a car that costs about \$30,000 and a new stereo system for your house that costs less than \$5,000. The decision to buy the car does not affect the decision to buy the stereo—they are independent decisions.

b. Mutually exclusive project decision

Mutually exclusive projects are those which compete with other projects in such a way that the acceptance of one will exclude the acceptance of the other projects. The alternatives are mutually exclusive and only one may be chosen.

For example, if in the above example you decided you were going to buy only one automobile, but you were looking at two different types of cars, one is a Chevrolet and the other is a Ford. Once you make the decision to buy the Chevrolet, you have also decided you are not going to buy the Ford.

It may be noted here that mutually exclusive project decisions are not independent of the accept reject decisions. The projects should also be accepted under the latter decision. Mutually exclusive investment decisions acquire significance when more than one proposal is accepted under the accept-reject decision. Then, some technique has to be used to determine the 'best' one. The acceptance of this best alternative automatically eliminates the other alternatives.

c. Contingent investments:

Contingent investments are dependent projects; the choice of one investment necessitates undertaking one or more other investments. For example, if a firm decides to build a factory in a remote, backward area, it may have to invest in houses, roads, hospitals, schools etc. for employees to attract the work force. Thus, building of factory also requires investment in facilities for employees. The total expenditure will be treated as one single investment.

❖ **Capital Budgeting Processes**

The extent to which the capital budgeting process needs to be formalized and systematic procedures established depends on the size of the organization, number of projects to be considered, direct financial benefit of each project considered by itself, the composition of the firm's existing assets and management's desire to change that composition, timing of expenditures associated with the that are finally accepted.

1. Planning

The capital budgeting process begins with the identification of potential investment opportunities. The opportunity then enters the planning phase when the potential effect on the firm's fortunes is assessed and the ability of the management of the firm to exploit the opportunity is determined. Opportunities having little merit are rejected and promising opportunities are advanced in the form of a proposal to enter the evaluation phase.

2. Evaluation

This phase involves the determination of proposal and its investments, inflows and outflows. Investment appraisal techniques, ranging from the simple pay back method and accounting rate of return to the more sophisticated discounted cash flow techniques, are used to appraise the proposals. The technique selected should be the one that enables the manager to make the best decision in the light of prevailing circumstances.

3. Selection

Considering the returns and risk associated with the individual project as well as the cost of capital to the organization, the organization will choose among projects so as to maximize shareholders wealth.

4. Implementation

When the final selection has been made, the firm must acquire the necessary funds, purchase the assets, and begin the implementation of the project.

5. Control

The progress of the project is monitored with the aid of feedback reports. These reports will include capital expenditure progress reports, performance reports comparing actual performance against plans set and post completion audits.

6. Performance Review

When a project terminates, or even before, the organization should review the entire project to explain its success or failure. This phase may have implication for forms planning and evaluation procedures. Further, the review may produce ideas for new proposal to be undertaken in the future.

❖ Capital Budgeting Techniques

Capital budgeting (or investment appraisal) is the process of determining the viability to long-term investments on purchase or replacement of property plant and equipment, new product line or other projects.

Capital budgeting consists of various techniques used by managers such as:

1. Payback Period
2. Discounted Payback Period
3. Net Present Value
4. Accounting Rate of Return
5. Internal Rate of Return
6. Profitability Index

All of the above techniques are based on the comparison of cash inflows and outflow of a project however they are substantially different in their approach.

1. Payback Period

The payback period is the traditional method of evaluating investment proposals under capital budgeting. It is the simplest and perhaps the most widely employed quantitative method for appraising capital expenditure decisions. It is also called payout or pay off period. It calculates the period of return back of investment. Payback period is the time period required to recover the investment made in a project. Thus, PBP measures the number of years to pay back the original outlay from cash inflows generated by an investment proposal.

Decision Rules of Pay Back Period (PBP)

A. If projects are independent:

- Accept the project whose payback period is less than the life or standard payback period.
- Reject the project whose payback period is more than the life or standard payback period.

B. If projects are mutually exclusive:

- Accept the project with lowest payback period.
- Reject other projects.

Calculation of Pay Back Period

There are two ways of calculating PBP:

1. Even Cash Flow

Even cash flow is also known as equal amount of cash flow during the life period of project. The following formula is use to calculate PBP if cash flow is equal:

$$\text{PBP} = \frac{\text{Investment}}{\text{Constant annual cash flow after tax (CFAT)}}$$

Example:

Company is planning to undertake a project requiring initial investment of \$105 million. The project is expected to generate \$25 million per year for 7 years. Calculate the payback period of the project.

Solution

$$\begin{aligned} \text{Payback Period} &= \frac{\text{Initial Investment}}{\text{Annual Cash Flow}} \\ &= \frac{\$105\text{M}}{\$25\text{M}} \\ &= 4.2 \text{ years} \end{aligned}$$

2. Uneven Cash Flow

If the amounts of cash flow are different, it is known as uneven cash flow. In such a situation, PBP is calculated by process of cumulating cash flow still the time when cumulative cash flow becomes equal to the original investment outlay. The following formula is used to calculate PBP when cash flow is not equal:

$$\text{PBP} = \text{Minimum year} + \frac{\text{Amount to be recovered investment}}{\text{CFAT of next year}}$$

Example

Company is planning to undertake another project requiring initial investment of \$50 million and is expected to generate \$10 million in Year 1, \$13 million in Year 2, \$16 million in year 3, \$19 million in Year 4 and \$22 million in Year 5. Calculate the payback value of the project

Year	Cash Flow	Cumulative Cash Flow
1	10	10
2	13	23
3	16	39
4	19	58
5	22	80

$$\begin{aligned}
 \text{PBP} &= \text{Minimum year} + \frac{\text{Amount to be recovered investment}}{\text{CFAT of next year}} \\
 &= 3 + \frac{(50-39)}{19} \\
 &= 3.58 \text{ Years}
 \end{aligned}$$

Advantages

1. Payback period is simple and easy to understand and compute.
2. Payback period is universally used and easy to understand.
3. Payback period gives more importance on liquidity for making decision about the investment proposals.
4. Payback period deals with risk. The project with a shortest PBP has less risk than with the project with longest PBP.
5. The short term approach of payback period is an added advantage of calculation of capital expenditure.

Disadvantages:

1. Ignores the cash flows beyond the payback period
2. Ignores the time value of money
3. Not concerned with whether an investment increases the firms value
4. A brief introduction to the above methods is given below:

❖ Time value of Money

One of the most important principles in all of finance is the relationship between value of a rupee today and value of rupee in future. This relationship is known as the 'time value of money'. A rupee today is more valuable than a rupee tomorrow. This is because current consumption is preferred to future consumption by the individuals, firms can employ capital productively to earn positive returns and in an inflationary period, rupee today represents greater purchasing power than a rupee tomorrow.

The value of money received today is different from the value of money received after some time in the future. The preference of money now, as compared to future money is, known as time preference for money.

A rupee today is more valuable than a rupee after a year due to several reasons.

- **Inflation:** Under inflationary conditions the value of money, expressed in terms of its purchasing power over goods and services, declines.

- **Risk:** Re. 1 now is certain, whereas Re.1 receivable tomorrow is less certain. This 'bird-in-the-hand' principle is extremely important in investment appraisal.
- **Personal consumption preference:** Many individuals have a strong preference for immediate rather than delayed consumption. The promise of a bowl of rice next week counts for little to the hungry man
- **Investment opportunities:** Many like any other desirable commodity have a price, given the choice of Rs. 100 now or the same amount in one year's time' it is always preferable to take the Rs. 100 now because it could be invested over the next year at say) 16 per cent interest rate to produce Rs. 116 at the end of one year. If 16 per cent is the best return available then you would be indifferent to receiving Rs. 100 now or Rs. 116 in one year's time. Expressed another way, the present value of Rs. 116 receivable one year hence is Rs. 100.
- The time value of the money may be computed in the following circumstances.
 - (a) Future value of a single cash flow
 - (b) Present value of a single cash flow
 - (c) Present value of an annuity
 - (d) Future value of an annuity

A. Future Value of a Single Cash Flow

For a given present value (PV) of money, future value of money (FV) after a period 't' for which compounding is done at an interest rate of 'r', is given by the equation

$$FV = PV (1 + r)^n$$

Example 1: Calculate the value of a deposit of Rs.2,000 made today, 3 years hence if the interest rate is 10%.

By discrete compounding:

$$FV = 2,000 * (1+0.10)^3 = 2,000 * (1.1)^3 = 2,000 * 1.331 = \text{Rs. } 2,662$$

B. Present Value of a Single Cash Flow

Present value of (PV) of the future sum (FV) to be received after a period 'n' for which discounting is done at an interest rate of r, is given by the equation

$$PV = \frac{FV}{(1+r)^n}$$

Example 6: What is the present value of Rs.5,000 payable 3 years hence, if the interest rate is 10 % p.a.

$$PV = 5000 / (1.10)^3 = \text{Rs.}3756.57$$

C. Present Value of a Single Cash Flow

Present value of (PV) of the future sum (FV) to be received after a period 'n' for which discounting is done at an interest rate of V, is given by the equation

$$\text{In case of discrete discounting: } PV = FV / (1+r)^n$$

Example 6: What is the present value of Rs.5,000 payable 3 years hence, if the interest rate is 10 % p.a.

$$PV = 5000 / (1.10)^3 \text{ i.e. } = \text{Rs.}3756.57$$

D. Present Value of an Annuity

The present value of annuity is the sum of the present values of all the cash inflows of this annuity.

Present value of an annuity (in case of discrete discounting)

$$PVA = FV * \frac{(1+r)^n - 1}{r * (1+r)^n}$$

The term $[(1+r)^n - 1 / r * (1+r)^n]$ is referred as the Present Value Interest factor for an annuity (PVIFA).

2. Discounted Payback Period

One of the major disadvantages of simple payback period is that it ignores the time value of money. To counter this limitation, an alternative procedure called discounted payback period may be followed, which accounts for time value of money by discounting the cash inflows of the project.

Formulas and Calculation Procedure

In discounted payback period we have to calculate the present value of each cash inflow taking the start of the first period as zero point. For this purpose the management has to set a suitable discount rate. The discounted cash inflow for each period is to be calculated using the formula:

$$\text{Discounted Cash Inflow} = \frac{\text{Actual Cash Inflow}}{(1+r)^n}$$

Where,
i is the discount rate;

n is the period to which the cash inflow relates.

Usually the above formula is split into two components which are actual cash inflow and present value factor (i.e. $1 / (1 + i)^n$). Thus discounted cash flow is the product of actual cash flow and present value factor.

The rest of the procedure is similar to the calculation of simple payback period except that we have to use the discounted cash flows as calculated above instead of actual cash flows. The cumulative cash flow will be replaced by cumulative discounted cash flow.

Decision Rule

If the discounted payback period is less than the target period, accept the project. Otherwise reject.

Example:

A company wants to invest in a project costing \$10,000 and expects to generate cash flows of \$5,000 in year 1, \$4,000 in year 2, and \$3,000 in year 3. The weighted average cost of capital is 10%. Calculate discounted payback period.

Answer

Year	Cash Flow	Present Value $CF/(1+r)^n$	Cumulative Cash Flow
1	5000	4545.45	4545.45
2	4000	3305.79	7851.24
3	3000	2253.94	10105.18

$$DPP = 2 + \frac{(10000 - 7851.24)}{2253.94} = 2.95 \text{ yrs}$$

OR

Year	Cash Flow	PV Factor $1/(1+r)^n$	Present Value of CF	Cumulative Cash Flow
1	5000	0.9090	4545	4545
2	4000	0.8264	3305.6	7850.6
3	3000	0.7513	2253.9	10104.5

The recovery of the investment falls between the 2nd and 3rd year. So, the payback period is 2 years plus a fraction of the 3rd year.

$$\text{The fractional value} = \frac{(10000 - 7850.6)}{2253.9} = 0.95$$

Therefore, the **Discounted Payback Period = 2.95 yrs**

Advantages

1. Consider the time value of money
2. Considers the riskiness of the project (through the cost of capital)

Disadvantage

1. Ignores the cash flows beyond the discounted payback period
2. Not concerned with whether an investment increases the firm's value

3. Net Present Value Method

This is generally considered to be the best method for evaluating the capital investment proposals. In case if this method cash inflows and cash outflows associated with each project are first worked out.

Net Present Value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows. NPV is used in capital budgeting to analyze the profitability of a projected investment or project.

It is one of the most reliable measures used in capital budgeting because it accounts for time value of money by using discounted cash flows in the calculation.

Net present value calculations take the following two inputs:

- Projected net cash flows in successive periods from the project.
- A target rate of return i.e. the hurdle rate.

Where,

Net cash flow equals total cash inflow during a period, including salvage value if any, less cash outflows from the project during the period.

Hurdle rate is the rate used to discount the net cash inflows. Weighted average cost of capital (WACC) is the most commonly used hurdle rate.

The first step involved in the calculation of NPV is the estimation of net cash flows from the project over its life. The second step is to discount those cash flows at the hurdle rate.

The net cash flows may be even (i.e. equal cash flows in different periods) or uneven (i.e. different cash flows in different periods). When they are even, present value can be easily calculated by using the formula for present value of annuity. However, if they are uneven, we need to calculate the present value of each individual net cash inflow separately.

Once we have the total present value of all project cash flows, we subtract the initial investment on the project from the total present value of inflows to arrive at net present value.

Thus we have the following two formulas for the calculation of NPV:

When cash inflows are even:

$$NPV = R \times \frac{1 - (1 + i)^{-n}}{i} - \text{Initial Investment}$$

In the above formula,

R is the net cash inflow expected to be received in each period;
 i is the required rate of return per period;
 n are the number of periods during which the project is expected to operate and generate cash inflows.

When cash inflows are uneven:

$$NPV = \left[\frac{R_1}{(1 + i)^1} + \frac{R_2}{(1 + i)^2} + \frac{R_3}{(1 + i)^3} + \dots \right] - \text{Initial Investment}$$

Where,

i is the target rate of return per period;
 R1 is the net cash inflow during the first period;
 R2 is the net cash inflow during the second period;
 R3 is the net cash inflow during the third period, and so on ...

Decision Rule

In case of standalone projects, accept a project only if its NPV is positive, reject it if its NPV is negative and stay indifferent between accepting or rejecting if NPV is zero.

In case of mutually exclusive projects (i.e. competing projects), accept the project with higher NPV.

Example

A company is considering an investment proposal to install new milling controls at a cost of Rs.50,000. The facility has the life expectancy of 5 years and no salvage value. The tax rate is 35%. Assume the firm uses straight line method of depreciation and the same is allowed for tax purpose. The estimated cash flow before depreciation and tax (CFBT) from the investment proposal are as follows

Year	CFBT
1	10000

2	10692
3	12769
4	13462
5	20385

Calculate

- I. Payback period
- II. Net Present Value at 10% discount rate

Answer

Year	CFBT	Depreciation (50000-0)/5	CFADBT (Col.2- Col.3)	Tax (Col.4*0.35)	CFADAT (Col.4- Col.5)	CFAT (Col.6+Col.3)
1	10000	10000	Nil	Nil	Nil	10000
2	10692	10000	692	242	450	10450
3	12769	10000	2769	969	1800	11800
4	13462	10000	3462	1212	2250	12250
5	20385	10000	10385	3635	6750	16750

I. Payback Period

Year	CFAT	Cumulative CFAT
1	10000	10000
2	10450	20450
3	11800	32250
4	12250	44500
5	16750	61250

The recovery of the investment falls between the 4th and 5th year. So, the payback period is 4 years plus a fraction of the 5th year.

$$\text{The fractional value} = \frac{(50000 - 44500)}{16750} = 0.328$$

Therefore, the Payback Period = 4.328yrs

II. Net Present Value

Year	CFAT	PV Factor $1/(1+r)^n$	Total PV
1	10000	0.9090	9090
2	10450	0.8264	8635.88
3	11800	0.7513	8865.34

4	12250	0.6830	8366.75
5	16750	0.6209	10400.07
TOTAL			45358.04
Less Initial Investment			-50000
Net Present Value			(-4641.96)

Here the NPV < 0 so it is not advisable to invest in this project.

Example:

Rank the following investment projects in order of the profitability according to Net Present Value assuming the cost of capital is 10%

Project	Initial Outlay	Annual Cash Inflow	Life in years
X	40000	8000	8
Y	20000	8000	5

Answer

Project X:

Present value of 8000 received annually for 8 years
 $= 8000 * 5.335 = 42680$

Note: 5.335 is the annuity discount factor for 8 years at 10%

$$\text{PV factor} = \left[\frac{1 - (1+r)^{-n}}{r} \right] \quad \text{OR} \quad \left[\frac{1 - \frac{1}{(1+r)^n}}{r} \right]$$

$$\text{NPV} = 42680 - 40000 = 2680$$

Project Y:

Present value of 8000 received annually for 5 years
 $= 8000 * 3.791 = 30328$

$$\text{NPV} = 30328 - 20000 = 10328$$

Ranking: As per the NPV method Project Y is ranked first.

❖ Replacement Decision

Example:

Jyoti CNC Ltd. is currently operating with a machine bought before 3 years for Rs. 11,00,000. Original life of machine is 8 years and salvage value receivable at the end of useful life is 300000. If the machine is sold today, it will realize 7,50,000. Machine generates annual CFBDT of Rs. 300000 per annum.

There is a proposal to replace this existing machine with a more sophisticated machine costing Rs. 20,00,000 with a useful life of 5 years and salvage value is Rs.500000. New machine shall generate annual CFBDT of Rs.900000 per annum.

Depreciation = SLM

Tax rate = 50%

Weighted average cost of capital = 12%

Advise whether the company should continue with existing machine or to replace the existing machine with a new one.

A. TOTAL COST APPROCH

1. Evaluation of OLD Machine

Step - 1 Calculation of Present year's outflow = Nil

Step - 2 Calculate Depreciation

$$\text{Depreciation} = \frac{\text{Original Cost} - \text{Salvage Value}}{\text{Useful Life}} = \frac{1100000 - 300000}{8} = 100000 \text{ p.a.}$$

Step - 3 Annual CFBDAT

Annual CFBDT	300000
- Depreciation	100000
CFADBT	<u>200000</u>
Tax 50%	100000
CFADAT	<u>100000</u>
+ Depreciation	100000
CFBDAT	<u>200000</u>

Step -4 Evaluation

Year	CFBDAT	PV Factor	PV of CF
0	Nil	-	-
1-5	200000	3.6048	720960
5	300000	0.5674	<u>170220</u>
	PV of Cash Inflow		<u>891180</u>
	- PV of Cash Outflow		<u>Nil</u>
	Net Present Value		<u>891180</u>

2. Evaluation of New Machine

Step - 1 Cash flow of New Machine

Cost of New Machine	20,00,000
- Net realizable value of old machine	<u>7,50,000</u>
Cash out flow of new machine	12,50,000

Step - 2 Calculate Depreciation

$$\text{Depreciation} = \frac{\text{Original Cost} - \text{Salvage Value}}{\text{Useful Life}} = \frac{2000000 - 500000}{5} = 300000 \text{ p.a.}$$

Step - 3 Annual CFBDAT

Annual CFBDT	900000
- Depreciation	<u>300000</u>
CFADBT	600000
Tax 50%	<u>300000</u>
CFADAT	300000
+ Depreciation	<u>300000</u>
CFBDAT	600000

Step - 4 Evaluation

Year	CFBDAT	PV Factor	PV of CF
1-5	600000	3.6048	2162880
5	500000	0.5674	<u>283700</u>
	PV of Cash Inflow		2446580
	- PV of Cash Outflow		<u>1250000</u>
	Net Present Value		1196580

Incremental NPV

NPV of new machine	1196580
- NPV of old machine	<u>891180</u>
Incremental NPV	305400

Note: If incremental NPV is positive than the new machine should be bought and if not than continue with the old machine

B. INCREMENTAL APPROACH

Step -1 Calculation of Incremental cash out flow

COF of new machine	12,50,000
- COF of old machine	<u>NIL</u>
Incremental COF	12,50,000

Step - 2 Incremental Depreciation

Depreciation of new machine	300000
- Depreciation of old machine	<u>100000</u>
Incremental Depreciation	200000

Incremental CFBDAT

New CFBDDBT	900000
- Old CFBDDBT	<u>300000</u>
Incremental CFBDDBT	600000

Step - 3 Incremental CFBDAT

Annual CFBDDBT	600000
- Depreciation (New SV - Old SV)	<u>200000</u>
CFADDBT	400000
Tax 50%	<u>200000</u>
CFADAT	200000
+ Depreciation	<u>200000</u>
CFBDAT	400000

Step - 4 Incremental Salvage Value

Salvage Value of old machine	500000
Salvage Value of old machine	<u>300000</u>
Incremental SV	200000

Step - 5 Evaluation

Year	CFBDAT	PV Factor	PV of CF
1-5	400000	3.6048	1441920
5	200000	0.5674	<u>113480</u>
	PV of Cash Inflow		1555400
	- PV of Cash Outflow		<u>1250000</u>
	Net Present Value		305400

Note: As the old machine had been bought before 3 years back so, Cash out flow took place before 3 yrs. As the incremental NPV is positive company should replace the old machine with the new machine.

Advantages

1. Considers the time value of money
2. Considers all cash flows
3. Considers the risk of future cash flow (through the cost of capital)
4. Tell whether the investment will increase the firms value

Disadvantage

1. Difficult to use
2. Requires an estimation of cost of capital in order to calculate the NPV

4. Accounting Rate of Return

According to this method, the capital investment proposals are judged on the basis of their relative profitability.

For this purpose, capital employed and related incomes are determined according to commonly accepted accounting principle and practices over the entire economic life of the project and then the average yield is calculated. Such a rate is termed as accounting rate of return. It may be calculated according to any of the following methods.

1. $\frac{\text{Annual Average net earnings} * 100}{\text{Original Investment}}$
2. $\frac{\text{Annual Average net earnings} * 100}{\text{Average Investment}}$

Average Investment: - $\frac{1}{2} (\text{Initial Cost} + \text{Installation Expenses} - \text{Salvage Value}) + \text{Salvage Value}$

Decision Rule

Accept the project only if it's ARR is equal to or greater than the required accounting rate of return.

Example:

A project of \$650,000 is expected to generate the following cash flows over its useful life:

Year	Cash outflows	Cash inflows
------	---------------	--------------

0	Initial investment	\$(650,000)
1	-	\$150,000
2	-	\$220,000
3	-	\$300,000
4	-	\$250,000
5	-	\$190,000
6	-	\$112,000
6	Salvage value -	\$20,000

The project does not require any cash expenses. Depreciation is to be provided using straight line method. According to accounting policies of the company, the salvage value is treated as the reduction in depreciable basis.

Required: Compute accounting rate of return from the above information.

Step 1: Computation of annual depreciation expenses:

$(\text{Cost} - \text{salvage value}) / \text{Life of the asset}$

$(\$650,000 - \$20,000) / 6$

\$10,5000

Step 2: Computation of average incremental annual income:

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Expected revenues (cash inflows)	\$150,000	\$220,000	\$300,000	\$250,000	\$190,000	\$112,000
Depreciation expenses	\$105,000	\$105,000	\$105,000	\$105,000	\$105,000	\$105,000
Net operating income	45,000	115,000	195,000	145,000	75,000	7,000

$$\text{Average income} = (45,000 + 115,000 + 195,000 + 145,000 + 75,000 + 7,000) / 6 = \$97,000$$

Step 3: Computation of accounting rate of return:

If initial investment is used as denominator:

$$\text{Accounting rate of return / Simple rate of return} = \frac{\text{Incremental accounting income}}{\text{Initial investment}}$$

$$= \$97,000 / \$650,000 \\ = 14.92\%$$

If average investment is used as denominator:

$$\$97,000 / \$335,000^* \\ = 28.96\%$$

$$* (\$650,000 + \$20,000) / 2 \\ = \$335,000$$

Advantages of ARR

1. The most significant attribute of ARR is that it is very simple to understand and easy to calculate,
2. It can be easily computed on the basis of accounting data which are furnished by the financial statements.

Disadvantages of ARR

1. The principal shortcoming of ARR is that it recognizes only the accounting income instead of cash flows.
2. It does not recognize the time value of money.
3. It does not take into consideration the length of lives of the projects.
4. It does not consider the fact that the profits may be re-invested

Unit – 3 Financial Management Concepts

❖ Introduction

Financial Management is concerned with planning, directing, monitoring, organizing and controlling monetary resources of an organization. Financial Management simply deals with management of money matters. Management of funds is a critical aspect of financial management. The process of financial management takes place at the individual as well as organization levels. Our area of dealing is from the view-point of organization. 'Financial Management' is a combination of two words, 'Finance' and 'Management'. Finance is the lifeblood of any business enterprise. No business activity can be imagined, without finance. It has been rightly said that business needs money to make more money. However, money begets money, when it is properly managed. Efficient management of business is closely linked with efficient management of its finances. Financial Management is that specialized function of general management, which is related to the procurement of finance and its effective utilization for the achievement of common goal of the organization.

❖ Meaning of Financial Management

Finance is defined as the provision of money at the time, it is required. Finance is the art and science of managing money. There is no human being, without blood. Similarly, there is no organization that does not require finance, irrespective of the activity, it is engaged in. The way blood is needed for a person to live, so is the requirement of finance to any firm for its survival and growth. Without adequate finance, no organization can possibly achieve its objectives.

Ray G. Jones and Dean Dudley observe that the word 'finance' comes directly from the Latin word 'finis'. As a management function, finance has special meaning. Finance function may be defined as the procurement of funds and their effective utilization. Howard and Upton (1952) defined finance as "the administrative area or set of administrative function in an organization which have to do with the management of flow of cash so that the organization will have the means to carry out its objectives as satisfactory as possible and, at the same time, meet its obligations as they become due." Distinction between Money and Finance: Money is expressed in currency. Money can be any country's currency, which is in the hands of any person or organization. Finance is also money, any country's currency, which is owned by any person or organization, but lent to others, used to buy an asset or make investment opportunities. The distinction between money and finance can be explained in another way.

If you hold currency, it is money, while you lend it over to others for buying or investing in investment opportunities, it becomes finance.

It is curious to find that the same currency changes its role from 'Money' to 'Finance', with the change of hands. Let us illustrate. Money raised by a bank, in the form of deposits from the public, becomes finance when it is lent to borrowers. If it is granted to buy/construct a home, it becomes a home loan. It is a vehicle loan, when the amount is lent for buying a car. The amount becomes 'Project Finance', if lent to entrepreneur to start or expand a project. If you hold money, it does not give any return. You part money in the form of finance, either by way of loan or investment, it starts getting return. Is it not interesting?

❖ Finance and Importance of Finance

In general, the term "Finance" is understood as the provision of funds, as and when needed. Finance is the essential requirement—sine qua non—of every organization.

Required Everywhere: All activities, be it production, marketing, human resources development, purchases and even research and development, depend on the adequate and timely availability of finance both for commencement and their smooth continuation to completion. Blood is needed for every human being. Similarly, there is no organization that does not require finance, irrespective of its activities. The way blood is required for a person to live, so be the finance to any firm for its survival and growth. Finance is regarded as the life-blood of every business enterprise.

Efficient Utilization—More Important: Finance function is the most important function of all business activities. The efficient management of business enterprise is, closely, linked with the efficient management of its finances. The need of finance starts with the setting up of business. Its growth and expansion require more funds. Funds have to be raised from various sources. Such sources have to be selected keeping in view their relation to the implications, in particular, its risks attached. Receiving money, alone, is not important. Terms and conditions, while receiving money are more important. Cost of funds is an important element. Its utilization is rather more important. If funds are utilized properly, repayment would be possible and easier, too. Care has to be exercised to match the inflow and outflow of funds. Needless to say, profitability of any firm is dependent on its cost as well as its efficient utilization.

❖ Meaning and Definition of Financial Management

The general meaning of finance refers to the provision of funds, as and when needed. However, as management function, the term 'Financial Management' has a distinct meaning. Financial management deals with the study of procuring funds and its effective and judicious utilization, in terms of the overall objectives of the firm, and expectations of the providers of funds. The basic objective is to maximize the value of the firm. The purpose is to achieve maximization of share value to the owners, i.e. equity shareholders. The

objective of every company is to create value for its shareholders. Market price of equity share is the barometer for showing the real 'Value'. The basic objective of financial management is to maximize the shareholders' wealth, represented by the market value of equity shares.

The term financial management has been defined differently by various authors. Some of the authoritative definitions are given below:

"Financial Management is concerned with the efficient use of an important economic resource, namely, Capital Funds." – Solomon

"Financial Management deals with procurement of funds and their effective utilization in the business." – S.C. Kuchhal

❖ Objective of Financial Management

Over the years notable changes have occurred in financial management both in its scope and areas of coverage. Study of changes that have taken place, over the years, is known as "Scope of Financial Management". For easy understanding of changes, it is necessary to divide the scope of financial management into two approaches. Broadly, the two approaches and their emphasis are:

- Traditional Approach—Procurement of Funds
- Modern Approach—Effective Utilization of Funds

• Traditional Approach

The scope of finance function was treated in the narrow sense as procurement or arrangement of funds. A finance manager was treated as just provider of funds, when organization felt its need. The utilization or administering resources was considered outside the purview of the finance function. It was felt that the finance manager had no role to play in the decision-making for its utilization. Others used to take decisions regarding its application in the organization, without the involvement of finance personnel. Finance manager had been treated, in fact, as an outsider with a very specific and limited function, supplier of funds, to perform when the need of funds was felt by the organization.

As per this approach, the following aspects only were included in the scope of financial management:

- (i) Estimation of requirements of finance.
- (ii) Arrangement of funds from financial institutions.
- (iii) Arrangement of funds through diverse financial instruments such as shares, debentures, bonds and loans.

- (iv) Looking after the accounting and legal work connected with the raising of funds, and
- (v) Preparation of financial statements and managing cash levels needed to pay day-to-day maturing obligations.

Limitations

The traditional approach was evolved during the 1920s and 1930s period and continued till 1950. The approach had been discarded due to the following limitations:

- (i) **No Involvement in Application of Funds:** The finance manager had not been involved in decision-making of the allocation of funds. He had been ignored in internal decision-making process and treated as an outsider.
- (ii) **No Involvement in Day-to-day Management:** The focus was on providing long-term funds from a combination of sources. This process was more of one time happening. The finance manager was not involved in day-to-day administration of working capital management. Smooth functioning of the firm depends on working capital management, where the finance manager was not involved and allowed to play any role.
- (iii) **Not Associated in Decision-making-Allocation of Funds:** The issue of allocation of funds was kept outside his functioning. He had not been involved in decision making for its judicious utilization.
- (iv) **Outsider-looking-in Approach:** The subject of finance has moved around the suppliers of funds (investors, financial institutions, banks, etc.) who are outsiders. The approach has been outsider-looking-in approach, since finance manager has never been involved in internal decision-making process.

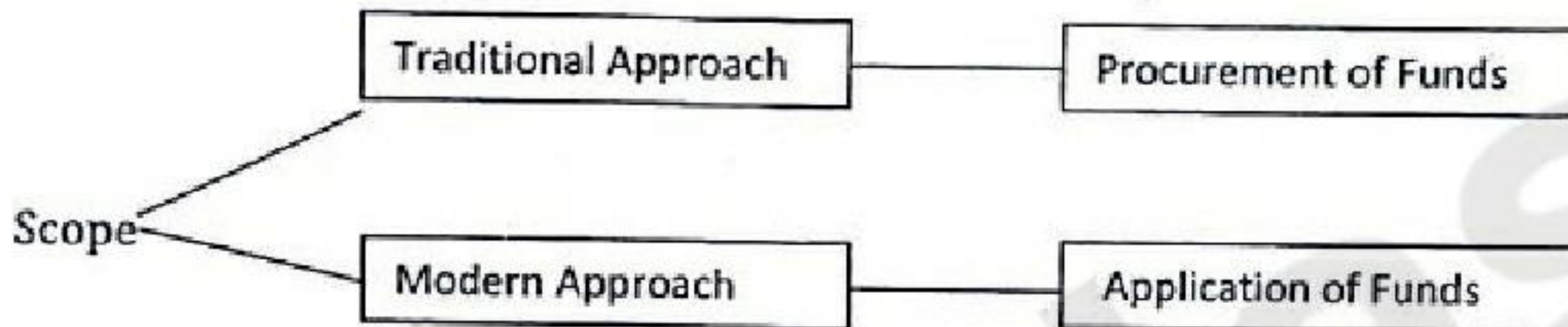
Raising finance was an infrequent event. Its natural implication was that the issues involved in working capital management were not in the purview of the finance function. In nutshell, during the traditional phase, the finance manager was called upon, in particular, when his speciality was required to locate new sources of funds, as and when the requirement of funds was felt.

The following issues, as pointed by Solomon, were ignored in the scope of financial management, under this approach:

- (A) Should an enterprise commit capital funds to a certain purpose?
- (B) Do the expected returns meet financial standards of performance?
- (C) How should these standards be set and what is the cost of capital funds to the enterprise?

(D) How does the cost vary with the mixture of financing methods used?

The traditional approach has failed to provide answers to the above questions due to narrow scope. Traditional approach has outlived its utility in the changed business situation. The scope of finance function has undergone a sea change, with the emergence of different capital instruments.



- **Modern Approach**

Modern approach has started during mid 1950s. The approach and utility of financial management has started changing in a revolutionary manner. Modern approach provides answers to those questions which traditional approach has failed to provide.

Financial management is considered as vital and an integral part of overall management. Its scope is wider, as it covers both procurement of funds and its efficient allocation. Allocation is not a just haphazard process. Its effective utilization and allocation among various investments helps to maximize shareholders' wealth.

The emphasis of Financial Management has been shifted from raising funds to the effective and judicious utilization of funds. The modern approach is analytical way of looking into the financial problems of the firm

The main contents of this new approach are:

- (A) What is the total volume of funds an enterprise should commit?
- (B) What specific assets an enterprise should acquire?
- (C) How should the funds required be financed?

Advice of finance manager is required at every moment, whenever any decision with involvement of funds is taken. There is hardly any activity that does not involve funds. In the words of Solomon, "The central issue of financial policy is the use of funds. It is helpful in achieving the broad financial goals which an enterprise sets for itself".

Now-a-days, the finance manager is required to look into the financial implications of every decision to be taken by the firm. He is involved before taking any decision, during its review and, finally, when the final outcome is judged. In other words, his association has been continuous in every decision-making process from inception till its end

1. Investment Decision:

The investment decision involves the evaluation of risk, measurement of cost of capital and estimation of expected benefits from a project. Capital budgeting and liquidity are the two major components of investment decision. Capital budgeting is concerned with the allocation of capital and commitment of funds in permanent assets which would yield earnings in future.

Capital budgeting also involves decisions with respect to replacement and renovation of old assets. The finance manager must maintain an appropriate balance between fixed and current assets in order to maximize profitability and to maintain desired liquidity in the firm.

Capital budgeting is a very important decision as it affects the long-term success and growth of a firm. At the same time it is a very difficult decision because it involves the estimation of costs and benefits which are uncertain and unknown.

2. Financing Decision:

While the investment decision involves decision with respect to composition or mix of assets, financing decision is concerned with the financing mix or financial structure of the firm. The raising of funds requires decisions regarding the methods and sources of finance, relative proportion and choice between alternative sources, time of floatation of securities, etc. In order to meet its investment needs, a firm can raise funds from various sources.

The finance manager must develop the best finance mix or optimum capital structure for the enterprise so as to maximize the long-term market price of the company's shares. A proper balance between debt and equity is required so that the return to equity shareholders is high and their risk is low.

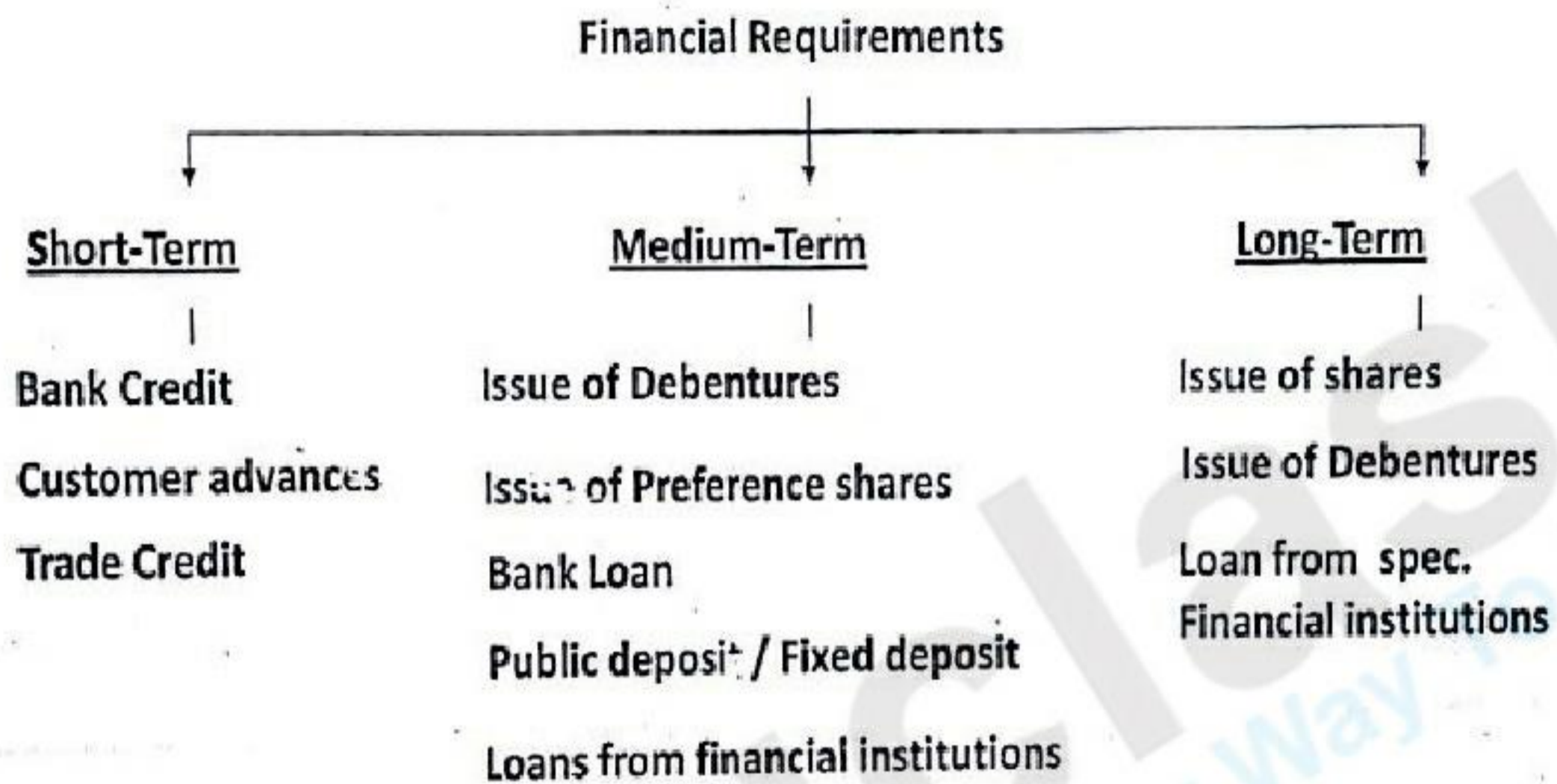
Use of debt or financial leverage affects both the return and risk to the equity shareholders. The market value per share is maximized when risk and return are properly matched. The finance department has also to decide the appropriate time to raise the funds and the method of issuing securities.

3. Dividend Decision:

In order to achieve the wealth maximization objective, an appropriate dividend policy must be developed. One aspect of dividend policy is to decide whether to distribute all the profits in the form of dividends or to distribute a part of the profits and retain the balance. While deciding the optimum dividend payout ratio (proportion of net profits to be paid out to shareholders).

The finance manager should consider the investment opportunities available to the firm, plans for expansion and growth, etc. Decisions must also be made with respect to dividend stability, form of dividends, i.e., cash dividends or stock dividends, etc.

❖ Sources of Finance



❖ Importance of Financial Management

Finance is the lifeblood of business organization. It needs to meet the requirement of the business concern. Each and every business concern must maintain adequate amount of finance for their smooth running of the business concern and also maintain the business carefully to achieve the goal of the business concern. The business goal can be achieved only with the help of effective management of finance. We can't neglect the importance of finance at any time at and at any situation. Some of the importance of the financial management is as follows:

1. Financial Planning

Financial management helps to determine the financial requirement of the business concern and leads to take financial planning of the concern. Financial planning is an important part of the business concern, which helps to promotion of an enterprise.

2. Acquisition of Funds

Financial management involves the acquisition of required finance to the business concern. Acquiring needed funds play a major part of the financial management, which involve possible source of finance at minimum cost.

3. Proper Use of Funds

Proper use and allocation of funds leads to improve the operational efficiency of the business concern. When the finance manager uses the funds properly, they can reduce the cost of capital and increase the value of the firm.

4. Financial Decision

Financial management helps to take sound financial decision in the business concern. Financial decision will affect the entire business operation of the concern. Because there is a direct relationship with various department functions such as marketing, production personnel, etc.

5. Improve Profitability

Profitability of the concern purely depends on the effectiveness and proper utilization of funds by the business concern. Financial management helps to improve the profitability position of the concern with the help of strong financial control devices such as budgetary control, ratio analysis and cost volume profit analysis.

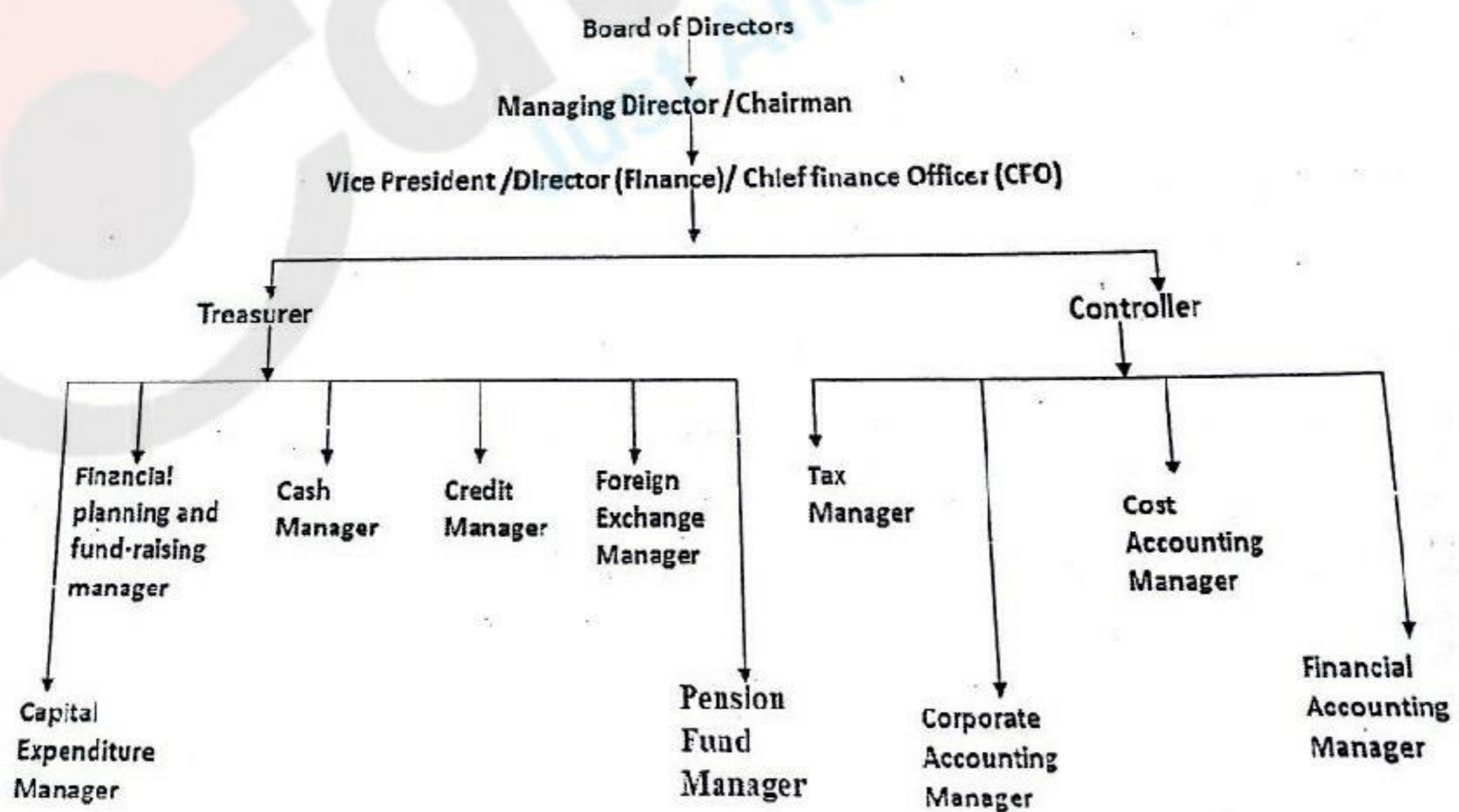
6. Increase the Value of the Firm

Financial management is very important in the field of increasing the wealth of the investors and the business concern. Ultimate aim of any business concern will achieve the maximum profit and higher profitability leads to maximize the wealth of the investors as well as the nation.

7. Promoting Savings

Savings are possible only when the business concern earns higher profitability and maximizing wealth. Effective financial management helps to promoting and mobilizing individual and corporate savings. Nowadays financial management is also popularly known as business finance or corporate finances. The business concern or corporate sectors cannot function without the importance of the financial management.

❖ Organisation of Finance Function



❖ **Functions of Financial Manager**

Finance function is one of the major parts of business organization, which involves the permanent, and continuous process of the business concern. Finance is one of the interrelated functions which deal with personal function, marketing function, production function and research and development activities of the business concern. At present, every business concern concentrates more on the field of finance because, it is a very emerging part which reflects the entire operational and profit ability position of the concern. Deciding the proper financial function is the essential, and ultimate goal of the business organization.

Finance manager is one of the important role players in the field of finance function. He must have entire knowledge in the area of accounting, finance, economics and management. His position is highly critical and analytical to solve various problems related to finance. A person who deals finance related activities may be called finance manager.

Finance manager performs the following major functions:

1. Forecasting Financial Requirements

It is the primary function of the Finance Manager. He is responsible to estimate the financial requirement of the business concern. He should estimate, how much finances required to acquire fixed assets and forecast the amount needed to meet the working capital requirements in future.

2. Acquiring Necessary Capital

After deciding the financial requirement, the finance manager should concentrate how the finance is mobilized and where it will be available. It is also highly critical in nature.

3. Investment Decision

The finance manager must carefully select best investment alternatives and consider the reasonable and stable return from the investment. He must be well versed in the field of capital budgeting techniques to determine the effective utilization of investment. The finance manager must concentrate to principles of safety, liquidity and profitability while investing capital.

4. Cash Management

Present days cash management plays a major role in the area of finance because proper cash management is not only essential for effective utilization of cash but it also helps to meet the short-term liquidity position of the concern.

5. Interrelation with Other Departments

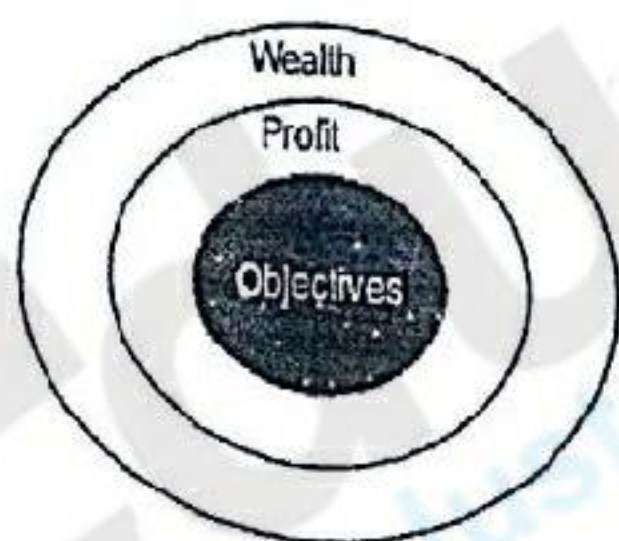
Finance manager deals with various functional departments such as marketing, production, personnel, system, research, development, etc. Finance manager should have sound knowledge not only in finance related area but also well versed in other areas. He must maintain a good relationship with all the functional departments of the business organization.

❖ Objectives of Financial Management

Effective procurement and efficient use of finance lead to proper utilization of the finance by the business concern. It is the essential part of the financial manager. Hence, the financial manager must determine the basic objectives of the financial management.

Objectives of Financial Management may be broadly divided into two parts such as:

1. Profit maximization
2. Wealth maximization.



1. Profit Maximization

Main aim of any kind of economic activity is earning profit. A business concern is also functioning mainly for the purpose of earning profit. Profit is the measuring techniques to understand the business efficiency of the concern. Profit maximization is also the traditional and narrow approach, which aims at, maximizes the profit of the concern.

Profit maximization consists of the following important features.

1. Profit maximization is also called as cashing per share maximization. It leads to maximize the business operation for profit maximization.

2. Ultimate aim of the business concern is earning profit; hence, it considers all the possible ways to increase the profitability of the concern.

3. Profit is the parameter of measuring the efficiency of the business concern. So it shows the entire position of the business concern.

4. Profit maximization objectives help to reduce the risk of the business.

Favorable Arguments for Profit Maximization

The following important points are in support of the profit maximization objectives of the business concern:

- (i) Main aim is earning profit.
- (ii) Profit is the parameter of the business operation.
- (iii) Profit reduces risk of the business concern.
- (iv) Profit is the main source of finance.
- (v) Profitability meets the social needs also.

Unfavorable Arguments for Profit Maximization

The following important points are against the objectives of profit maximization:

- (i) Profit maximization leads to exploiting workers and consumers.
- (ii) Profit maximization creates immoral practices such as corrupt practice, unfair trade practice, etc.
- (iii) Profit maximization objectives leads to inequalities among the stack holders such as customers, suppliers, public shareholders, etc.

Drawbacks of Profit Maximization

Profit maximization objective consists of certain drawback also:

- (i) **It is vague:** In this objective, profit is not defined precisely or correctly. It creates some unnecessary opinion regarding earning habits of the business concern.
- (ii) **It ignores the time value of money:** Profit maximization does not consider the time value of money or the net present value of the cash inflow. It leads certain differences between the actual cash inflow and net present cash flow during a particular period.
- (iii) **It ignores risk:** Profit maximization does not consider risk of the business concern. Risks may be internal or external which will affect the overall operation of the business concern.

2. Wealth Maximization

Wealth maximization is one of the modern approaches, which involves latest innovations and improvements in the field of the business concern. The term wealth means shareholder wealth or the wealth of the persons those who are involved in the business concern. Wealth maximization is also known as value maximization or net present worth maximization. This objective is an universally accepted concept in the field of business.

Favorable Arguments for Wealth Maximization

- (i) Wealth maximization is superior to the profit maximization because the main aim of the business concern under this concept is to improve the value or wealth of the shareholders.
- (ii) Wealth maximization considers the comparison of the value to cost associated with the business concern. Total value detected from the total cost incurred for the business operation. It provides extract value of the business concern.
- (iii) Wealth maximization considers both time and risk of the business concern.
- (iv) Wealth maximization provides efficient allocation of resources.
- (v) It ensures the economic interest of the society.

Unfavorable Arguments for Wealth Maximization

- (i) Wealth maximization leads to prescriptive idea of the business concern but it may not be suitable to present day business activities.
- (ii) Wealth maximization is nothing, it is also profit maximization, it is the indirect name of the profit maximization.
- (iii) Wealth maximization creates ownership-management controversy.
- (iv) Management alone enjoy certain benefits.
- (v) The ultimate aim of the wealth maximization objectives is to maximize the profit.
- (vi) Wealth maximization can be activated only with the help of the profitable position of the business concern.

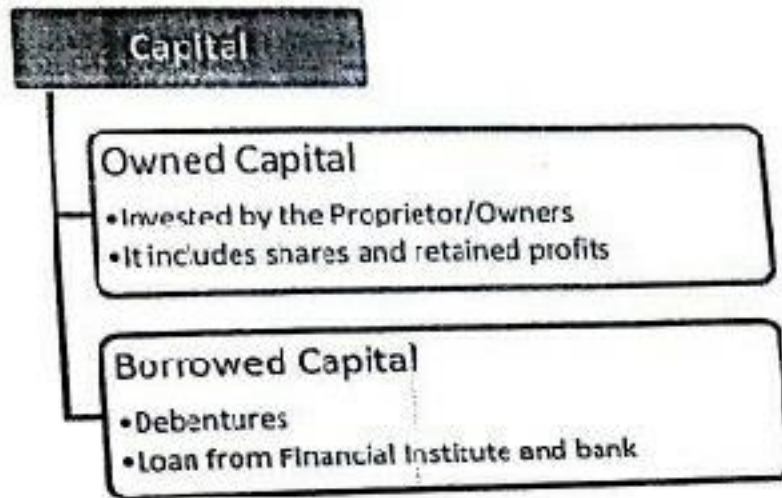
❖ Cost of Capital

Introduction to Capital

Capital is a wealth in the form of money or assets, taken as a sign of the financial strength of an individual, organization, or nation, and assumed to be available for development or investment.

In Accounting: Money invested in a business to generate income. While money is used simply to purchase goods and services for consumption, capital is more durable and is used to generate wealth through investment.

Capital can be divided into following parts



What is Shares?

Definition: The capital of a company is divided into shares. Each share forms a unit of ownership of a company and is offered for sale so as to raise capital for the company.

Shares can be broadly divided into two categories –

1. Equity and
2. Preference shares.

Equity Shares

- Permanent source of capital
- They are the owners of the company as they undertake the highest risk
- Payment of dividend (return on the share) is made on shares
- Equity Shares are the shares that carry voting rights and the rate of dividend also fluctuates every year
- Such a shareholder has to share the profits and also bear the losses incurred by the company.

Preference Shares

- It carries two preferential rights
 - Payment of Dividend
 - Repayment of capital at the time of liquidation of company
- Preference Shares are the shares that do not carry voting rights in the company
- The rate of dividend is fixed to pay
- Types of Preference share
 - **Cumulative** and **Non Cumulative**
 - **Participating** and **Non Participating**
 - **Redeemable** and **Non Redeemable**
 - **Convertible** and **Non Convertible**

Difference between Equity and Preference Shares

No.	Equity Shares	Preference Shares
01	Nominal Value is Lower	Nominal Value is Higher
02	Dividend varies according to profit	Rate dividend is fixed
03	No right for arrears of dividend	Cumulative preference shares get arrears
04	No priority in dividend & repayment of capital	Priority in dividend & repayment of capital
05	Cannot be redeemed	Can be redeemed
06	There is more risk	The risk is lower
07	Equity shareholders have a voting right	Preference shareholders have no voting rights
08	Control over Management	No control over management
09	Highly speculative	Less speculative
10	Ready to take risk & to get greater dividend prefer this	Not ready to take risk & expect steady income prefer this

What is Debenture?

A debenture is a medium to long-term debt format that is used by large companies to borrow money

Debentures are the most common type of long-term loans that can be taken by a company.

Debentures are typically loans that are repayable on a fixed date, but some debentures are irredeemable securities (these are sometimes called perpetual bonds), which means that they do not have a fixed date of expected return of the funds.

Debenture holders (investors) do not have any rights to vote in the company's general meetings of shareholders. The interest paid to debenture holders is calculated as a charge against profit in the company's financial statements.

The main advantage of debentures to companies is the fact that they have a lower interest rate than e.g. overdrafts. Also, they are usually repayable at a date far off in the future.

For an investor, their main advantages are that they are often easy to sell in stock exchanges and they contain less risk than other options such as equities, for example.

• Types of Debentures

- Registered Debenture and Bearer Debenture
- Secured / Mortgage Debentures and Unsecured Debentures
- Redeemable Debentures and Non-redeemable Debentures
- Convertible Debentures and Non Convertible Debentures

Dividend	Share	Dividend	Shareholder
Current dividend			
Dividend		The shares are the current funds of the company.	The shareholders are the current funds of the company.
What is it?		Dividend represents the capital of the company.	Shareholders represent the capital of the company.
Dividend		The holder of shares is entitled to dividend.	The holder of shareholding is entitled to shareholding.
Types of Dividend		Dividend	Shareholder
Form of Dividend		Shareholders get the dividend.	Shareholders get the dividend.
Payment of Dividend		Dividend can be paid in shareholding only and in profit.	Dividend can be paid in shareholding only and in profit.
Dividend Distribution		Dividend is an appropriation of profit and is not allowed to shareholders.	Dividend is an appropriation of profit and is not allowed to shareholders.
Dividend for payment		No.	No.
Dividend Rights		The holder of shares has dividend rights.	The holder of shareholding has dividend rights.
Dividend		Dividend can be paid to shareholders.	Dividend can be paid to shareholders.
Dividend is the amount of dividend		Dividend can be paid after the payment of all the liabilities.	Dividend can be paid after the payment of all the liabilities.
Dividend		Dividend is shareholding is an appropriation of profit.	Dividend is shareholding is an appropriation of profit.

Cost of Capital

Introduction:

Cost of capital refers to the opportunity cost of making a specific investment. It is the rate of return that could have been earned by putting the same money into a different investment with equal risk. Thus, the cost of capital is the rate of return required to persuade the investor to make a given investment.

Cost of capital is determined by the market and represents the degree of perceived risk by investors. When given the choice between two investments of equal risk, investors will generally choose the one providing the higher return.

The return an investor receives on a company security is the cost of that security to the company that issued it. A company's overall cost of capital is a mixture of returns needed to compensate all creditors and stockholders. This is often called the weighted average cost of capital and refers to the weighted average costs of the company's debt and equity.

Cost of capital is an important component of business valuation work. Because an investor expects his or her investment to grow by at least the cost of capital, cost of capital can be used as a discount rate to calculate the fair value of an investment's cashflows.

Investors frequently borrow money to make investments, and analysts commonly make the mistake of equating cost of capital with the interest rate on that money. It is important to remember that cost of capital is not dependent upon how and where the capital was raised. Put another way, cost of capital is dependent on the use of funds, not the source of funds.

Meaning:

The primary meaning of Cost of capital is simply the cost an entity must pay to raise funds. The term can refer, for instance, to the financing cost (interest rate) a company pays when securing a loan.

The cost of raising funds, however, is measured in several other ways, as well, most of which carry a name including "Cost of."

1. Cost of capital

This term refers to the cost an organization pays to raise funds, for example, through bank loans or issuing bonds. Cost of capital usually appears as an annual percentage.

2. Weighted average cost of capital WACC

WACC is the arithmetic average (mean) capital cost, that weights the contribution of each capital source by the proportion of total funding it provides. Weighted average cost of capital usually appears as an annual percentage.

3. Cost of borrowing

Cost of borrowing simply refers to the total amount a debtor pays to secure a loan and use funds, including financing costs, account maintenance, loan origination, and other loan-related expenses. Cost of borrowing sums appear as amounts, in currency units such as dollars, pounds, or euro.

4. Cost of debt

Cost of debt is the overall average rate an organization pays on all its debts. These typically consist of bonds and bank loans. Cost of debt usually appears as an annual percentage.

5. Cost of equity COE

Cost of equity COE is part of a company's capital structure. COE measures the returns demanded by stock market investors who will bear the risks of ownership. COE usually appears as an annual percentage.

❖ Cost of Equity

The cost of equity is the return that stockholders require for their investment in a company

Cost of equity share (k_e) is the part of cost of capital which allows the payment to only the equity shareholders.

From company's perspective the company must earn more than cost of equity capital in order to be unaffected by the market value of the shares of its

Ways to measure the equity shares are as follows

1. Dividend Price Approach

- Dividend Price Approach with constant dividend
- Dividend Price Approach with constant growth

2. Earning / Price Approach

3. Realized yield Approach

4. Capital-Asset Pricing Model

1. Dividend price approach

The cost of equity is the rate which equates the future dividend to the current market price

- Dividend price approach with constant dividend

In this approach the dividend is constant so there is no growth

Cost of equity shares = Dividend per equity

Market price

$$K_e = \frac{D}{P_0}$$

P_0

Where,

K_e = Cost of Capital

D = Expected Dividend

P_0 = Market Price of Equity

Dividend price approach with constant growth

As per this approach the rate of dividend growth remains constant

It is based on the theory that company is growing and its shares market value is also on growth. So, because of this shareholders are in need of simple dividend, so that company can provide the profit to them according to the growth. This is also known as Gordon growth model

$$K_e = \frac{D_1}{P_0} + g$$

Where

$D_1 = [D_0(1+g)]$ Next Year's Expected annual Dividend per share

P_0 = Present Market price per share

g = constant growth on rate of dividend

Example:

A Company has paid dividend of Rs. 1 per share (of face value Rs. 10 each) last year and it is expected to grow @ 10% next year. Calculate the cost of equity if the market price of share is Rs.55

$$K_e = \frac{D_1}{P_0} + g$$
$$\frac{1(1+0.1) + 0.1}{55} = 0.12 = 12\%$$

2. Earning/ Price Approach

- This approach co-relates the earning of the company with the market price
- The cost of equity share capital would be based upon the expected rate of earning of a company so We have to just write earning per share of company instead writing dividend per share

Earnings/ Price Approach with Constant Earnings:

$$K_e = \frac{E}{P}$$

Where,

E = Current earnings per share

P = Market share price

3. Realized yield Approach

- It computes cost of equity based on the past records of dividends actually realized by the equity share holders
- This approach has unrealistic assumptions like risks faced by the company remains the same, the shareholders continue to expect the same rate of return
- If the earnings do not remain stable, this method is not practical

4. Capital Asset Pricing Model

- It describes the linear relationship between Risk and Return on security. It provides a formula that calculates the expected return on a security based on its level of systematic risk
- Expected Return = Risk Free Rate + Risk Premium

$$\text{Expected Return} = R_f + \beta(R_m - R_f)$$

Where

R_f = Risk free return

β = beta coefficient for security [Beta reflects how risky an asset is compared to overall market risk]

R_m = Expected Market Return

❖ Cost of Preference Share

- The cost of preference share capital is apparently the dividend which is committed and paid by the company.
- Although the dividend is not mandatory and it does not create legal obligation like debt, it has the preference of payment over equity for dividend payment and distribution of assets at the time of liquidation.
- Therefore, without paying the dividend to preference shares, they cannot pay anything to equity shares

• Types of Calculating Cost of Preference Share Capital

1. Cost of Irredeemable Preference Share Capital
2. Cost of Redeemable Preference Share Capital

1. Cost of Irredeemable Preference Share

These shares are issued for the life of the company and are not redeemed. Cost of irredeemable preference shares can be calculated as follows

$$K_p (\text{cost of pref. share}) = \frac{\text{Annual dividend of preference shares}}{\text{Market price of the preference stock}}$$

$$K_p = \frac{D_p}{P_0}$$

Example:

Let us calculate the cost of 10% preference capital of 10,000 preference shares whose face value is \$100. The market price of the share is currently \$115.

Annual dividend = 10% of \$100 = \$10 per share

$$K_p = \$10 / \$115 = 8.7\%$$

2. Cost of Redeemable Preference Share Capital

– These shares are issued for a particular period and at the expiry of that period, they are redeemed and principal is paid back to the preference shareholders. The characteristics are very similar to debt and therefore the calculations will be similar too.

$$K_p = \frac{\text{Annual Dividend} + (\text{Redeemable Value} - \text{Sale value}) / \text{No of years for redemption}}{(\text{Redeemable Value} + \text{Sale value}) / 2}$$

$$K_p = \frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

Where

PD	=	Annual preference dividend
RV	=	Redemption value of preference shares
NP	=	Net proceeds on issue of preference shares
n	=	Life of preference shares

- **Example:** A company issues 10000, 8% preference shares of \$100 each redeemable after 20 years at face value. The flotation costs are \$3 per share.
 - Redeemable value = \$100;
 - Sale value = \$100 - \$3 = \$97
 - Annual dividend = \$8 per share.

$$K_p = \frac{8 + (100 - 97) / 20}{(100 + 97) / 2} = 8.27\%$$

❖ **Cost of Debenture/Long term Debt**

External borrowings or debt instrument do not confer ownership to the providers of finance. The providers of debt do not participate in the affairs of the company but

enjoys the charges on the profit before tax. Long term debts includes long term loans, capital from issuing debentures and bonds etc.

- Types of Calculating Cost of Debenture
 1. Cost of Irredeemable Debentures
 2. Cost of Redeemable Debentures

1. Cost of Irredeemable Debentures

- The cost of debenture which are not redeemed by the issuer of the debenture is known as irredeemable debentures
- It is noted that the interest on cost of debt is tax free

$$K_d = \frac{I}{NP}(1-t)$$

Where,

K_d	=	Cost of debt after tax
I	=	Annual interest payment
NP	=	Net proceeds of debentures or current market price
t	=	Tax rate

2. Cost of Redeemable Debenture

- These debts are issued for a particular period and at the expiry of that period, they are redeemed and principal is paid back to the debenture holders. The characteristics are very similar to redeemable preference share and therefore the calculations will be similar too.

$$(ii) \quad K_d = \frac{I + \frac{(RV - NP)}{n}}{(RV + NP)}(1-t)$$

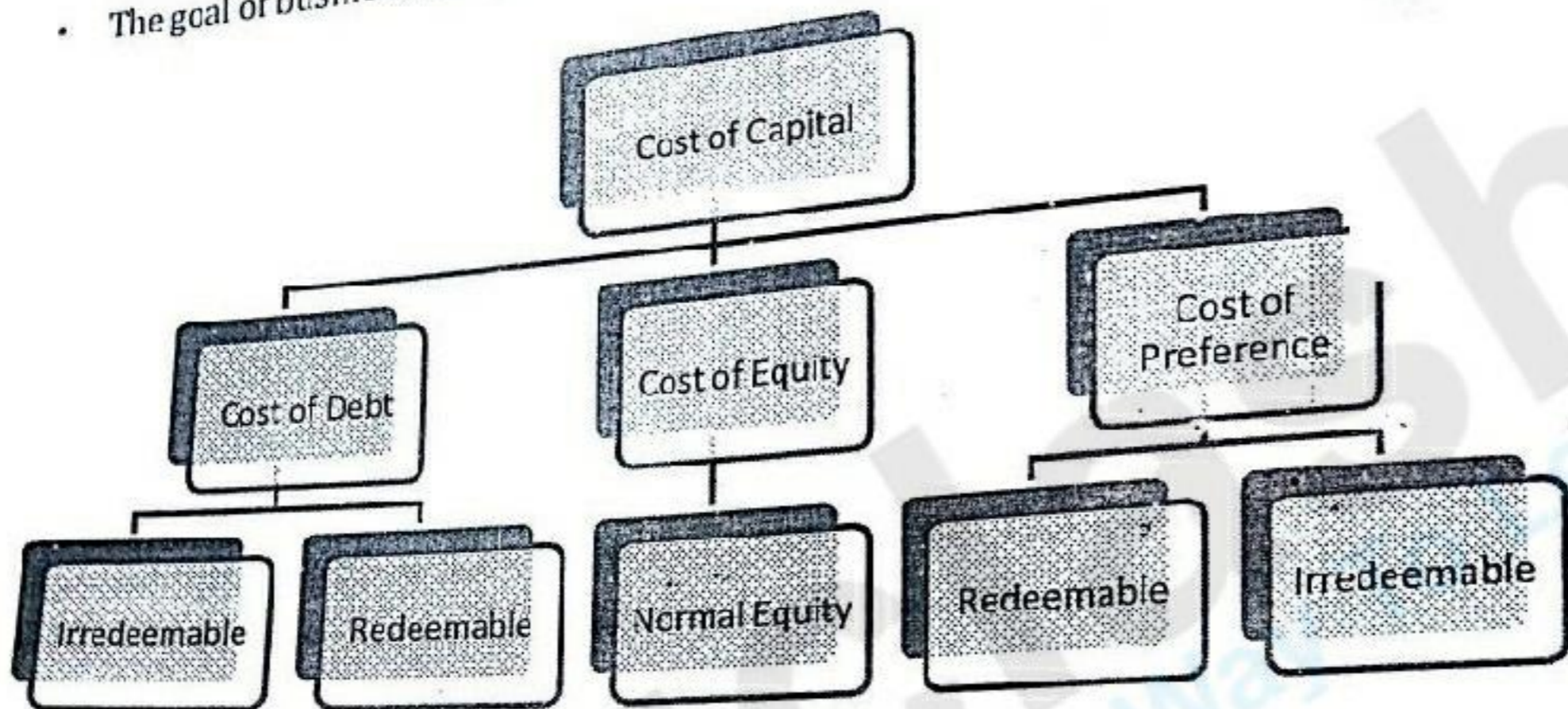
Where,

I	=	Interest payment
NP	=	Net proceeds from debentures in case of new issue of debt or Current market price in case of existing debt
RV	=	Redemption value of debentures
t	=	Tax rate applicable to the company
n	=	Life of debentures

❖ Cost of Capital

- The overall percentage cost of the funds used to finance a firm's assets

- The overall cost of capital depends on the cost of each source and the proportion the source represents of all capital used by the firm
- The goal of business is to provide the return that is higher than the cost of capital



- Cost of Capital represents the cost of equity if the business is financed only through the equity share
- Cost of Capital represents the cost of debt if the business is financed only through the debt
- If a company use a combination of debt and equity to finance their businesses, and for such companies, their overall cost of capital is derived from a **Weighted Average Cost of Capital (WACC)**

Example: Calculate WACC with the following information

Total Company's Capital = 10,00,000

Total Equity Capital = 400000

Total Debt = 600000

Cost of Equity = 10%

Cost of Debt = 5%

Tax Rate = 35%

Solution:

Portion of equity on total capital

$$\frac{400000}{1000000} * 100 = 40\%$$

Portion of debt on total capital

$$\frac{600000}{1000000} * 100 = 60\%$$

$$WACC = (\text{Proportion of Equity} * \text{Cost of Equity}) + [(\text{Proportion of Debt} * \text{Cost of Debt}) * (1 - \text{Tax Rate})]$$

$$= (40\% * 10\%) + [(60\% * 5\%) * (1 - 0.35)]$$

$$= (0.4 * 0.1) + [(0.6 * 0.05) * 0.65]$$

$$= 0.04 + 0.0195$$

$$= 0.0595$$

$$= 5.95\%$$

❖ Capital Gearing

- The term 'capital gearing' refers to the relationship between equity capital (equity shares plus reserves) and long-term debt.
- In simple words, capital gearing means the ratio between the various types of securities in the capital structure of the company
- A company is said to be in high-gear, when it has a proportionately higher/large issue of debentures and preference shares for raising the long-term resources, whereas low-gear stands for a proportionately large issue of equity shares

The example given below illustrates clearly the terms 'high gear' and 'low gear':

Extracts of Balance Sheets		
Liabilities	A. Ltd. ₹	B. Ltd. ₹
Equity Share Capital	4,00,000	6,00,000
10% Preference Share Capital	3,00,000	2,00,000
9% Debentures	3,00,000	2,00,000
	10,00,000	10,00,000

The total capitalization of the above two companies is the same i.e. Rs. 10,00,000 for each company, but the capital structure differs. A Ltd. is high geared as the ratio of equity capital in the total capitalization of the company is only 40%. But B. Ltd. is low geared as its capital structure comprises of 60% of equity capital and only 40% of the fixed cost bearing securities.

Capital gearing ratio is a useful tool to analyze the capital structure of a company
Gearing is inverse to the equity

- High Debt -> High Geared
- Low Debt -> Low Geared

$$\text{Capital gearing ratio} = \frac{\text{Common stockholders' equity}}{\text{Fixed interest bearing funds}}$$

Or

$$\text{Capital gearing ratio} = \text{Common stockholders' equity} : \text{Fixed interest bearing funds}$$

Example:	2011	2012
Common stockholders' equity	3,500,000	2,800,000
Preferred stock - 9%	1,400,000	1,800,000
Debentures payable - 6%	1,600,000	1,400,000

The following information has been taken from the balance sheet of PQR limited:
We can compute the capital gearing ratio for the years 2011 and 2012 from the above information as follows:

For the year 2011:

$$\begin{aligned} \text{Capital gearing ratio} &= 3,500,000 : 3,000,000 \\ &= 7 : 6 \text{ (Low geared)} \end{aligned}$$

For the year 2012:

$$\begin{aligned} \text{Capital gearing ratio} &= 2,800,000 : 3,200,000 \\ &= 7 : 8 \text{ (Highly geared)} \end{aligned}$$

The company has a low geared capital structure in 2011 and highly geared capital structure in 2012.

• Leverage

- A lever is a force in a car or in any machine which helps in doing more work with lesser labor.
- Finance manager uses this tool for making effective financial structure of company
- Financial structure is just mix of debt and equity and with help of leverage, finance manager gets fund with effective ratio of debt and equity

Leverage in Real Estate

Example: A company want to purchase a property worth Rs.10,00,000. But you have only 200,000. So you go to the bank for loan of 8,00,000. Bank request to supply 20% of your profit as a down payment of the property. So you will invest your 200,000 and get the ownership of the property.

So you have the leverage of 5:1. Because your 200000 is 1/5 of the 10,00,000.

After 1 year property market appreciated by 50%. And you decide to sell your property of 10,00,000. So it will give you the profit of 500,000.

If you had not taken a loan than you can invest only Rs.2,00,000 to purchase the asset and after 1 year you will get on profit of Rs.1,00,000

- Main aim of leverage testing is maximize the earning of shareholder and reduce the risk of company
- Leverage it is not without risk
- There are mainly 3 types of Leverages
 - Financial
 - Operating
 - Combined

- **Financial Leverage**

- It depends on the proper mix of equity and debt
- Financial leverage refers to the use of debt to acquire additional profit
- The more debt financing a company uses, the higher its financial leverage. A high degree of financial leverage means high interest payments, which negatively affect the company's bottom-line earnings per share
- A firm is known to have a favorable leverage if its earnings are more than what debt would cost. On the contrary, if it does not earn as much as the debt costs then it will be known as an unfavorable leverage.

- **Operating Leverage**

- Every business has certain fixed cost and variable cost.
- Fixed cost remains fixed irrespective of sales volume
- Operating leverage is a measurement of the degree to which a firm incurs a combination of fixed and variable costs
- OL is the concept of using your fixed cost to its maximum potential to bring down the total cost per unit of a product

For ex. You are paying rent of 10,000 and you are producing 100 units. So, per unit fixed cost is 100. But if you are producing 500 units than the fixed cost per unit is Rs. 20. So by producing more number of units you can bring down the price

- The occurrence is known as operating leverage. The degree of operating leverage depends upon the amount of fixed elements in the cost structure
- The higher the proportion of fixed operating cost in the cost structure, higher is the degree of operating leverage
- **Combined Leverage**
 - Operating leverage is concerned with operating risk and financial leverage is associated with financial risk
 - Both the leverages are concerned with fixed charges. If we combine these two we will get the total risk of a firm that is associated with total leverage or combined leverage of the firm
 - The firm's ability to cover the aggregate of fixed operating and financial charges is termed as combined leverage

How to Calculate OL and FL?

Sales	_____
- Variable Cost	_____
Contribution	XXXXXX
- Fixed Cost	_____
EBIT	XXXXXX
- Interest	_____
EBT	XXXXXX

$$DOL = \frac{\text{Contribution}}{\text{EBIT}}$$

$$DFL = \frac{\text{EBIT}}{\text{EBT}}$$

$$DCL = \frac{\text{Contribution}}{\text{EBT}}$$

Unit - 4 Tools and Techniques of Financial Management

Introduction:

Financial Analysis is defined as being the process of identifying financial strength and weakness of a business by establishing relationship between the elements of balance sheet and income statement. The information pertaining to the financial statements is of great importance through which interpretation and analysis is made. It is through the process of financial analysis that the key performance indicators, such as, liquidity solvency, profitability as well as the efficiency of operations of a business entity may be ascertained, while short term and long term prospects of a business may be evaluated. Thus, identifying the weakness, the intent is to arrive at recommendations as well as forecasts for the future of a business entity.

Financial ratio analysis can be used in two different but equally useful ways. You can use them to examine the current performance of your company in comparison to past periods of time, from the prior quarter to years ago. Frequently, this can help you identify problems that need fixing. Even better, it can direct your attention to potential problems that can be avoided. In addition, you can use these ratios to compare the performance of your company against that of your competitors or other members of your industry.

Remember the ratios you will be calculating are intended simply to show broad trends and thus to help you with your decision-making. They need only to be accurate enough to be useful to you. Don't get bogged down calculating ratios to more than one or two decimal places. Any change measured in hundredths of a percent will almost certainly have no meaning. Make sure your math is correct, but don't agonize over it.

Financial Ratio Analysis

Financial ratios are mathematical comparisons of financial statement accounts or categories. These relationships between the financial statement accounts help investors, creditors, and internal company management understand how well a business is performing and of areas needing improvement.

Financial ratios are the most common and widespread tools used to analyze a business' financial standing. Ratios are easy to understand and simple to compute. They can also be used to compare different companies in different industries. Since a ratio is simply a mathematically comparison based on proportions, big and small companies can be use ratios to compare their financial information. In a sense, financial ratios don't take into consideration the size of a company or the industry. Ratios are just a raw computation of financial position and performance.

Ratios allow us to compare companies across industries, big and small, to identify their strengths and weaknesses. Financial ratios are often divided up into different categories

1. Liquidity Ratio
2. Profitability Ratio
3. Solvency Ratio

1. Liquidity Ratio

- Liquidity ratios are the ratios that measure the ability of a company to meet its short term debt obligations. These ratios measure the ability of a company to pay off its short-term liabilities when they fall due.
- The liquidity ratios are a result of dividing cash and other liquid assets by the short term borrowings and current liabilities. They show the number of times the short term debt obligations are covered by the cash and liquid assets. If the value is greater than 1, it means the short term obligations are fully covered. Organization should maintain a proper coordination between its current and fixed assets
- The liquidity of an organization is affected by number of factors
 - Type of Industry
 - Ex. Bank wants high liquidity and a service provider wants low liquidity
 - Inflation
 - If inflation is in the market than it requires high liquidity
 - Mode of Purchasing
 - If purchasing is on credit than it requires less liquidity
 - Business Life Cycle
 - During initial and growth stage it requires more liquidity
 - Type of Market
 - If organization operating in highly competitive market than it requires more liquidity
- It evaluates the paying capacity of the organization in the short period of time
- Generally, the higher the liquidity ratios are, the higher the margin of safety that the company possesses to meet its current liabilities. Liquidity ratios greater than 1 indicate that the company is in good financial health and it is less likely fall into financial difficulties.
- Most common examples of liquidity ratios include
 1. Current ratio,
 2. Acid test ratio (also known as quick ratio)

1. Current ratio

The current ratio is balance-sheet financial performance measure of company liquidity.

The current ratio indicates a company's ability to meet short-term debt obligations. The current ratio measures whether or not a firm has enough resources to pay its debts over the next 12 months. Potential creditors use this ratio in determining whether or not to make short-term loans. The current ratio can also give a sense of the efficiency of a company's operating cycle or its ability to turn its product into cash. The current ratio is also known as the working capital ratio.

Formula:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liability}}$$

Current Assets = Stock, Debtor, Cash, Bank, Short term loan, Bills Receivable, Prepaid Expenses, Short-Term Investments

Current Liability = Creditors, Bills Payable, outstanding expenses

The higher the ratio, the more liquid the company is. Commonly acceptable current ratio is 2; it's a comfortable financial position for most enterprises. Acceptable current ratios vary from industry to industry. For most industrial companies, 1.5 may be an acceptable current ratio.

Low values for the current ratio (values less than 1) indicate that a firm may have difficulty meeting current obligations. However, an investor should also take note of a company's operating cash flow in order to get a better sense of its liquidity. A low current ratio can often be supported by a strong operating cash flow.

If the current ratio is too high (much more than 2), then the company may not be using its current assets or its short-term financing facilities efficiently. This may also indicate problems in working capital management.

All other things being equal, creditors consider a high current ratio to be better than a low current ratio, because a high current ratio means that the company is more likely to meet its liabilities which are due over the next 12 months.

• Ex:

– Current Assets = 100000

– Current Liability = 50000

Current Ratio = $100,000 / 50,000 = 2$

Or
Current Ratio = $100000:50000$
= 2:1

This means for every 1 rupee of asset company has to pay 0.5 as its liability

2. Quick Ratio

The quick ratio is a measure of a company's ability to meet its short-term obligations using its most liquid assets (near cash or quick assets). Quick assets include those current assets that presumably can be quickly converted to cash at close to their book values. Quick ratio is viewed as a sign of a company's financial strength or weakness; it gives information about a company's short term liquidity. The ratio tells creditors how much of the company's short term debt can be met by selling all the company's liquid assets at very short notice.

The quick ratio is also known as the acid-test ratio or quick assets ratio.

Quick Ratio = $\frac{\text{Quick Assets}}{\text{Quick Liability}}$

Quick Assets = Current Assets - Inventories - Prepaid Expenses

Quick Liability = Current Liability - Bank Overdraft

The higher the quick ratio, the better the position of the company. The commonly acceptable current ratio is 1, but may vary from industry to industry. A company with a quick ratio of less than 1 cannot currently pay back its current liabilities; it's the bad sign for investors and partners.

Example:

Quick Assets = 50,000

Quick Liability = 25,000

Quick Ratio = Quick Assets/Quick Liability

Quick Ratio = $50000/25000 = 2$

OR

Quick Ratio = 2:1

This means for every 1 rupee of liquid asset company has to pay 0.5 as its liquid liability

2. Profitability Ratio

Profitability ratios compare income statement accounts and categories to show a company's ability to generate profits from its operations. Profitability ratios focus on a company's return on investment in inventory and other assets. These ratios basically show how well companies can achieve profits from their operations.

Investors and creditors can use profitability ratios to judge a company's return on investment based on its relative level of resources and assets. In other words, profitability ratios can be used to judge whether companies are making enough operational profit from their assets. In this sense, profitability ratios relate to efficiency ratios because they show how well companies are using their assets to generate profits. Profitability is also important to the concept of solvency and going concern.

Here are some of the key ratios that investors and creditors consider when judging how profitable a company should be:

1. Gross Profit Ratio
2. Net Profit Ratio
3. Return on Asset
4. Return on Equity
5. Operating Ratio

1. Gross Profit Ratio

Gross margin ratio is a profitability ratio that compares the gross margin of a business to the net sales. This ratio measures how profitable a company sells its inventory or merchandise. In other words, the gross profit ratio is essentially the percentage markup on merchandise from its cost. This is the pure profit from the sale of inventory that can go to paying operating expenses.

Gross margin ratio is often confused with the profit margin ratio, but the two ratios are completely different. Gross margin ratio only considers the cost of goods sold in its calculation because it measures the profitability of selling inventory. Profit margin ratio on the other hand considers other expenses.

Formula:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}}$$

The gross margin of a business is calculated by subtracting cost of goods sold from net sales. Net sales equals gross sales minus any returns or refunds. The broken down formula looks like this:

Analysis:

Gross margin ratio is a profitability ratio that measures how profitable a company can sell its inventory. It only makes sense that higher ratios are more favorable. Higher ratios mean the company is selling their inventory at a higher profit percentage.

High ratios can typically be achieved by two ways. One way is to buy inventory very cheap. If retailers can get a big purchase discount when they buy their inventory from the manufacturer or wholesaler, their gross margin will be higher because their costs are down.

The second way retailers can achieve a high ratio is by marking their goods up higher. This obviously has to be done competitively otherwise goods will be too expensive and customers will shop elsewhere.

A company with a high gross margin ratios mean that the company will have more money to pay operating expenses like salaries, utilities, and rent. Since this ratio measures the profits from selling inventory, it also measures the percentage of sales that can be used to help fund other parts of the business. Here is another great explanation.

Ex :

- Gross Profit = 250000 and Sales = 175000
- Gross Profit Ratio = $250000/175000 = 1.4$
- This means your gross profit is 1.4 of every 1 rupee of sales

2. Net Profit Ratio

The profit margin ratio, also called the return on sales ratio or gross profit ratio, is a profitability ratio that measures the amount of net income earned with each dollar of sales generated by comparing the net income and net sales of a company. In other words, the profit margin ratio shows what percentage of sales are left over after all expenses are paid by the business.

Creditors and investors use this ratio to measure how effectively a company can convert sales into net income. Investors want to make sure profits are high enough to distribute dividends while creditors want to make sure the company has enough profits to pay back its loans. In other words, outside users want to know that the company is running efficiently. An extremely low profit margin formula would indicate the expenses are too high and the management needs to budget and cut expenses.

The return on sales ratio is often used by internal management to set performance goals for the future.

Formula

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Net Sales}}$$

A net sale is calculated by subtracting any returns or refunds from gross sales. Net income equals total revenues minus total expenses and is usually the last number reported on the income statement.

Analysis

The profit margin ratio directly measures what percentage of sales is made up of net income. In other words, it measures how much profits are produced at a certain level of sales.

This ratio also indirectly measures how well a company manages its expenses relative to its net sales. That is why companies strive to achieve higher ratios. They can do this by either generating more revenues while keeping expenses constant or keep revenues constant and lower expenses.

Since most of the time generating additional revenues is much more difficult than cutting expenses, managers generally tend to reduce spending budgets to improve their profit ratio.

Like most profitability ratios, this ratio is best used to compare like sized companies in the same industry. This ratio is also effective for measuring past performance of a company.

3. Operating Ratio

generate income compared to others. Their ROA will naturally be lower than the ROA of companies which are low asset-insensitive. An increasing trend of ROA indicates that the profitability of the company is improving. Conversely, a decreasing trend means that profitability is deteriorating.
If you have your return on asset ratio is 2%, then every rupee that a company invested in assets during the year produced Rs. 2 of net income.

5. Return on Equity

It measures the ability of a firm to generate profits from its shareholders investments in the company. In other words, the return on equity ratio shows how much profit each dollar of common stockholders' equity generates

ROE is also an indicator of how effective management is at using equity financing to fund operations and grow the company.

Return on equity measures how efficiently a firm can use the money from shareholders to generate profits and grow the company.

$$\text{Return on Equity} = \frac{\text{Net Profit after Tax-Preference Dividend(if any)}}{\text{Average total share holder equity}}$$

3. Solvency Ratio

Solvency ratio is one of the various ratios used to measure the ability of a company to meet its long term debts. Moreover, the solvency ratio quantifies the size of a company's after tax income, not counting non-cash depreciation expenses, as contrasted to the total debt obligations of the firm. Also, it provides an assessment of the likelihood of a company to continue congregating its debt obligations.

1. Solvency Ratio

- **Solvency Ratio = Total Assets/Total Liability**
- Lower the ratio of total liability to total asset more stable is the long term solvency position

2. Debt Equity Ratio

- This ratio is calculated to measure the ratio of debts against the equity

of activities that create and use cash, which are operations, investments, and financing. Though the statement of cash flows is generally considered less critical than the income statement and balance sheet, it can be used to discern trends in business performance that are not readily apparent in the rest of the financial statements. It is especially useful when there is a divergence between the amount of profits reported and the amount of net cash flow generated by operations.

Relevant Definitions:

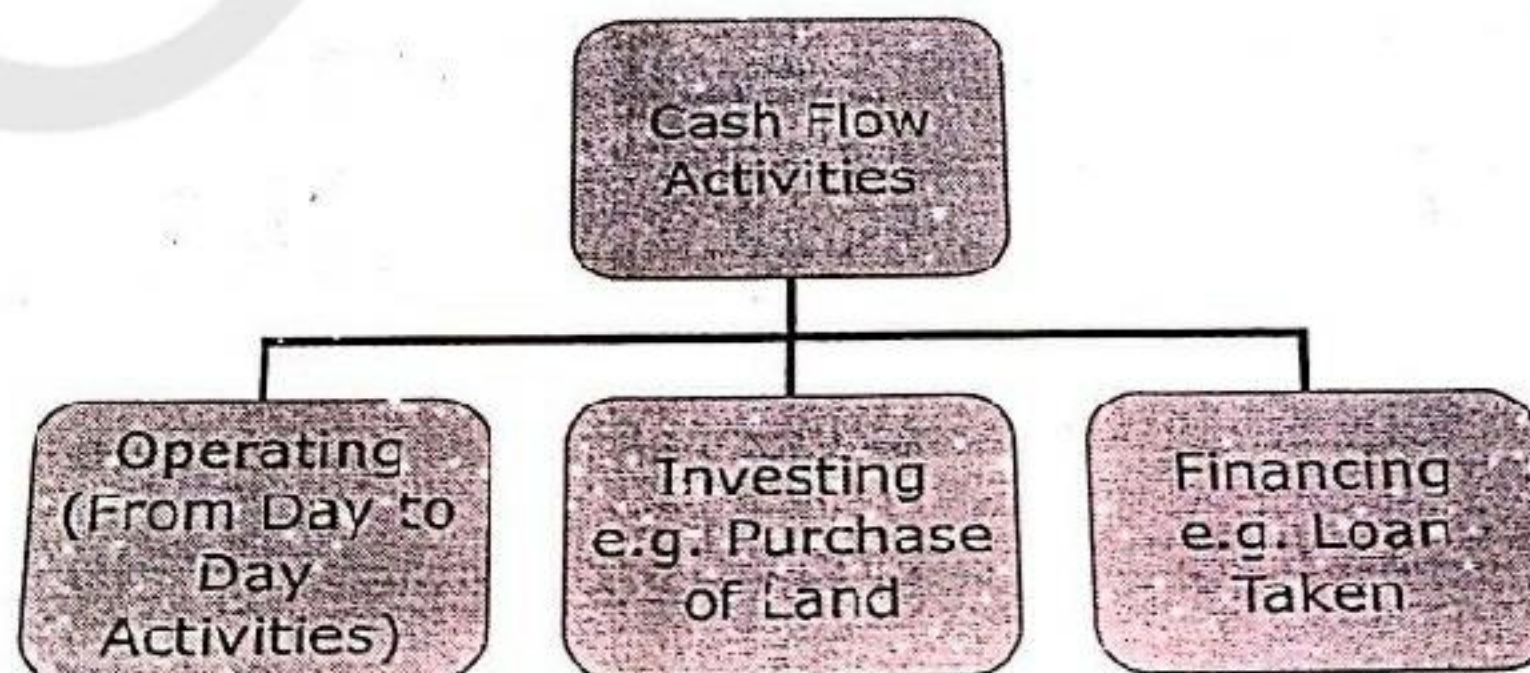
- **Cash** : Cash on hand and demand deposits with bank or any other financial institutions
- **Cash equivalents**: Cash equivalents are short term, highly liquid investments that are readily convertible into known amounts of cash. The maturity period is within 3 months.
- **Cash Flows**: Cash flows are inflows and outflows of cash and cash equivalents. Movement in cash and cash equivalents are not cash flows.

There can be significant differences between the results shown in the income statement and the cash flows in this statement, for the following reasons:

- There are timing differences between the recordation of a transaction and when the related cash is actually expended or received.
- Management may be using aggressive revenue recognition to report revenue for which cash receipts are still some time in the future.
- The business may be asset intensive, and so requires large capital investments that do not appear in the income statement, except on a delayed basis as depreciation.

Many investors feel that the statement of cash flows is the most transparent of the financial statements (i.e., most difficult to fudge), and so they tend to rely upon it more than the other financial statements to discern the true performance of a business.

Cash flows in the statement are divided into the following three areas:



- **Operating activities.** These constitute the revenue-generating activities of a business. Examples of operating activities are cash received and disbursed for product sales, royalties, commissions, fines, lawsuits, supplier and lender invoices, and payroll.
- **Investing activities.** These constitute payments made to acquire long-term assets, as well as cash received from their sale. Examples of investing activities are the purchase of fixed assets and the purchase or sale of securities issued by other entities.
- **Financing activities.** These constitute activities that will alter the equity or borrowings of a business. Examples are the sale of company shares, the repurchase of shares, and dividend payments.

- **Methods of Preparing Cash Flow Statement**

1. Direct method and
2. Indirect method

1. **Direct method**

The direct method requires you to present cash flow information that is directly associated with the items triggering cash flows, such as:

- Cash collected from customers
- Interest and dividends received
- Cash paid to employees
- Cash paid to suppliers
- Interest paid
- Income taxes paid

Few organization collect information as required for the direct method, so they instead use the indirect method. The advantage of the direct method over the indirect method is that it reveals operating cash receipts and payments.

The standard-setting bodies encourage the use of the direct method, but it is rarely used, for the excellent reason that the information in it is difficult to assemble; companies simply do not collect and store information in the manner required for this format. Using the direct method may require that the chart of accounts be restructured in order to collect different types of information. Instead, they use the indirect method, which can be more easily derived from existing accounting reports.

Cash Flow Statement (Direct Method)

Cash flows from operating activities
Add:
Cash receipts from customers
Cash generated from operations
Deduct:
Cash paid to suppliers
Interest paid
Income taxes paid
Net cash from operating activities
Cash flows from investing activities
Purchase of property, plant, and equipment
Proceeds from sale of equipment
Net cash used in investing activities
Cash flows from financing activities
Proceeds from issuance of common stock
Proceeds from issuance of long-term debt
Principal payments under capital lease obligation
Dividends paid
Net cash used in financing activities
Net increase in cash and cash equivalents
Cash and cash equivalents at beginning of period
Cash and cash equivalents at end of period

2. Indirect Method

Under the indirect method of presenting the statement of cash flows, the presentation of this statement begins with net income or loss, with subsequent additions to or deductions from that amount for non-cash revenue and expense items, resulting in net income provided by operating activities.

The indirect method of presentation is very popular, because the information required for it is relatively easily assembled from the accounts that a business normally maintains in its chart of accounts. The indirect method is less favored by the standard-setting bodies, since it does not give a clear view of how cash flows through a business

Statement of Cash Flows Indirect Method

Operating Activities Net Profit + Depreciation + Fund Transfer to Reserve + Loss on sale of Asset + Loss on Foreign Exchange - Profit on sale of Asset - Profit on Foreign Exchange	XXXXXX
Investing Activities Sale of Non current Asset - Purchase of Noncurrent Asset	XXXXXX
Financing Activities Issue of Shares + Issue of Debentures + Loan Taken - Repayment of Liability - Dividend/Interest Paid	XXXXXX
Closing Balance	XXXXXX
+ Opening Cash and Cash Equivalents	XXXXXX
Net Closing Balance	XXXXXX

❖ Fund Flow Statement

The purpose of measuring trading performance, operational efficiency, profitability and financial position of a concern revealed by Trading, Profit and Loss Account and Balance Sheet. These financial statements are prepared to find out the Gross Profit or Gross Loss, Net Profit or Net Loss and financial soundness of a firm a whole for a particular period of time. From the management point of view, the usefulness of information provided by these income statements functions effectively and efficiently. In the true sense they do not disclose the nature of all transactions. Management, Creditors and Investors etc. want to determine or evaluate the sources and application of funds employed by the firm for the future course of action. Based on these backgrounds, it is essential to analyse the movement of assets, liabilities, funds from operations and capital between the components of two year financial statements. The analysis of financial statements helps to the management by providing additional information in a meaningful manner.

- **Meaning of Fund**

The term "Fund" refers to Cash, to Cash Equivalents or to Working Capital and all financial resources which are used in business. These total resources of a concern are in the form of men, materials, money, plant and equipments and others.

In a broader meaning the word "Fund" refers to Working Capital. The Working Capital indicates the difference between current assets and current liabilities. The term working capital may be :

- (a) Gross Working Capital and
- (b) Net Working Capital

"Gross Working Capital" represents total of all Current Assets. "Net Working Capital" refers to excess of Current Assets over Current Liabilities. In a narrow sense the word "Fund" denotes cash or cash equivalents.

The Funds Flow Statement helps in answering the following questions

- Where have the profits gone?
- Why is there an imbalance existing between liquidity position and profitability position of an enterprise?
- Why is the concern financially solid in spite of losses?

- **Meaning of Flow of Funds**

The term "Flow of Funds" refers to changes or movement of funds or changes in working capital in the normal course of business transactions. The changes in working capital may be in the form of inflow of working capital or outflow of working capital. In other words, any increase or decrease in working capital when the transactions takes place is called as "Flow of Funds." If the components of working capital results in increase of the fund, it is known as Inflow of Fund or Sources of Fund. Similarly, if the components of working capital effects in decreasing the financial position it is treated as Outflow of Fund.

For example, if the fund raised by way of issue of shares will be taken as a source of fund or inflow of fund. This transaction results in increase of the financial position. Like this, the fund used for the purchase of machinery will be taken as application or use of fund or outflow of fund. Because it stands to reduce the fund position.

- **No Flow of Funds**

Some transactions may not make any movement or changes in the fund position. Such transactions are involved within the business concern. Like the transaction which involves both between current assets and current liabilities or between non-current assets and non-current liabilities and hence do not result in the flow of funds. For example, conversion of shares in to debenture. Such transaction involves between non-current account only and this activity does not effect in increase or decrease of the working capital position.

• **Fund Flow Statement**

It is a statement summarizing the significant financial changes in items of financial position which have occurred between the two different balance sheet dates. This statement is prepared on the basis of "Working Capital" concept of funds. Fund flow Statement helps to measure the different sources of funds and application of funds from transactions involved during the course of business.

The fund flow statement also termed as Statement of Sources and Application of Fund, Where Got and Where Gone Out Statement, Inflow of Fund or Outflow of Fund Statement.

• **Steps to prepare Fund Flow Statement**

1. Prepare Fund from Operations

Fund From Operation is to be determined on the basis of Profit and Loss Account. The operating profit revealed by Profit and Loss Account represents the excess of sales revenue over cost of goods sold. In the true sense, it does not reflect the exact flow of funds caused by business operations. Because the revenue earned and expenses incurred are not in conformity with the flow of funds. For example, depreciation charges on fixed assets, write up of fixed assets or fictitious assets, any appropriations etc. do not cause actual flow of funds. Because they have already been charged to such profits. Hence, fund from operation is prepared to find out exact inflow or outflow of funds from the regular operations on the basis of items which have readjusted to the current profit or loss. The balancing amount of adjusted profit and loss account is described as fund from operations.

Calculation of Fund from Operations

Net Income	XXXXX
Add: Non Operating Exp	
Depreciation on Assets	XXXX
Profit Transfer to Reserve	XXXX

Provision for Tax	XXXX
Loss on sale of Assets	XXXX
Provision for Proposed Dividend	<u>XXXX</u>
Total (A)	XXXXX
Less: Non Operating Income	
Profit on sale of Assets	XXXX
Profit on foreign exchange	XXXX
Appreciation or Revaluation on sale of Fixed Asset	XXXX
Total (B)	<u>XXXXX</u>
Fund from Operation (A-B)	XXXXX

2. Prepare Statement of Changes in Working Capital

It is also termed as Statement of Changes in Working Capital. Before preparation of fund flow statement, it is essential to prepare first the schedule of changes in working capital and fund from operations. Statement of changes in working capital is prepared on the basis of items in current assets and current liabilities of between two balance sheets. This statement helps to measure the movement or changes of working capital during a particular period. The term working capital refers to excess of current assets over current liabilities. The working capital may be "Increase in working capital" or "Decrease in working capital."

An increase in the amount of an item of current assets in the current year as compared to the previous year represents to an increase in working capital. Similarly, a decrease in the amount of an item of current assets in the current year as compared to the previous year would represent decrease in working capital. In the same way over all changes in working capital is calculated and presented in the schedule of changes in working capital. The final result of Net Decrease in Working Capital refers to Source of Funds or Inflow of Funds. Like this, Net Increase in Working Capital represent Application of Fund or Uses of Funds.

• Principle or Rules for Preparation of Working Capital Statement

The following rules may be kept in mind while preparing working capital statement:

- Increase in Current Asset -> Increases Working Capital
- Decrease in Current Asset -> Decreases Working Capital
- Increase in Current Liability -> Decreases Working Capital
- Decrease in Current Liability -> Increases Working Capital

Statement of Changes in Working Capital

Particular	Previous Year	Current Year	Effect on Working Capital	
			Increase	Decrease
Current Assets Cash on hand Cash at Bank Debtors Short term Investment Stock Bills Receivable				
Total Current Assets (A)	XXXXX	XXXXX		
Current Liability Creditors Bills Payable Bank Overdraft Short term Loan				
Total Current Liability (B)	XXXXX	XXXXX		
Working Capital (A-B)	XXXXX	XXXXX		
Net Increase/Decrease in Working Capital	XXXXX	-	-	XXXXX

3. Preparation of Fund Flow Statement

In the analysis and interpretation of financial statements fund flow statement is one of the important technique. The statement of changes in working capital is prepared with the help of current assets and current liabilities. Similarly, fund from operation is prepared on the basis of profit and loss account to find out the exact movement of funds in different operations. After preparing schedule of changes in working capital and fund from operations, at the last stage a comprehensive fund flow statement can be prepared on the basis of component of non-current assets, non-current liabilities of balance sheet

and relevant information. In other words, this statement is prepared with the help of the changes in non-current assets and non-current liabilities of balance sheet.

- **Components of Sources and Application of Funds**

The following are the components of different sources and applications of funds:

Components of Sources of Funds

- (1) Fresh Issue of Equity Share Capital.
- (2) Fresh Issue of Preference Share Capital.
- (3) Issue of Debentures and Bonds.
- (4) Long-Term Loans raised from bank, financial institutions and public.
- (5) Long-Term Loans on Mortgage.
- (6) Sale of Fixed Assets.
- (7) Sale of Long-Term Investments.
- (8) Non-Trading Incomes.
- (9) Fund From Operations.
- (10) Net Decrease in Working Capital (as per schedule of changes in working capital).

Components of Applications of Funds

Generated funds from various sources may be utilized in the following ways for meeting the future productive programmes of the business:

- (1) Redemption of shares and debentures.
- (2) Repayment of loans raised from bank, financial institutions and public.
- (3) Purchase of Fixed Assets.
- (4) Purchase of Long-Term Investments.
- (5) Non-Trading Expenditure.
 - Payment of Tax;
 - Payment of Dividend.
- (6) Fund Lost in Operations.
- (7) Net Increase in Working Capital (as per schedule of changing in working capital).

- **Specimen Form of Fund Flow Statement**

The following are the two usual formats for preparation of Sources and Application of Fund is presented below:

- (1) Statement Form
- (2) Account Form

1. Statement Form

Particular	Amt	Amt
Sources of Funds:	XXX	
Issue of Share	XXX	
Issue of Debentures	XXX	
Long term Loans	XXX	
Sale of Fixed Assets	XXX	
Sale of Investment	XXX	
Fund from operation	XXX	
Decrease in Working Capital		XXXX
Total Source (A)		
Application/Use of Funds	XXX	
Redemption of Shares	XXX	
Redemption of Debentures	XXX	
Repayment of Long term Loans	XXX	
Purchase of Fixed Assets	XXX	
Fund Lost in operation	XXX	
Increase in Working Capital		XXXX
Total Application (B)		

2. Account Form

Source of Funds	Rs.	Application of Funds	Rs.
Issue of Share		Redemption of Shares	
Issue of Debentures		Redemption of Debentures	
Long term Loans		Repayment of Long term Loans	
Sale of Fixed Assets		Purchase of Fixed Assets	
Sale of Investment		Fund Lost in operation	
Fund from operation		Increase in Working Capital	
Decrease in Working Capital			
Total Inflow	XXXX	Total Outflow	XXXX

Importance of Fund Flow Statement

- It shows sources and application of funds between two accounting period
- It reveals the quantum of funds produced by operations
- It helps the management to predict the requirements of extra capital
- It helps the investors for effective decisions at the time of their investment proposals

Limitations of Fund Flow Statement

- It does not reveal the cash position of the company, and that is why company has to prepare cash flow statement in addition to funds flow statement
- It is prepared on the basis of information related to historical in nature. It ignores to project future operations.
- It does not provide any additional information to the management because financial statements are simply rearranged and presented.

BASIS FOR COMPARISON	CASH FLOW	FUND FLOW
Meaning	A cash flow statement is a statement showing the inflows and outflows of cash and cash equivalents over a period.	A fund flow statement is a statement showing the changes in the financial position of the entity in different accounting years.
Purpose of Preparation	To show the reasons for movements in the cash at the beginning and at the end of the accounting period.	To show the reasons for the changes in the financial position, with respect to previous year and current accounting year.
Analysis	Short Term Analysis of cash planning.	Long Term Analysis of financial planning
Discloses	Inflows and Outflows of Cash	Sources and applications of funds
Opening and closing balance	Contains opening and closing balance of cash and cash equivalents.	Does not contain opening balance of cash and cash equivalents.
Part of Financial Statement	Yes	No

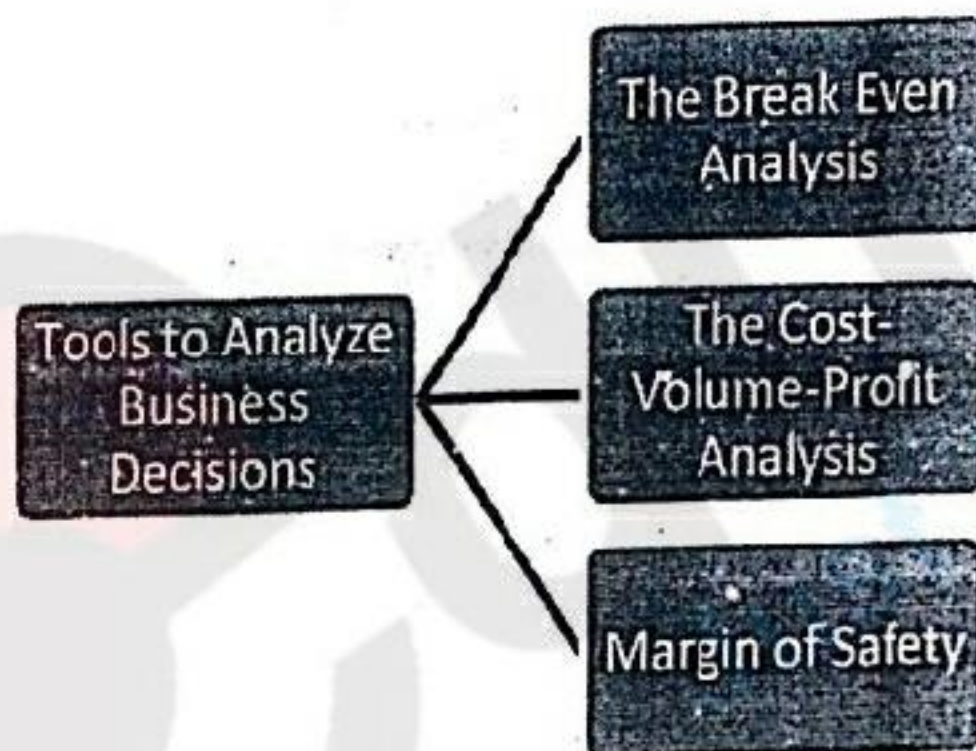
Unit - 2

Break Even Analysis and Budgeting

❖ Analyzing Financial Business Decisions

In financial business decisions, the organization needs to determine from where to raise funds for financing its projects. It should raise the funds at minimum possible cost to enhance the profitability. An efficient financial decision helps an organization to maintain the balance between the sources and applications of financial resources; therefore form a vital part of accounting for managers.

The concept of analyzing financial business decisions explores the tools that help in analyzing financial decisions of an organization. These tools are Break Even Analysis, Cost-Volume-Profit Analysis and Margin of Safety.



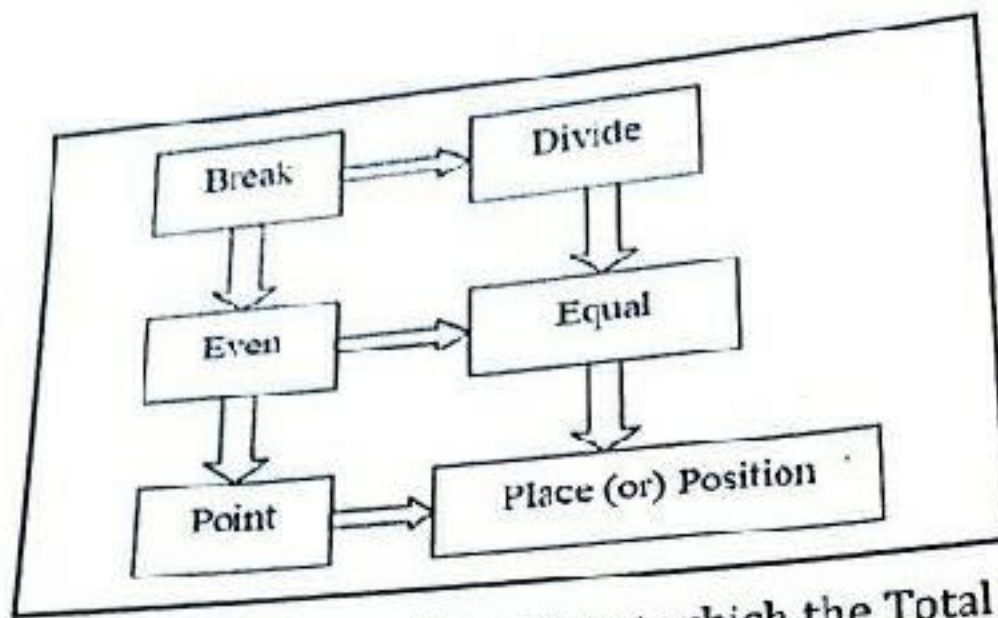
❖ Break Even Analysis

Introduction

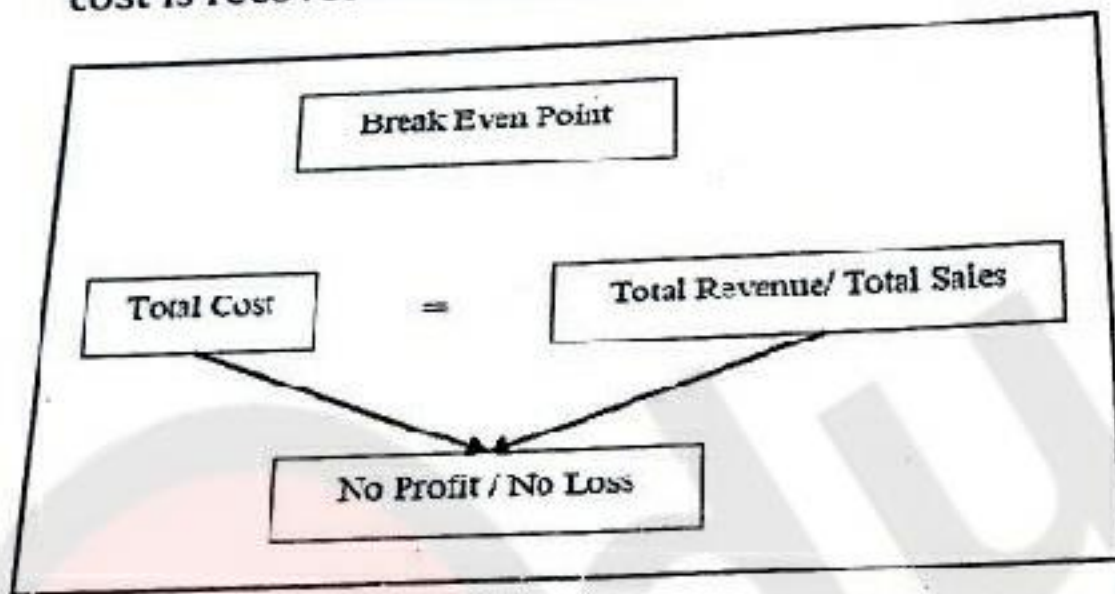
One of the most common tools used in evaluating the economic feasibility of a new enterprise or product is the break-even analysis.

Breakeven analysis is accounting tool to help plan and control the business operations. Break-even point represents the volume of business, where company's total revenues (money coming into a business) are equal to its total expenses (total costs). In its simplest form, breakeven analysis provides insight into whether or not revenue from a product or service has the ability to cover the relevant costs of production of that product or service.

This meaning of the analysis is explained through three different components viz.



Break Even Point is the point at which the Total Cost is equivalent to Total Revenue. At the break even point the business neither earns profit nor incurs a loss. It means that the firm's cost is recovered at the minimum level of production.



The break-even point can be expressed in terms of unit sales or dollar sales. That is, the break-even units indicate the level of sales that are required to cover costs. Sales above that number result in profit and sales below that number result in a loss. The break-even sales indicate the dollars of gross sales required to break-even. It is important to realize that a company will not necessarily produce a product just because it is expected to breakeven. Many times, a certain level of profitability or return on investment is desired. If this objective cannot be reached, which may mean selling a substantial number of units above break-even, the product may not be produced. However, the break-even is an excellent tool to help quantify the level of production needed for a new business or a new product.

The process of determining the breakeven point is a good time for businesses to assess their true cost of doing business and their prices. Many start-ups don't understand their direct and indirect costs very well. Working on a breakeven analysis will help business owners and managers learn these figures and gain better insight into the accuracy of their prices and how realistic their sales goals are.

If the amount of sales a company needs to break even is more than it can realistically achieve in a year, then the business knows its products or services may not be priced well – or it needs to work to reduce costs.

Additionally, the business owner should know the total contribution each product and service makes to the company's overall profit. This step is important because it can help businesses determine products and services that aren't actually profitable, and the company can decide if it needs to raise the price, reduce the cost of offering it, or possibly discontinue it.

The purpose of the break-even analysis formula is to calculate the amount of sales that equates revenues to expenses and the amount of excess revenues, also known as profits, after the cost is met. Production cost is divided into two costs

1. Fixed Cost
2. Variable Cost

- **Fixed Cost:**

A fixed cost is an expense that does not change as production volume increases or decreases within a relevant range. In other words, fixed costs are locked in place as long as operations stay within a certain size. Fixed costs are less controllable than variable costs because they aren't based on volume or operations.

Instead, management usually sets fixed costs at predetermined rates based on company necessities. Some examples of fixed costs include rent, insurance, and property taxes. All of these expenses are completely independent from production volume.

- **Variable Costs**

Variable costs are production costs that change in proportion to the amount of goods that are produced. In other words, for every good that is produced, variable costs increase by the same amount. A good example of variable costs for a piano manufacturer is the cost of piano keys. Every piano that is produced has to have a set of piano keys that costs \$250. This means that every time a piano is produced, variable costs go up \$250 because an additional set of piano keys must be purchased. If 100 pianos were produced the piano keys variable cost would be \$25,000. If only 10 pianos were produced, the piano keys variable costs would only be \$2,500. The total variable costs fluctuate with the amount of pianos that are produced.

Fixed costs, on the other hand, do not fluctuate with the production levels. Fixed costs are always the same. A good example of a fixed cost is rent. It doesn't matter whether the piano manufacturer makes 10 pianos or 100 pianos, the rent expense will always be the same.

Notice that the piano company producing fewer pianos can decrease variable costs, but lower levels of production cannot decrease fixed costs. This means that variable costs could be decreased to zero or completely eliminated if production ceased. Fixed costs, however, would still remain the same even at a production level of zero.

Assumptions of Break-Even Analysis:

- The total costs can be classified into fixed and variable costs.
- The price of the product is assumed to be constant
- The volume of sales and volume of production are equal
- The fixed costs remain constant over the volume under consideration

How to Calculate BEP?

$$\text{Profit} = \text{Sales} - \text{Cost}$$

$$\text{Profit} = \text{Sales} - (\text{Fixed Cost} + \text{Variable Cost})$$

$$\text{Profit} = \text{Sales} - \text{Fixed Cost} - \text{Variable Cost}$$

$$\text{Sales} = \text{Net Profit} + \text{Fixed Cost} + \text{Variable Cost}$$

$$SP(S) = P + FC + VC(S)$$

$$\text{At the BEP profit} = 0$$

$$SP(S) = 0 + FC + VC(S)$$

$$FC = S(SP - VC)$$

$$S = FC / SP - VC$$

Where S = No. of unit sold at the BEP

SP = Selling Price per unit

P = Net Profit

FC = Fixed Cost

VC = Variable Cost

Formula:

The break-even point formula is calculated by dividing the total fixed costs of production by the price per unit less the variable costs to produce the product.

contribution margin per unit, you can simply rephrase the equation by dividing the fixed costs by the contribution margin.

Break Even Point

$$\text{Break Even Point in Units} = \frac{\text{Fixed Costs}}{\text{Contribution Margin per Unit}}$$

This computes the total number of units that must be sold in order for the company to generate enough revenues to cover all of its expenses. Now we can take that concept and translate it into sales dollars.

The break-even formula in sales dollars is calculated by multiplying the price of each unit by the answer from our first equation.

Break Even Point

$$\text{Break Even Point in Dollars} = \text{Sales Price per Unit} \times \text{Break Even Point in Units}$$

This will give us the total dollar amount in sales that will we need to achieve in order to have zero loss and zero profit. Now we can take this concept a step further and compute the total number of units that need to be sold in order to achieve a certain level profitability without break-even calculator.

First we take the desired dollar amount of profit and divide it by the contribution margin per unit. This computes the number of units we need to sell in order to produce the profit without taking in consideration the fixed costs. Now we must add back in the break-even point number of units. Here's what it looks like.

Break Even Analysis

$$\text{Units To Produce the Desired Profit} = \frac{\text{Desired Profit In Dollars}}{\text{Contribution Margin per Unit}} + \text{Break Even \# of Units}$$

Example

A company has just opened her own pen manufacturing shop and is looking at her projected costs for the end of the first quarter, trying to determine what her break-even point is. Let's say her fixed costs for this first quarter, is \$20,000, and her variable costs have been calculated to be \$1.50 per unit. She plans on charging approximately \$2.00 per product. How many units will she have to sell to break even?

$\text{BEP in Units} = \text{Fixed Costs} / (\text{Price of Product} - \text{Variable Costs Per Unit})$

$\text{BEP in Units} = \$20,000 / (\$2.00 - \$1.50)$

$\text{BEP in Units} = \$20,000 / (\$0.50)$

$\text{BEP in Units} = 40,000 \text{ units}$

So, in other words, A company needs to sell 40,000 products during that first quarter to break even.

Now let's try to figure out the break-even point in dollars.

$\text{Break-Even Point in } \$ = \text{Sales Price Per Unit} \times \text{Break-Even Point in Units}$

$\text{Break-Even Point in } \$ = \$2.00 \times 40,000$

$\text{Break-Even Point in } \$ = \$80,000$

So A company has to sale \$80,000 to break even

- **Benefits of BEP**

The following are the benefits out of break-even analysis:

1. **Make or buy decision:**

The C-V-P analysis assists in making a choice between two courses of action to make versus to buy. If the variable cost is less than the price that has to be paid to an outside supplier, it may be better to manufacture than to buy.

2. **Production planning;**

The C-V-P analysis helps in planning the production of items giving maximum contribution towards profit and fixed costs.

3. **Cost control:**

As a cost control device, the C-V-P analysis can be used to detect insidious upward creep of costs that might otherwise go unnoticed.

4. **Financial structure:**

Break-even analysis provides an understanding of the behaviour of profits in relation to output. This understanding is significant in planning the financial structure of a company.

5. **Conditions of uncertainty:**

When some reasonable basis for subjective extrapolation is available, the breakeven analysis provides the financial management with information helpful in its decision-making activities.

- **Limitations:**

The following limitations of break-even analysis have to be kept in mind while making use of this tool:

1. Many costs and their components do not fall into neatly compartmentalized fixed or variable cost categories as they possess the characteristics of both types.

2. If company sells several products, the financial manager has to prepare and evaluate a number of profit-graphs covering integrated segments of independent activities.

3. A break-even chart represents a short-run static relationship of costs and output and become obsolete very quickly.

4. The relations indicated in the break-even chart do not help for all levels of operations. Costs tend to be higher than shown on the static break-even chart when the plant's operation approaches 100 percent of its capacity.

5. The frequent changes happening in the selling price of the product affect the reliability of the break even analysis.

6. The cost of securing funds to expand is disregarded in break-even chart.

In spite of the above mentioned limitations, the breakeven analysis has high place in financial management.

❖ **Cost -Volume-Profit Analysis**

Cost-Volume-Profit (CVP) analysis is a managerial accounting technique that is concerned with the effect of sales volume and product costs on operating profit of a business. It deals with how operating profit is affected by changes in variable costs, fixed costs, selling price per unit and the sales mix of two or more different products.

Profit/Volume ratio (P/V Ratio) represents the CVP analysis. PV ratio is the ratio of contribution to sales

In performing this analysis, there are several assumptions made, including:

- Sales price per unit is constant.
- Variable costs per unit are constant.
- Total fixed costs are constant.
- Everything produced is sold.
- Costs are only affected because activity changes.
- If a company sells more than one product, they are sold in the same mix.

Profit volume (or contribution-sales) ratio is a logical extension of marginal costing. It is the study of the inter-relationships of cost behavior patterns, levels of activity and the profit that results from each alternative combination. The calculation of profit volume ratio can be as under

- **P/V Ratio:**

P/V Ratio (Profit Volume Ratio) is the ratio of contribution to sales which indicates the contribution earned with respect to one rupee of sales. It also measures the rate of change of profit due to change in volume of sales. Its fundamental property is that if per unit sales price and variable cost are constant then P/V Ratio will be constant at all the levels of activities. A change in fixed cost does not affect P/V Ratio. It is calculated as under:

$$\begin{aligned} \text{P/V Ratio} &= \frac{\text{Contribution}}{\text{Sales}} \\ &= \frac{\text{Fixed Expenses} + \text{Profit}}{\text{Sales}} \\ &= \frac{\text{Sales} - \text{Variable Cost}}{\text{Sales}} \\ &= \frac{\text{Change in profits of Contributions}}{\text{Change in Sales}} \end{aligned}$$

A high P/V Ratio indicates that a slight increase in sales without increase in fixed costs will result in higher profits. A low P/V ratio which indicates low profitability can be improved by increasing selling price, reducing marginal costs or selling products having high P/V ratio.

Contribution:

It is the difference between sales revenue and variable cost (also known as variable cost). Variable cost is the important cost in deciding profitability as fixed costs are ignored by marginal costing.

It can be expressed in two ways:

Contribution = Sales Revenue - Variable Cost

Contribution = Fixed Cost + Profit

The situation generating higher contribution is treated as a profitable situation.

Example:

Sales	10000
- VC	<u>2000</u>
Contribution	8000
- FC	<u>3000</u>
EBIT	5000

$$\text{P/V Ratio (\%)} = \frac{\text{Contribution}}{\text{Sales}} * 100 = \frac{8000}{10000} * 100 = 80\%$$

OR

$$\text{P/V Ratio (\%)} = 1 - (\text{Variable Cost/Sales}) * 100 = 1 - (2000/10000) * 100 = (1 - 0.2) * 100 = 80\%$$

OR

$$= \frac{\text{Fixed Expenses} + \text{Profit}}{\text{Sales}} * 100 = \frac{3000 + 5000}{10000} * 100 = 80\%$$

That means contribution in sales is 80% and the ratio of variable cost in sales is 20%.

❖ Margin of Safety

Margin of Safety refers to the difference between actual sales volume and the sales volume at BEP. As already discussed organization operates at BEP, the sales volume at this point generates neither profit nor loss. At BEP the MOS is Zero for the organization. If the actual sales volume is more than the Sales volume at BEP then the organization generates profit. In such a situation the MOS would be high. However, if the actual sales volume is less the sales volume at BEP, than the organization incurs loss. In such a situation MOS of the organization would be low.

High MOS reflect the sound organizational structure in which any substantial reduction in sales figure does not have adverse impact on profit. In case of lower MOS, a small decrease in sale affects the profit position adversely and a large decrease in sales may even result in losses.

The management can rectify unsatisfactory MOS by taking the following measures.

- Increasing selling price without affecting demand
- Reducing total cost of Production
- Enhancing production at lower cost
- Substituting unprofitable production with profitable ones

Formula

$$\text{MOS} = \text{Total Sales} - \text{Break Even sales}$$

OR

$$\text{MOS} = \frac{\text{Profit}}{\text{PV Ratio}}$$

Example:

From the following information calculate

- PV Ratio
- BEP
- MOS

Sales = 100000, Fixed Cost = 30000, Profit = 20000

Solution:

Sales	100000 (given)
- Variable Cost	50000 (found)
Contribution	50000 (found)
- Fixed Cost	30000 (given)
Profit	20000 (given)

$$\begin{aligned}\text{PV Ratio}(\%) &= (\text{Contribution}/\text{Sales}) * 100 \\ &= (50000/100000) * 100 \\ &= 50\%\end{aligned}$$

$$\begin{aligned}\text{BEA in Rs.} &= \text{Contribution} / \text{PV Ratio} \\ &= 50000 / 50\% \\ &= 100000\end{aligned}$$

$$\begin{aligned}\text{MOS} &= \text{Total Sales} - \text{BEP Sales} \\ &= 100000 - 100000 = 0\end{aligned}$$

• Impact of changes in cost or selling price on BEP

Example:

A table fan manufacturing organization has the capacity to produce 500 fans p.a. The marginal cost of each fan is Rs. 200 and each fan is sold for Rs.250, while the fixed cost is Rs. 12000 p.a.

1. Calculate the BEP for output and sales.
2. Calculate P/V ratio
3. What would be the profit if the production of output is 90%

Solution:

1. BEP in Units = $\text{FC} / \text{SP per unit} - \text{VC per unit}$ OR
BEP in Units = $\text{FC} / \text{Contribution per Unit}$

$$= 12000 / 50$$

$$= 240 \text{ units}$$

2. P/V Ratio = Contribution/Sales

$$= 50/250$$

$$= 20\%$$

BEP in Rs. = BEP units * Selling Price per Unit

$$= 240 * 250$$

$$= 60000 \text{ Rs}$$

OR

BEP = Total Fixed Cost/PV Ratio

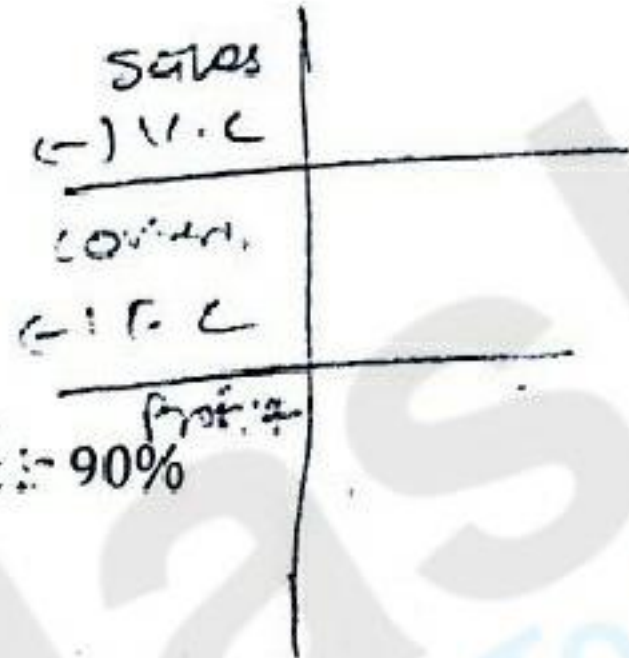
$$= 12000/20\%$$

$$= 60000 \text{ Rs.}$$

3. What would be the profit if the production of output is 90%

Capacity = 500 fans

90% capacity = 450 fans



Since fixed cost is fully recovered at BEP, the entire contribution beyond the BEP would be profit. So, profit on 450 units is

$$\text{Profit} = (450 - 240) * 50 = 10500 \text{ Rs.}$$

Example:

Calculate

- BEP expressed in amount of sales in Rs
- How many units must be sold to earn net income of 20% of sales
 - Selling Price = Rs.200 per unit
 - Variable cost = Rs. 120 per unit
 - Fixed cost = Rs. 24,00,000

Solution:

BEP = FC/SP per unit-VC per unit

$$= 2400000/80 = 30,000 \text{ units}$$

$$\text{BEP in Rs.} = 30000 * 200 = 60,00,000$$

Let the unit sold = X

$$\text{Sales} = 200X$$

$$- \text{VC} = \underline{120X}$$

$$\text{Contribution} = 80X$$

$$- \text{FC} = \underline{2400000}$$

$$\text{Profit} = 40X$$

Total sales = Cost + Profit

$$200X = 120X + 24,00,000 + 40X$$

$$200X - 160X = 24,00,000$$

$$40X = 24,00,000$$

$$X = 60,000$$

A company has to sold 60,000 units to generate 20% income of sales

Example:

Mehta Exporters Ltd. produces a Market industrial containers and packing cases. Due to heavy competition, the organization proposes to reduce the Selling price. Board of directors plan to reduce prices in three stages, such as 5%, 10%, and 15%. If the organization wants to maintain present level of profit, the organization has to increase its sales. The following information is available

Particular	Amount
Present Sales (300,000 units)	30,00,000
Less : Variable Cost (300,000 units)	18,00,000
Less : Fixed Cost	7,00,000
Net Profit	5,00,000

Find out increase in sales at various stages of price reduction and suggest is it good decision to cut price during heavy competition?

Solution:

Let unit produced is X

Particular	Present Value	Price reduction 5%	Price reduction 10%	Price reduction 15%
Price	10 X	9.5 X	9 X	8.5 X
Less: Variable Cost	6 X	6 X	6 X	6 X
Contribution per unit	4 X	3.5 X	3 X	2.5 X
Less : Fixed Cost	7,00,000	7,00,000	7,00,000	7,00,000
EBIT	5,00,000	5,00,000	5,00,000	5,00,000

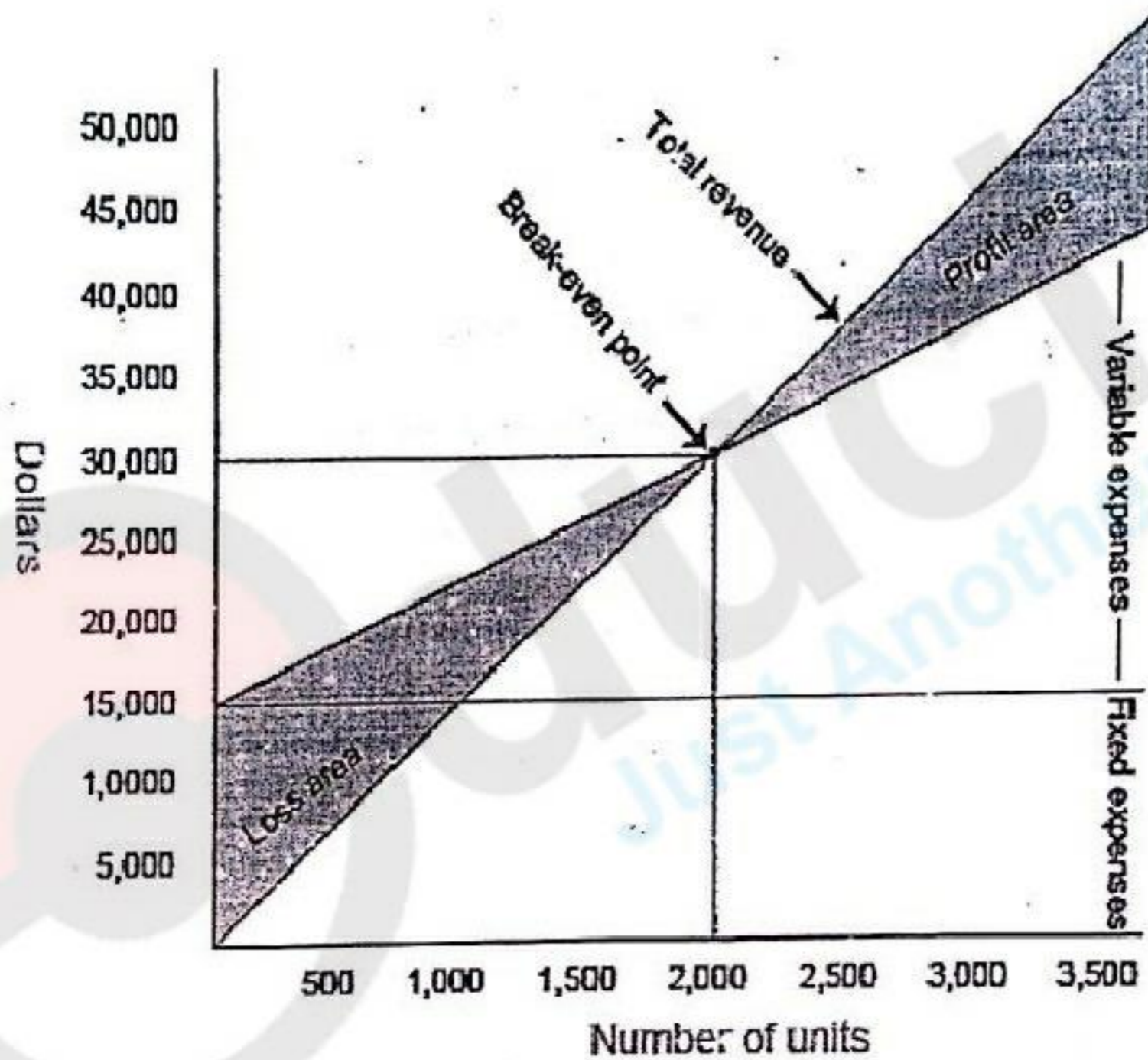
Here the Total Contribution is = Profit + Fixed Cost
 $= 500,000 + 700,000 = 12,00,000$

Particular	Present Value	Price reduction 5%	Price reduction 10%	Price reduction 15%
Total Contribution	12,00,000	12,00,000	12,00,000	12,00,000
Contribution per unit	4 X	3.5 X	3 X	2.5 X
Unit Produced/Sale	300000	342857	400000	480000

Yes it is good decision to cut the price during competition. In this way the organization can retain its position in the market

❖ Graphical representation of BEP

The graphical representation of the breakeven point to establish the relationship between cost, volume and profit is called as break even chart. Break even chart means, " a chart which shows profit or loss at various level of activity, the level at which neither profit nor loss is shown being termed as the break even point.



Explanation of the graph:

X - Axis = No. of Units

Y - Axis = Dollars

The straight line represents the total annual fixed expenses of \$15,000.

The blue line represents the total expenses. Notice that the line has a positive or upward slop that indicates the effect of increasing variable expenses with the increase in production.

The green line with positive or upward slop indicates that every unit sold increases the total sales revenue.

The total revenue line and the total expenses line cross each other. The point at which they cross each other is the *break-even point*.

Notice that the total expenses line is above the total revenue line before the point of intersection and below after the point of intersection. It tells us that the business suffers a loss before the point of intersection and makes a profit after this point.



❖ Budgeting

A budget is a financial plan for the future concerning the revenues and costs of a business. However, a budget is about much more than just financial numbers.

Budgetary control is the process by which financial control is exercised within an organization.

Budgets for income/revenue and expenditure are prepared in advance and then compared with actual performance to establish any variances.

Managers are responsible for controllable costs within their budgets and are required to take remedial action if the adverse variances arise and they are considered excessive.

There are many management uses for budgets. For example, budgets are used to:

- Control income and expenditure (the traditional use)
- Establish priorities and set targets in numerical terms
- Provide direction and co-ordination, so that business objectives can be turned into practical reality
- Assign responsibilities to budget holders (managers) and allocate resources
- Communicate targets from management to employees
- Motivate staff
- Improve efficiency
- Monitor performance

Types of Budget

1. Cash Budget
2. Sales Budget
3. Flexible Budget
4. Master Budget

1. Cash Budget

Introduction

A cash budget is a budget or plan of expected cash receipts and disbursements during the period. These cash inflows and outflows include revenues collected, expenses paid, and loans receipts and payments. In other words, a cash budget is an estimated projection of the company's cash position in the future.

Management usually develops the cash budget after the sales, purchases, and capital expenditures budgets are already made. These budgets need to be made before the cash budget in order to accurately estimate how cash will be affected during the period. For

example, management needs to know a sales estimate before it can predict how much cash will be collected during the period.

Management uses the cash budget to manage the cash flows of a company. In other words, management must make sure the company has enough cash to pay its bills when they come due. For instance, payroll must be paid every two weeks and utilities must be paid every month. The cash budget allows management to predict short falls in the company's cash balance and correct the problems before payments are due.

Likewise, the cash budget allows management to forecast large amounts of cash. Having large amounts of cash sitting idle in bank accounts is not ideal for companies. At the very least, this money should be invested to earn a reasonable amount of interest. In most cases, excess cash is better used to expand and develop new operations than sit idle in company accounts. The cash budget allows management to predict cash levels and adjust them as needed.

Meaning of Cash Budget:

Cash budget is a written estimate of a firm's future cash position. It predicts for some future period the cash receipts from different sources, cash disbursements for different purposes and the resulting cash position generally on a monthly basis as the budget period develops. It is, thus, a formal presentation of-expected circular flow of cash through the business.

The usual forecast period of a cash budget is one year broken down by monthly periods or weekly periods. This allows incorporation of seasonal variations in cash flow. When cash flows are relatively stable, the finance manager may prepare budget for full one year period. When the outlook is very uncertain, he may have to be satisfied with a projection for only quarterly.

Cash budget is different from income statement. The cash budget depicts movement of cash whereas the projected income statement presents account for all sources of income to be tapped and for all classes of expenses to be incurred during a stated period and shows how much profit, if any, is expected to be earned in a future period.

Cash budget consists of all expected inflows of cash including income and non-income sources such as receipts from sale of stocks and bonds and receipts from sale of fixed assets.

The later items (receipts from non-income sources) do not appear in the income statement. Likewise, cash budget provides for all types of cash outgo including payments of expenses

accrued in the prior periods, the forecast period, or the subsequent periods (prepayments) or as payments not immediately related to expenses such as the purchase of fixed assets or dividend distribution to the stockholders.

Disbursements in respect of purchase of fixed assets or dividend distribution would not find place in the income statement. Similarly, there are certain items that would appear in the income statement but are not included in the cash budget.

All appropriations such as depreciation and amortization of patents appear only in the anticipated income statement and are not shown in cash budget. In view of these reasons, cash budget should not be confused with income statement.

The cash budget is also different from other budgets, in that the cash budget is concerned with the timing of receipts and disbursements of cash whereas the other budgets are concerned with the timing of transactions themselves.

The cash budget consists of three parts:

- (1) The forecast of cash inflows,
- (2) The forecast of cash outflows, and
- (3) The forecast of cash balance.

Cash Budget Format

Cash Budget	
Beginning Cash Balance	XXXX
ADD:	
Cash Receipts	<u>XXXX</u>
Deduct:	
Cash Payment	<u>XXXX</u>
Closing Cash Balance	XXXX

Principal Objectives of Cash Budget:

Cash budget in a firm is prepared to accomplish the following objectives:

- (1) To project firm's cash position in future period.
- (2) To predict cash surplus or deficit for the ensuing months.

(3) To permit planning for financing in advance of need. By indicating when cash will be required, the budget helps the management to arrange in advance bank loans or other short-term credits, to prepare for a sale of securities or to make other preparations for new financing.

(4) To help in selection of proper source of financing cash requirements of the firm.

(5) To permit proper utilization of idle cash.

(6) To maintain adequate balance between cash and working capital, sales, investments and loans.

(7) To exercise control over cash expenditure by limiting the spending of various departments.

Utility of Cash Budget:

Cash budget is an extremely important tool available in the hands of a finance manager for planning fund requirements and for controlling cash position in the firm. As a planning device, cash budget helps the finance manager to know in advance the cash position of the firm in different time periods.

The cash budget indicates in which months there will be cash surfeit and in which months the firm will experience cash drain and by how much.

With the help of this information finance manager can draw up a programme for financing cash requirements. It indicates the most opportune time to undertake the financing process. There will be two advantages if the finance manager knows in advance as to when additional funds will be required. First, funds will be available in hand when needed and there will be no idle funds.

In the absence of the cash budget it may be difficult to determine cash requirements in different months. If cash required is not available in time it will entail the firm in a precarious position. The firm's output is reduced because of imbalance in financial structure and the rate of return consequently declines.

Example

Amar has estimated the following data for the period April 2012 to Sept 2012 and request you to prepare cash budget

Month	Cash Sales	Cash Purchase	Wages	Expenses
April	80000	40000	20000	10000
May	90000	42000	22000	11000
June	100000	45000	23000	12000
July	95000	40000	18000	15000
Aug	90000	38000	19000	17000
Sept	96000	42000	21000	18000

Additional Information

- Amar has to infuse fresh capital of 100000 into the business in June 2012
- In July 2012 a new machine costing Rs. 1,25,000 will be purchased
- Amar has a opening cash balance of Rs. 12,000 on 1st April, 2012

Solution:

Cash Budget of Amar for the period of April 2012 to Sept 2012

Particular	April	May	June	July	Aug	Sept
Opening Cash	12000	22000	37000	157000	54000	70000
Receipts :						
Cash Sale	80000	90000	100000	95000	90000	96000
Capital Introduced			100000			
Total Cash Receipt	92000	112000	237000	252000	144000	166000
Payment :						
Cash Purchase	40000	42000	45000	40000	38000	42000
Wages	20000	22000	23000	18000	19000	21000
Expenses	10000	11000	12000	15000	17000	18000
Machine Purchased				125000		
Total Payment	70000	75000	80000	198000	74000	81000
Net Cash	22000	37000	157000	54000	70000	85000

ABC Ltd. is engaged in the business of trading in plastic products. It purchases goods on a credit period for 1 month, but sales its goods on a credit period of 2 months. Wages are paid after a time lag of 1 month. Expenses are paid in the month in which they have been incurred. Prepare a cash budget from April 2012 to June 2012

Month	Sales	Purchase	Wages	Expenses
Feb	100000	60000	23000	12000
Mar	105000	62000	25000	13000
April	120000	65000	23000	15000
May	110000	64000	27000	14000
June	125000	68000	28000	16000

Additional Information:

- The cash balance on 1/4/2012 was 23000
- The company has taken a loan of Rs. 100000 on 1/4/2012. Interest on loan is payable @ 15% every month
- The company also plans to invest Rs.80000 in 10% Bonds on 1/4/2012. Interest on bond is receivable on quarterly basis

Solution:

Cash Budget of ABC for the period of April 2012 to Sept 2012

Particular	April	May	June
Opening Cash	23000	183250	103250
Receipts :			
Receipt from Debtors (Sales)	100000	105000	120000
15% Loan taken	100000		
Interest received on 10% Bond			2000
Total Cash Receipt			
Payment :			
Cash Purchase	62000	65000	64000
Wages	25000	23000	27000

Expenses	15000	14000	16000
Interest on Loan	1250	1250	1250
Investment in 10% Bond	80000		
Total Payment	183250	103250	108250
Net Cash	39750	41500	55250

Example:

From the following forecasts of income and expenditure, prepare a cash budget for the months Jan. to April 2011.

Months	Sales (Credit)	Purchase (Credit)	Wages	Manufacturing expenses	Administrative expenses	Selling expenses
2010 Nov.	30000	15000	3000	1150	1060	500
Dec.	35000	20000	3200	1225	1040	550
2011 Jan.	25000	15000	2500	990	1100	600
Feb.	30000	20000	3000	1050	1150	620
March	35000	22500	2400	1100	1220	570
April	40000	25000	2600	1200	1180	710

Additional information is as follows:

1. The customers are allowed a credit period of two months.
2. A dividend of \$ 10000 is payable April.
3. Capital expenditure which has to be incurred: 15th Jan. \$ 5000, we will buy a plant and in March, we will buy a building on loan and its payment will be done with in monthly installments of \$ 2000 each.
4. The creditor is allowing a credit of 2 months.
5. Wages are paid on the 1st of the next months.
6. Lag in payment of other expenses is one month.
7. Balance of cash in hand on 1st Jan. 2011 is \$ 15000.

Solution:

Cash Budget from Jan. to April 2011

Particular	Jan	Feb	March	April
Opening Cash	15000	18985	28795	30975
Receipts:				
Cash realized from customers	30000	35000	25000	30000

Total Cash Receipts	45000	53985	53795	60975
Payment:				
Payment to Creditors	15000	20000	15000	20000
Wages	3200	2500	3000	2400
Manufacturing Exp	1225	990	1050	1100
Admin Exp	1040	1100	1150	1220
Selling Exp	550	600	620	570
Dividend				10000
Purchase of plant	5000			
Installment of Building			2000	2000
Total Payment	26015	25190	22820	37290
Closing Cash Balance	18985	28795	30975	23685

Example:

From the following information prepare cash budget for the period April to September.

The estimated sales and expenses were as under

	Feb	Mar	April	May	June	July	Aug	Sept
Sales	180000	200000	220000	210000	225000	240000	230000	250000
Salaries	15500	15500	15500	15500	17000	17000	18500	18500

- 20% of the sales are on cash basis and the balance on credit. 50% of the credit sales are collected in the next month and the balance 50% in the following.
- Purchases are 75% of the month's sales. Purchases are made 1 month in advance on credit. The credit period of purchase is 2 months.
- General Expenses incurred are 125% of the monthly salary.
- Salaries are to be paid at a time lag of 1 month. And expenses at a time lag of half month.
- Bonus of Rs. 15000 is to be paid to the employees in August.
- Cash Balance as on 1st April was Rs. 33000.

Solution:

Particular	April	May	June	July	Aug	Sept
Opening Cash	33000	44125	54250	77937	92937	90749
Receipts:						
Cash Sales	44000	42000	45000	48000	46000	50000
Receipt from Debtors after 1 Month	80000	88000	84000	90000	96000	92000
Receipt from Debtors after 2 Month	72000	80000	88000	84000	90000	96000
Total Receipt	229000	254125	271250	299937	324937	328749

Payment:							
Payment to creditors	150000	165000	157500	168750	180000	172500	
General Expenses	19375	19375	20313	21250	22188	23125	
Salaries	15500	15500	15500	17000	17000	18500	
Bonus Paid					15000		
Total Payment	184875	199875	193313	207000	234188	214125	
Closing Cash Balance	44125	54250	77937	92937	90749	114624	

Working Note:

1. Sales

Particular	Feb	March	April	May	June	July	Aug	Sept
Cash Sales (20%)	36000	40000	44000	42000	45000	48000	46000	50000
Credit Sales (80%)	144000	160000	176000	168000	180000	192000	184000	200000
50% of Credit Sales	72000	80000	88000	84000	90000	96000	92000	100000

2. Purchases

Particular	Feb	March	April	May	June	July	Aug	Sept
Sales	180000	200000	220000	210000	225000	240000	230000	250000
75% of Sales	135000	150000	165000	157500	168750	180000	172500	187500

3. General Expenses

Particular	Feb	March	April	May	June	July	Aug	Sept
Salaries	15500	15500	15500	15500	17000	17000	18500	18500
125% Exp	19375	19375	19375	19375	21250	21250	23125	23125
Half Month Exp	9687.5	9687.5	9687.5	9687.5	10625	10625	11562.5	11562.5

Example:

Krishna Enterprise deals in a single product X. The per unit cost structure is as follows.

Material	Rs. 400
Labour	150
Production Expenses	150
General Expenses	100
Total Cost	800
Profit @ 25% of Cost	200
Sales Price	1000

The estimated sales in units is as under

May	June	July	Aug	Sept	Oct
200	220	210	190	225	230

- 30% of the sales are on cash basis and the balance on credit basis. Debtors are allowed a credit period of 2 months
- 10% materials are purchased on cash basis. Materials are purchased one month in advance. Credit period allowed by the suppliers is 3 months
- Wages are paid on 5th of next month
- General Expenses include a fixed rent cost of Rs.5000 per month, which is paid one month in advance. The remaining general expenses are paid in next month in which they are incurred
- The company has taken a loan of Rs. 500000 and monthly installment of 30000 are payable at the beginning of each month
- You are asked to prepare a cash budget for the period July to Sept after considering an opening balance of Rs. 40000

Revenue Statement

Particular	Per Unit	May	June	July	Aug	Sept	Oct
No of Units		200	220	210	190	225	230
Material	400	80000	88000	84000	76000	90000	92000
Labour	150	30000	33000	31500	28500	33750	34500
Production Exp	150	30000	33000	31500	28500	33750	34500
General Exp	100	20000	22000	21000	19000	22500	23000
Total Cost	800	160000	176000	168000	152000	180000	184000
Profit@ 25% of Cost	200	40000	44000	42000	38000	45000	46000
Sales	1000	200000	220000	210000	190000	225000	230000

Cash Budget of Krishna Enterprise for the period July 2012 to Sept 2012

Particular	July	Aug	Sept
Opening Cash	40000	78400	118700
Receipts:			
Cash Sales (30%)	63000	57000	67500
Receipts from Debtors	140000	154000	147000
Total Receipts	203000	211000	214500

Payment:			
10% Cash Purchase of Material (1 Month Advance)	7600	9000	9200
90% Payment to creditors	72000	79200	75600
Wages	33000	31500	28500
Rent	5000	5000	5000
General Expenses	17000	16000	14000
Loan Installment	30000	30000	30000
Total Payment	164600	170700	162300
Closing Balance	78400	118700	170900

2. Sales Budget

Definition

The sales budget contains an itemization of a company's sales expectations for the budget period, in both units and dollars. If a company has a large number of products, it usually aggregates its expected sales into a smaller number of product categories or geographic regions; otherwise, it becomes too difficult to generate sales estimates for this budget. The sales budget is usually presented in either a monthly or quarterly format; presenting only annual sales information is too aggregated, and so provides little actionable information.

The information in the sales budget comes from a variety of sources. Most of the detail for existing products comes from those personnel who deal with them on a day-to-day basis. The marketing manager contributes sales promotion information, which can alter the timing and amount of sales. The engineering and marketing managers may also contribute information about the introduction date of new products, as well as the retirement date of old products. The chief executive officer may revise these figures for the sales of any subsidiaries or product lines that the company plans to terminate or sell during the budget period.

It is generally best not to include in the sales budget any estimates for sales related to prospective acquisitions of other companies, since the timing and amounts of these sales are too difficult to estimate. Instead, revise the sales budget after an acquisition has been finalized.

The basic calculation in the sales budget is to itemize the number of unit sales expected in one row, and then list the average expected unit price in the next row, with the total revenues appearing in a third row. The unit price may be adjusted for marketing

promotions. If any sales discounts or returns are anticipated, these items are also listed in the sales budget.

It is extremely important to do the best possible job of forecasting, since the information in the sales budget is used by most of the other budgets (such as the production budget and the direct materials budget). Thus, if the sales budget is inaccurate, then so too will be the other budgets that use it as source material.

It is quite difficult to derive a sales forecast that proves to be accurate for any period of time, so an alternative is to periodically adjust the sales budget with revised estimates, perhaps on a quarterly basis. If this is done, the rest of the budget that is derived from the sales figures will also have to be revised, which can require a significant amount of staff time.

The projected unit sales information in the sales budget feeds directly into the production budget, from which the direct materials and direct labor budgets are created. The sales budget is also used to give managers a general sense of the scale of operations, for when they create the overhead budget and the sales and administrative expenses budget. The total net sales dollars listed in the sales budget are carried forward into the revenue line item in the master budget.

Example of the Sales Budget

ABC Company plans to produce an array of plastic pails during the upcoming budget year, all of which fall into a single product category. Its sales forecast is outlined as follows:

ABC Company
Sales Budget
For the Year Ended December 31, 20XX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Forecasted unit sales	5,500	6,000	7,000	8,000
x Price per unit	\$10	\$10	\$11	\$11
Total gross sales	\$55,000	\$60,000	\$77,000	\$88,000
- Sales discounts & allowances	\$1,100	\$1,200	\$1,540	\$1,760
= Total net sales	\$53,900	\$58,800	\$75,460	\$86,240

ABC's sales manager expects that increased demand in the second half of the year will allow it to increase its unit price from \$10 to \$11. Also, the sales manager expects that the

company's historical sales discounts and allowances percentage of two percent of gross sales will continue through the budget period.

This example of the sales budget is simplistic, since it assumes that the company only sells in one product category. In reality, this example might have been a detail page that rolls up into the main sales budget, where it would occupy a single line item.

3. Flexible Budget

Overview

A flexible budget calculates different expenditure levels for variable costs, depending upon changes in actual revenue. The result is a budget that varies, depending on the activity levels experienced. You input the actual revenues or other activity measures into the flexible budget once an accounting period has been completed, and it generates a budget that is specific to the inputs.

The budget is then compared to actual information for control purposes. The steps needed to construct a flexible budget are:

1. Identify all fixed costs and segregate them in the budget model.
2. Determine the extent to which all variable costs change as activity measures change.
3. Create the budget model, where fixed costs are "hard coded" into the model, and variable costs are stated as a percentage of the relevant activity measures or as a cost per unit of activity measure.
4. Enter actual activity measures into the model after an accounting period has been completed. This updates the variable costs in the flexible budget.
5. Enter the resulting flexible budget for the completed period into the accounting system for comparison to actual expenses.

This approach varies from the more common static budget, which contains nothing but fixed amounts that do not vary with actual revenue levels. Budget versus actual reports under a flexible budget tend to yield variances that are much more relevant than those generated under a static budget, since both the budgeted and actual expenses are based on the same activity measure. This means that the variances will likely be smaller than under a static budget, and will also be highly actionable.

You can create a flexible budget that ranges in level of sophistication. Here are several variations on the concept:

- **Basic flexible budget.** At its simplest, the flexible budget alters those expenses that vary directly with revenues. There is typically a percentage built into the model that is multiplied by actual revenues to arrive at what expenses should be at a stated revenue level. In the case of the cost of goods sold, a cost per unit may be used, rather than a percentage of sales.
- **Intermediate flexible budget.** Some expenditures vary with other activity measures than revenue. For example, telephone expenses may vary with changes in headcount. If so, you can integrate these other activity measures into the flexible budget model.
- **Advanced flexible budget.** Expenditures may only vary within certain ranges of revenue or other activities; outside of those ranges, a different proportion of expenditures may apply. A sophisticated flexible budget will change the proportions for these expenditures if the measurements they are based on exceed their target ranges.

In short, a flexible budget gives a company a tool for comparing actual to budgeted performance at many levels of activity.

Advantages of Flexible Budgeting

The flexible budget is an appealing concept. We note three particular advantages in this section.

- **Usage in variable cost environment.** The flexible budget is especially useful in businesses where costs are closely aligned with the level of business activity, such as a retail environment where overhead can be segregated and treated as a fixed cost, while the cost of merchandise is directly linked to revenues.
- **Performance measurement.** Since the flexible budget restructures itself based on activity levels, it is a good tool for evaluating the performance of managers - the budget should closely align to expectations at any number of activity levels. It is also a useful planning tool for managers, who can use it to model the likely financial results at a variety of different activity levels.
- **Budgeting efficiency.** Flexible budgeting can be used to more easily update a budget for which revenue or other activity figures have not yet been finalized. Under this approach, managers give their approval for all fixed expenses, as well as variable expenses as a proportion of revenues or other activity measures. Then the budgeting staff completes the remainder of the budget, which flows through the

formulas in the flexible budget and automatically alters expenditure levels. This approach can improve the efficiency of the budget formulation process, especially when the management team is working its way through a large number of iterations.

These points make the flexible budget an appealing model for the advanced budget user. However, before deciding to switch to the flexible budget, consider the following countervailing issues.

Disadvantages of Flexible Budgeting

The flexible budget at first appears to be an excellent way to resolve many of the difficulties inherent in a static budget. However, there are also a number of serious issues with it, which we address in the following points:

- **Formulation.** Though the flex budget is a good tool, it can be difficult to formulate and administer. One problem with its formulation is that many costs are not fully variable, instead having a fixed cost component that must be calculated and included in the budget formula. Also, a great deal of time can be spent developing cost formulas, which is more time than the typical budgeting staff has available in the midst of the budget process. Consequently, the flexible budget tends to include only a small number of variable cost formulas.
- **Closing delay.** You cannot pre-load a flexible budget into the accounting software for comparison to the financial statements. Instead, you must wait until a financial reporting period has been completed, then input revenue and other activity measures into the budget model, extract the results from the model, and load them into the accounting software. Only then can you issue financial statements that contain budget versus actual information, with variances between the two. These extra steps will delay the issuance of financial statements.
- **Revenue comparison.** In a flexible budget, there is no comparison of budgeted to actual revenues, since the two numbers are the same. The model is designed to match actual expenses to expected expenses, not to compare revenue levels. There is no way to highlight whether actual revenues are above or below expectations.
- **Applicability.** Some companies have so few variable costs of any kind that there is little point in constructing a flexible budget. Instead, they have a massive amount of fixed overhead that does not vary in response to any type of activity. For example, consider a web store that downloads software to its customers; a certain amount of

expenditure is required to maintain the store, and there is essentially no cost of goods sold, other than credit card fees. In this situation, there is no point in constructing a flexible budget, since it will not vary from a static budget.

In short, a flexible budget requires extra time to construct, delays the issuance of financial statements, does not measure revenue variances, and may not be applicable under certain budget models. These are serious issues that tend to restrict its usage.

4. Master Budget

Definition

The master budget is the aggregation of all lower-level budgets produced by a company's various functional areas, and also includes budgeted financial statements, a cash forecast, and a financing plan. The master budget is typically presented in either a monthly or quarterly format, and usually covers a company's entire fiscal year. An explanatory text may be included with the master budget, which explains the company's strategic direction, how the master budget will assist in accomplishing specific goals, and the management actions needed to achieve the budget. There may also be a discussion of the headcount changes that are required to achieve the budget.

A master budget is the central planning tool that a management team uses to direct the activities of a corporation, as well as to judge the performance of its various responsibility centers. It is customary for the senior management team to review a number of iterations of the master budget and incorporate modifications until it arrives at a budget that allocates funds to achieve the desired results. Hopefully, a company uses participative budgeting to arrive at this final budget, but it may also be imposed on the organization by senior management, with little input from other employees.

The budgets that roll up into the master budget include:

- Direct labor budget
- Direct materials budget
- Ending finished goods budget
- Manufacturing overhead budget
- Production budget
- Sales budget
- Selling and administrative expense budget

The selling and administrative expense budget may be further subdivided into budgets for individual departments, such as the accounting, engineering, facilities, and marketing departments.

Once the master budget has been finalized, the accounting staff may enter it into the company's accounting software, so that the software can issue financial reports comparing budgeted and actual results.

Smaller organizations usually construct their master budgets using electronic spreadsheets. However, spreadsheets may contain formula errors, and also have a difficult time constructing a budgeted balance sheet. Larger organizations use budget-specific software, which does not have these two problems.

Example of the Master Budget

Many lower-level budgets have specific formats that are used to arrive at certain outcomes, such as the fully absorbed cost of the finished goods inventory, or the number of units of products to be manufactured. This is not the case for the master budget, which looks very much like a standard set of financial statements. The income statement and balance sheet will be in the normal format mandated by Generally Accepted Accounting Principles or International Financial Reporting Standards. The primary difference is the cash budget, which does not usually appear in the standard format of the statement of cash flows. Instead, it serves the more practical purpose of identifying specific cash inflows and outflows that will result from the rest of the budget model. Here is an example of the cash budget:

Alpha Intergalactic Corporation
Cash Budget
For the Year Ended December 31, 20XX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Beginning cash	\$100,000	\$98,000	\$95,000	\$38,000
+/- Net profit (loss)	+25,000	+12,000	+40,000	+23,000
+ Depreciation	+15,000	+15,000	+22,000	+24,000
- Capital expenditures	-28,000	0	-80,000	-35,000
+/- Working capital changes	-14,000	-30,000	-39,000	-21,000
= Ending cash	\$98,000	\$95,000	\$38,000	\$29,000

The most difficult item to estimate in the cash budget is the net change in working capital from period to period. During periods of rapid growth, working capital can be a strongly

negative number, since the company must invest in more accounts receivable than usual. If the amount of work capital appears to be holding steady despite rapid growth, then it is quite likely that management has built an unrealistic expectation into the budget to be able to collect accounts receivable more quickly than has been the case in the past.

A similar problem can arise with inventory, which is another component of working capital. It generally takes more inventory to support more sales, so the portion of working capital comprised of inventory can be expected to increase in conjunction with more sales. Thus, it is extremely likely that a company experiencing any amount of growth will forecast negative cash flow, because of the need to fund additional working capital.



educlassin
Just Another Way To Learn