

## UNIT 1

### LESSON I

#### FINANCIAL POLICY AND STRATEGIC PLANNING

Today most business enterprises engage in strategic planning, although the degrees of sophistication and formality vary considerably. Conceptually, strategic planning is deceptively simple: Analyze the current and expected future situation, determine the direction of the firm, and develop means for achieving the mission. In reality, this is an extremely complex process which demands a systematic approach for identifying and analyzing factors external to the organization and matching them with the firm's capabilities.

Planning is done in an environment of uncertainty. No one can be sure what the external as well as the internal environment will be even next week, much less several years from now: Therefore, people make assumptions or forecasts about the anticipated environment. Some of the forecasts become assumptions for other plans. For example, the gross national product forecast becomes the assumption for sales planning, which in turn becomes the basis for production planning and so on.

Strategies and policies are closely related. Both give direction, both are the frame work for plans, both are the basis of operational plans, and both affect all areas of managing.

#### **Strategy and Policy**

The term "strategy" (which is derived from the Greek word *strategies*, meaning "general" )has been used in different ways. Authors differ in at least one major aspect about *strategies*. Some writers focus on both the end points (purpose, mission, goals, objectives) and the means of achieving them (policies

and plans). Others emphasize the means to the ends in the strategic process rather than the ends per se.

Policies are general statements or understandings which guide managers thinking in decision making. They ensure that decisions fall within certain boundaries. They usually do not require action but are intended to guide managers in their commitment to the decision they ultimately make.

The essence of policy is discretion. Strategy on the other hand, concerns the direction in which human and material resources will be applied in order to increase the chance of achieving selected objectives.

### **The Strategic Planning Process**

Although Specific steps in the formulation of the strategy may vary, the process can be built, at least conceptually, around the key elements shown in Figure given below:

#### **Inputs**

The various organizational inputs are the goal inputs of the claimants,

#### **Enterprise Profile**

The enterprise profile is usually the starting point for determining where the company is and where it should go. Thus, top managers determine the basic purpose of the enterprises and clarify the firm's geographic orientation, such as whether it should operate in selected regions, in all states in the United States, or even in different countries . In addition, managers assess the competitive situation of their firm.

#### **Orientation of Top Managers**

The enterprise profile is shaped by people, especially top managers, and their orientation is important for formulating the strategy. They set the organizational climate, and they determine the direction of the firm. Consequently, there values,

their preferences, and their attitudes toward risks have to be carefully examined because they have an impact on the strategy.

### **Purpose and Objectives**

The purpose and the major objectives are the end points towards which the activities of the enterprise are directed. Since the previous chapter dealt with these topics at length, additional discussion here is unnecessary.

### **External Environment**

The present and future external environment must be assessed in terms of threats and opportunities. The evaluation focuses on economic, social, political, legal, demographic, and geographic factors. In addition, the environment is scanned for technological developments, for products and services on the market, and for other factors necessary in determining the competitive situation of the enterprises.

### **Internal Environment**

Similarly the firms internal environment should be audited and evaluated in respect to its weaknesses and strengths in research and development, production, operations, procurement, marketing, and products and services. Other internal factors important for formulating a strategy include that the assessment of human resources , financial resources, and other factors such as the company image, the organization structure and climate, the planning and control system, and relations with customers.

### **Alternative Strategies**

Strategies alternatives are developed on the basis of an analysis of the external and internal environment. An organization may pursue many different kinds of strategies . It may specialize or concetrates, as the Korean Hyundai company did by producing lower-priced cars (in contrast to General Motors, for example, which has a complete product line ranging from inexpensive to luxurious cars).

Alternatively, a firm may diversify, extending the operation into new and profitable markets. Sears not only is in retailing but also provides many financial services.

Still another strategy is to go international and expand the operation into other countries. The multinational firms provide many examples. The same chapter also examines joint ventures, which may be an appropriate strategy for some firms have to pool their resources, as illustrated by the joint venture of General Motors and Toyota to produce small cars in California.

Under certain circumstances, a company may have to adopt a liquidation strategy by terminating an unprofitable product line or even dissolving the firm. But in some cases liquidation may not be necessary and a retrenchment strategy may be appropriate. In such a situation the company may curtail its operation temporarily.

These are just a few examples of possible strategies. In practice, companies, especially large ones, pursue a combination of strategies.

### **Evaluation and Choice of Strategies**

The various strategies have to be carefully *evaluated* before the *choice* is made. Strategic choices must be considered in light of the risks involved in a particular decision. Some profitable opportunities may not be pursued because a failure in a risky venture could result in bankruptcy of the firm. Another critical element in choosing a strategy is timing. Even the best product may fail if it is introduced to the market at an inappropriate time. Moreover, the reaction of competitors must be taken into consideration. When IBM reduced its price of the PC computer in reaction to the sales success of Apple's Macintosh computer, firms producing IBM-compatible computers had little choice but to reduce their prices as well. This illustrates the interconnection of the strategies of several firms in the same industry.

### **Medium – and Short-Range Planning, Implementation, and Control**

Although not a part of the strategic planning process and short-range planning as well as the *implementation* of the plans must be considered during all phases of the process. *Control* must also be provided for monitoring performance against plans. The importance of *feedback* is shown by the loops in the model.

### **Consistency and contingency**

The last key aspect of the strategic planning process is testing for *consistency* the preparing for *contingency plans*.

### **MAJOR KINDS OF STRATEGIES AND POLICIES**

For a business enterprise and, with some modification, for other kinds of organizations as well), the major strategies and policies that give an overall direction to operations are likely to be in the following areas.

#### **Growth**

Growth strategies give answers to such questions as these: How much growth should occur? How fast? Where? How should it occur?

#### **Finance**

Every business enterprise and, for that matter, any non business enterprise must have a clear strategy for financing its operations. There are various ways of doing this and usually many serious limitations.

#### **Organisation**

Organisational strategy has to do with the type of organizational pattern an enterprise will use. It answers practical questions. For example, how centralized or decentralized should decision-making authority be? What kinds of departmental patterns are most suitable? How should staff positions be designed? Naturally, organization structures furnish the system of roles and role relationships that help people accomplish objectives.

#### **Personnel**

There can be many major strategies in the area of human resources and relationships. They deal with such topics as union relations. Compensation, selection, hiring, training, and appraisal, as well as with special areas such as job enrichment.

### **Public Relations**

Strategies in this area can hardly be independent; they must support other major strategies and efforts. They must also be designed in the light of the company's type of business, its closeness to the public, and its susceptibility to regulation by government agencies. In any area, strategies can be developed only if the right questions are asked. While no set of strategies can be formulated that will fit all organizations and situations, certain key questions will help any company discover what its strategies should be. The right questions will lead to answers. As examples, some key questions are presented below for two major strategic areas: products or services and marketing. With a little thought, you can devise key questions for other major strategic areas.

### **Products or Services.**

A business exists to furnish products or services. In a very real sense, profits are merely a measure—although an important one—of how well a company serves its customers. New products or services, more than any other single factor, determine what an enterprise is or will be.

The key questions in this area can be summarized as follows:

What is our business?

Who are our customers?

What do our customers want?

How much will our customers buy and at what price?

Do we wish to be a product leader?

Do we wish to develop our own new products?

What advantages do we have in serving customer needs?

How should we respond to existing and potential competition?

How far can we go in serving customer needs?

What Profits can we expect?

What basic form should our strategy take?

## **Marketing**

Marketing strategies are designed to guide managers in getting products or services to customers and in encouraging customers to buy. Marketing strategies are closely related to product strategies; they must be interrelated and mutually supportive. As a matter of fact, Peter Drucker regards the two basic business functions as innovation (e.g., the creation of new goods or services) and marketing. A business can scarcely survive without at least one of these functions and preferably both.

The key questions that serve as guides for establishing a marketing strategy are these:

Where are our customers, and why do they buy?

How do our customers buy?

How is it best for us to sell?

Do we have something to offer that competitors do not?

Do we wish to take legal steps to discourage competition?

Do we need, and can we supply, supporting services?

What are the best pricing strategy and policy for our operation?

## **Summary**

There are different definitions of strategy. A comprehensive one refers to the determination of basic long-term objectives and of courses of action and allocations of resources to achieve these aims. Policies are general statements or

understanding which guide managers' thinking in decision making. Both strategies and policies give direction to plans. They provide the framework for plans and serve as a basic for the development of tactics and other managerial activities.

Major kinds of strategies and policies need to be developed in areas such as growth, finance, organization, personnel, public relations, products or services, and marketing. Professor Porter identified three generic competitive strategies related to overall cost leadership, differentiation, and focus.

To implement strategies effectively, managers must communicate the strategies and planning premises to all who should know them and must make sure that the plans contribute to and reflect the strategies and goals they serve. Managers also must review strategies regularly, develop contingency strategies, and be sure that the organization structure of the enterprise fits its planning program. Managers need to make, learning about planning and implementing strategy an ongoing process.

Planning premises are the anticipated environment. They include assumptions or forecasts of future and known conditions. Effective premising requires proper selection of premises, development of alternative premises for contingency planning, provision for consistency, and communication of the planning premises.

### **Key Ideas and concepts for review**

Strategies	Major kinds of strategies
Policies	Three generic strategies by Porter
Key elements in the strategies planning process	Requirements for successful implementation of strategies
TOWS Matrix by Wehrich	Planning premises
Boston Requirements for effective premising	Portfolio Matrix by the Consulting Group

Consulting Group



### **For Discussion**

1. How can you distinguish between strategies and policies?
2. Are strategies and policies as important in a non business enterprise (such as a labor union, the State Department, a hospital, or a city fire department) as they are in a business? Why and how?
3. Why are contingency strategies important?
4. Choose an organization you know and identify its strengths and weaknesses. What are its special opportunities and threats in the external environment?
5. How would you make an organizational appraisal of your college or university? What kind of “business” is the school in?
6. How can strategies be implemented effectively?

## **LESSON I**

### **FINANCIAL POLICY AND STRATEGIC PLANNING**

#### **LESSON OUTLINE**

Strategy and Policy

The Strategic Planning Process

Major Kinds of Strategies and Policies

#### **LEARNING OBJECTIVE**

**After reading this chapter you should be able to :**

Understand the nature of strategy and Policy

Define and Conceptualize the Concept of Strategy and Policy

Describe the relationship between strategy and Policy

Detail the process of strategic analysis

## **LESSON II**

### **FORMULATION OF STRATEGIES AND POLICES**

#### **POLICY**

The term policy is derived from the Greek word 'politeia' relating to policy, that is citizen and Latin word 'politis' meaning polished, that is to say, clear. According to New Webster Dictionary, policy means the art or manner of governing a nation, the line of conduct which rulers of a nation adopt on a particular question specially with regard to foreign countries, the principle on which any measure or course of action is based. While these descriptions of policy relate to any field, policy in the organizational context is defined as "management's expressed or implied intent to govern action in the achievement of company's aims"?. This definition, however, is at high level of abstraction and requires deeper analysis. It suggests that it governs actions of people in the organization but does not say how the action is governed. Therefore, an operational definition of policy may be as follows:

A policy is the statement or general understanding which provides guidelines in decision-making to members of an organization in respect to any course of action.

On the basic of this definition, following features of policy can be identified:

1. A policy provides guidelines to the members of the organization for deciding a course of action and, thus, restricts their freedom of action. Policy provides and explains what a member should do rather than what he is doing. Policies, when enforced, permit prediction of roles with certainly. Since a policy provides guidelines to thinking in decision-

making, it follows that it must allow some discretion, otherwise it will become a rule.

2. Policy limits an area within which a decision is to be made and assures that the decision will be consistent with and contributive to objectives. A policy tends to predecide issues, avoid repeated analysis, and give a unified structure to other types of plans, thus permitting managers to delegate authority and still retaining control of action. For example, if the organization has framed a policy that higher positions in the organization will be filled by internal promotion, the managers concerned can deal with the situation in this light whenever a vacancy at higher level arises. Thus the organization gets assurance that higher positions are filled by internal members without further control.
3. Policies are generally expressed in qualitative, conditional, or general way. The verbs most often used in stating policies are to maintain, to continue, to follow, to adhere, to provide, to assist, to assure, to employ, to make, to produce, or to be. Such prescriptions may be either explicit or these may be interpreted from the behaviour of organization members, particularly at the top level. When such a behaviour is interpreted as policy guideline it is normally known as precedent, that is what has happened in the past on a particular issue if there is no clearly specified declaration.
4. Policy formulation is a function of all managers in the organization because some form of guidelines for future course of action is required at every level. However, higher is the level of a manager, more important is his role in policy making. Similarly, policies may exist in all areas of the organization from major organizational policies to minor policies applicable to the smallest segment of the organization.

A policy is somewhat a permanent feature of an organization. It being a standing plan provides guidelines to managerial decisions. Therefore, policies should be developed on a sound basis. If this is not done, managers have to make decisions again and again. However, what features constitute a sound policy cannot be prescribed universally because situations vary so greatly that an organization may differ in respect of a policy formulation and implementation from others. However, the soundness of policy can be judged on the basis of following criteria.

- i. Does it reflect present or desired organizational practices and behaviour?
- ii. Is it clear, definite, and explicit leaving no scope for misinterpretation?
- iii. Does it exist in the area critical to the success of the organization?
- iv. Is it consistent with other policies and does it reflect the timing needed to accomplish the objectives?
- v. Is it practical in a given existing or expected situation?

A sound policy will (i) specify more precisely how the decision will come – what is to be done, who is to do it, how it is to be done , and when it is to be finished; (ii) establish a follow-up mechanism to make sure that the decision intended will take place and (iii) lead to new strengths which can be used for decisions in future. Based on these questions and specifications, some major characteristics of a sound policy can be identified as follows:

1. *Relationship to Organisational Objectives.* A policy is formulated in the context of organizational objectives. Therefore, it tries to contribute towards the achievement of these objectives . Therefore, in formulation of

a policy, those functions or activities which do not contribute to the achievement of objectives should be eliminated. For example, if a policy of filling higher positions from within produces hindrance in attracting talents at higher level but the organization needs them, the policy can be changed because in the absence of suitable manpower, the organization may not be able to achieve its objectives.

2. *Planned formulation.* A policy must be the result of careful and planned formulation process rather than the result of opportunistic decisions made on the spur of the moment. Since policies are relatively permanent features of the organization, adhocism should be avoided because it is likely to create more confusion. It is true it is not possible to solve every problem in the organization on the basis of policies because new situations may arise, however, for matters of recurring nature, there should be well-established policies.
3. *Fair Amount of Clarity.* As far as possible, policy should be clear and must not leave any scope for ambiguity. If there is a problem of misinterpretation, the organization should provide the method for overcoming the ambiguity. Further, policy provides some discretion for managerial decisions but it should minimize the number of cases where decisions are based on personal judgement. If this happens frequently, there should be close scrutiny of the policy and suitable amendments should be made.
4. *Consistency .* The policy should provide consistency in the operation of organizational functions. Often the organization formulates various functional areas and each function is related to other functions of the organization. If the policy in one area is inconsistent with another area, there may be conflict resulting into inefficiency. This happens very frequently in functions. Therefore, the formulation of policies should be

taken in an integrated way so that policies in each area contribute to other areas also.

5. *Balanced.* A sound policy maintains balance between stability and flexibility. On the one hand, a policy is a long-term proposition and it must provide stability so that members are well aware about what they are required to do in certain matters. On the other hand, the policy should not be so inflexible that it cannot be changed when the need arises. In a changed situation, the old policy becomes obsolete. Therefore, there should be a periodic review of policies and suitable changes should be incorporated from time to time. The changes may be in the form of addition, deflection, or substitution of the existing policy.
6. *Written.* A policy may be in the form a statement or it may interpreted by the behaviour of the people at the top level. However, clearly-specified policy works better than the one which has to be interpreted by the organization members. When the policy is in writing, it becomes more specific and clear. It creates an atmosphere in which individuals can take actions. A written policy is easier to communicate through the organizational manuals. However, written policy has certain disadvantages in the form of being flexible, too much emphasis on written words and their interpretation, and leakage of confidential policy. However, if the policy has been formulated carefully, many of the dangers will be overcome. Of course, confidential policies cannot be made part of organizational manuals.
7. *Communication.* It is not just sufficient to formulate policies. Unless they are communicated properly to the persons concerned, no meaningful purpose will be served. Therefore, a system should be developed to communicate the policies to them who are to make decisions in the light of those policies. While written policies can be communicated easily,

problems exist for communicating un written ones. In such cases, there should be more frequent interaction between policy framers and policy implementations.

## STRATEGY

The concept of strategy is even more confusing in management literature as compared to policy. The word strategy has entered in the field of management more recently. It has been derived from Greek work 'strategos' which means general. Therefore, the word strategy means the art of general. Frequently used in Military (troops, ships, aircraft, etc) as to impose upon the enemy the place, time and conditions for fighting by oneself. Strategy ends or yields tactics when actual contact with enemy is made. However, in organizations, it is used in different form. For example, Learned etc., have defined strategy as follows:

“Strategy is the pattern of objectives, purposes or goals, stated in such a way as to define what business the company is in or is to be in and the kind of company it is or is to be”.

Chandler is more explicit on the subject, when he defines strategy as follows:

“Strategy is the determination of basic long-term goals and objectives of an enterprise, and the adoption of course of action and the allocation of resources necessary for carrying out these goals.

If this view is taken, the scope of strategy becomes too broad to include total managerial functions are related with the achievement of organizational objectives with the co-operation of others. Further, whether strategy formulation should include objective determination also is not agreed upon. For example, one view suggests that strategy is a way in which the firm, reacting to its environment, deploys its principal resources and marshals its main efforts in pursuit of its purpose. This is done in context of organizational objectives. The controversy can be aside by identifying two types of strategies; master, root, or grand strategy and

competitive strategy. In fact, the marshalling of resources is a type of competitive strategy while master strategy may include objective formulation as well as the resultant actions. Therefore, strategy can be defined as follows.

Strategy is the determination of organizational objectives in the light of environmental variables and determination of course of action and commitment of organizational resources to achieve those objectives.

Based on these definitions of strategy, its following features can be identified.

1. Strategy is the action of relating the organization with its environment, particularly the external environment, management and treats an organization as part of a society consequently affected by it.
2. Strategy is the right combination of factors both external and internal. In relating an organization to its environment, management must also consider the internal factors too, particularly in terms of its strengths and weaknesses, that is, what it can do and what it cannot do.
3. Strategy is a relative combination of actions. The combination is to meet a particular condition, to solve certain problems, or to attain a desirable objective. It may take any form; for various situations vary and, therefore, require somewhat different approach.
4. Strategy may involve even contradictory action. Since strategic action depends on environmental variables, a manager may take an action today and may revise or reverse his steps tomorrow depending on the situation.
5. Strategy is forward looking. It has to do orientation towards the future, Strategic action is required in a new situation. Nothing new requiring solutions can exist in the past, therefore, strategy is relevant only to future. It may take advantages of the past analysis.

**STRATEGY AND TACTICS: Differences**



It is desirable to make distinction between strategy and tactics so that top-level managers concentrate more on strategic functions rather than engage themselves in tactical functions. The major difference between strategy and tactics is that strategy determines what major plans are to be undertaken and allocates resources to them, while tactics is means by which previously determined plans are executed. Beyond this major difference, there are some other differences which can be better understood by analyzing these words as used in military.

Therefore, from business point of view, the distinction between strategy and tactics can be identified as follows:

1. *Level of Conduct.* is formulated at the top-level management, either at the headquarter level or major divisional office level. Tactics is employed at comparatively lower-level management. In fact, tactics is derived from the strategy itself and works within the parameters developed by it.
2. *Periodicity.* The formulation of strategy is both continuous and irregular. The process is continuous but the timing of decision is irregular as it depends on the appearance of opportunities, new ideas, management initiative, and other non-routine factors. For example, information collection which may form the basis of strategy formulation is a regular process but when the decision on the information will be taken is not sure and, therefore, irregular. Tactics is determined by various organizations on a continuous periodic basis. For example, budget preparation, a tactical exercise, is a regular feature.
3. *Time Horizon.* Strategy has a long-term perspective, specially the successful strategies are followed for long periods. However, if the particular strategy does not succeed, it is changed. Thus depending on the situation, strategy may have flexible time horizon; however, emphasis is on long term. On the other hand, time horizon of tactics is short term and

definite. Moreover, the duration is mostly uniform. For example, budgets are prepared at regular time intervals and for comparatively short period of time. Deployment of resources, a part of strategy, is a decision committed for very long period, being investment in plant and machinery.

4. *Information Needs.* Formulation of strategy as well as tactics requires the use of certain information. However, the type of information required for two elements differs considerably. In the case of strategic decisions, managers require more information. Moreover, some assumptions are made about the nature of environmental factors. In fact, strategic decisions are made under the condition of partial ignorance because managers do not have all the information about the environment. Tactical decisions are taken basically on the information generated within the organization, particularly from accounting and statistical sources.
5. *Subject Values.* The formulation of strategy is affected considerably by the personal values of the persons involved in the process. For example, what should be the objective of the organization; a strategic decision is affected by the personal values of the person concerned. On the other hand, tactics are normally free of such values because this type of decision is taken within the context of strategic decisions.
6. *Importance.* Strategic decisions are more important for the organizational effectiveness as they decide the future course of the organization as a whole. They decide the nature of the organization. On the other hand, tactical decisions are less important because they are concerned with specific part of the organization. This difference, though simple, is quite important because once a strategy fails, the organization requires considerable time to recoup its position.

Though these differences between strategy and tactics are there, often in practice, two are blurred. At one extreme, the differences between the two are

quite clear, but at the other end, these differences may not hold good because tactics is generated by strategy and can be called as sub strategy. Moreover, what is one manager's strategy may be a tactics for another manager. For example, strategies are developed at the corporate level in the planning process. Substrategies within this strategy may then be pursued by various divisions of the organization. Thus what might be considered as tactical plans at the corporate level may be termed as the division level strategy. Thus depending on the level of the organization, an action may be strategic or tactical. Therefore, the managers have to find out their positions and decision context and must emphasize on strategic decisions.

#### Role of Strategies and Policies

Strategies and policies are important in all types of organizations-business or non-business, public sector or private sector, small or large, in developed countries or underdeveloped countries. The systems approach of management suggests interaction of an organization with its environment on continuous basis. This interaction can better be maintained through formulation of suitable strategies and policies. In fact, the function of formulation of strategies and policies has become so important that it is equated with total top management function because it is the top management which is primarily responsible for organizational adaptation to the needs of environment.

Careful strategies and policies play a significant role in the success of an organization. If we look at the Indian industrial scene over the last generation or so, we find that great names like Martin Burn, Jessops, Andrews have touched the rock bottom, while total unknowns few years ago like Reliance, Larsen and Turbo, etc., have touched gigantic heights. Similarly, companies like Hindustan Lever, ITC Limited, TISCO, TELCO, have maintained their high profile. There are numerous such examples of good companies in the Indian scene as well as the world over which have been successful because they have adopted suitable

strategies and policies. This happens because strategies and policies contribute in several ways in managing an organization; the more important of them are as follows:

1. *Framework for planning.* Strategies and policies provide the framework for plans by channeling operating decisions and often predeciding them. If strategies and policies are deployment of organizational resources in those areas where they find better use. Strategies define the business area both in terms of customers and geographical areas served. Better the definition of these areas, better will be the deployment of resources. For example, if an organization has set that it will be deployment of resources. For example, if an organization has set that it will introduce new products in the market, it will allocate more resources to research and development activities which is reflected in budget preparation.
2. *Clarity in Direction of Activities.* Strategies and policies focus on direction of activities by specifying what activities are true to be undertaken for achieving organizational objectives. They make the organizational objectives more clear and specific. For example, a business organization may define its objective as social objective. But these definitions are too broad and even vague for putting them into operation. They are better spelled by strategies which focus on operational objectives and make them more practical. For example, strategies will provide how profit objective can be sharply defined in terms of how much profit is to be earned and what resources will be required for that. When objectives are spelled out in these terms, they provide clear direction to persons in the organization responsible for implementing various courses of action. Most people perform better if they know clearly what they are expected to do and where their organizational is going.

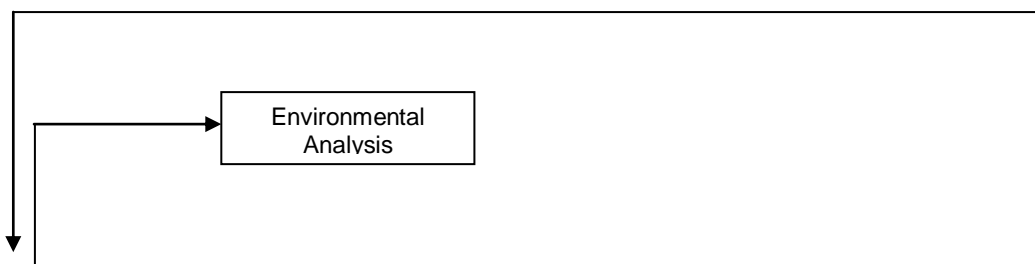
Looking into the role of strategy and policy, Ross and Kami have suggested that “Without a strategy the organization is like a ship without a rudder, going around in circles. It is like a tramp; it has no place to go. They ascribe most business failures to lack of strategy, or the wrong strategy, or lack of implementation of a reasonably good strategy. They conclude from their study that without appropriate strategy effectively implemented, failure is a matter of time.

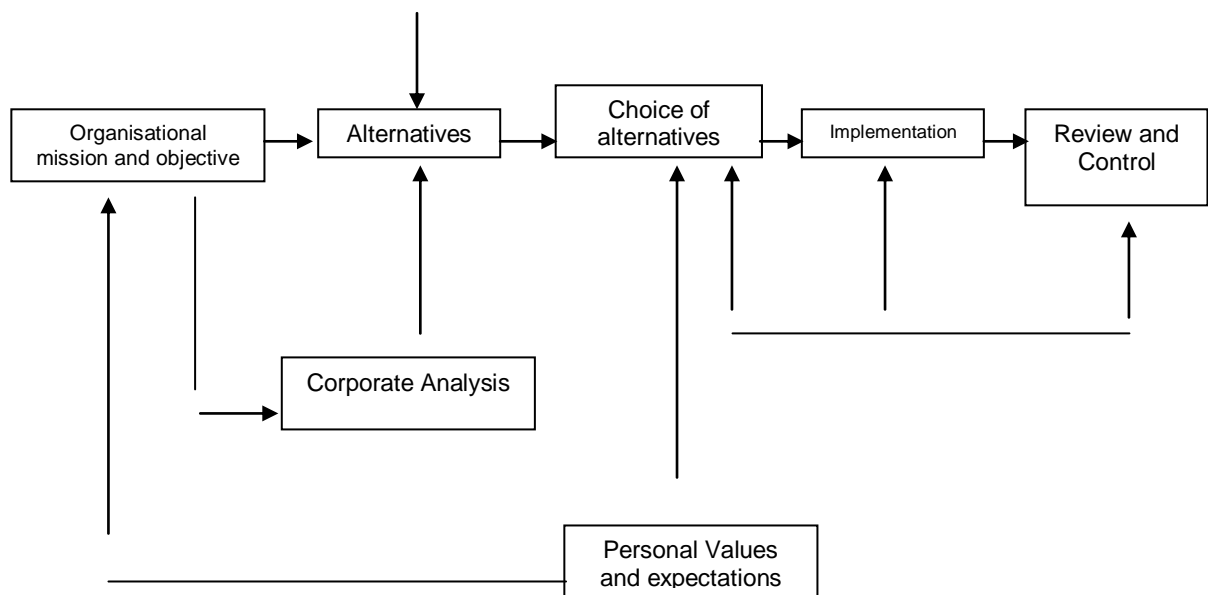
#### FORMULATION OF STRATEGIES AND POLICIES

Formulation of strategies and policies is a creative and analytical process. It is a process because particular functions are performed in a sequence over the period of time. The process involves a number of activities and their analysis to arrive at a decision. Though there may not be unanimity over these activities particularly in the context of organizational variability, a complete process of strategy and policy formulation can be seen from the following figure.

The process set out above includes strategy formulation and its implementation, what has been referred to as strategy and policy. The figure suggests the various elements of strategy formulation and process and the way they interact among themselves. Accordingly the various elements are corporate mission and objectives, environmental analysis, corporate analysis, identification of alternatives, and choice of alternative. Up to this stage the formulation is complete. However, implementation is closely related with formulation because it will provide feedback for adjusting strategy or policy.

A brief discussion of each element will be helpful to understand the problems involved in each.





1. *Corporate Mission and Objective.* Organisational mission and objectives are the starting point of strategy and policy formulation. As discussed earlier, mission is the fundamental unique purpose of an organization that sets it apart from other organizations and objective is the end-result which an organization strives to achieve. These together provide the direction of which other aspects of the process will be taken up.
2. *Environmental Analysis.* The second aspect of the process is the environmental analysis. Since the basic objective of strategies and policies is to integrate the organization with its environment, it must know the kind of analysis. The process of environmental analysis includes collection of relevant information from the environment, interpreting its impact on the future of organizational working, and determining what opportunities and threats-positive and negative aspects- are offered by the environment. The environmental information can be collected from various sources like various publications, verbal information from various people, spying, and forecasting. The process of environmental analysis works better if it is

undertaken on continuous basis and is made an intrinsic part of the strategy formulation.

3. *Corporate Analysis.* While environmental analysis is the analysis of external factors, corporate analysis takes into account the internal factors. These together are known as SWOT (strengths, weaknesses, opportunities and threats) analysis. It is not merely enough to locate what opportunities and threats are offered by the environment but equally important is the analysis of how the organization can take the advantages of these opportunities and overcome threats. Corporate analysis discloses strengths and weaknesses of the organization and points out the areas in which business can be undertaken. Corporate analysis is performed by identifying the factors which are critical for the success of the present or future business of the organization and then evaluating these factors whether they are contributing in positive way or in negative way. A positive contribution is strength and a negative contribution is a weakness.
4. *Identification of Alternatives.* Environmental analysis and corporate analysis taken together will specify the various alternatives for strategy and policy. Usually this process will bring large number of alternatives. For example, if an organization is strong in financial resources, these can be used in many ways, taking several projects. However, all the ways or projects cannot be selected. Therefore, some criteria should be set up to evaluate each alternative. Normally the criteria are set in the light of organizational mission and objectives.
5. *Choice the Strategy and Policy.* The identification and evaluation of various alternatives will narrow down the range of strategies and policies which can seriously be considered for choice. Choice is deciding the acceptable alternative among the several which fits with the organizational objectives. Normally at this stage personal values and expectations of

decisions-maker play an important role in strategy and policy because he will decide the course of action depending on his own likings and dislikings. This happens because in one way, the organizational objectives reflect the personal philosophy of individuals particularly at the top management level.

6. *Implementation* . After the strategy and policy have been chosen, they are put to implementation, that is, they are put into action. Choice of strategy and policy is mostly analytical and conceptual while implementation is operational or putting them into action. Various factors which are necessary for implementation are design of suitable organization structure, developing and motivating people to take up work, designing effective control and information system, allocation of resources etc., When these are undertaken, these may produce results which can be compared in the light of objectives set and control process comes into operation. If the results and objectives differ, a further analysis is required to find out the reasons for the gap and taking suitable actions to overcome the problems because of which the gap exists. This may require a change in strategy and policy if there is a problem because of the formulation inadequacy. This puts back the managers at the starting point of the strategy and policy formulation.

### Summary

Once the creative and analytical aspects of strategy formulation have been settled, the managerial priority is one of converting the strategy into operationally effective action. Indeed a strategy is never complete, even as formulation, until it gains a commitment of the organisation's resources and becomes embodied in organizational activities. Therefore, to bring the result, the strategy should be put to action because the choice of even the soundest strategy will not affect



organizational activities and achievement of its objectives. Therefore , effective implementation of strategy is a must for the organization.

#### Discussion Questions

1. “Policies are guides for managerial action”. Discuss. Should policies be permanent or subject to ready change? Explain.
2. A Manager states that in his organization most policies are defined as the result of an appeal rather than being formulated and this has the advantage of having policies where most needed and avoiding unnecessary policy statements. Do you agree with the manager? Explain. What roles are performed by policies formulated in various areas?
3. Discuss the characteristics of a sound policy
4. “The term strategy is frequently used to denote specific course of action that can be taken to achieve an organisation’s goals usually in the context of a competitive environment”. Explain. How does strategy differ from Policy and Tactics?
5. The chief executive of a large textile unit manufacturing high-priced fabrics faces competition from the new entrant in the field. The chief executive of the unit asks you to design suitable strategy for it. How will you proceed?
6. What actions can be taken for the successful implementation of a strategy?

### **LESSON III**

#### **CORPORATE PLANNING**

##### **Corporate Planning**

The concept of corporate planning has in recent years gained wide currency in management literature. Its connotation is somewhat overlapping with the concept of strategic planning. It is, therefore necessary that the scope of corporate planning and strategic planning should be clearly understood.

Simply stated, corporate planning is a comprehensive planning process which involves continued formulation of objectives and the guidance of affairs towards their attainment. It is a systematic of the objectives of an organization or corporate body, determination of appropriate targets, and formulation of practical plans by which the objectives could be achieved. It is undertaken by top management for the company as a whole on a continuous basis for making entrepreneurial (risk-taking) decisions systematically and with the best possible knowledge of their probable outcome and effects, organizing systematically the efforts and resources needed to carry out the decisions, and measuring the results of these decisions against the expectations through organized systematic feedback.

The object of corporate planning is to identify new areas of investment and marketing. Initiating new projects, new courses of action, and analyzing past experience are the subject-matter of corporate planning. Thus, it implies (a) the imposition of a planning discipline on the present operations of the business, and (b) a reappraisal of the business and of the corporate planning competencies to the most profitable uses. Innovation is the core of such planning. At the same time it ensures that managers are continually measuring their performance against the company's long-term profit and market objectives, evaluating alternative methods of reaching the goals, and keeping in touch with changes in the market and in technology.

### **Constituents of corporate planning**

The comprehensive nature of the corporate planning process lies in that operational planning, project planning and strategic planning are its constituents. Let us examine the nature and scope of each of these constituents.

It is essential for every business firm to manage its ongoing operations efficiently to keep the business afloat in the market with which it is familiar. Operational planning is necessary so as to ensure that changes in the market situation for the

existing product line do not adversely affect the earnings of the firm. Thus, operational planning involves study of the market conditions for the existing range of products to maintain and improve the position of the firm in the face of competition. It is essentially a short-term exercise and deals with the existing product, market and facilities. The degree of uncertainty in operational planning is of a low order; the time span of discretion is short; choice not alternatives is relatively simple. But the firm can ill-afford to ignore long-term changes in the product markets. It has to look for new markets for the existing product, develop new products, create a market for the same, and utilize the existing facilities and expertise to meet new requirements. Considerations such as these characterize project planning, which is a forward looking exercise concerned with new markets, new products and new facilities. Project planning, therefore involves a greater degree of uncertainty, and demands a higher order of judgement on the part of planners due to the risks involved.

*Strategic planning* refers of a unified, comprehensive and integrated plan aimed at relating the strategic advantages of the firm to the challenges of the environment. It is concerned with appraising the environment in relation to the company, identifying the strategies to obtain sanction for one of the alternatives to be interpreted and communicated in an operationally useful manner. Thus, strategic planning provides the framework within which future activities of the company are expected to be carried out. Compared with project planning, the time span of discretion in strategic planning is much longer, the degree of uncertainty and corresponding risks involved are much greater, and judgement to be exercised is more important.

Inasmuch as strategic planning determines the future direction of a company, corporate planning is essentially based on strategic planning, and at the same time takes care of project planning and operational planning. Thus corporate planning is described as a formal systematic managerial process, organized by

responsibility, time and information, to ensure that operational planning, project planning and strategic planning are carried out regularly to enable top management to direct and control the future of the enterprise. It follows that corporate planning is concerned with determination of objectives and developing means to achieve the objectives. It may encompass both short periods as well as long periods. The time span depends on how far ahead a company wants to forecast and to plan, which, in turn, depends upon the nature of business that the company wants to be in and commitment of resources required for it. For instance, in the modern heavy engineering industry, commitment of resources is generally required for a fairly long period-10-15 or 20 years. In the ready-made garment industry, on the other hand, resource commitment is for a very short period, generally required for a fairly long period –10, 15 or 20 years. In the ready-made garment industry, on the other hand, resource commitment is for a very short period, generally one year, so that operations may be adapted to changing fashions and taste. Therefore, corporate planning in an engineering enterprise will involve long-term considerations regarding market demand, technology and such other factors. It will have a short time horizon in the case of garment industry. Longtime horizon in view, generally five years or more. Corporate planning in capital-intensive industries is always associated with long-range planning. Besides, corporate planning is concerned with the existing products in existing markets as well as new products and new markets. Long-range planning essentially takes care of only the existing products in existing markets.

### **Why is Strategic planning Necessary**

A variety of reasons may be adduced to justify business policy or strategic planning. One justification is that it has been found useful in practice. Research studies, based on the experience of companies and executive viewpoints, have indicated that strategic planning contributes positively to the performance of

enterprises. Studies made by Igor Ansoff and his associates. Eastlack and McDonalds David Herold have revealed that companies which had undertaken formal strategic planning not only outperformed the non-planners on most measures of success (return on equity, growth of sales, earning per share, and value of the firm), but significantly outperformed their own past results as well, besides, the companies that used strategic planning were able to predict the outcome of planning much better than others. Malik and Karger in their analysis of the performance of 38 chemical/drug, electronics and machinery firms found that in nine out of 13 financial measures (sales volume, earnings per share, net income, etc) firms having “formal, integrated, long-range planning” far outperformed those doing it informally. Investigations have also shown that strategic planning can isolate the key factors in an industry and thus help companies plan their strategies more effectively.

Executive viewpoints on the contribution of strategic planning to the success of firms were sought in a survey conducted by Ramanujam, Camillus and Venkatarman. The survey conducted 200 executives of US corporations. Their collective view clearly indicated that strategic management has been a significant and critical factor in determining their individual and organizational success, As high as 887 p.c., of the respondents were of the view that reducing emphasis on strategic planning would be detrimental to their long-term performance. Again 70.6 p.c. of the respondents stated that they had improved the sophistication of strategic planning systems in their organisations.

Apart from the empirical evidence in support of strategic planning, it is justified on several other grounds. With fast changing environment of business and industry –product-market conditions, by which future opportunities and problems can be anticipated by company executives. It enables executives to provide necessary direction for the enterprise, take full advantage of new opportunities and minimize the attendant risks. Secondly, with clear goals and direction

provided for the future, employees in general and managers in particular can better perceive the ways and means of achieving the corporate objectives consistently with the individual and group aspirations. This is conducive to greater harmony and goal congruence. Moreover, formal strategic planning focuses on problems of the total enterprise, not just functional problems in the marketing, finance or personnel areas. Persons exposed to strategy formation thus develop a breadth of understanding and undergo change of attitudes in the process. Strategic planning is likely to be beneficial particularly in organizations when there is a long time lag between managerial decisions and the results thereof. Thus, for instance, if research and development efforts take several years to finally design and manufacture a new product, events in the intervening period may nullify the outcome of the R&D effort based on the original decision. Strategic planning enables management to improve the chances of making decisions which will stand the test of time, and revising the strategy on the basis of monitoring the progress of R & D and the changes in product market conditions.

Thus, the advantages of a systematic approach to strategic planning and management may be said to include (a) providing necessary guidance to the entire organization about what is expected to be achieved and how (b) making managers more alert to new opportunities and potential threats (c) unifying organizational efforts leading to greater harmony and goal congruence (d) creating a more proactive management posture (e) promoting a constantly evolving business model so as to ensure bottom-line success for the enterprise and (f) providing the rationale for evaluating competing budget requests for steering resources into strategy-supportive and results-producing areas.

However, it would not be true to contend that strategic planning alone invariably leads to success. Achievements of corporate enterprises are caused by multiple factors : adequate resources, competent managers, specialist services, product-market conditions, and so forth. Strategic planning is a necessary, though not

sufficient, condition for success. But it makes a difference. Executives who engage in formal strategic planning are likely to be more effective in achieving their objectives than those who do not.

### **Benefits of Strategic Planning**

Formulation and implementation of strategies which constitute the two main aspects of strategic management may be expected to yield several benefits.

#### **1. Financial benefits**

On the basis of empirical studies and logical analysis it may be claimed that the impact of strategic management is primarily that of improved financial performance in terms of profit and growth of firms with a developed strategic management system having major impact on both planning and implementation of strategies.

#### **2. Enhanced capability of problem prevention**

This is likely to result from encouraging and rewarding subordinate attention to planning considerations, and managers being assisted in their monitoring and forecasting role by employees who are alerted to the needs of strategic planning.

#### **3. Improved quality of strategic decisions through group interaction**

The process of group interaction for decision-making facilitates generation of alternative strategies and better screening of options due to specialized perspectives of group members. The best alternatives are thus likely to be chosen and acted upon.

#### **4. Greater Employee Motivation**

Participation of employees or their representatives in strategy formulation leads to a better understanding of the priorities and operation of the reward system. Also there is better appreciation on their part of the productivity-reward linkage

inherent in the strategic plan. Hence goal-directed behaviour is likely to follow the incentives.

### **5. Reduction resistance to change.**

The benefit of acceptability of change with minimum resistance is also likely to follow the participative process of strategy making as there is greater awareness of the basis of choosing a particular option and the limits to available alternatives. The uncertainty which is associated with change is also eliminated in the process and resistance.

### **Negative Effects of Strategic Planning**

While the benefits of strategic management are well recognized, alongside the positive behavioural consequences of group-based strategic decisions, there are certain unintended negative effects as well:

- a. The process of strategic planning and management as a formalized system is naturally a costly exercise in terms of the time that needs to be devoted to it by managers. But the negative effect of managers spending time away from their normal tasks may be quite serious. For defaults on the part of managers in discharging their operational responsibilities may be irreparable. This eventuality may of course be guarded against. Managers may be trained to schedule their activities so as to devote adequate time for strategic work without cutting down the time they have to devote to normal operations.
- b. Another type of unintended negative effect may arise due to the non-fulfilment of participating subordinates' expectations leading to frustration and disappointment. For instance, subordinates who have been involved in strategy making at some stages may expect that their participation will be solicited in other areas too, which again may not happen. Such eventualities may be unavoidable. So managers need to be trained to anticipate disappointments, minimize the impact and respond



constructively to the sense of frustration that may on occasions be experienced by subordinates.

- c. A third dysfunction or unintended effect of strategic management relates to the risk of participants shirking the responsibility of inputs in the decision-making process and the conclusions subsequently drawn. This may happen if those associated with the formulation of strategy are not intimately involved with the implementation of strategy. Hence, assurances with the outcomes and results of strategic decisions should be limited to the performance that can be achieved by the strategy-makers and their subordinates.

### **Strategic Planning in Small Business Firms**

Is it worthwhile for managers of small business firms to engage in the strategic planning exercise? No doubt the size of an organization can make a significant difference in the nature and scope of planning. Small firms generally have a few products or services to offer, mainly because their resources and capabilities are limited. Usually they do not have formal procedures to monitor the environment, make forecasts, or evaluate and control the existing strategy. Managerial personnel in such firms are mostly trained on the job. Thus, they tend to rely on experience as a guide, rather than on systematic, specified procedures. In many cases, the firms are owned and managed by family members, relatives and close friends.

Obviously, because of their differentiating characteristics, the planning process in small firms is bound to be less systematic and explicit as well as less formal. The strategic planning model suited to large organizations may serve the purpose of a guideline, but it cannot be adopted by small firms with the same kind of detailed and complex analyses. However, it may be useful for managers of small firms to realize that strategic planning does not necessarily have to be an expensive, complex exercise or involve the use of quantitative data, nor does it need to be a

formal exercise. It may be undertaken on a modest scale focusing on only the steps which are relevant to the firm's needs. Gilmore has suggested in more concrete terms that, in smaller companies, strategy should be formulated by the top management team at the conference table. According to him, "Judgement, experience, intuition and well-guided discussion are the key to success, not staff work and mathematical models.

Another point to be kept in view is that strategic planning may serve as a learning process. Managers of small firms may progressively come to know more about the capabilities and limitations of the firm as well as about the opportunities and threats in the environment. They can become increasingly more familiar also with the environment. They can become increasingly more familiar also with the process of strategic planning itself, which can become more formal and sophisticated over time as managers develop the necessary skills.

Thus, for strategic planning in small business, it is essential for managers to realize that (a) to start with strategic planning need not be a complex, formal process, and (b) it has its usefulness also as a learning process. Further, as a rice has observed, strategic planning is frequently easier to accomplish in small companies, for once developed, strategies can be clearly communicated to, and understood by, all personnel which ensure effective implementation of the strategies.

Robinson, who conducted survey of 101 small retail, service and manufacturing firms in USA over a three-year period, reported a significant improvement in sales, profitability and productivity of those firms which engaged in strategic planning when compared to firms without systematic planning activities.

### **Strategies Planning in Not-for-profit Organisations**

Non -profit organisations, by definition, differ from profit-oriented business organisations. There are diverse types of not-for-profit organisations in India as in

other countries, including research institutions, hospitals, educational, social, cultural, and political organisations, trade unions, and the like. In spite of this diversity, however, certain common characteristics are noticeable in such organisations that distinguish them from business firms. Generally, their output consists of services of an intangible nature which are not amenable to direct measurement. The influence of their clients or customers is often limited. Many of these organisations are funded by way of grants and donations from Government and public trusts. Discretionary powers of internal management team are thus subject to the overall regulation of the funding bodies. The personnel of some organisations like research institutes, social and cultural organisations, often are committed more to their profession or to a cause or ideal. Their allegiance to the organization is thereby weakened. Rewards and punishments are subject to restraints due to the intangible nature of services, external funding and the professional commitments of employees.

Because of these characteristics of not-for-profit organisations, partly because of their diversity inter se, and since strategic planning techniques have developed out of the experience of large business enterprises, top management of not-for-profit organisations are said to be less likely to engage in strategic planning. Wortman in his study in the American context found that such organisations tended to be managed much more in a short-term operational sense than in a strategic sense. According to Hofer and Schendel also. "There is some evidence that some of these organisations have no strategies at all. Rather, they seem motivated more by short-term budget cycles and personal goals than by any interest in re-examining their purpose or mission in the light of altered environmental circumstances.

### **Summary**

The organisation of 'Business Policy' or 'Policy and strategy' as a field of study for executives and students of management is based on the experience of corporate enterprises and the history of success and experience of corporate

enterprises and the history of success and failure of business firms over time. Business Policy or strategy formulation is the outcome of top management decisions bearing on the future of on going enterprises. a formal approach to such policy-making requires conceptualization and systematic application of knowledge and skill.

Strategic planning and management forming the core of business policy study include top management responsibilities of defining the business mission and objectives, formulation of strategic alternatives, choice of strategy and its implementation. These responsibilities have made it obligatory for individuals who occupy or aspire for higher executive positions to develop an understanding of ideas and realities in the total organisational context. The ability to sense what information is needed and relevant and how it should be ordered to facilitate comprehensive understanding involve scientific-analytical approaches to knowledge, problems and decisions. But more than that it also involves the exercise of informed judgement which is an art, and there is no certainty of outcome of such judgement.

### **Review Questions**

1. How is formulation of objectives related to corporate planning?
2. “Strategic planning determines the future direction of a company Educate?”
3. “Strategic planning in a necessary condition for success’. Do you agree?”
4. Is it worth while for managers of small business firms in engage in the strategic planning exercise?
5. Is strategic planning necessary for not-for-profit organization?

### **Key words**

Empirical evidence

Group interaction

Gaps

Overlaps

Scientific – analytical approaches.

### **LESSON III**

## **CORPORATE PLANNING**

### **LESSON OUTLINE**

Concept of Corporate planning

Constituents of Corporate planning

Why is Strategic planning necessary

Benefits of Strategic Planning

Negative Effects of Strategic Planning

Strategic Planning in small Business firm

Strategic Planning in Not-for Profit Organisation

### **LEARNING OBJECTIVE**

**After reading this chapter you should be able to :**

Understand the importance of Corporate Planning

The need of Corporate Planning

Narrate the advantages of Corporate Planning

Point out the warning signals of Corporate Planning.

### **LESSON IV**

## **IMPORTANCE OF FINANCIAL PLANNING**

One of the most important functions of the financial manager is that of planning. In order to formulate plans, he must first know his company's immediate position. Like a doctor, he needs to know the condition of his patient before prescribing a remedy. You would not launch a financial weak company on a programme of expansion and heavy promotional activity any more than you

would send out a patient with a heart condition to do two hour of road work each morning. In other words, plans must fit the financial capabilities of the concern. Planning business finances and carrying out financial plans is a continuous process in the day-to-day administration of a business. Financial planning is essentially concerned with the economical procurement and profitable use of funds – a use which is determined by realistic investment decisions. This approach requires a sensible appraisal of the economic, industrial and share market patterns which are likely to emerge as plans are developed and operationally assessed. In this connection, G. D. Bond says: Whilst making profit is the mark of corporation success, money is one energizer which makes it possible. The aim in financial planning should be to match the needs of the company with those of the investors with a sensible gearing of short-term and long-term fixed interest securities. Ernest W. Walker and William H. Baughn state that in view of the complex nature of the business enterprise today, management places a great emphasis upon financial planning. The primary advantage accrued to financial planning is the elimination of waste resulting from complexity of operation. For example, technological advantages, higher taxes, increasing cost of social legislation, fluctuations tend to cause management to exert wasteful effort. Financial planning helps management to avoid waste by providing policies and procedures which make possible a closer co-ordination between various functions of the business enterprise. It aids the company in preparing for the future. A firm which performs no financial planning depends upon past experience for the establishment of its objectives, policies and procedures. Since the company in which the firm operates is dynamic in character, past experience cannot be relied upon in dealing with future conditions. To plan effectively requires that forecasts be made of future trends, and when these are used as a basis for plans, many unprofitable ventures are eliminated. A clearly developed financial plan, when made known to executives at different

levels of management, tends to relieve top management from detailed financial plan, the lower echelons of management may often develop their own policies and procedures, which would produce confusion and waste such as loss of time, goodwill and financial resources. The success or failure of production and distribution functions of firms hinges upon the manner in which the finance functions of firms hinges upon the manner in which the finance function is performed, and in many instances, a single financial decision at the policy-making level determines the success or planned before any action is taken. The objectives of a business enterprise should be well-known to the financial manager. On the basis of these objectives, he can formulate his financial plans. But whatever the financial plans, their ultimate objective is to enable a firm to take such decision as would make it possible for it to accomplish its goals and objectives. Palmer and Taylor recommend that financial planning should be directed to aiding the management in achieving its objectives and in implementing its policy. At the same time, both the scope of the objectives and the nature of the policy may well be limited by financial considerations. Gordon Donaldson observes that, as the central integrating document for corporate strategy and action, the financial plan should do more than include the best available information about the economic and competitive environment in which the business operates, and establish targets for the sales and profits to be achieved by certain dates. It should also promote the co-ordination of resources and efforts to reach these target positions and form the basis for measuring performance as the future unfolds. Financial planning is one of the most important aspects of the financial manager's job. The success of an organization often depends upon the information contained in a plan for future performance. Not only should one plan the future with proper forecast and budgets, but one should continually evaluate the performance of the firm in comparison with past forecasts. Financial planning should achieve a total integration and co-ordination of all the plans of the other

functions of the firm. It should estimate the resources that will be required to carry out the operations and determine how far these resources can be generated by the firm itself and how far they will have to be obtained externally. A system of control, on the other hand, involves obtaining, processing and recording information in such a way that it can be easily analyzed and thus highlight the areas in which improvement may be effected in the operations of the firm.

The financial plan of a corporation should be formulated in the light not only of present but of future developments as well. It should take into consideration the present capital needs for fixed assets, working capital, probable earnings, and requirements of investors; and it should anticipate possibilities of later expansion, combination with other corporations, higher or lower future interest rates, etc., All of these consideration resolve themselves into a determination of:

1. The amount of capital to be raised;
2. The form and proportionate amount of securities to be issued
3. Policies bearing on the administration of capital

Total financial planning has been defined as advance programming of all the plans of financial management and the integration and co-ordination of these plans with the operating plans of the other functions of the enterprise. Henry Hoagland defines the financial plan of a corporation as its pattern of outstanding stocks and bonds.

Financial planning is the responsibility of top level management. One of the reasons for the high place in the authority ladder occupied by financial managers is the importance of planning, analysis and control operations for which they are responsible. Another reason why financial authority is rarely decentralized or delegated to subordinates is that many financial decisions are crucial for the survival of the firm. The issue of stocks and bonds of a corporation must be so timed as to bring about an integration and co-ordination of different



plans. Plans invariably depend upon the availability of funds for their successful implementation. Financial planning is, therefore, a part of a larger planning process in an organization. It is, in a way, an indication of the overall plan of a firm in financial terms. A financial plan generally describes a firm's operating or commercial activities, the investment it requires, and the sources of the funds to be used all in a time-phased schedule. S.K. Bose points out that one of the important ways in which some headway can be profitably made by a firm is the use of mathematical model of a company which has an input of various accounting and financial statistic, and an output of various financial measurements of business performance and Performa financial statements. Inputs may be sales forecasts, cash balances, debt structure and the cost of production, and output may be projections of profit-and-loss statements, cash flow statements, balance sheets, sources and use of funds, and various ratio analyses.

International financial planning must be analysed within the context of a global plan to ensure that the financial aspects of strategic planning are consistent with the basic aims and philosophy of business, its competitive posture in international markets, major opportunities and risks, action programmes of the business and contingency strategies, if any. Overseas capital budgeting projects must be analysed within the general global strategy questioning the basic assumptions of the strategy and its general direction. The financial ability to impose more explicit goals on the global planning process and clear modes of analysis may help managers of the multi-national enterprise to obtain a more clear view of 'the woods' rather than 'the trees'. Finally, placing international corporate finance decision- making within the context of the strategic analysis may help counteract some of the limitations of financial theory in the key area of integrated financial planning.

### ***Step in Financial planning***

STEPS IN FINANCIAL PLANNING
Establishing Objectives
Policy Formulation
Fore Casting
Formulation of Procedures

According to Ernest W. Walker and William H. Baughn, there are four steps in financial planning:

#### **Establishing Objectives:**

The financial objectives of any business enterprise is to employ capital in whatever proportion necessary to increase the productivity of the remaining factors of production over the long run. Although the extent to which capital is employed varies from firm to firm, the objective is identical in all firms. Business enterprises operate in a dynamic society, and in order to take advantages of changing economic conditions., financial planners should establish both short-term and long-run objectives. The long-run goal of any firm is to use capital in the correct proportion.

#### ***Policy Formulation***

Financial policies are guides to all actions which deal with procuring, administering and disbursing the funds of business firms. These policies may be classified into several broad categories.

- i. Policies; governing the amount of capital required for firms to achieve their financial objectives.
- ii. Policies which determine the control by the parties who furnish the capital

- iii. Policies which act as a guide in the use of debt or equity capital
- iv. Policies which guide management in the selection of sources of funds.
- v. Policies which govern credit and collection activities of the enterprise.

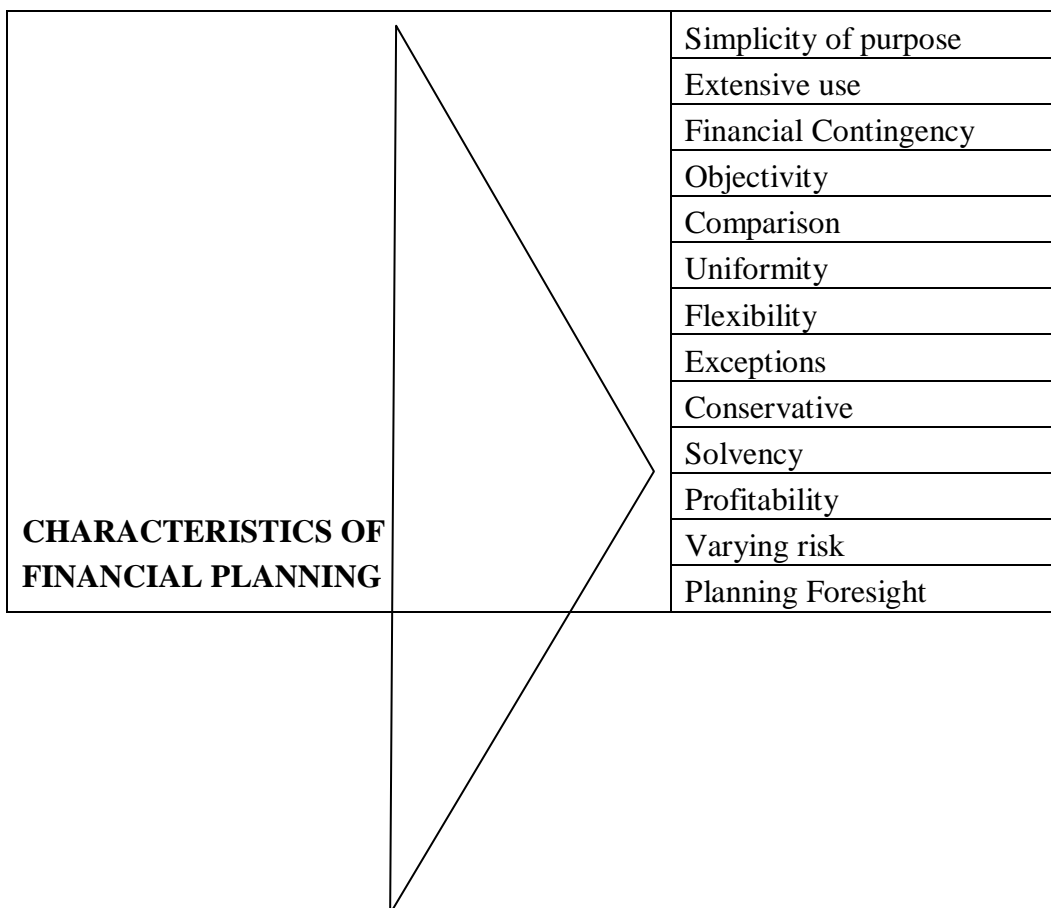
***Forecasting***

A fundamental requisite of financial planning is the collection of ‘facts’ however, where financial plans concern the future, “facts” are not available. Therefore, financial management is required to forecast the future in order to predict variability of factors influencing the type of policies the enterprise formulates.

***Formulation of Procedures***

Financial policies are broad guides which, to be executed properly, must be translated into detailed procedures. This helps the financial manager to put planned activities into practice.

**CHARACTERISTICS OF FINANCIAL PLANNING**



	Practical
	Availability
	Timing
	Maneuverability
	Suitability
	Planning
	Communication
	Implementation
	Control
	Cost
	Risks

**Simplicity of Purpose:**

Henry Hoagland is of the view that a financial plan should be drafted in terms of the purpose for which the enterprise is organized.

No corporation, however, liberal its charter, should “shoot at the horizon. It should be free from complexity.

Intensive Use: A wasteful use of capital is almost as bad as inadequate capital. A financial plan should be such that it will provide for an intensive use of funds. Funds should not remain idle, nor should there be any paucity of funds. Moreover, they should be made available for the optimal utilization of projects.

***Financial contingency***

In fact, planning, as it is commonly practiced today, tends to build in rigidities which work against a quick and effective response to the unexpected event. Contingency planning or a strategy for financial mobility should be brought into the open for a careful review. Every business has objectives, the guide policy in their most basic form and include survival, profitability and growth. Growth objectives that are central to our philosophy of successful management may be expressed in a variety of ways-sales, profits, market share, geographical coverage,

and product line; but they are all contingent on a continuous flow of funds which make it possible for the management to implement decisions. Financial contingency planning is a strategy which a firm adopts in situations of adversity. By proper planning, a number of financial difficulties can be minimized. The essential elements of a contingency plan are:

- i. To establish appropriate means to identify financial difficulties. In other words, do not wait for financial difficulties to arise or until they arise;
- ii. To assess measures that can be adopted if a financial emergency materials.
- iii. To indicate measures to be taken, by whom, when, in what sequence, and with what priority.
- iv. To attempt an effective sensitivity analysis to isolate variables which can trigger off a financial crisis.
- v. To study past occurrences;
- vi. To take such management control action as may be necessary. This action may be;
  - a. Time related Action: It encourages cash inflows and delays cash outflows;
  - b. Volume-Related Action: It makes for the flexibility of operations so that they may be increased or decreased as and when necessary.
  - c. Scale-Related Action: This action enables a firm to change or modify the extent of its commitment to a specific course of action.
  - d. To maintain financial resources which can be immediately utilized.

A business is operated under conditions of risk and uncertainty. Some contingencies, therefore, are bound to materialize. A sound financial plan should provide for some future contingencies. In this connection, Henry Hoagland observes; “No business management can assume that it will always have smooth sailing”.

### ***Objectivity***

The figures and reports to be used for a financial plan should be free from partiality, prejudice and personal bias. A lapse from objectivity is undesirable; for it may mislead and make it difficult if not impossible for a firm to prepare a fact-finding plan.

### ***Comparison***

Figures and reports should be expressed in terms of standards of performance. Financial executives often take intuitive decisions based upon their personal opinions. These decisions are subjective. If standards of performance, including those of past performance, are expressed, the subjective element which is likely to creep into a financial plan, can be eliminated.

### ***Uniformity***

Figures and reports should be expressed in a manner which is consistent with structure of the organization. All the costs incurred on or for a given department may be included.

### ***Flexibility***

The financial plan should be such that it can be made flexible, so that it may be modified or changed, if it is expedient or necessary to do so. This can be done by making a provision for valuable or convertible securities. It would be better to avoid restrictive or binding provisions in debentures and preferred stock. Flexible sinking fund provisions may be introduced in debenture financing. There should be provision for substituting long-term lease contracts. The use of debt financing

may be minimized so that a + may be maintained. It would be desirable, on the contrary, to resort to equity financing. The environment or organizational structure of a firm may; change from time to time. It is, therefore desirable to have a more flexible. Flexibility is an obvious necessity for the establishment of meaningful standards for guiding operations and judging performance. The economy in which the business firm operates is highly volatile. Therefore, management should be ready to revise or completely change the firm's short-run objectives, policies, and procedures in order to take advantages of changing conditions. Firms which fail to provide flexibility often find that their share of the market has diminished and instead of increasing their return, they find they have become marginal firms or are experiencing financial difficulty.

### ***Exceptions***

It should be desirable to indicate areas of diversion from the normal established standards. Sometimes it is useful for financial executives to know the areas and the extent of deviations from actual performance. If deviations are thrown up, they may be able to readily accept one of the exceptions under abnormal circumstances.

### ***Conservative***

A financial plan should be conservative in the sense that the debt capacity of the company should not be exceeded. Proper balance between debt to equity trust be maintained.

### **Solvency:**

The plan should take proper care of solvency because most of the companies have failed by reason of insolvency. Henry Hoagland hold the view that adequate liquidity will give to an organization that degree of flexibility which is necessary for absorbing the stocks of its normal operations.

### ***Profitability***

A financial plan should maintain the required proportion between fixed charges obligations and the liabilities in such a manner that the profitability of the organization is not adversely affected. The most crucial factor in financial planning is the forecast of sales, for sales almost invariably represent the primary source of income and cash receipts. Besides, the operations of a business are geared to the anticipated volume of sales. The management should recognize the likely margins of error inherent in forecasts; the this recognition would enable it to avoid the hazards involved in attaching a false accuracy to forecast data based on tenuous assumptions. Moreover, the institutions in which different assumptions of key variable can be reasonable made, it may be helpful to prepare several different forecasts, each employing a different basic assumption of key variables.

### ***Varying Risks***

A financial plan should provide for ventures with varying degrees of risks so that it might enables a corporation to achieve substantial earnings from risky adventures.

### ***Planning Foresight***

Foresight is essential for any plan of business operations so that capital requirements may be assessed as accurately as possible.

### ***Practical***

A plan should be such that it should serve a practical purpose. It should be realistic and capable of being put to intensive use. But a proper balance between fixed and working capital should be maintained.

### ***Availability***

The source of finance which a corporation may select should be available at a given point of time. If certain sources are not available, the corporation may even



prefer to violate the principles of suitability. Availability sometimes bears no relation to cost. A corporation cannot always choose its source of funds. Availability of different kinds of funds often plays an important part in a firm's decision to use a debt or equity. This aspect should be considered while formulating a plan.

### ***Timing***

A sound financial policy involves effective timing in the acquisition of funds. The key to effective timing is correct forecasting. Experience provides a feel of what is in the offing. Sometimes, it provides a sort of a hindsight. A sound financial policy implies not only a wise selection of sources but also an effective timing thereof. But this would depend upon the understanding of the management of how business cycles behave during different phases of business operations.

### ***Maneuverability***

Besides these considerations, a firm has to have maneuverability. Maneuverability is the direct result of a management's adherence to the financial structure which is acceptable to the business community; that is, to creditors, stockholders, bankers, etc., Christy and Roden observe that a firm's ability to choose its source of finance, at its own discretion is termed maneuverability. This maneuverability may have to be temporarily compromised, when the financial structure diverges from the prescribed norms in situations of economic changes. It is necessary to choose a financial plan which may control the crises that may develop from time to time. It is well known that any financial plan should aim at a proper balance between debt and equity. This is essential to ensure that the stake of the entrepreneur in an industry or a concern is substantial, so his handling of the affairs, financial and others may be in its best interest. For an appraisal of the debt-equity ratio, a clear definition of debt is necessary. The present practice of excluding borrowings from core working capital is not sound. Further, it is necessary to set up certain norms for the purpose of comparison whenever a

proposal comes up. The norms need not be rigid for all industries for the pattern of financing by financial institutions substantially influences the debt-equity ratio. This is obvious, for most of the new ventures are floated with a substantial assistance from financial institutions.

### ***Suitability***

This refers to distinguishing financing permanent financing permanent asset requirements for long-term or equity sources from financing asset needs from short-term sources. Suitability is a principle of symmetry. It is time balancing between sources and uses of funds. Any violation of suitability may expose a company to illiquidity one side and low profitability on the other.

### ***Planning***

The development of a financial plan calls for good planning, i.e., making decisions in advance about what is to be done in future. Programmes and budgets have to be developed in production, marketing, personnel and other functional areas of an organization. In formulating the financial plan of a corporation, several relationship which are fundamental to the success of the plan must be observed. The following elements are fundamental to the success of a plan.

1. Financial Pattern and conditions
2. Market conditions
3. Asset values
4. Earning capacity
5. Control

A good financial planning is the best health insurance a corporation may acquire.

### ***Communication***

Communication with outside parties, including investors and other suppliers of funds, is an essential pre-requisite. The outside parties would then know that

management is trying to control its business effectively and what it is doing. This, too, is of some psychological advantage to the firm.

### ***Implementation***

A firm should see to it that plans are actually carried out. The data should be available with the plans at any level in detail and in a certain frequency. This would enable a firm to take a timely and corrective action, whenever necessary.

### ***Control***

The capital structure of a firm should be such as to ensure that control does not pass into the hands of outsiders. For this purpose, the use of debt financing may be encouraged. Moreover, stock should be broadly distributed to facilitate the maintenance of control. Protective restrictions on debt preferred stock, etc., should be reduced as far as possible.

### ***Cost***

The cost of capital is an important element in the formulation of financial plan. There should be a plan for the payment of old debentures when finances are available at a cheaper rate. A firm's average cost of capital should be minimized. An excessive burden of fixed charges on its earnings might inflate its cost of capital. It should, moreover, ensure that its solvency is intact, so that its image in financial circles improves, and funds become available to it on very reasonable terms.

### ***Risks***

There are different types of risks, but the financial manager is more concerned about the financial risk which is created by a high debt-equity ratio than about any other risk. If earnings are high, the financial risk may not have much of an impact. In other words, if the economic risks of business activities are reduced to the minimum, a firm may not be exposed to financial risks. Its refinancing should be

planned in such a manner that the impact of risks is not seriously felt. For this purpose, the financial manager may employ several types of securities each with different restrictions and benefits. Future changes in their relative positions may occur to the advantages or disadvantages of the security-holders. This situation is called “risk of dilution”. The financial manager should tailor his firm’s financial plan to the various risks that may be inherent in it.

### ***ESTIMATING FINANCIAL REQUIREMENTS***

A forecast of financial requirements is the core of accounting and financial decisions in a firm. There are three methods of projecting financial requirements.

1. The simple traditional method of approach to forecasting financial requirements indicates a firm’s needs in terms of the number of days for which its sales are tied up in an individual balance sheet item. It is a tie-in between forecasting sales and forecasting financial requirements.
2. The second method involves an engineering analysis, which is a combination of technical know-how and judgement.
3. The third method involves an operation analysis which is not necessarily technical in nature and which relies mainly on judgement and on an understanding of the kinds of operations in which a firm is engaged.

The following factors be considered while estimating financial requirements.

1. **Cost :** The cost of finance is an obvious consideration. It should be the minimum.
2. **Repayment Date:** Due regard should be given to the period time for which finance is required. A scheme should be drawn up which fixes the repayment date of the debt.
3. **Liquidity :** Liquidity is an important consideration, as liquidity may lead to insolvency

4. **Interest Payment:** Heavy interest charges are embarrassing and should be kept at the desired level.
5. **Claim on Assets :** Borrowings may result in a charge on the assets and thus restrict their use. This may seriously impair the maneuverability of the enterprise.
6. **Control :** Control is an important consideration for interference is likely to be increased if many people are allowed to control the company.
7. **Risk:** It is better not to launch risky projects, particularly if equity finance is not available to the desired extent.
8. **Availability:** Financial planning can be affected only when finance is available.
9. **Seasonality:** Financial requirements, influenced by seasonality or growth, cannot be easily anticipated. There are, moreover, unpredictable events strikes, product failure, changes in the supply price, changes in technology or consumer tastes- which significantly affect financial requirements.
10. **Requirements :** The financial manager should estimate the financial requirements of his firm before he decides whether adequate finance is available. For this purpose, he should consider marketing, production and accounting estimates of reserve and costs, as these are the starting point for financial planning for purposes of promotion.
11. **Cost Initial Promotional Outlays:** These include the cost of the development of a product or a process, the cost of market surveys, legal and incorporation expenditure, outlays on preliminary contract, if any, and compensation for promotion.
12. **Fixed Asset Needs:** Fixed Assets need should be based on estimates supplied by the production and engineering departments.

13. **Current Assets:** Current asset needs should be assessed on the basis of estimated sales and production schedules or projections. Cost budgets and inventory estimates should be prepared and customer trade terms should be fixed.

14. **Distribution Outlays:** Distribution outlays should be estimated on the basis of the distribution system to be adopted by an enterprise. For this purpose, the advertising commission of the intermediaries, etc., should be taken in to account.

15. **Gestation Period:** Funds are needed to absorb initial operating losses during the gestation period of an enterprise. It may be some time before it reaches the “break-even” or pay its own way.

16. **Margin of Safety:** Contingent funds should be provided for a margin of safety to take care of inaccurate projections or unforeseen events.

17. **Need for Additional Funds:** Financial forecasting involves the relation of sales to assets and liabilities. The financial manager should be able to anticipate the need for additional funds on the basis of projected income statements, projected balance sheet, cash budgets, statements of sources and uses of funds and such other tools of financial forecasting.

### ***Summary***

Plans are decisions and decisions require facts. Facts about the future are non – existent. Consequently assumption concerning the future must be substituted. Working capital is all the more important for a small concern. The policy of the lending banker has always been to supplement the borrowers needs and not to meet the entire needs.

### **Review Questions.**

1. State the importance of financial Planning?
2. What are the four steps in financial planning?

3. List out the characteristics of financial planning?

***Key words***

Maneuverability

Solvency

Flexibility

Financial contingency.

**LESSON IV**

**FINANCIAL PLANNING**

**LESSON OUTLINE**

Importance of Financial Planning

Steps in Financial Planning

Characteristics of Financial Planning

Estimating Financial Requirement

**LEARNING OBJECTIVE**

**After reading this chapter you should be able to :**

Understand the need for financial planning

Arrange the steps needed for planning

Narrate the essentials of a sound planning policy

**LESSON V**

**CORPORATE PLANNING**

**LESSON OUTLINE**

Financial Structure

Thesis of Capitalization

Over Capitalization

Over Trading

Under Trading

**LEARNING OBJECTIVE**

**After reading this chapter you should be able to :**

Define Capital Structure

Understand the theories of Capitalization

Distinguish between Over-Capitalization and Under Capitalization

Conceptualize the cause and effect of over capitalization and under capitalization.

## **CAPITALISATION**

The capital structure or the capitalization of an undertaking refers to the way in which its long-term obligations are distributed between different classes of owners and creditors. The capitalization of an enterprise depends on its expected average net income. From the view point of investors, the yield on the securities which have been issued should be comparable to the yields of other securities which are subject to the same kinds of risk. The rate at which prospective earnings are capitalized will vary, for it is a subjective measure of risk and would, therefore, be different for firms in different fields of business activity. If the income is expected to be regular, the rate would be lower than that for a highly speculative venture. It would be higher for a new venture than for one which is well established. It would be different for the same firm under different conditions of trade. It would be low when business conditions are brisk, and high when they are slack, for then a greater risk is involved in capitalization.

The need for capitalization arises in all the phases business cycle. Estimation of total funds of capital arises in the initial stages to start the business unit. The requirement, Land & Building etc. Funds are also needed to meet the working capital through which raw materials, cash, components and stocks are provided.

At the time of growth stage, finance is needed for expansion, introducing technology, modernization programmes. Hence arrangement of capital is made through proper planning.

Though the firm enjoys highest reputation, goodwill and credit worthiness at the saturation stage, it has to diversify its products to stay on in the market. Product



diversification , improvement in the existing products requires huge sums of money. this can be arranged through reorganizing the capital structure.

Now, the existing period is identified “Era of mergers, acquisitions and Joint venture”. The economy has influenced mergers of big giants in the country. Ex: Hindustan Levers with Brooke Bond India Ltd. and many others. the success of Mergers of the companies in European Countries encouraged the Indian Corporate to have same type of business policies. This increases the potentiality of business establishment to economies their scale of operation. Even at this stage, the concept of Capitalization is extensively used. This provides an acceptable formula for exchange their business terms and restructure the capital for its effective and efficient usage.

### ***Theories of Capitalization***

Identifying the requirement of capitalization, it is referred as determination of the value through which a company has to be capitalized. This helps the management in deciding number of securities that are to be offered, the appropriate mix that has to be designed between the debt and Equity. The final decision on this matter will be made by considering two popular Capitalisation Theories: They are

1. **Cost Theory:** Under this theory, the total value of the Capitalisation is calculated by taking the total cost of acquiring fixed assets and the current assets. In a real life situation, the amount of capitalization for a new business is arrived at, by adding up the cost of fixed assets, the amount of working capital and the cost of establishing the business (Plant & machinery, land and building, cost & raw materials, Preliminary expenses, floatation cost of shares & debentures etc .....)

Cost theory helps promoters to find the total amount of capital needed for establishing the business. According to Husband and Dockeray, cost principle may appear to give an assurance that capitalization would, at the best be representative of the value of the enterprise.

However, the cost theory has not been considered efficient base on the following grounds:

- i) It takes into consideration only the cost of assets and not the early capacity of investments.
- ii) Earnings of the company fluctuates when the asset becomes obsolete or idle. This will not be detected, if capitalization is made on the basis of cost.
- iii) It is not suitable for such companies where its earnings are varying.

**Earnings Theory:**

Earnings theory stresses more on the earnings capacity of a business unit. The worth of the company is not measured by capitalization but by its earning capacity. Profit in the base capitalization. According to this theory, the value of the company (capitalization) is equal to the value of its earnings, Earnings are capitalised at a representative rate of return. In case of a new company, it will have to estimate the average annual future earnings and the normal earnings rate prevalent in the same industry. The approach of Earnings theory is the best method of capitalization for the existing companies. It may not be suitable for new companies, as the estimation of earnings is fairly a risky and difficult task.

For Example: If a new company estimates that its annual average earnings will amount to a sum of the Rs. 1,00,000, while the companies in the Same industry are earnings a return of 20% on their capital employed, the amount of capitalization for the company would be.

**Advantages:** This method correlates the value of a company directly with its earning capacity. Earnings theory acts a check on the costs of establishing new companies .

**Disadvantages:** The process of estimating earnings for a new company is very difficult. A mistake committed at the time of estimation the earnings will be directly influencing the amount of capitalization.

### ***OVER-CAPITALISATION***

**Meaning:** A business is said to be over-capitalised when:

- ❖ Capitalisation exceeds the real economic value of its assets:
- ❖ A fair return is not realized on capitalization; and
- ❖ Business has more net assets than it needs.

Example of overcapitalized situation

#### **Balance Sheet**

<b>Liabilities</b>	<b>Amount (Rs.)</b>	<b>Assets</b>	<b>Amount (Rs)</b>
Equity capital	10	<i>Fixed Assets</i>	22
Debentures	15	Currents Liabilities	13
Current Liabilities	10		
	35		35

In the above example, the component of equity capital is more in relation debt; equity ratio. The long term funds are not optimally deployed on fixed assets. A portion of long term funds is allocated to current assets. The current liabilities are not sufficient to meet the requirement of current assets. Hence, it is inferred that, the available funds are not judiciously utilized.

Over- capitalization may be considered to be in the nature of redundant capital. It is generally found in companies which have depleted assets such as oil and mining concerns. This condition is commonly known as “water stock”. a company is said to be over-capitalised when the aggregate of the par value of its shares and debentures exceeds the true value of its fixed assets, in other words, over-capitalization takes place when the stock is watered or diluted. It is wrong to identify over-capitalization with excess of capital, for there is every possibility that an over-capitalized concern may be confronted with problems of illiquidity. The correct indicator of over -capitalization is the earnings of the company. Over-capitalization does not imply a surplus of funds any more than under-capitalization indicates a shortage of funds. It is quite possible that the company

may have more funds and yet have low earnings. Often, funds may be inadequate, and capitalization. The average distributable income of a company may be insufficient to pay the contract rate of return on fixed income securities elsewhere. Over-capitalization may take place when:

- ❖ Prospective income is over-estimated at the start;
- ❖ Unpredictable circumstances reduce down the income;
- ❖ The total funds requires have been over-estimated;
- ❖ Excess funds are not efficiently employed;
- ❖ The low yield makes it difficult for a firm to raise new capital, particularly equity capital;
- ❖ The market value of the securities falls below the issue price;
- ❖ Arbitrary occasions are taken on the charges against income arising form depreciation, obsolescence, repairs and maintenance;
- ❖ The low yield may discourage competition and this limited competition becomes a social disadvantage.

Over-capitalization may go unnoticed during the period a business flourishes and may be encouraged by prosperity. However , it may be productive of ill-consequences when the distributable income diminishes under the pressure of declining demand and falling prices.

### ***Causes***

The causes of Over-capitalization are:

1. **Different between Book Value and Real Worth of Assets:** It is possible that a company may have purchased its assets at a value which is higher than their real worth. This gap between the book value and the real worth of assets may account for over-capitalization .

2. **Promotional Expenses:** There is a possibility that promoters may have charged exorbitant promotional expenses for their services in creating the corporation. This excessive charge may be a cause of over-capitalization.
3. **Inflation:** Due to inflationary conditions a corporation might have acquired assets at high prices. Inflationary conditions precipitate over-capitalization which affects new as well as established corporations.
4. **Shortage of Capital:** when faced with a shortage of funds, a company may borrow at unremunerative rates of interests which is bound to result in excessive or unjustified fixed charges.
5. **Depreciation Policy:** Inadequate provision for depreciation, obsolescence or maintenance of assets may lead to over-capitalization, and this is bound to adversely affect the profit-earning capacity of a corporation.
6. **Taxation Policy:** High corporate tax may discourage corporation from implementing programmes of replenishment, renewals and renovations, as a result of which their profitability may suffer.
7. **Dividend Policy:** Some corporations adopt a lenient dividend policy in order to gain popularity with their stockholders. However, such cash-down payments in the form of dividends weakens their liquidity position. Their valuable resources are likely to be frittered away and, as a result, they may find themselves in a state of over-capitalization.
8. **Market Sentiment:** Company may be tempted to raise security floatations in the market in order to create a favourable market sentiment on the stock exchange . While doing so, it may be saddled with the issue of unwarranted securities which are of no practical value to it. As a result, it becomes over-capitalised and the burden of its liabilities is unnecessarily inflated.

- 9. Under-estimation of Capital Rate:** If the actual rate at which a company's earnings are capitalised, the capitalization rate is underestimated, and this results into over-capitalization.

***Advantages***

1. The management is assured of adequate capital for present operations.
2. If conserved, an Excess of capital may preclude the necessity of financing some time in the future when capital is needed and can be obtained only with difficulty.
3. Ample capital has a beneficial effect on an organisation's morale.
4. ample capitalization gives added flexibility and latitude to the corporation's operation.
5. Allegedly, losses can be more easily observed without endangering the future of the corporations.
6. The rate of profits tends to discourages possible competitors.
7. For public utility companies, when the price of service is based upon a "fair return to capital", a high captitalisation may be advantageous.

***Disadvantages***

1. When Stock is issued in excess of the value of the assets received, a company's stock is said to be "watered". Watered stock may arise by the issued of stock in any of the following ways.
  - a) For over-valued property or services;
  - b) As a bonus;
  - c) For cash at less than the par or stated value of the stock;
  - d) As a stock dividend when the surplus of the corporation is not offset by actual assets of at least an equal amount. If known to be watered, stock has a market value which is lower than it would

enjoy if it were not watered – until the “water” has been “squeezed out” (until sufficient assets have been acquired from earnings to offset the excess of stock.

2. There is the possibility of stockholders’ liability to creditors in case a court should conclude that the stock was heavily watered, that the corporation did not receive “reasonable” or “proper” value for the stock. This liability would attach only to such stock as was received as a result of an unreasonably excessive valuation of properties or services given in exchange for such stock.
3. There may be a possible difficulty of raising new capital funds. This may be obviated. However, by the use of “no-par” stock.
4. In some States, the rate of the annual franchise tax depends on the amount of outstanding stock. Large capitalization’s in such states may attract correspondingly large franchise taxes.
5. There is a tendency to raise the prices of a company’s products and/or to lower their quality. This may be partly or wholly forestalled, however, by competition and would apply more to public utility services than to others, for public utility rates are based, in part, upon a “reasonable” return on capital.
6. Over-capitalization may include a failure, and the failure of a corporation may bring about an unhealthy economic situation.
7. The ethical atmosphere of a business is not improved by over-capitalization.
8. The almost necessary “rigging” of the market for the securities which first offered to the public usually results in market value losses to the investors after this support is removed. (This is not to condemn the legitimate support of the market in the above-board floatation of a security issue).

9. There may be an inability to pay interest on bonds (when bonds constitute a large portion of the capitalization of an over-capitalised company).
10. Injury to creditworthiness.
11. Decline in the value of securities.
12. Possible loss of orders because of inability to expand.
13. Temptation for the management to juggle with depreciation, obsolescence, maintenance, and reserve accounts in order to appear to be making a profit and possible in order to pay a dividend.
14. Possible injury to goodwill in case a necessary reorganization.
15. The holders of securities may be dissatisfied.
16. The business may give way to its competitors through its inability to obtain funds for expansion.

### *Effects*

Over-capitalization has some effect on the corporation, its owners, consumers and the society at large.

- 1. On Corporation:** The market value of the corporation's stock falls and it may find it difficult to raise new capital. Quite often, artificial devices such as the reduction in depreciation, curtailment in maintenance, etc., are made use of to cover over-capitalization. But this only aggravates the evil of over-capitalization. The credit of the company is adversely affected. The company may appear to be in a robust, healthy condition, even though it may have lost its vigor and vitality and may collapse at any time because of the uneconomic financial condition from which it suffers.
- 2. On Owners:** Owners who have a real stake in the corporation are the biggest losers. Because of a fall in the market value of its shares, shareholders are not in a position to dispose of their holdings profitably.



Moreover, because of a fall in dividends, shareholders lose heavily. They develop the feeling that the corporation is funded on shifting sands.

3. **On Consumers:** A corporation cannot resist the temptation of increasing the prices of its products to inflate its profits. At the same time, there is every possibility that the quality of the product would go down. The Consumer may thus suffer doubly.
4. **On Society:** over-capitalized concerns often come to grief in the course of time. They lose the backing of owners, customers and society at large. They suffer multi-pronged attacks from various sections of society. They are not in a position to face competition. No wonder, therefore, that they gradually draw closer to a situation ordering liquidation. While the existence of such corporation cannot be justified, their extinction would cause irreparable damage to society.

### ***Remedies***

Over-capitalization is not easily rectified, chiefly because the factors which lead to it in the first place do not entirely disappear.

In many cases, over-capitalization and excessive debts co-exist and an attack on one often involves the other. Indeed, a correction of the former usually involves the latter. With this co-relationship in mind, it may be said that correction of over-capitalization may involve one or more of the following procedures:

1. **Reduction in Funded Debt:** This is generally impossible unless the company goes through re-organization. Funds have to be raised for the redemption of bonds; and the Sale of large quantities of stock, presumably at low prices, would probably do more damage than good. Moreover, the creation of as much stock as the bonds retired would not reduce the total capitalisation. A true reduction in capitalization can be effected only if the debts are retired from earnings.

- 2. Reduction in Interest Rate on Bonds:** Here again, without a through re-organisation, it would probably not be practicable to effect a reduction in the interest rate on bonds. A refunding operation, however, might be performed; but the saving in interest payments on the lower-rate refunding bonds would hardly offset the premium the company would be forced to allow the bond-holders in order to induce them to accept the refunding bonds; and, moreover, this procedure would not really reduce capitalization. However, it would alleviate the situation.
- 3. Redemption of Preferred Stock, if it carries a High Dividend Rate:** Funds for redemption would probably have to come from the sale of common stock sufficient to increase somewhat the earnings from the Common stock, even if this common stock is increased substantially. If, however, the preferred stock is cumulative, and if dividends on such stock are in arrears, this avenue of escape would appear to be a “dead-end street”
- 4. Reduction in par value of Stock:** This is a good method but is sometimes impossible because of the stockholders’ tenacious belief in the importance of par value. If the stockholders are convinced of the desirability of the move, it might be somewhat effective, though not nearly as much as the reduction in high fixed.
- 5. Reduction in Number of Shares of common Stock:** This likewise is a good method but, again, is difficult of implementation because of the average stockholders’ unwillingness to turn in several shares in order to receive one, though it does happen occasionally. Since this procedure does not Decrease the stockholder’s proportionate interest in the equity, it is sometimes used.

In some cases, several of these methods may be used, but unless a company goes through re-organisation (a rather complicated and legally involved affair), the consent of the Security-holders should be obtained.

## **UNDER-CAPITALISATION**

Under – capitalisation is the reverse of over-capitalisation. It should not be confused with a condition implying a lack of funds. It merely refers to the amount of outstanding stock. It does not pose an Economical problem in adjusting the capital structure. The condition is not as serious as that of over-capitalisation and its remedies Are much easily applied.

Under-capitalisation comes about as a result of:

- ❖ Under-estimation of future earnings at the time of promotion; and / or
- ❖ An unforeseeable increase in earnings resulting From later developments;
- ❖ Under-capitalisation exists when A company earns sufficient income to meet its fixed interest and fixed dividend charges, and is able to pay A considerably better rate on its equity shares than the prevailing on similar shares in similar businesses.

### **Example of under capitalised situation**

#### **Balance Sheet**

<b>Liabilities</b>	<b>Amount (Rs.)</b>	<b>Assets</b>	<b>Amount (Rs)</b>
Equity capital	10	<i>Fixed Assets</i>	40
Debentures	25	Currents Liabilities	10
Current Liabilities	15		
	50		50

In the above example, the component of equity is substantially lesser than in relation to debt: equity ratio. The size of debt is more. Total long term funds are enough to meet the capital Expenditure requirement. The management has

used short term funds for long Term purposes and assuming huge amount of risk, as a result, profitability of the firm would be more. Hence it is inferred that, the available funds are put to use more aggressive to earn substantial profit.

At this stage, the real worth of the assets exceeds their book value, and the rate of earnings is higher than corporation is ordinarily able to afford. Bonneville and Dewey observe that when a corporation is earning an extraordinarily large return on its outstanding stock, it is said to be under capitalised. Husband and Dockeray express the view that, in a quantitative sense, on the most productive basis; qualitative under-capitalisation exists when sufficient provision is made for funds to operate on the most productive basis; qualitative under-capitalisation exists when insufficient provision is made for funds to operate on the most productive basis; qualitative under-capitalisation, however, is found whenever values are deliberately carried on the books of accounts in an amount that is less than the value of the assets.

### **Causes**

The causes of under-capitalisation are:

- 1. under-estimation of Earnings:** It is possible that earnings may be under-estimated, as a result of which the actual earnings may be much higher than those expected.
- 2. Efficiency:** A Corporation may have optimally utilized its assets and enhanced its efficiency by exploiting Every possibility of modrnisation and by taking the maximum advantage of market opportunities.
- 3. Under-estimation of Funds:** It may take place when the total Funds required have been under-estimated.
- 4. Retained Earnings:** Because of its conservative dividend policy a corporation may retain the earnings which might have accumulated into a mass of savings. This is bound to improve its financial health.

5. **Windfall Gains:** Companies which can afford to continue to operate during the period of depreciation may find their earnings are unusually high when they enter the boom period. This shift from an adverse business cycle to a prosperous one may under-capitalise the corporation.
6. **Indulgence in Rivalries:** Under indulgence in rivalries flowing from unusually high earnings may tempt an organization to embark upon speculative activities in the hope that it can easily survive its ill effects; for if speculative activities turn out to be unfavourable, its earlier earnings are likely to be washed away.
7. **Taxation:** Because of excessive earnings, corporation are exposed to a heavy burden of taxation.

### **Effects**

The effects of under-capitalisation are:

1. **Labour Unrest:** Employees are often organized and become conscious of the fact that the corporation is making enormous profits. they feel that they have a legitimate right to share in these profits. In other words, they develop the feeling that they are not adequately paid and that the corporation is reluctant to pay what is their legitimate due. This generates a feeling of hostility on the part of the employees, and leads to labour unrest.
2. **Consumer Dissatisfaction:** Consumers feel that the unusual earnings of the corporation could have been utilized by effecting a price reduction or by improving the quality of the product.
3. **Government Interference:** The Government generally keeps a watchful eye on under-capitalised concerns which earn abnormal profits. It may, at the instance of dissatisfied consumers, employees and investors,

intervention in the affairs of such corporations and may even nationalize them.

4. **Need for short term funds:** A corporation may have to resort frequently to short-term credit and may even seek additional long-term funds without much notices.
5. **Slow down of expansion programmes:** Adaptability to changed circumstances may be impaired and expansion programmes may slow down.
6. **Temptation to raise Fresh equity:** Enormous earnings on equity Shares may result in an increase in market price, and the company will be tempted To raise new Capital.
7. **Competition:** The prospect of enormous earnings may generate competition which may adversely affect the profitability of a corporation.
8. **Share Prices:** Higher prices of shares may restrict the market and shares may be traded at prices below those justified by the usually high earnings.

### **Disadvantages**

1. The Stock would enjoy a high market value, but would limit its marketability and may cause wide (though not necessarily relatively wide) fluctuations in market prices In many cases, this may not be considered a disadvantages.
2. Owing to its limited marketability, the stock may not enjoy as high a market price As its earnings justify.
3. A high rate of earnings per share may encourage potential competitions to enter the market.
4. In view of the high rate of earnings, employees may become dissatisfied. Dissatisfaction would probably reduce their efficiency and have other undesirable effects.

5. In view of the high rate of earnings, customers may feel they have been overcharged. Except possibly in public utility undertakings, this is not an entirely justifiable point, for competitors might easily enter the field and force reductions in price.
6. If a company is an extremely large one and virtually controls the industry, its enormous earnings per share may encourage competitors or the Government to bring suit against it under the Anti-trust laws.
7. Depending on the nature of excess profit taxes, if any, the company may lose by under-capitalisation.

### **Remedies**

Under-capitalisation is easily remedied. It may be done by one or more of the following methods.

1. **Stock Split – up :** The corporation may offer the stockholders several shares of new stock for every share of the old. If there is a par value, the par value must be reduced to correspond with the increase in the number of shares, for by this method the capital stock account is not affected. With this increase in shares and reduction in par value per share the rate of earnings will not be changed, but the earnings per share will be very substantially decreased. The effect is much more apparent than real, for the capitalization is not increased, though the earnings per share are reduced.
2. **Increase in par Value of Stock:** If the surplus is large or can be made larger (by revaluing assets upward, or otherwise), the corporation might offer the stockholders new stock for the old, the new stock to carry a higher par value. This would not reduce the earnings per share, but it would reduce the rate of earnings per share. This method, however, is seldom used, partly because it would not improve the marketability factor.

If it were desired to go further, the corporation could offer the stockholders a stock split-up and an increase in parvalue. This would reduce both the earnings and the rate of earnings per share Value enormously. This method, however, is very radical and is almost never used.

- 3. Stock Dividend;** If the surplus is large or can be made larger, the corporation might declare a dividned payable in stock. This would not affect par value per share, but would increase the capitalization and the number of shares. Both the earnings per share and the Rate of earnings per share would reduced. This is probably the most used method and the most easily effected.

### **OVERTRADING**

According to Leslie R. Howard, the term overtrading means expansion of production and sales without adequate financial support. If a company finds itself on an Easy market. it may increase its production and sales to meet a ready demand. Reasonable and even comparatively large profits are made. In order to take full advantage of the favourable conditions, profits and ploughed back into the purchase of new plant and machinery, Storage facilities or otherwise, so depleting liquid resources. Creditors are made to await settlement as further raw materials are purchased or fininshed goods are procured for direct re-sale. Meanwhile production costs increase, particularly wages, and these make further demands on cash resources while settlement is awaited for debtors. The time lag between the purchase of raw materials, the period required for work in progress, the ultimate sale of the finished product and the final settlement by debtors, are often under-estimated and a company consequently can find itself in a difficult position with Regard to liquid resources. Sometimes further capital may be raised, but where such action is resorted to, in a period of overtrading, funds may not easily be forthcoming due to the unhealthy appearance of the balance sheet.



Furthermore, it is not so easy for small companies to raise additional capital, Likewise where overtrading has taken place, in all probability, the bank may already have arranged for overdraft facilities and may be unwilling to oblige without adequate security. In any case it is not the custom of the banks to grant financial assistance to companies for any protracted length of time. They consider that more permanent means of financing should be resorted to. Overtrading is not a firm is forced, though lack of adequate liquid resources, to extend the period of credit taken from its suppliers beyond the terms agreed, which can be explicitly defined or implied for allowed payment patterns. Although a narrow definition, it does serve to highlight the combination of circumstances that can lead to overtrading. The most common feature of a firm overtrading is too narrow a capital base from which a rapid expansion of sales takes place. While the firm remains at normal growth rates, the owners can exercise tight control over the collection of trade debts, any increase in liquidity being met by retained profits. If, however changes in demand occur and the firm's product becomes sought after, the owners will often try to meet the increased market without arranging additional capital resources, either of a short-or long-term nature. In the words of Thomas Budd, Overtrading results from an attempt to do a greater amount of business than The capital investment warrants. Overtrading takes place when a corporation business than The capital investment warrants. Overtrading takes place when a corporation expands beyond its legitimate scale of operations and does not have sufficient cash resources to meet the level of activity. The corporation may plunge into the disaster of trading into expansion programmes in an untimely fashion. Like too much of air in the balloon it is likely to be overblown,. The size is unduly increased, the margin of safety is excessively inflated, a sense of strain is created and the corporation is likely to collapse suddenly like an overblown balloon whose capacity to blow further is exhausted.

## Causes

- 1. Inflation:** Inflation raises the hope for the corporation to flourish further. In the anxiety to earn more profits, it may buy assets and properties at exorbitant prices and trade in heavily. Heavy funds may get locked up into the business and the corporation may get sandwiched for paucity of funds. Further, in order to keep the on-going operations, heavy renewals and replacements are undertaken. The corporation thus finds it very difficult to come out of the trap unscathed.
- 2. Excess Inventory:** As the level of activity grows, large stocks of inventories have to be piled up to facilitate a smooth flow of materials or to help proper production planning and control. Stocks gradually get swollen and neither the corporation can use stocks profitably in its production nor can it release them for sale. The work-in-progress also gets accumulated and large funds are once again tiedup in them.
- 3. Taxation:** A corporation may distribute fabulous dividends to appease the stockholders and to give way to the profits earned by it. It should be remembered that high earnings do not necessarily mean greater availability of cash resources. With the distribution of dividends in cash, cash resources may get depleted. Coupled with this is the additional burden of heavy taxes that the corporation is required to pay on account of unusually high earnings. A corporation thus suffers doubly and its cash resources come to an end sooner or later.
- 4. Depletion of Working Capital:** The working capital may be depleted as a result of untimely repayment of long-term loans, excessive dividend payments, purchase of fixed assets or even as a result net trading losses. The depletion of working capital is the cause that leads to overtrading of activity. The corporation does not realize that its legs are not long enough to reach the ground.

## **Effects**

1. Creditors increase more rapidly than debtors as the corporation may find it difficult to pay creditors on due dates and reduce the amount of outstanding Creditors.
2. There may be an increase in bank loans and other borrowings due to the excessive locking up of funds in current assets.
3. Fixed assets may be purchased out of short-term borrowings. The current ratio may be two and the turnover ratios may be very high. Similarly, there may be a fall in the working capital ratio.
4. There may be a progressive fall in liquid resources and in the overall ability of the corporation to raise funds.
5. A corporation may find it difficult to pay its wage and salary bills and tax payments may fall in arrears on account of its poor bargaining capacity in the market.
6. Due to excessive holding of stocks, the corporation may prefer to sell its products at throw-away prices. this may result into trading losses.
7. The corporation will lose credit with the creditors and suppliers may encourage them to draw bills. Often it may not be able to honour 2them which may result into loss of goodwill.
8. The corporation may go out of the way to collect the payment from the debtors. It may offer them heavy discounts and sustain loss by prompt payment . Debtors may feel embarrassed by this overt attitude of the corporation to pressure up collection of payments from the.
9. A corporation amy defer the projects of assets or replacement of equipment due to shortage of funds. This may affect efficiency of the corporation adversely.

## **Remedies**

It is advisable for the corporation to move into the reverse gear. The corporation should realize that it has stretched its legs too far and should be willing to trace its steps backward. It should reduce the level of activity and curtail unnecessary ramifications. If there is no scope for the corporation to retrace its steps backward, it may do well to sell the concern so long as it is in a working condition, as “prevention is better than cure”.

The commercial banks may be called on to help by granting of an overdraft. Sometimes, further capital may be raised, but where such action is resorted to in a period of overtrading, funds may not easily be forthcoming due to the unhealthy appearance of the balance sheet. Likewise, where overtrading has taken place, in all probability, the banks may have earlier arranged for overdraft facilities and may therefore, be unwilling to oblige without adequate security.

The banker detects signs of overtrading with the following symptoms:

- a) Longer credit and/or shorter credit than in customary in that particular trade.
- b) Longer credit and/or shorter credit than is customary for the borrower.
- c) “Hand-to-mouth” operation of bank account.
- d) High inventory turnover ratio.
- e) Low current ratio.
- f) High short-term profits inciting business to grow fast.
- g) Profits-and not real profits.
- h) Frequent cash shortages.
- i) Heavy bad debts.
- j) Mounting pressures from creditors.

## **UNTERTRDING**

Undertrading is the reverse of overtrading. It means inappropriate utilization of resources. It takes place when Funds of the corporation remain idle and are not being productively. In the words to Thomas Budd, “When an enterprise is undertrading, its stakes are rarely large. Undertrading is not as Serious as overtrading”. Undertrading means trading at a level which is far below the level ratio and high current ratio. If an organization undertrades, its installed capacity remains under-utilised. The fixed overheads will be largely unrecovered and so the unit cost of fixed expenses will be high inventory Carrying cost. A general climate of lethargy an inertia clouds the organization, which is most dangerous to its survival and future growth.

### **SUMMARY**

Plans are decisions and decisions require facts,. Facts about the future are non-existent; consequently, assumptions concerning the future must be substituted. Since future conditions cannot be forecast accurately, the adaptability of plans is seriously, limited. This is particularly true of plans which cover several years in advance since reliability of forecasting decreases with time. On the other hand plans which cover a relatively short period are highly reliable since both internal and external factors like wage rates, prices, interest rates, and general business to offset the limitations imposed by managements inability to forecast future conditions is to improve their forecasting techniques. Another way to overcome this limitation is to revise plans periodically, say, every six months. The development of variable plans which take changing conditions into consideration will go a long way in eliminating this limitation. Variable budgets are examples of management to change a plan once it has been made. There are several reasons for this. First, plans relating to capital expenditures often involve colossal expenditure, and commitments for funds are made months in advance and cannot readily be changed. Second, in addition to advance arrangements regarding capital, management often makes commitments for raw material and equipment

prior to the time when the plan is to be initiated. These commitments, if broken, may result in serious problems. Third, management personnel are psychologically is lack of co-ordination or indecision among personnel. Financial planning affects each function in the organization, and to be effective, each function should be co-ordinated in order to ensure consistency in action

### **REVIEW QUESTIONS**

1. “plans must feed the financial capabilities of the corporation” Comment.
2. How is financial planning considered to be the most important aspect of the financial manager’s job?
3. State the important characteristics of financial planning.
4. How are financial requirements estimated?
5. What do you mean by capitalization? State briefly the theories determining the amount of capitalization.
6. What do you mean by the terms “over-capitalisation” and”under-capitalisation? How do they take place?
7. State the advantages and disadvantages of “Over-capitalisation” and under capitalization”.
8. Explain the effects of “over-capitalisation” and “under capitalization”.
9. What are the remedial measures against.
  - (a) Over-capitalisation and
  - (b) Under- capitalization?
10. What do you mean by overtrading? How does it take place? State the effects of Overtrading.
11. “Undertrading is the reverse of overtrading”. Comment

### **OBJECTIVE TYPE**

12. Write proper word/words in the blank. If there are statements, state whether the same are true or false?

- i. Financial planning should achieve the total .....of all the plans or other functions of the firm
- ii. Financial plan of a corporation should be formulated in the light of not only present development but also.....
- iii. The objectivity of a financial plan means that it should be free from..... and .....
- iv. The financial plan should be such as can be modified or changed, whenever necessary. This is the characteristics of .....
- v. A firm's ability to choose its sources of finance at its own discretion is often termed .....of financial plan.
- vi. It is very difficult for one to have an accurate or even the useful definition of capital and capitalization.
- vii. The two theories generally made use of in determining amount of capitalization are ..... and .....
- viii. When a fair return is not realized on capitalization, under capitalization is said to take place.
- ix. Under trading is reverse of over trading.

Ans: (i) Integration and Coordination (ii) Future development (iii) Partially prejudice bias (iv) Flexibility (v) Maneuverability (vi) True (vii) Historical Theory (viii) False (ix) True

13. Indicate if each of the following is true or false and modify the same

- a. Financial planning should attempt to minimize risk
- b. The primary aim of planning is to obtain better forecasts of future cash flows and earnings.

- c. Financial planning is necessary because financing and investment decisions interact and should not be made independently.
- d. Firms planning horizons rarely exceed 3 years
- e. Individual capital investment projects are not considered in a financial plan unless they are very large.
- f. Financial planning requires accurate and consistent forecasting
- g. Financial planning models should include as much detail as possible.

Ans: (a) False (It is a process of deciding which risks to take)

(b) False (Financial planning is concerned with possible surprises as well as expected outcomes)

© True (Financial planning considers both investment and financial decisions)

(d) False (a typical horizon for long-term planning is 5 years)

(e) True (investments are usually broken down by category)

(f) True (Perfect accuracy is unlikely to be obtainable, but the firm needs to produce the best possible consistent forecast)

(g) False (excessive detail distracts attention from the crucial decision)



## **Unit - II**

### Investments Decisions under Risk and Uncertainty

#### **Objectives**

The objectives of this unit are to:

- Discuss the concept of risk in investment decisions.
- Understand some commonly used techniques of risk analysis.
- Discuss Total Risk for Multiple Investments

#### **Structure**

1. Investment decisions under Risk and Uncertainty
2. Sources of Risk
3. What measure of risk is relevant in capital budgeting?
4. Methods of incorporating Risk in Capital Budgeting
  - 4.1. Certainty Equivalent Approach
  - 4.2. Risk-Adjusted Discount Rates
    - 4.2.1 Formal method.
    - 4.2.2. Informal method.
  - 4.3. Statistical Distribution Approach
    - 4.3.1 Independent net cash flows
    - 4.3.2 Perfectly correlated cash flows
    - 4.3.3 Mixed case
  - 4.4 Simulation Approach
  - 4.5. Sensitivity Analysis
  - 4.6. Scenario Analysis
  - 4.7 Decision-Tree Approach
5. Total Risk for Multiple Investments

6. Summary

7. Key Words

8. Self-Assessment Questions/Exercises

## **1. INVESTMENTS DECISIONS UNDER RISK AND UNCERTAINTY**

Risk is inherent in almost every business decision. More so, in Capital Budgeting decisions as they involve costs and benefits extending over a long period of time during which many things can change in unanticipated ways. For the sake of expository convenience, we assumed so far that all investments being considered for inclusion in the capital budget had the same risk as those of the existing investments of the firm. Hence the average cost of capital was used for evaluating every project. Investment proposals, however, differ in risk. A research and development project may be more risky than an expansion project and the latter tends to be more risky than a replacement project. In view of such differences, variations in risk need to be evaluated explicitly in capital investment appraisal.

Risk analysis is one of the most complex and slippery aspects of capital budgeting. Many different techniques have been suggested and no single technique can be deemed as best in all situations.

### **2. SOURCES OF RISK**

The first step in risk analysis is to uncover the major factors that contribute to the risk of the investment. Four main factors that contribute to the variability of results of a particular investment are cost of project, reinvestment of cash flows, variability of cash flows and the life of the project.

#### **(a) Size of the Investment**

A large project involving greater investments entails more risk than the small project because in case of failure of the large project the company will have to suffer considerably greater loss and it may be forced to liquidation. Furthermore, cost of a project in many cases is known in advance. There is always the chance that the actual cost will vary from the original estimate. One can never foresee exactly what the construction, debugging, design and developmental costs will be. Rather than being satisfied with a single estimate it seems more realistic to specify a range of costs and the probability of occurrence of each value within the range. The less confidence the decision-maker has in his estimates, the wider will be the range.

**(b) Re-investment of Cash Flows**

Whether a company should accept a project that offers a 20 per cent return for 2 years or one that offers 16 per cent return for 3 years would depend upon the rate of return available for reinvesting the proceeds from the 20 per cent 2-year period. The danger that the company will not be able to return funds as they become available is a continuing risk in managing fixed assets and cash flows.

**(c) Variability of Cash Flows**

It may not be an easy job to forecast the likely returns from a project. Instead of basing investment decision on a single estimate of cash flow it would be desirable to have range of estimates.

**(d) Life of the Project**

Life of a project can never be determined precisely. The production manager should base the investment decision on the range of life of the project.

**3.WHAT MEASURE OF RISK IS RELEVANT IN CAPITAL BUDGETING**

**Chart 1.**

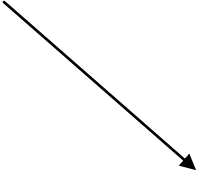
<b>Prospective:</b> <b>Project Standing Alone:</b> Ignores Diversification within the firm and within the shareholder's portfolio.	<b>Measures of Risk</b>
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**Project  
Standing  
Alone Risk**



**Project's  
Contribution**  
-

**Risk Diversified away  
firm as this project is  
combined with firm's  
other projects and  
assets**



Before we began  
determine just what

**Systematic Risk**

to a  
to adj

**Risk Diversified  
away by  
shareholders as  
securities are  
combined to form**

project's risk can be looked at three levels. First, there is the **project standing alone risk**, which is a project's risk ignoring the fact that much of this risk will be diversified away as the project is combined with the firm's other projects and assets.

Second, we have the **Project's contribution-to-firm risk**, which is the amount of risk that the project contributes to the firm as a whole: this measure considers the fact that some of the project's risk will be diversified away as the project is combined with the firm's other projects and assets, but ignores the effects of diversification of the firm's shareholders. Finally, there is **systematic**, which is the risk of project from the viewpoint of a well-diversified shareholder, this measure considers the fact that some of a project's risk will be diversified away as the project is combined with the firm's other projects, and, in addition, some of the remaining risk will be diversified away by shareholders as they combine this stock with other stocks in their portfolios. This is shown graphically in figure 1.

Should we be interested in the project standing alone risk? The answer is no. Perhaps the easiest way to understand why not is to look at an example. Let's take the case of research and development projects at Johnson & Johnson. Each year, Johnson & Johnson takes on hundreds of new R&D projects, knowing that they only have about a 10 percent probability of being successful. If they are successful, the profits can be enormous; if they fail, the investment is lost. If the company has only one project, and it is an R&D project, the company would have a 90 percent chance of failure. Thus, if we look at these R&D projects individually and measure their project standing risk, we would have to judge them to be enormously risky. However, if we consider the effect of the diversification that comes about from taking several hundred independent R&D projects a year, all with a 10 percent chance of success, we can see that each R&D project does not add much in the way of risk to Johnson & Johnson. In short, because much of a

project's risk is diversified away within the firm, project standing alone risk is an inappropriate measure of the level of risk of a capital-budgeting project.

Should we be interested in the project's contribution-to-firm risk? Once again, the answer is no, provided investors are well diversified, and there is no chance of bankruptcy. From our earlier discussion, we saw that, as shareholder, if we combined our stocks with other stocks to form a diversified portfolio, much of the risk of our security would be diversified away. Thus, all that affects the shareholders is the systematic risk of the project and, as such, it is all that is theoretically relevant for capital budgeting.

#### **4. METHODS OF INCORPORATING RISK INTO CAPITAL BUDGETING**

The application of capital budgeting techniques has been assumed that the financial manager makes investment decisions under conditions of certainty and hence they are risk-free. This assumption implies that the NPV of an investment proposal is considered to be a fixed quantity and not a random variable, capable of assuming values other than the one specified. It is for this reason that once a positive value of the NPV of an investment proposal is obtained, it can be unequivocally stated that it is an acceptable proposal. Reality, however, is far from this, for the World is one of change and uncertainty. Thus, when we calculate that an investment would yield a particular rate of return per annum, we are aware that unforeseen events, like new and better technology, changes in the raw materials and so on may invalidate our estimates. Thus, some risk would usually be associated with a project so that variations in the cash may be observed, and that the degree of risk would vary with the different projects.

There are many ways in which risk can be taken into account while investment decision-making. Basically, there are two approaches to risk adjustment. First, there is the *certainty equivalent method*, which involves adjusting the numerator of the equation of the present value. In this method, we reduce the value of the

expected cash inflows to adjust for the risk- the riskier the cash flow, the greater the reduction and, consequently, the lower the present value of the asset. Alternatively, the risk could be accounted for by adjusting the denominator of the present value equation- greater the riskiness of the cash flows, higher the discount rate and, therefore, the lower the present value of the asset.

Besides, there are three interrelated methods of analyzing the investment proposals involving risk. They are: statistical distribution method (also called as mean-standard deviation approach), decision-tree method, and simulation technique. These methods are different from both, the certainty equivalent and risk-adjusted discount rate methods, because they allow the statistical distributions of the net present value to be explicitly estimated. Using these techniques, an interval rather than a point estimate of the expected NPV is presented and, thus, they are more general and objective. In addition to these methods, sensitive analysis is yet another method of analyzing risky proposals.

#### **4.1 CERTAINTY EQUIVALENT APPROACH**

Under this method, adjusting cash inflows rather than adjusting the discount rate compensates risk element. The expected uncertain cash flow of each year are modified by multiplying them with what is known as “certainty equivalent coefficient’ (CEO) to remove the element of uncertainty. This coefficient is determined by management’s preferences with respect to risk. For example, assume that the expected cash flow from an investment at the end of the first year is Rs.10,000 and that the management ranked this investment on par with another alternative investment with a certain cash flow of Rs.7,000, then Rs.7,000 is certainty equivalent of the risky cash flows of Rs.10,000. the ratio  $7,000/10,000 = 0.7$  is called the certainty equivalent coefficient for the period, and is represented by  $\alpha$ . In general terms:

$$\alpha_t = \frac{\text{Certain cash flow}_t}{\text{Expected cash flow}_t}$$

### Risky cash flow<sub>t</sub>

The  $\alpha$ 's which lies between 0 and 1 are inversely related to the degree of risk involved. For a given problem, the certainty equivalent coefficients  $\alpha$ 's are determined for each of the time periods and then the given risky cash flows are multiplied by the irrespective coefficient values to obtain an equivalent certain cash flow stream. Once the risk is eliminated from the cash flows of the project, the NPV is obtained by using the risk-free rate of discount, to take an appropriate decision regarding its acceptance. Symbolically,

$$NPV = C_0 + \frac{\alpha_1 C_1}{(1+I)} + \frac{\alpha_2 C_2}{(1+I)^2} + \dots + \frac{\alpha_n C_n}{(1+I)^n}, C_0 = -C$$

Where t stands for period;  $C_1, C_2, \dots$  are the future cash flows without risk adjustment, C is the initial capital outlay and  $\alpha_t$  is the certainty equivalent coefficient for period t and i is the discount rate.

As earlier said that the value of certainty equivalent coefficient usually ranges between 0 and 1. A value of 1 implies that the cash flow is certain or the management is risk-neutral. In industrial situations, however, cash flows are generally uncertain and managements usually risk-averse. Hence, the certainty equivalent coefficients are typically less than 1. An illustrative table 1 of certainty equivalent coefficients for different types of investments is shown here.

The certainty equivalent method is conceptually superior to the risk-adjusted discount rate method because it does not assume that risk increase with time at a constant rate. Each year's certainty equivalent coefficient is based on the level or risk characterizing its cash flow. Despite its conceptual soundness it is not as popular as the risk-adjusted rate method. This is perhaps because it is inconvenient and difficult to specify a series of certainty equivalent coefficients but seemingly simple to adjust the discount rate. Notwithstanding this practical difficulty, the merits of the certainty equivalent method must not be ignored.

The certainty equivalent approach can be summarized as follows:



**Table No.1**

*Certainty Equivalent Coefficients*

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>
Replace Investments	0.92	0.87	0.84	0.80
Expansion Investments	0.89	0.85	0.80	0.75
New Product Investments	0.85	0.80	0.74	0.68
R&D Investments	0.75	0.70	0.64	0.58

**Step 1:** Risk is removed from the cash flows by substituting certainty equivalent cash flow for the risky cash flows. If the equivalent coefficient ( $\alpha_t$ ) is given, this is done by multiplying each risky cash flow by the appropriate  $\alpha_t$  value.

**Step 2:** The risk-less cash flows are then discounted back to the present at the risk-less rate of interest.

**Step 3:** The normal capital budgeting criteria are then applied, except in the case of the internal rate of return criterion, where the project's internal rate of return is compared with the risk-free rate of interest rather than the firm's required rate of return.

**Example 1:**

A firm with a 10 percent required rate of return is considering building new research facilities with an expected life of 5 years. The initial outlay associated with this project involves a certain cash outflow of Rs.120,000. The expected cash inflows and certainty equivalent coefficients,  $\alpha_t$  are as follows:

<b>Year</b>	<b>Expected Cash Flow(Rs)</b>	<b>Certainty Equivalent Coefficient <math>\alpha_t</math></b>
1	10,000	0.95
2	20,000	0.90
3	40,000	0.85
4	80,000	0.75
5	80,000	0.65

The risk-free rate of interest is 6 per cent. What is the project's net present value?

To determine the net present value of this project using the certainty equivalent approach, we must first remove the risk from the future cash flows. We do so by multiplying each expected cash flow by the corresponding certainty equivalent coefficient,  $\alpha_t$ , as shown below:

<b>Expected Cash Flow(Rs)</b>	<b>Certainty Equivalent Coefficient <math>\alpha_t</math></b>	<b><math>\alpha_t(\text{Expected Cash Flow}) = \text{Equivalent Risk-less Flow}</math></b>
10,000	0.95	Rs 9,500
20,000	0.90	18,000
40,000	0.85	34,000
80,000	0.75	60,000
80,000	0.65	52,000

The equivalent risk-less cash flows are then discounted back to the present at the risk-less interest rate, not the firm's required rate of return. The required rate of return would be used if this project had the same level of risk as a typical project for this firm. However, these equivalent cash flows have no risk at all; hence the appropriate discount rate is the risk-less rate of interest. The equivalent risk-less cash flows can be discounted back to the present at the risk-less rate of interest, 6 percent, as follows:

Year	Expected Cash Flow(Rs)	Certainty Equivalent at 6 percent	Present Value
1	Rs.9,500	0.943	Rs.8,958.50
2	18,000	0.890	16,020.00
3	34,000	0.840	28,560.00
4	60,000	0.792	47,520.00
5	52,000	0.747	38,844.00

$$\text{NPV} = -\text{Rs.}120,000 + \text{Rs.}8,958.50 + \text{Rs.}16,020 + \text{Rs.}28,560 + \text{Rs.}47,520 + \text{Rs.}38,844 = \text{Rs.}19,902.5$$

Applying the normal capital-budgeting decision criteria, we find that the project should be accepted, as its net present value is greater than zero.

**Example 2:** GVK&GPK Limited is examining two mutually exclusive proposals. The management of the company uses certainty equivalents ( $\alpha_t$ ) approach to evaluate new investment proposals. From the following information pertaining to these projects, advice the company as to which project should be taken up by it.

Year	Proposal X		Proposal Y	
	Cash Flow	$\alpha_t$	Cash Flow	$\alpha_t$
0	(40,000)	1.00	(30,000)	1.00
1	20,000	0.90	15,000	0.95
2	18,000	0.80	12,000	0.80
3	12,000	0.80	10,000	0.75
4	10,000	0.60	5,000	0.70

The risk-free borrowing rate is 8 per cent.

**Solution:**

Year t	Cash Flow C <sub>t</sub>	C.E α <sub>t</sub>	Adjusted Cash Flow α <sub>t</sub> C <sub>t</sub> (2) X (3) =(4)	PV factor @8% (5)	Total PV (4) X (5) = (6)
0	(40,000)	1.00	(40,000)	1.000	(40,000)
1	20,000	0.90	18,000	0.9260	16,668.00
2	18,000	0.80	14,400	0.8573	12,345.12
3	12,000	0.80	9,600	0.7938	7,620.48
4	10,000	0.60	6,000	0.7350	4,410.00
<b>Total</b>			<b>NPV (Proposal X) =</b>		
<b>1,043.60</b>					
0	(30,000)	1.00	(30,000)	1.000	(30,000)
1	15,000	0.95	14,250	0.9260	13,195.50
2	12,000	0.80	9,600	0.8573	8,230.08
3	10,000	0.75	7,500	0.7938	5,953.50
4	8,000	0.70	5,600	0.7350	4,116.00
<b>Total</b>			<b>NPV (Proposal Y) =</b>		
<b>1,495.08</b>					

NPV being higher for Proposal Y, this should be preferred and accepted.

### Problem 1.

A company is considering two mutually exclusive projects. The company uses a certainty equivalent approach. The estimated cash flow and certainty equivalents for each project are as follows:

Year	Project 1		Project 2	
	Cash Flow Rs.	Certainty Equivalents	Cash Flow Rs.	Certainty Equivalents
0	-30,000	1.00	-40,000	1.00
1	15,000	0.95	25,000	0.90
2	15,000	0.85	20,000	0.80
3	10,000	0.70	15,000	0.70
4	10,000	0.65	10,000	0.60

Which project should be accepted, if the risk-free discount rate is 15 per cent.

**Solution:**

**Project 1.**

$$\text{NPV} = 1.0 (-30,000) + \frac{0.95 (15,000)}{(1.05)} + \frac{0.85 (15,000)}{(1.05)^2} + \frac{0.70(10,000)}{(1.05)^3} + \frac{0.65(10,000)}{(1.05)^4}$$

= Rs.6,658.

**Project 2.**

$$\text{NPV} = 1.0 (-40,000) + \frac{0.90 (25,000)}{(1.05)} + \frac{0.80 (20,000)}{(1.05)^2} + \frac{0.70(15,000)}{(1.05)^3} + \frac{0.60(10,000)}{(1.05)^4}$$

= Rs.9,942.

Project 2 should be preferred since it has higher NPV.

**Problem 2:**

GVL Manufacturing and Spinning is considering two mutually exclusive projects. The company uses a certainty equivalent approach. The estimated cash flow and certainty equivalents for each project as follows:

Year	Project 1		Project 2	
	Cash Flow Rs.	Certainty Equivalents	Cash Flow Rs.	Certainty Equivalents
0	-15,000	1.00	-20,000	1.00
1	7,500	0.95	12,500	0.90
2	7,500	0.85	10,000	0.80
3	5,000	0.70	7,500	0.70
4	5,000	0.65	5,000	0.60

Which project should be accepted, if the risk-free discount rate is 5 per cent.

**Solution:**

**Project 1.**

$$\text{NPV} = 1.0 (-15,000) + \frac{0.95 (7,500)}{(1.05)} + \frac{0.85 (7,500)}{(1.05)^2} + \frac{0.70 (5,000)}{(1.05)^3} + \frac{0.65 (5,000)}{(1.05)^4}$$

= Rs.3,764.

**Project 2.**

$$\text{NPV} = 1.0 (-40,000) + \frac{0.90 (12,500)}{(1.05)} + \frac{0.80 (10,000)}{(1.05)^2} + \frac{0.70 (7,500)}{(1.05)^3} + \frac{0.60 (5,000)}{(1.05)^4}$$

= Rs.4,956.

Project 2 should be preferred since it has higher NPV.

**Problem: 3**

GVK Ltd. is considering two mutually exclusive projects. The initial cost of both projects is Rs.5,000, and cash has an expected life of four years. Under three possible states of economy, their annual cash flows and associated probabilities are as follows:

Economic State	Probability	NCF (Rs)	
		Project A	Project B
Good	0.3	6,000	5,000
Normal	0.4	4,000	4,000
Bad	0.3	2,000	3,000

If the discount rate is 7 percent, which project should the company accept?

**Solution:**

ENCF = Estimated Net Cash Flows

ENPV = Estimated Net Present Values.

**Project A:**

$$\text{ENCF} = (0.3 \times 6,000) + (0.4 \times 4,000) + (0.3 \times 2,000) - \text{Rs.}4,000.$$

$$\begin{aligned} \sigma^2 &= (6,000 - 4,000)^2 (0.3) + (4,000 - 4,000)^2 (0.4) + (2,000 - 4,000)^2 (0.3) \\ &= 24,00,000 \end{aligned}$$

$$\sigma = \sqrt{24,00,000} = \text{Rs.}1,549.2$$

$$\text{ENPV} = -5,000 + 4,000 \times PVAF_{0.075} = -5,000 + 4,000 \times 4.1000 = \text{Rs.}11,400$$

### **Project B:**

$$\text{ENCF} = (0.3 \times 5,000) + (0.4 \times 4,000) + (0.3 \times 3,000) - \text{Rs.}4,000.$$

$$\begin{aligned} \sigma^2 &= (5,000 - 4,000)^2 (0.3) + (4,000 - 4,000)^2 (0.4) + (3,000 - 4,000)^2 (0.3) \\ &= 6,00,000 \end{aligned}$$

$$\sigma = \sqrt{6,00,000} = \text{Rs.}774.6$$

$$\text{ENPV} = -5,000 + 4,000 \times PVAF_{0.075} = -5,000 + 4,000 \times 4.1000 = \text{Rs.}11,400$$

Projects A and B have equal expected net present value of Rs.11,400 but the standard deviation of Project A's cash flow is higher than that of Project B. Therefore, GVK Ltd. should choose Project B.

## **4.2. RISK-ADJUSTED DISCOUNT RATES.**

A finance manager being risk averter when given choice between two projects promising the same rate of return but different in risk would prefer the one with the least perceived risk. He will require compensation for bearing risk so that overall value of the company remains unaffected by assumption of the risky project. There are several methods of adjusting risk in investment decisions, which can be classified broadly in two groups, viz., formal and informal methods.

### **4.2.1 Formal Method**

Among the formal methods of adjusting risk in capital budgeting decisions, the most popular ones are: Risk adjusted discount rate and certainty equivalent approach.

#### 4.2.2 Informal Method

This is the most common method of adjusting risk. The finance manager recognizes that some projects are more riskier than others. He also finds that riskier projects would yield more than what risk free or less risky projects promise. To choose a project carrying greater risk as against the less risky one, the finance manager decides on subjective basis (by using his discretion), the margin of difference in rate of return of both types of projects. The manner of fixing the standard is strictly internal known to the finance manager himself and is not specified.

The use of the risk-adjusted discount rates is on the notion that the investors expect higher returns for more risky projects. In this method of incorporating risk, the risk-free rate of return,  $i$ , is adjusted upward by adding a suitable risk premium,  $\Phi$ , representing compensation, the risk-averse investors in the market would require before they will consent to the risk of the investment.

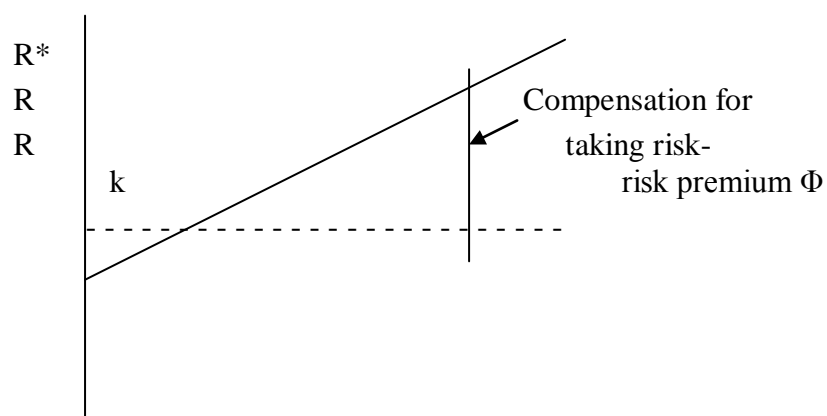
Thus, if  $k$  is the required rate of return, we have

$$k = i + \Phi$$

The relationship between risk and return is shown in the following figure.

**Chart 2**

#### ***Risk and Return relationship***





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Risk (%)

\* $RRR_k = \text{Required rate of return } k$

The risk-free rate compensates the investors for deferring the consumption of goods and services to make investments. In effect, it is a reward only for waiting and applies only to those investments on which there is no chance that the realized rate of return will be different from the rate expected. If, however, risk is also to borne, the risk premium adds the necessary compensation for bearing that risk.

In a given situation, the manager determines the required rate of return by adjusting the risk-free rate of return, by adding the necessary risk premium in keeping the risk that the proposal carries. Once the appropriate required rate of return for a project with a given level of risk is determined, the cash flows are discounted to present values using this risk-adjusted rate is obtained as:

$$NPV = \sum_{i=0}^n \frac{C_t}{(1+k)^t}$$

**Example 3:** The management of the Prathiba Limited, a manufacturer of toys in New Delhi, is considering the introduction of a new type of a toy-remote control motorbike. In the past, the management has been quite conservative in making investments in new products and considers this project quite a risky one. The management feels that the normally used required rate of return of 10% is not proper in this case and, instead, a return of 16% is expected on this project.

The project, a requiring an outlay of Rs.1,50,000 has the following expected returns over its estimated life of 6 years.

Year : 1 2 3 4 5 6

Ca flow ('000 Rs.) : 30 30 50 60 40 25

Should the project be undertaken?

**Solution:**

The net present value, using the 16% discount rate as follows:

Year	Cash Flow	PV factor @ 16%	Present Value
1	30000	0.8621	28563
2	30000	0.7432	22296
3	50000	0.6407	32035
4	60000	0.5523	33138
5	40000	0.4761	19044
6	25000	0.4104	10260
			-----
			142636
	Less: Cash outflow		150000
			-----
	NPV =		(7364)
			-----

Since the NPV is negative the proposal is not an acceptable one. Note, however, that if the usual rate of discount of 10% were used, the project would have NPV equal to Rs.20,158, and therefore, be acceptable.

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### 4.3. STATISTICAL DISTRIBUTION APPROACH

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While using the certainty equivalent approach, the risk-free discount rate may be easily approximated (may be, for instance, by the interest rate on government bonds) but difficulties may arise in determining the trade-off between risk and return for the purpose of converting a particular distribution of NPV into its certainty equivalent. In a similar manner, in using the risk-adjusted discount rate method, the determination of the risk-premium to be added to the risk-free rate of return would pose difficulty. In using either of these approaches it is important

that we should be able to measure the degree of risk associated with the project(s) in question. In the statistical distribution approach, the degree of risk associated with a project is sought to be measured in terms of the variance (or standard deviation) of the NPV distribution, and the investment decisions are taken considering the expected (mean) value, and its standard deviation, of the net present value distribution. This information about the project risk may also be usefully employed for calculating certainty-equivalent for the uncertain returns from the investment proposal, as also it is a major factor in calculating the size of the risk-adjusted discount rate to use. The derivation of the probabilistic information about investment proposals owes its origin to the work of Frederick Hillier.

In this method of considering risky investment proposals, the net cash flow from an investment in each period is viewed as a random variable which can assume any one of the possible values. The method requires that probability distribution of cash flows for each of the years be obtained and considered. Using the cash-flow distribution, the expected value of the NPV distribution and its variance are calculated in the first instance. These are calculated as discussed here.

**4.3.1 Expected value of NPV** supposes that there is an investment proposal with cash flow whose probability distributions are given for each of the n years of the project life. The cash flows have means equal to  $\bar{C}_1, \bar{C}_2, \dots, \bar{C}_n$ , with standard deviations equal to  $\sigma_1, \sigma_2, \dots, \sigma_n$  respectively. For calculating the expected value of the NPV distribution, we shall add the discounted mean value of the cash flows for each of the n time periods.

This is gives:

$$E(NPV) = \bar{C}_0 + \frac{\bar{C}_1}{(1+I)^1} + \frac{\bar{C}_2}{(1+I)^2} + \dots + \frac{\bar{C}_n}{(1+I)^n}$$

E(NPV) is also known as the expected monetary value (EMV) of the project. As before, if this NPV exceeds zero, the proposal becomes acceptable while if it is lower than zero, the proposal becomes rejectable.

**EXAMPLE 4:**

The Prathiba Company is considering to make investment in a proposal which requires an outlay of Rs.1,20,000. The project has a life of three years over which the following cash inflows are likely to be generated.

Year 1		Year 2		Year 3	
Cash Flow	Probability	Cash Flow	Probability	Cash Flow	Probability
30000	0.2	30000	0.1	40000	0.3
40000	0.4	50000	0.4	60000	0.3
50000	0.3	80000	0.4	80000	0.2
60000	0.1	90000	0.1	100000	0.2

The management feels that the expected cash flows in the various periods may be considered to base its decision about acceptance or rejection of the project. If the discount rate is 10%, should the proposal be accepted?

**Solution:**

We shall obtain the expected cash inflow for each of the years. This is calculated as follows:

**Calculation of Expected Cash Flows**

Year T	Cash Flow $C_{ti}$	Probability $P_{ti}$	Expected Value	Expected Cash Flow $C = \sum C_{ti} P_{ti}$
1	30000	0.2	6000	43000
	40000	0.4	16000	
	50000	0.3	15000	
	60000	0.1	6000	

2	30000	0.1	3000	64000
	50000	0.4	20000	
	80000	0.4	32000	
	90000	0.1	9000	
3	40000	0.3	12000	66000
	60000	0.3	18000	
	80000	0.2	16000	
	100000	0.2	20000	

Now the expected NPV can be calculated as:

Year	Expected Cash Flow	PV Factor @ 10 %	Present Value
0	-120000	1.0000	-120000
1	43000	0.9091	39091.3
2	64000	0.8264	52889.6
3	66000	0.7513	46585.8

**Expected NPV = 21566.8**

Since the expected NPV of the proposal is greater than zero, it is an acceptable one.

#### **4.3.2 Variance of NPV**

In the discussion on the variance of the NPV distribution, Hillier has given an analysis of three cases. In the first case, the cash flows between different periods are assumed to be independent of one another. This is to say; the cash flows of one period are not related to the cash flows of another period. In the second case, the cash flows between different periods are assumed to be perfectly correlated. The third case deals with the mixed situation in which a part of the flows are perfectly correlated and part are independent. Obviously, when we consider more than two periods of time, the cash flows cannot all be perfectly negatively correlated with each other. This explains why Hillier's analysis is restricted to the case of positive correlation.

Now, we consider the three cases in turn:

(a) **Independent net cash flows:** When net cash flows for the various years are independent of each other, then the calculation of the variance of the distribution of cash flow becomes a difficult task. This is because independence substantially increases the number of possible outcomes. To illustrate, suppose a project has a life of 3 years and in each of the years, there are four cash flow values possible with some given probabilities. Under the assumption of independence, a total of  $4 \times 4 \times 4 = 64$  combinations are possible. The probability of occurrence of each of the combinations is given by the product of the probabilities of the particular cash flow values of different years entering into that combination. For this probability distribution, we can find the present values of each of the possible cash flow streams (64 in our example) and determine the expected value and the variance of present values in the usual way.

However, the complications in calculations can be avoided and instead the variance can be obtained directly using the following formulation:

$$V(\text{NPV}) = \sigma^2 = \sigma_0^2 + \frac{\sigma_1^2}{(1+i)^2} + \frac{\sigma_2^2}{(1+i)^4} + \dots + \frac{\sigma_n^2}{(1+i)^{2n}}$$

$$= \sum_{t=0}^n \frac{\sigma_t^2}{(1+i)^{2t}}$$

Unless otherwise stated, the cash flows of a given project may be taken to be independent.

(b) **Perfectly Correlated Cash Flows:** The assumption of perfect correlation between the cash flows of the successive years implies, technically, that if random factors cause a cash flow  $C_j$  (for the  $j$ th year) to deviate from its mean value by a standard deviation, the same factors will cause the cash flow  $C_k$  (for the  $k$ th year) to deviate from its own mean in the same direction by a standard deviation. In

the situation in which the periodic net cash flows are given to be perfectly correlated, the variance of NPV distribution can be computed as follows:

$$V(\text{NPV}) = \left[ \sigma_0^2 + \frac{\sigma_1^2}{(1+i)^2} + \frac{\sigma_2^2}{(1+i)^4} + \dots + \frac{\sigma_n^2}{(1+i)^{2n}} \right]$$

$$\text{or } \sigma^2 = \left[ \sum_{t=0}^n \frac{\sigma_t^2}{(1+i)^{2t}} \right]$$

It may be noted that the standard deviation value when the cash flows are perfectly correlated would be higher than when they are independent.

**(c) Mixed Case:**

There are very few investments for which the net cash flows are either completely independent or perfectly correlated. Closer to the reality is the ‘mixed’ case in which cash flows are partially dependent and partially independent. To understand this situation, consider a very simple case where a company is contemplating to introduce a new product, whose life is expected to be only three years. The market acceptance of the product may be unsatisfactory, satisfactory, or excellent. How the product will be accepted in the first year will determine how it will be accepted in the second year. In this respect, it is a case of dependence. Also, the product sales are influenced by general economic conditions, which may be poor, good, or excellent. However, economic conditions in one year do not affect the economic conditions in the next year. From this standpoint, it is a case of independence.

For the mixed case as well, all possible combinations of the cash flows are obtained and their joint probabilities calculated. The present value of each of the

cash flow streams is then calculated and we can get the mean and the standard deviation as usual. In the simple case, however, where the cash flows  $C_j$ 's can be broken down into two components:  $C_j'$  and  $C_j^*$ , where  $C_j'$  is the part of  $C_j$  which varies independently and  $C_j^*$  is the part of  $C_j$  that is perfectly correlated with  $C^*$  in any other period, the variance can be obtained using the formula given above jointly get the following:

$$V(\text{NPV}) = \sigma^2 = V(\dot{C}_0) + \frac{V(\dot{C}_1)}{(1+i)^2} + \frac{V(\dot{C}_2)}{(1+i)^4} + \dots + \frac{V(\dot{C}_n)}{(1+i)^n}$$

$$+ \left[ \sqrt{V(C^*_0)} + \frac{\sqrt{V(C^*_1)}}{(1+i)} + \frac{\sqrt{V(C^*_2)}}{(1+i)^2} + \dots + \frac{\sqrt{V(C^*_n)}}{(1+i)^n} \right]^2$$

Once the expected net present value and its standard deviation (from variance) value are obtained, the riskiness of the project can be measured. The standard deviation is a measure of absolute amount of risk associated with a given project. While it is a useful measure for the purpose of risk evaluation, it is not suitable when comparative riskiness of the projects is to be considered. In order to compare the various projects, we should compute their respective coefficients of variation. We have,

$$\text{Coefficient of variation} = \frac{\text{Standard deviation}}{\text{Expected (mean) value of NPV}} \times 100$$

A higher coefficient value points to a higher risk associated with a project.

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#### 4.4. SIMULATION APPROACH

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In considering risky investments, we can also use simulation to approximate the expected value of net present value, the expected value of internal rate of return, or the expected value of profitability index and the dispersion about the expected value. By simulation we mean testing the possible results of an investment proposal before it is accepted. The testing itself is based on a model coupled with probabilistic information. Making use of a simulation model first proposed by David Hertz, we might consider, for example, the following factors in deriving a project's cash-flow stream.

### **Market Analysis**

- Market size
- Selling price
- Market growth rate
- Share of market (which controls physical sales volume)

### **Investment Cost Analysis**

- Investment required
- Useful life of facilities
- Residual Value of investment

### **Operating and Fixed Costs**

- Operating costs
- Fixed costs

Risk analysis based on simulation approach involves the following steps:

1. List all the basic economic variables that will affect the outcome of the decision.
2. Estimate the range of variables for each of these variables that are subject to uncertainty.
3. State in equation form the economic or accounting relationships that connect the basic variables to the final outcome on which the decision will be based.

4. With the aid of computer randomly select a specific value for each basic variable according to the chances this value has of actually turning up in the future. Given these specific values, use the equation in step 3 to calculate the resulting outcome.
5. Repeat this process to define and evaluate the probability of the occurrence of each possible rate of return. Since there are literally millions of possible combinations of values, we need to test the likelihood that various specific returns on the investment will occur.

Probability distributions are assigned to each of these factors based on management's assessment of the probable outcomes. Thus, the possible outcomes are charted for each factor according to their probability of occurrence. Once the probability distributions are determined, the next step is to determine the internal rate of return (or net present value calculated at the risk-free rate) that will result from a random combination of the nine factors just listed.

To illustrate the simulation process, assume that the market-size factor has the following probability distribution:

<b>Market size (in thousands of units)</b>	450	500	550	600	650	700	750
<b>Probability occurrence</b>	.05	.10	.20	.30	.20	.10	.05

Now suppose that we have a roulette wheel with 100 numbered slots, on which numbers 1 through 5 represent a market size of 450,000 units, 6 through 15 represent a market size of 500,000 units, 16 through 35 represent a market size of 550,000 units and so on through 100. As in roulette, we spin the wheel, and the ball falls in one of the 100 numbered slots. Assume that the ball lands on number 26. For this trail, then, we simulate a market size of 550,000. Fortunately, we do

not need a roulette wheel to undertake a simulation. The same type of operation can be carried out on a computer in a much more efficient manner.

Simulation trials are undertaken for each of the other eight factors. Jointly, the first four factors (market analysis) give us the annual sales per year. Factors 8 and 9 give us the operating and fixed costs per year. Together, these six factors enable us to calculate the annual incremental revenues. When trial values for these six factors enable us to calculate the annual incremental revenues. When trial values of these six factors are combined with trial values for the required investment, the useful life and the residual values of project, we have sufficient information to calculate the internal rate of return (or net present value) for that trial run. Thus, the computer simulates trial values for each of the nine factors and then calculates the internal rate of return based on the values simulated. The process is repeated many times. Each time we obtain a combination of values for the nine factors and the internal rate of return can be plotted in a frequency distribution. From this frequency distribution we are able to identify the expected value of internal rate of return and the dispersion about this expected return.

**Practical Test:**

David B.Hertz was the first authority that proposed the use of the simulation approach to secure the expected return and dispersion on this expected return for an investment proposal. He took an example of medium size industrial chemical company, which was contemplating a \$ 10 million extension to its processing plant. The estimated service life of the facility was 10 years, the engineers expected to be able to utilize 2,50,000 tons of proceed material worth \$510 per ton at an average processing cost of 435 per ton. The company was interested to know the return likely to be fetched by the project and the risks involved in it.

In order to undertake risk analysis Hertz isolated nine basic economic values, viz., market size, selling price, market growth rate, share of market, initial cost of investment residual value of investment after taxes, useful life of facilities,

operating costs and fixed costs. The first four variables were categorized under the heading of market analysis, the next two were grouped under the category investment cost analysis and the last three variables were regarded as part of operating costs.

After identifying the nine factors, probability distribution were assigned to each of these factors on the basis of the management's assessment of the probable outcomes so as to know the possible range of values for each factor, the average and some ideas as to the likelihood that the variable possible values will be repeated.

The next step followed by Hertz was to determine the returns that will result from random combination of factors involved. For this purpose, simulation trials were undertaken with the help of computer. To show how this trial was made, he took the following example.

Suppose we have a wheel, as in roulette, with the numbers from 0-15 representing one price for the product or material, the numbers 16 to 30 representing a second price, the numbers 31 to 45 a third price, and so on. For each of these segments one would have a different range of expected market volumes: e.g., \$150,000 - \$200,000 for the first, \$100,000 - \$150,000 for the second, \$75,000 - 100,000 for the third and so forth. Now suppose that we spin the wheel and the ball falls in 37. This would mean that we pick a sales volume in the \$75,000 - 100,000 range. If the ball goes in 11, we have a different price and we turn to the \$ 150,000 - \$200,000 range for a sales volume. Fortunately, this type of operation can be carried out on computer in a much more efficient manner.

Simulation trials will have to be undertaken for the other eight variables. When trial values for market variables and operating and fixed costs are combined, we shall be able to calculate the annual earnings. If these trail values are combined with trial values for the required investment, the useful life and the residual value of the project, we shall have sufficient information to compute the return on

investment for that trial run. In this way the computer simulates trial values for each of the nine factors and then computes the return on investment based upon the values simulated. The above process is repeated a number of times and each time we shall get a combination of values for the nine factors and the returns on investment for the combination. When the trial is repeated times without number, the rates of return can be presented in the form of frequency distribution, on the basis of which an expected return, standard deviation and coefficient of variation can be calculated. By comparing the probability distribution of rates of return for one proposed with that of the other, the management can evaluate the respective merits of different risky investments.

Thus, simulation method allows the management to discriminate between measures of expected return based on weighted probabilities of all possible returns, variability of return and risks.

#### **4.5. SENSIVITY ANALYSIS**

In the evaluation of an investment project, we work with the forecasts of cash flows. Forecasted cash flow depends on the expected revenue and costs. Further, expected revenue is a function of sales volume and unit selling price. Similarly, sales volume depends on the market size and the firm's market share. Costs include variable costs, which depend on sales volume and unit variable cost and fixed costs. Costs include variable costs, which depend on sale volume, and unit variable cost and fixed cost. The net present value or the internal rate of return of a project is determined by analyzing the after-tax cash flows arrived at by combining forecasts of various variables. It is difficult to arrive at an accurate and unbiased forecast of each variable. We can't be certain about the outcome of any of these variables. The reliability of the NPV or Internal Rate of Return (IRR), we can work out how much difference it makes if any of these forecasts goes wrong. We can change each of the forecast, on at a time, to atleast three values: Pessimistic, Expected, and Optimistic. The NPV of the project is recalculated

under these different assumptions. This method of recalculating NPV or IRR by changing each forecast is called **sensitivity analysis**.

**Sensitivity analysis** is a way of analyzing change in the project's NPV (or IRR) for a given change in one of the variables. It indicates how sensitive a project's NPV (or IRR) is to changes in particular variables. The more sensitive the NPV, the more critical is the variable. The following three steps are involved in the use of sensitivity analysis:

- Identification of all those variables, which have an influence on the project's NPV (or IRR).
- Definition of the underlying (mathematical) relationship between the variables.
- Analysis of the impact of the change in each of the variables on the project's NPV.

The decision-maker, while performing sensitivity analysis, computes the project's NPV (or IRR) for each forecast under three assumptions: (a) pessimistic; (b) expected, and (c) optimistic. It allows him to ask 'what if' questions. For example, what (is the NPV) if the volume increases or decreases? What (is the NPV) if variable cost or fixed cost increases or decreases? What (is the NPV) if the selling price increases or decreases? What (is the NPV) if the project is delayed or outlay escalates or the project's life is more or less than anticipated? A whole range of questions can be answered with the help of sensitivity analysis. It examines the sensitivity of the variables underlying the computation of NPV or IRR, rather than attempting to quantify risk. It can be applied to any variable, which is an input for the after-tax cash flows. Let us consider an example.

**Example.**

The financial manager of a Food processing company is considering the installation of a plant costing Rs.1 crore to increase its processing capacity. The expected values of the underlying variables are given in the following tables provides the project's after-tax cash flows over its expected life of 7 years.

1	Investment (Rs.'000)	10,000
2	Sales Volume (units '000)	1,000
3	Unit selling price (Rs.)	15
4	Unit variable cost (Rs)	6.75
5	Annual fixed costs (Rs.'000)	4,000
6	Depreciation (%) WDV	25%
7	Corporate tax rate (%)	35%
8	Discount rate (%)	12%

**Net Cash Flows of the Project**

	Cash Flows (Rs '000)							
	0	1	2	3	4	5	6	7
Investment	-10,000							
Revenue		15000	15000	15000	15000	15000	15000	15000
Variable cost		6750	6750	6750	6750	6750	6750	6750
Fixed Cost		4000	4000	4000	4000	4000	4000	4000
Depreciation		2500	1875	1406	1055	791	593	445
EBIT(2-3-4-5)		1750	2375	2844	3195	3459	3657	3805
Tax		613	831	995	1118	1211	1280	1332
PAT (6-7)		1138	1544	1848	2077	2248	2377	2473
NCF (1+5+8)	-10000	3638	3419	3255	3132	3039	2970	2918

The project's NPV at 12 per cent discount rate and IRR are as follows:

$$\text{NPV} = +4,829$$

$$\text{IRR} = 26.8\%$$

Since NPV is positive (or IRR > discount rate), the project can be undertaken.

How confident is the financial manager about his forecasts of various variables? Before he takes a decision, he may like to know whether the NPV changes, if any, of the forecast goes wrong. A sensitivity analysis can be conducted with regard to volume, price costs etc. In order to do so, we must obtain pessimistic and optimistic estimates of the underlying variables. Let us assume the following pessimistic and optimistic values for volume, price and costs.

### **FORECASTS UNDER DIFFERENT ASSUMPTIONS**

<b>S.No.</b>	<b>Variable</b>	<b>Pessimistic</b>	<b>Expected</b>	<b>Optimistic</b>
1	Volume (Units '000)	750	1000	1250
2	Units selling price (Rs)	12.750	15.00	16.50
3	Units variable cost (Rs)	7.425	6.75	6.075
4	Annual fixed cost (Rs '000)	4800	4000	3200

If we change each variable (others holding constant), the project's NPV are recalculated in the following Table (detailed calculations are not shown)

### **SENSIVITY ANALYSIS UNDER DIFFERENT ASSUMPTINS**

<b>S.No.</b>	<b>Variable</b>	<b>Pessimistic</b>	<b>Expected</b>	<b>Optimistic</b>
1	Volume	(1289)	4,829	10,948
2	Units selling price	(1,845)	4,829	9,279
3	Units variable cost	2,827	4,829	6,832
4	Annual fixed cost	2,456	4,829	7,203

The above Table shows that the project's NPV when each variable is set to its pessimistic and optimistic values. The project does not seem to be that attractive with change in assumptions. The most critical variables is sales volume, followed by the units selling price. If the volume declines by 25 per cent (to 7,50,000 units), NPV of the project becomes negative (-Rs.12,89,000). Similarly, if the unit selling price falls by 15 per cent (to Rs.12.75), NPV IS -Rs.1,84,500.

### **Sensitivity Analysis: Pros and Cons**

Sensitivity analysis has the following advantages:



- It compels the decision maker to identify the variables, which affect the cash flow forecasts. This helps him in understanding the investment project in totality.
- It indicates the critical variables for which additional information may be obtained. The decision maker can consider actions, which may help in strengthening the 'weak spots' in the project.
- It helps to expose inappropriate forecasts, and thus guides the decision maker to concentrate on relevant variables.

Let us emphasize that sensitivity analysis is not a panacea for a project's all uncertainties. It helps a decision maker to understand the project better. It has the following limitations:

- It does not provide clear-cut results. The terms 'optimistic' and 'pessimistic' could mean different things to different persons in an organization. Thus, the range of values suggested may be inconsistent.

It fails to focus on the interrelationship between variables. For example, sale volume may be related to price and cost. A price cut may lead to high sales and low operating cost.

**Example:**

Assume that the financial manager made pessimistic, most likely, and optimistic estimates of the cash flows for each project. The cash inflow estimates and resulting, NPVs in each case are summarized in the following table. Comparing the ranges of cash inflows (\$1,000 for project A and \$4,000 for B) and, more important, the ranges of NPVs (\$7,606 for project A and \$30,424 for B) makes it clear that project A is less risky than Project B. Given that both projects have the same most likely NPV of \$5,212, the assumed risk-averse decision maker will take project A because it has less risk and no possibility of loss.

### Sensitivity Analysis of the Company

	Project A	Project B
Initial Investment	\$10,000	\$10,000
<b>Annual Cash Inflows</b>		
Outcome:		
Pessimistic	\$1,500	\$0
Most likely	2,000	2,000
Optimistic	2,500	4,000
Range	\$1,000	\$4,000
<b>Net Present Values*</b>		
Outcome:		
Pessimistic	\$1,409	-\$10,000
Most likely	5,212	5,212
Optimistic	9,015	20,424
Range	\$7,606	\$30,424

\*These values were calculated by using the corresponding annual cash inflows. A 10% cost of capital and a 15-year life for the annual cash inflows were used.

**4.6. SCENARIO ANALYSIS** The simple sensitivity analysis assumes that the variables are independent. In practice, the variables will be interrelated. One way out is to analyze the impact of alternative combinations of variables. The decision-maker can develop some plausible scenarios. For instance, in our example, it may be possible to increase volume to 12,50,000 units (25 per cent increase) if the company reduces unit selling price to Rs.13.50 (10 per cent reduction), resorts to aggressive advertisement campaign, thereby increasing unit variable cost to Rs.7.10 (5 per cent increase) and fixed cost to Rs.44,00,000 (10 per cent increase). The following Table shows that this scenario generates a positive NPV of Rs.27,01,000. More plausible scenarios could be thought out and analyzed to arrive at a final judgment about the project.

## Scenario Analysis

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Variables Assumptions	Expected	Scenario
1. Volume (units '000)	1,000	1,250
2. Price (Rs)	15.0	13.5
3. Unit variable cost (Rs)	6.75	7.1
4. Fixed cost (Rs '000)	4,000	4,400
5. NPV (Rs '000)	4,829	2,901

---

NPV calculation for scenario:

$$\begin{aligned} \text{NPV} &= ((1250 (13.5-7.1) - 4400) 0.65 + 4.5638 + 2,222) - 10,000 \\ &= 10,679 + 2,222 - 10,000 = 2,901 \end{aligned}$$

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### 4.7 DECISION-TREE APPROACH

The Decision-tree Approach (DT) is another useful alternative for evaluating investment proposals. The outstanding feature of this method is that it takes into account the impact of all probabilistic estimates of potential outcomes. In other words, every possible outcome is weighted in probabilities terms and then evaluated. The DT approach is especially useful for situations in which decisions at one point of time also affect the decisions of the firm at some later date. Another useful application of the DT approach is for projects, which require decisions to be made in sequential parts.

A decision tree is a pictorial representation in tree form which indicates the magnitude, probability and inter-relationship of all possible outcomes. The format of the exercise of the investment decisions has an appearance of a tree with branches and, therefore, this method is referred to as the decision-tree method. A decision tree shows the sequential cash flows and the NPV of the proposed project under different circumstances.

To illustrate, suppose that a firm has a two-year project that requires an initial investment of Rs.100,000. The cash flows expected in each of the years along with their probabilities are given in following figure. It may be noted that in this example both the cash flows and the probabilities are conditional (a case where the cash flows are not independent) on what happen in the first year.

It is evident from this figure that the decision tree show nine different combinations of outcomes as possible. One possibility is that the first year will have an inflow of Rs.40,000 which shall be followed by a Rs.60,000 cash flow in the second year. As shown in the figure, the net present value associated with this set of cash flows, discounted using a rate of 8%, is  $40000 \times (1.08)^{-1} + 60000 \times (1.08)^{-2} - 100,000 = -11,526$ . In a similar manner, the net present value of each of the other eight combinations is given. The (joint) probability of each combination is obtained by multiplying the probabilities of occurrences. For example, for the first combination, the probability is 0.08 (=0.2 X 0.4)

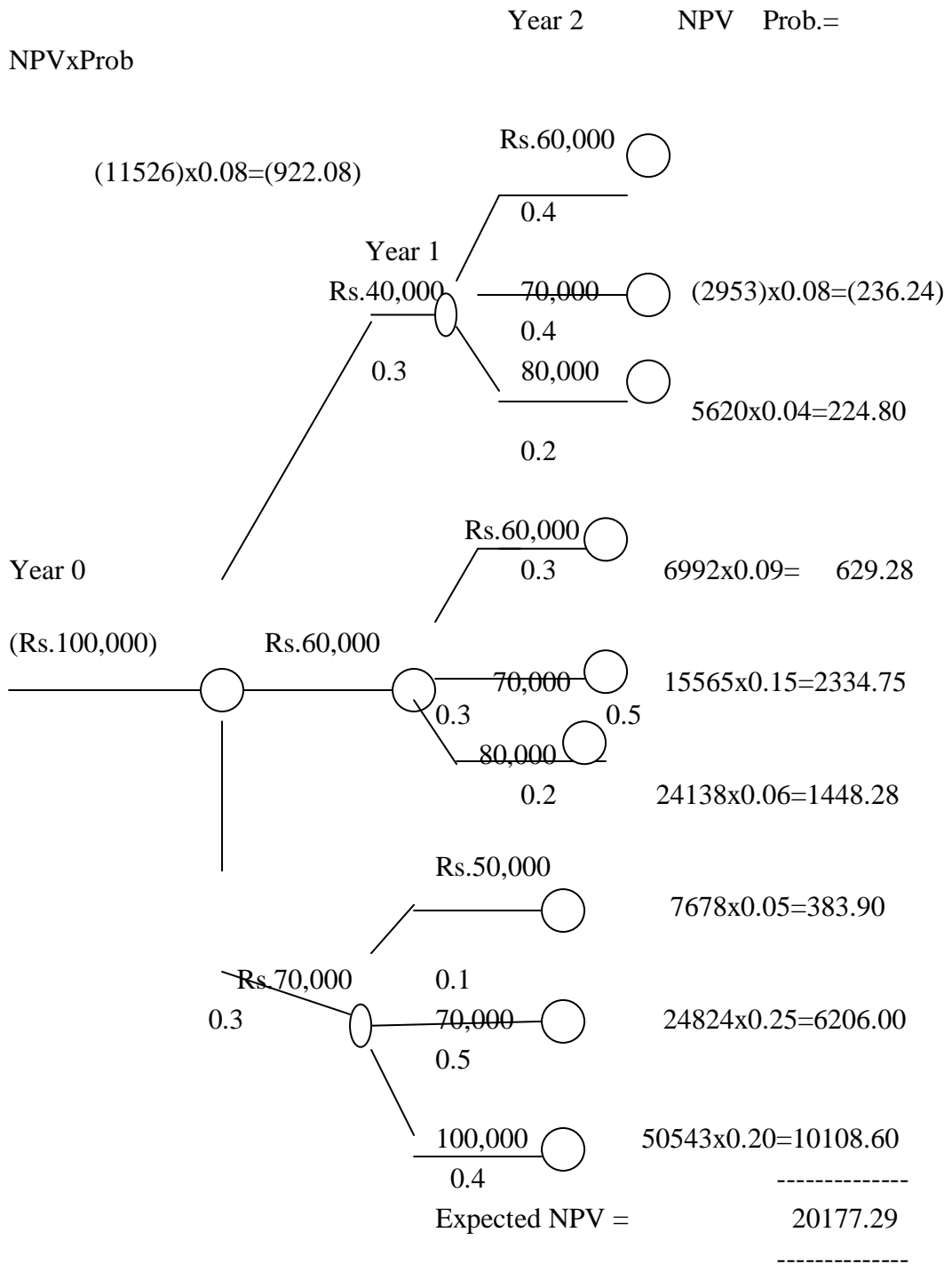
By multiplying the joint probability for each of the nine combinations times their associated NPVs and summing, we obtain the project's expected net present value,  $E(NPV)$ . The standard deviation of the project equals Rs.18,684 approximately, obtained as follows:

$NPV_j = NPV$  of the  $j^{th}$  combination

$P_j =$  Probability of the  $j^{th}$  combination

$$= ((-11526-20177)^2 \times 0.08 + (-2953 - 20177)^2 \times 0.08 + \dots)^{1/2} = \text{Rs.}18,684$$

Although useful for setting out all possible combinations of a proposed project, the decision-tree approach suffers from a shortcoming that in situations involving a large number of possible outcomes, it may be too complex to handle.



## 5. TOTAL RISK FOR MULTIPLE INVESTMENTS

We have been measuring risk for a single investment project. When multiple investment projects are involved, the measurement may differ from that for a single project, owing to the properties of diversification. It is noteworthy that investment in capital assets differs from investment in securities. For one thing, capital assets typically are not divisible, whereas securities are. Moreover, it usually is much more costly, and sometimes impossible, to divest oneself of a capital asset, whereas selling a marketable security is relatively easy. Finally, there is the problem of mutual exclusion and contingency that does not occur with securities. All of these factors make diversification with respect to capital assets more “lumpy” than diversification with securities. Whether diversification of capital assets is a thing of value for the firms is a subject of considerable controversy. Our purpose here is only to show how to measure risk for combinations of risky investments, not to ponder whether such measurements is worthwhile, that comes later.

### 5.1 Standard Deviation

As was true earlier, the two pieces of information we seek are the mean and standard deviation of the probability distribution of possible net present values for the combination of projects being analyzed. The mean usually is simply a weighted average for the projects making up the combination. From the above observations, we know that the total variance, or risk, of a combination of risky investments depends to a large extent on the degree of correlation between the investments. The standard deviation of the probability distribution of possible net present values for a portfolio of capital investments can be expressed as

$$\sigma = \sqrt{\sum_{j=1}^m \sum_{k=1}^m r_{jk} \sigma_j \sigma_k}$$

Where  $m$  is the total number of assets in the portfolio,  $r_{jk}$  is the expected correlation between the net present values for investments  $j$  and  $k$ ,  $\sigma_j$  is the standard deviation for investment  $j$ , and  $\sigma_k$  is the standard deviation for investment  $k$ .

The above equation indicates that the standard deviation, or risk, of a portfolio of projects depends on (1) the degree of correlation between various projects and (2) the standard deviation of possible net present values for each project. We note that the higher the degree of positive correlation, the greater the standard deviation of the portfolio of projects, all other things remaining constant. Moreover, the greater the standard deviation of the projects, the higher the standard deviation of the portfolio, if the correlation is positive.

## **5.2. Correlation between Projects**

The correlation between expected net present values of two projects may be positive, negative, or zero depending on the nature of the association. A correlation coefficient of 1.00 indicates that the net present values of two investment proposals vary directly in the same proportional manner; a correlation coefficient of  $-1.00$  indicates that they vary inversely in the same proportional manner; and a zero correlation coefficient usually indicates that they are independent.

## **5.3. Range of Correlation**

For most pairs of investment projects, the correlation coefficient lies between 0 and 1.00. The lack of negatively correlated projects is due to most investments being correlated positively with the economy. Still it is possible to find projects having low or moderate degrees of correlation. Projects in the same general line of business tend to be highly correlated with each other, whereas projects in essentially unrelated lines of business tend to have low degrees of correlation.

**Illustration 5.:** Suppose a firm has a single existing investment project, 1 and it is considering an additional project, 2. The projects have the following expected net present values, standard deviations, and correlation coefficients:

Project	Expected Net Present Value	Standard Deviation	Correlation Coefficient
1	\$12,000	\$14,000	1.00
2	8,000	6,000	1.00
1 and 2			0.40

The expected net present value of the combination of projects is simply the sum of the two separate values:

$$\text{NPV} = \$12,000 + \$8,000 = \$20,000$$

The standard deviation for the combination,

$$\begin{aligned} \sigma &= \sqrt{r_{11}\sigma_1^2 + 2r_{12}\sigma_1\sigma_2 + r_{22}\sigma_2^2} \\ &= \sqrt{(1.00)(14,000)^2 + (2)(0.40)(14,000)(6,000) + (1.00)(6,000)^2} \\ &= \$17,297 \end{aligned}$$

Thus, the expected net present value of the firm increases from \$12,000 to \$20,000, and the standard deviation of possible net present values from \$14,000 to \$17,297 with the acceptance of project 2. As the number of projects increases, the calculations become more cumbersome. Fortunately, computer programs exist that can readily solve for the standard deviation.

#### 5.4. Feasible Combinations and Dominance

With the foregoing procedures, you can determine the mean and the standard deviation of the probability distribution of possible net present values for a combination of investments. A combination includes all existing investment projects and one or more proposals under consideration. We assume that a firm has existing investment projects generating expected future cash flows and that disinvestments with respect to these projects is not possible. Existing projects



comprise a subset that is included in all combinations. Proposals under consideration are assumed to represent all future proposals on the investment horizon.

## **6. SUMMARY**

Risk arises in the investment evaluation because the forecasts of cash flows can go wrong. Risk can be defined as variability of returns (NPV or IRR) of an investment project. Standard deviation is a commonly used measure of variability.

Decision makers in practice may handle risk in conventional ways. For example, they may use a shorter payback period, or use conservative forecasts of cash flows, or discount net cash flows at the risk-adjusted discount rates. A more useful technique is the sensitivity analysis. It is a method of analyzing change in the project's NPV for a given change in one of the variables. It helps in asking "what if" questions and calculates NPV under different assumptions.

Risk may be incorporated into capital budgeting decisions mainly by certainty equivalent approach, risk adjusted discount rates or through statistical distribution approach, which considers mean and standard deviation of the NPV distribution.

## **7. KEY TERMS AND CONCEPTS:**

**Average Rate of Return** – Also known as the accounting rate of return (ARR), return on investment (ROI) or return on assets (ROA), is obtained by dividing average annual post-tax profit by the average investment.

**Break-even-Analysis** – It indicates the level of output/sales at which cost and revenue are in equilibrium.

**Break-even-Point** – It is a point of zero profit, i.e., the sales volume where total revenue = total expenses.

**Business Risk** – The potential variability in firm's earnings before interest and taxes resulting from the nature of the firm's business endeavours.

**Capital Budgeting** – It is decision-making process concerned with “whether or not (i) the firm should invest funds in an attempt to make profit?” and (ii) how to choose among competing projects.

**Capital Rationing** – When availability of capital to a firm is limited, the firm is constrained in its choice of projects. Capital rationing is restricting capital expenditure to certain amount, even when projects with positive NPV need be rejected (which would be accepted in unlimited funds case).

**Capital Structure** – The mix of long-term sources of funds used by the firm.

**Capital Structure Proportions** – The mix of financing sources that the firm plans to maintain through time.

**Certainty Equivalent** – A ratio of certain cash flow and the expected value of a risky cash flow between which the decision-maker is indifferent.

**Contribution Margin** – Difference between receipts and variable expenses.

**Discount Rate** – The rate at which cash flows are discounted. This rate may be taken as the required rate of return on capital, or the cost of capital.

**Financial Risk** – The added variability in earnings available to a firm’s shareholders and the additional risk of insolvency caused by the use of financing sources that require a fixed return.

**Mutually Exclusive Projects** – A situation in which the acceptance of one investment proposal leaves out the acceptance of another proposal.

**Margin of Safety** – The excess of budgeted or actual sales over the break-even sales.

**Net Present Value** – A method of evaluation consisting of comparing the present value of all net cash flows (discounted by cost of capital as the interest rate) to the initial investment cost.

**Payback Period** – A method of evaluating investment proposal which determines the time a project's cash inflows will take to repay the original investment of the project.

**Profit Contribution** – Difference between P/V income and specific programmed costs'.

**Profit Standard** – A profit yardstick to measure firm's performance, like competitor's profits, historical rate of profit, etc.

**Risk** – Refers to a situation in which there are several possible outcomes, each outcome occurring with a probability that is known to the decision-maker.

**Risk-adjusted Discount Rate** – Sum of risk-free interest rate and a risk premium. The former is often taken as the interest rate on government securities. The risk premium is what the decision-maker subjectively considers as the additional return necessary to compensate for additional risk.

**Standard Deviation** – The degree of dispersion of possible outcomes around the expected value. It is the square root of the weighted average of the squared deviations of all possible outcomes from the expected value.

**Uncertainty** – Refers to situations in which there are several possible outcomes of an action whose probabilities are either not known or are not meaningful.

## **8. SELF-ASSESSMENT QUESTIONS & TEST PROBLEMS**

1. What do you mean by risk in investment proposals? How can it be measured?
2. Discuss the certainty equivalent and risk-adjusted discount rate methods of incorporating risk into capital budgeting process.
3. Explain the statistical distribution approach to evaluate risky proposals. How would the variance be obtained when the cash flows of the successive time periods are (a) perfectly correlated, and (b) independent in nature?

4. What is the sensitivity analysis in the context of investment decisions? Explain.
5. Norohna and Co. is considering two mutually exclusive projects. The expected values for each project's cash flows are as follows:

Year	Project A	Project B
0	-\$300,000	-\$300,000
1	100,000	200,000
2	200,000	200,000
3	200,000	200,000
4	300,000	300,000
5	300,000	400,000

The company has decided to evaluate these projects using the certainty equivalent method. The certainty equivalent coefficients for each project's cash flows are as follows:

Year	Project A	Project B
0	1.00	1.00
1	0.95	0.90
2	0.90	0.80
3	0.85	0.70
4	0.80	0.60
5	0.75	0.50

Given that this company's normal required rate of return is 15 percent and the after-tax risk-free rate is 8 percent, which project should be selected?

6. (Risk-adjusted NPV) The Hokie Corporation is considering two mutually exclusive projects. Both require an initial outlay of \$10,000 and will operate for 5

years. The probability distributions associated with each project for years 1 through 5 are given as follows:

Probability Distribution for Cash Flow Years 1-5 (the same cash flow each year)

Project A		Project B	
Probability	Cash Flow	Probability	Cash Flow
0.15	\$4,000	0.15	\$2,000
0.70	5,000	0.70	6,000
0.15	6,000	0.15	10,000

Because project B is the riskier of the two projects, the management of Hokie Corporation has decided to apply a required rate of return of 15 percent to its evaluation but only a 12 percent required rate of return project A.

- a. Determine the expected value of each project's annual cash flows.
- b. Determine each project's risk-adjusted net present value.
- c. What other factors might be considered in deciding between these two projects?

7.(Certainty Equivalent) The V.Coles Corporation is considering two mutually exclusive projects. The expected values for each project's cash flows are as follows:

Year	Project A	Project B
0	-\$100,000	-\$100,000
1	500,000	500,000
2	700,000	600,000
3	600,000	700,000
4	500,000	800,000

Management has decided to evaluate these projects using the certainty equivalent method. The certainty equivalent coefficients for each project's cash flows are as follows:

Year	Project A	Project B
0	1.00	1.00
1	0.95	0.90
2	0.90	0.70
3	0.80	0.60
4	0.70	0.50

Given that this company's normal required rate of return is 15 percent and the after-tax risk-free rate is 5 percent, which project should be selected?

8.(Risk-adjusted discount rates and risk classes) The G.Wolfe Corporation is examining two capital budgeting projects with 5-years lives. The first, project A, is a replacement project; the second, project B, is a project unrelated to current operations. The G.Wolfe Corporation uses the risk-adjusted discount rate method and groups projects according to purpose and then uses a required rate of return or discount rate that has been pre-assigned to that purpose of risk class. The expected cash flows for these projects are as follows:

	<b>Project A</b>	<b>Project B</b>
Initial investment:	\$250,000	\$400,000
Cash inflows:		
Year 1	\$30,000	135,000
Year 2	40,000	135,000
Year 3	50,000	135,000
Year 4	90,000	135,000
Year 5	130,000	135,000

The purpose of risk classes and pre-assigned required rates of return are as follows:

<b>Purpose</b>	<b>Required Rate of Return</b>
Replacement decision	12%
Modification or expansion of existing product line	15
Project unrelated to current operations	18
Research and development operations	20

Determine the project's risk-adjusted net present value.

### **UNIT III**

#### **INTRODUCTION TO CORPORATE RESTRUCTURING**

##### **LEARNING OBJECTIVES**

After reading this lesson, you should be able to,

- Give the meaning of corporate restructuring.
- List out the reasons for corporate restructuring.
- Discuss the different forms or types of corporate restructuring.
- Understand the terms used in corporate restructuring.
- Understand the major categories of corporate restructuring,

##### **STRUCTURE OF THE UNIT**

- 3.1.1. Introduction to Corporate Restructuring
- 3.1.2. Meaning of Corporate Restructuring
- 3.1.3. Reasons for Corporate Restructuring
- 3.1.4. Types / Forms of Corporate Restructuring
- 3.1.5. Major Categories of Corporate Restructuring**

Before knowing the meaning and forms of corporate restructuring it is better to know the different forms of business organisation and how an entrepreneur structures his/her organisation. Entrepreneur who is planning to start an organisation either for manufacturing products or providing services need to select the right form of business organisation. This is possible for those entrepreneurs who are having knowledge about the advantages and disadvantages of different forms of business organisations. There are four main forms of business organisations, viz., sole proprietorship, partnership, cooperative society, and company (public and private). Each of this form has its own advantages and disadvantages. At the same time entrepreneur also determines the financial structure also. But the same form of business organisation and financial structure may not be suitable for changing business environment. Therefore, there is a need to restructure their corporation.

### **3.1.1 INTRODUCTION TO CORPORATE RESTRUCTURING**

It is very difficult for any firm to survive without restructuring the firm in the growing stages. It may be possible to run a firm successfully for a short period, but in the long run it may not be possible without restructuring because business environment changes. Scanning of business environment helps in identifying business opportunities and threats. Corporate restructuring is necessary whenever there is change in business environment. For example, with liberalization, privatization, and globalisation (LPG) many firms felt that there are lots of profitable investment opportunities, and it also means increasing competition. A firm that feels globalisation is opportunity for the firm, then it need to leverage the benefits, which require lot of funds and resources, and also need to go for restructuring. On the other hand a firm that feels globalisation or liberalization or privatization is as competition, it has to compete with the new competitors, by manufacturing products at high quality and sell at reasonable prices, but it needs



more technological support and needs more funds. So firm need to go for restructuring.

Today, restructuring is the latest buzzword in corporate circles. Companies are vying with each other in search of excellence and competitive edge, experimenting with various tools and ideas. Many firms try to turn the business around by cutting jobs, buying companies, selling off or closing unprofitable divisions or even splitting the company up. And the changing national and international environment is radically changing the way business is conducted. Moreover, with the pace of change so great, corporate restructuring assumes paramount importance. It is because profitable growth is one of the objectives of any business firm. Maximization of profit is possible either by *internally*, by change of manufacturing process, development of new products, or by expanding the existing products. On the other hand company would be able to maximize profit by *externally* merging with other firm or acquiring another firm. The external strategy of maximizing profit may be in the form of mergers, acquisitions, amalgamations, takeovers, absorption, consolidation, and so on.

Put in simple words the concept of restructuring involves embracing new ways of running an organization and abandoning the old ones. It requires organisations to constantly reconsider their organisational design and structure, organisational systems and procedures, formal statements on organisational philosophy and may also include values, leader norms and reaction to critical incidences, criteria for rewarding, recruitment, selection, promotion and transfer.

### **3.1.2 MEANING OF CORPORATE RESTRUCTURING**

Restructuring is the corporate management term for the act of partially dismantling and reorganizing a company for the purpose of making it more efficient and therefore more profitable. It generally involves selling off portions of the company and making severe staff reductions. Restructuring is often done as part of a bankruptcy or of a takeover by another firm, particularly a leveraged

buyout by a private equity firm. It may also be done by a new CEO hired specifically to make the difficult and controversial decisions required to save or reposition the company.

It indicates to a broad array of activities that expand or contract a firm's operations or substantially modify its financial structure or bring about a significant change in its organisational structure and internal functioning. It includes activities such as mergers, buyouts, takeovers, business alliances, slump sales, demergers, equity carve outs, going private, leverage buyouts (LBOs), organisational restructuring, and performance improvement initiatives.

### **3.1.3 REASONS FOR CORPORATE RESTRUCTURING**

There are a good number of reasons behind corporate restructuring. Corporate restructure their firms with a view to:

- 1 Induce higher earnings
- 2 Leverage core competencies
- 3 Divestiture and make business alliances
- 4 Ensure clarity in vision, strategy and structure
- 5 Provide proactive leadership
- 6 Empowerment of employees, and
- 7 Reengineering Process

**1. Induce Higher Earnings:** The prime goal of financial management is to maximize profit there by firm's value. Firm may not be able to generate constant profits throughout its life. When there is change in business environment, and there is no change in firm's strategies. The two basic goals of corporate restructuring may include higher earnings and the creation of corporate value. Creation of corporate value largely depends on the firm's ability to generate enough cash. Thus corporate restructuring helps to firms to increase their profits.

- 2. Leverage Core Competence:** Core competence was seen as a capability or skill running through a firm's business that once identified, nurtured, and developed throughout the firm became the basis for lasting competitive advantage. For example Dell Computer built its first 10-year of unprecedented growth by creating an organisation capable of the speedy and in expensive manufacture and delivery of custom-built PCs. With the concept of organisational learning gaining momentum, companies are laying more emphasis on exploiting the rise on the learning curve. This can happen only when companies focus on their core competencies. This is seen as the best way to provide shareholders with increased profits.
- 3. Divestiture and Business Alliances:** Some times companies may not be able to run all the companies, which are there in-group, and companies which are not contributing may need to be divested and concentrate on core competitive business. Companies, while keeping in view their core competencies, should exit from peripherals. This can be realised through entering into joint ventures, strategic alliances and agreements.
- 4. Ensure Clarity in Vision, Strategy and Structure:** Corporate restructuring should focus on vision, strategy and structure. Companies should be very clear about their goals and the heights that they plan to scale. A major emphasis should also be made on issues concerning the time frame and the means that influence their success.
- 5. Provide Proactive Leadership:** Management style greatly influences the restructuring process. All successful companies have clearly displayed leadership styles in which managers relate on a one-to-one basis with their employees.
- 6. Empowerment of Employees:** Empowerment is a major constituent of any restructuring process. Delegation and decentralised decision making provides companies with effective management information system.

**7. Reengineering Process:** Success in a restructuring process is only possible through improving various processes and aligning resources of the company. Redesigning a business process should be the highest priority in a corporate restructuring exercise.

The above discussed are the prime reasons for corporate restructuring.

### **3.1.4 TYPES / FORMS OF CORPORATE RESTRUCTURING**

Business firms engage in a wide range of restructuring activities that include expansion, diversification, collaboration, spinning off, hiving off, mergers and acquisitions. Privatisation also forms an important part of the restructuring process. The different forms of restructuring may include: (1) Expansion, (2). Mergers (Amalgamation), (3) Purchasing of a Unit or Division or Plant, (4) Takeover, (5) Business Alliances, (6) Sell-Off, (7) Hive-Off, (8) Demerger or Corporate Splits or Division, (9) Equity Carveout, (10) Going Private, and (11) Leveraged Buyout (LBO)

**1.Expansion:** It is the most common and convenient form of restructuring, which involves only increasing the existing level of capacity and it does not involve any technical expertise. Expansion of business needs more funds to be raised either in the form of equity or debt or both and the funds are used to finance the fixed assets required for manufacturing the expanded level of production. This increase firm's profitability, thereby value of the firm

**2.Merger:** The term merger refers to a combination of two or more companies into a single company where one survives and the others lose their corporate existence. The acquired company (survivor) acquires the assets as well as liabilities of the merged company or companies. For example A Ltd., acquires the business of B Ltd. and C Ltd. The Generally, the company, which survives, is the buyer, which retains its identity, and the seller company is extinguished. Merger is also defined as amalgamation. Merger is the fusion of two or more existing companies. All assets, liabilities and stock of one company stand

transferred to Transferee Company in consideration of payment in the form of equity shares of Transferee Company or debentures or cash or a mix of the two or three modes. Mergers per se, may either be horizontal mergers, vertical mergers or conglomerate mergers. In a tender offer, the acquiring firm seeks controlling interest in the firm to be acquired and requests the shareholders of the firm to be acquired, to tender their shares or stock to it.

**Amalgamation:** Ordinarily amalgamation means merger. Amalgamation refers to a situation where two or more existing companies are combined into a new company formed for the purpose. The old companies cease to exist and their shareholders are paid by the new company in cash or in its shares or debentures or combination of cash, shares, and debentures. Almost the same definition is give by *Halsbury's Laws of England* describe amalgamation as a blending of two or more existing undertakings into one undertaking, the shareholders of each blending company becoming substantially the shareholders in the company, which is to carry on the blended undertaking.

But there is technical difference between merger and amalgamation. In case of merger, one existing company takes over the business of another existing company or companies, while in the case of amalgamation; a new company takes over the business of two or more existing companies. The company or companies merging are called amalgamating company or companies and the company with which the amalgamating merge or the company, which is formed as a result of the merger, is called amalgamated company. For example C Ltd., is formed to take over A Ltd. and B Ltd. However, in practice, no such distinction is observed. As a matter of fact the term amalgamation includes merger also.

In the case Andhra Pradesh High Court held in *S.S Somayajulu v Hope Prudhomme & Co. Ltd.*, the word “amalgamation” has no definite legal meaning. It contemplates a state of things under which two companies are so

joined as to form a third entity, or one company is absorbed into and blended with another company. Amalgamation does not involve a formation of a new company to carry on the business of the old company.

**3.Purchasing of a Unit:** Purchasing a unit or plant or division is becoming common practice in corporate restructuring activity. This is because purchasing a unit reduces the time involved in setting up of new unit, which is generally a lengthy period and also brings some tax benefits. When a firm purchases one unit of the other firm then it becomes to divesture for the selling firm. For example when Hindustan Co. purchases a unit of Bharath Co. from Bharath company point of view it is divesture. Generally firms sell a unit or plant or division, due to no performance, or low performance. At the same time the low or no performance reduces the profits of consolidated results of the firm.

**4.Takeover:** A 'takeover' is acquisition and both the terms are used interchangeably. Takeover differs from merger in approach to business combinations i.e. the process of takeover, transaction involved in takeover, determination of the share exchange or cash price and fulfillment of goals of combination all are different in takeovers than in mergers. For example, process of takeover is unilateral and the offeror company decides about the maximum price. Time taken in completion of transaction is less in takeover than in mergers, top management of the offeree company being more co-operative.

**5.Business Alliances:** The following are more commonly used forms of business alliance:

**Joint Ventures** Occasionally two or more capable firms lack a necessary component for success in a particular competitive environment. For example, no single petroleum firm controlled sufficient resources to construct the Alaskan pipeline. Nor was any single firm capable of processing and marketing all of the oil that would flow through the pipeline. The solution was joint ventures. A joint venture is set up an independent legal entity in, which two or more separate firms

participate. The joint venture agreement clearly indicates how the cooperating members will share ownership, operational responsibilities, and financial risks and rewards. Example of JV Fuji-Xerox, JV to produce photocopiers, for the Japanese market.

**Strategic Alliances** A strategic alliance is cooperative relationship like JV, but it does not create a separate legal entity. In other words companies involved do not take an equity position in one another. In many instances, strategic alliances are partnerships that exist for a defined period during which partners contribute their skills (transfer technology, or provide R&D service, or grant marketing rights etc.) and expertise to a cooperative project. For example, service and franchise based firms like Coca-Cola, McDonald's and Pepsi have long engaged in licensing arrangements with foreign distributors as a way to enter new markets.

**Franchising** A special form of licensing is franchising, which allows the franchisee to sell a highly publicised product or service, using the parent's brand name or trademark, carefully developed procedures, and marketing strategies. In exchange, a franchisee pays a fee to parent firm, typically based on the volume of sales of the franchisor in its defined market area. Most attractive franchisees are Coca-Cola, Kentucky Fried Chicken, Pepsi.

**Licensing / Contract Manufacturing** License is an agreement whereby a foreign licensee buys the right to produce a company's product in the licensee's country for a negotiated fee (normally, royalty payments on the sales volume). There are two popular types of licensing. *First* type involves granting license for product, or process, or specific technology, the *second* type of licensing involves granting licensing for trademark or copyright. RCA for instance, once licensed its color television technology to a number of Japanese companies.

**6.Sell-Off:** Sell-Off may be either through a spin-off or divestiture. *Spin-Off* creates a new entity with shares being distributed on a pro rata basis to existing

shareholders of the parent company. Split-Off is a variation of Sell-Off. *Divestiture* involves sale of a portion of a firm/company to a third party.

**7.Hive-Off:** It refers to the sale of loss making division or product or product line, by a company. Put it simple it is discontinuing manufacture of a product or closing down a division. This is beneficial for both the buyer and the seller. Saving the acquisition cost of acquiring an established product benefits the buyer. On the other hand concentrating more on profitable segments or products and consolidating its business benefit seller. The recent example is hiving off Tata Chemicals share in Excel Industries.

**8.Demerger or Corporate Splits or Division:** Demerger or split or division of a company are the synonymous terms signifying a movement in the company just opposite to combination in any of the forms defined above. Such types of demergers or 'divisions' have been occurring in developed nations particularly in UK and USA.

In UK, the above terms carry the meaning as a division of a company takes place when part of its undertaking is transferred to a newly-formed company or to an existing company, some or all of whose shares are allotted to certain of the first company's shareholders. The remainder of the first company's undertaking continues to be vested in it and its shareholders are reduced to those who do not take shares in the other company; in other words, the company's undertaking and shareholders are divided between the two companies. In USA, too, the corporate splits carry the similar features excepting difference in accounting treatment in post-demerger practices. In India, too, demergers and corporate splits have started taking place in old industrial conglomerates and big groups.

**9.Equity Carveout:** Equity carveout is the sale of its equity by parent company in a wholly owned subsidiary. The sale of equity may be to the general public or strategic investors. Equity carve out differs from spin off in two ways. *First*, in equity carveout the equity shares are sold to the new investor, whereas in the



spin off the equity shares are sold to the existing shareholders. *Secondly*, equity carveout brings cash to the firm (since the shares are sold to the new investor), whereas in the spin off there is no cash infusion to the company because the shares value is broken into small and the same are distributed to the existing shareholders. For example, A company has 10,000 equity shares each Rs.10 face value. The company is planning to spin off the shares, by dividing the face value into two equal values. In this case firm divides share into two with face value of Rs.5 per share and the same is distributed to the existing shareholders. Here the number of shares increases to 20,000, but face value of the share is Rs.5.

**10. Going Private:** Ownership of a company can be changed through an exchange offer, share repurchase or going public. Therefore, going private is one of the ways of ownership restructuring. Generally public company stock is held with public. Going private means converting public company into private company. Privatisation is done through buying shares from the public, which increases the stake of a small group of investors, who have substantial stake. The rationale behind privation is to the costs (cost of providing investors with periodical reports, communicating with financial analysts, holding shareholders meetings, fulfilling various statutory obligations, etc.,) associated with public limited company form of organisation and to bring long-term value into sharper focus. Castrol India and Philips India are the recent examples of going private.

**11. Leveraged Buyout (LBO):** Leveraged buyout means buying any thing with borrowed funds. For example, Dream Well Co., interested in divesting one of its division, for Rs.50 crores (whose value is Rs.80 crores). Five executives of the same division are keen on buying the division but each executive is able to contribute Rs.10 lakhs. Here they fall short of funds to buy the division, still they want to buy the same with a borrowings Rs.30 lakhs from a bank. It is known as leveraged buyout.

**12. Other Terms Used in Corporate Restructuring:** Apart from the above discussed form of corporate restructuring the following are other terms used: Acquisition, consolidation, absorption, combinations, holding company, takeover, restructuring, reconstructing and diversification. The terms are required to be understood in the sense these are used. In different circumstances some of these terms carry different meanings and might not be construed as mergers or takeover in application of the sense underlying the term for a particular situation. In the following paragraphs, the meaning of these terms have been explained in the light of the definitions and explanations given by eminent scholars and practitioners in their works.

**i. Acquisition:** Acquisition in general sense is acquiring the ownership in the property. In the context of business combinations, an acquisition is the purchase of by one company of a controlling interest in the share capital of another existing company. An acquisition may be affected by (a) agreement with the persons holding majority interest in the company management like members of the board or major shareholders commanding majority of voting power; (b) purchase of shares in open market; (c) to make takeover offer to the general body of shareholders; (d) purchase of new shares by private treaty; (e) acquisition of share capital of one company may be by either all or any one of the following form of considerations viz. means of cash, issuance of loan capital, or insurance of share capital.

**ii. Consolidation:** Consolidation is known as the fusion of two existing companies into a new company in which both the existing companies extinguish. Thus, consolidation is mixing up of the two companies to make them into a new one in which both the existing companies lose their identity and cease to exist. The mix-up assets of the two companies are known by a new name and the shareholders of two companies become the shareholders of the new company. None of the consolidating firms legally survives. There is

no designation of buyer and seller. All consolidating companies are dissolved. In other words, all the assets, liabilities and stocks of the consolidating companies stand transferred to new company in consideration of payment in terms of equity shares or bonds or cash or combination of the two or all modes of payments in proper mix.

- iii. Absorption:** Absorption is a combination of two or more firms into an existing corporation. All firms except one lose their identity in merger through absorption. For example this type of absorption is absorption of Tata Fertilisers Ltd. (TFL) by Tata Chemicals Ltd. (TCL). TCL, an acquiring firm. Survived after merger, while TFL an acquired company, ceased to exist.
- iv. Combination:** Combination refers to mergers and consolidations as a common term used interchangeably but carrying legally distinct interpretation. All mergers, acquisitions, and amalgamations are business combinations.
- v. Takeover:** A 'takeover' or acquisition and both the terms are used interchangeably. Takeover differs from merger in approach to business combinations i.e. the process of takeover, transaction involved in takeover, determination of the share exchange or cash price and fulfillment of goals of combination all are different in takeovers than in mergers. For example, process of takeover is unilateral and the offeror company decides about the maximum price. Time taken in completion of transaction is less in takeover than in mergers, top management of the offeree company being more co-operative.
- vi. Reconstruction:** The term 'reconstruction' has been used in section 394 along with the term 'amalgamation'. The term has not been defined therein but it has been used in the sense not synonymous with amalgamation. In the Butter worth publication, the term has been explained as under:  
"By a reconstruction, a company transfers its undertaking and assets to a new company in consideration if the issue of the new company's shares to the first

company's members and, if the first company's debentures are not paid off, in further consideration of the new company issuing shares or debentures to the first company's debentures holders in satisfaction of their claims. The result of the transaction is that the new company has the same assets and members and, if the new company issues debentures to the first company's debenture holders, the same debenture holders as the first company, the first company has no undertaking to operate and is usually wound up or dissolved".

Reconstructions were far common at the end of the last century and the beginning of this century than they are now. The purposes to be achieved by them were usually one of the following: either to extend or alter of a company by incorporating a new company with the wider or different objects desired; or (ii) to alter the rights attached to the different classes of a company's shares or debentures by the new company issuing shares or debentures with those different rights to the original company's share or debenture holders; or to compel the members of a company to contribute further capital by taking shares in the new company on which a larger amount was unpaid than on the shares of the original company. The first two of these purposes can now be achieved without reconstruction and the third is now regarded as a species of coercion, which is strongly disapproved of by the courts and is not pursued in practice. Consequently, reconstructions for these reasons do not now occur. In Indian context, the term would cover various types of arrangements or comprises which may include merger as well as demerger.

**vii. Restructuring:** Restructuring is the corporate management term for the act of partially dismantling and reorganizing a company for the purpose of making it more efficient and therefore more profitable. It generally involves selling off portions of the company and making severe staff reductions. Restructuring is often done as part of a bankruptcy or of a takeover by another firm, particularly a leveraged buyout by a private equity firm. It may also be

done by a new CEO hired specifically to make the difficult and controversial decisions required to save or reposition the company. It indicates to a broad array of activities that expand or contract a firm's operations or substantially modify its financial structure or bring about a significant change in its organisational structure and internal functioning. It includes activities such as mergers, buyouts, takeovers, business alliances, slump sales, demergers, equity carve outs, going private, leverage buyouts (LBOs), organisational restructuring, and performance improvement initiatives.

**viii. Diversification:** Diversification is the process of adding new business to the company that is distinct its established operations. A diversified or multibusiness company is thus one that is involved in two or more distinct industries. Firms go for diversification for reducing non-systematic risk. Diversification implies growth through the combination of firms in unrelated business. Such mergers are called conglomerate mergers.

### 3.1.5 MAJOR CATEGORIES OF CORPORATE RESTRUCTURING

As we read in the above that corporate restructuring entails any fundamental change in a company's business or financial structure, designed to increase the company's value to shareholders or creditor. Corporate restructuring is often divided into two parts:

1. Operational restructuring, and
2. Financial restructuring.

**1. Operational Restructuring:** Operational restructuring is the process of increasing the economic viability of the underlying business model. Examples include mergers, the sale of divisions or abandonment of product lines, or cost-cutting measures such as closing down unprofitable facilities. In most turnarounds and bankruptcy situations, both financial and operational restructuring must occur simultaneously to save the business.

**2. Financial Restructuring:** It relates to improvements in the capital structure of the firm. Corporate financial restructuring involves restructuring the assets and liabilities of corporations, including their debt-to-equity structures, in line with their cash flow needs to promote efficiency, support growth, and maximize the value to shareholders, creditors and other stakeholders. Otherwise viable firms under stress it may mean debt rescheduling or equity-for-debt swaps based on the strength of the firm. If the firm is in bankruptcy, this financial restructuring is laid out in the plan of reorganization.

These objectives make it sound like restructuring is done pro-actively, that it is initiated by management or the board of directors. While that is sometimes the case examples include share buybacks and leveraged recapitalizations more often the existing structure remains in place until a crisis emerges. Then the motives are defensive as in defenses against a hostile takeover or distress-induced, where creditors threaten to enforce their rights.

*Financial restructuring may mean refinancing at every level of capital structure, including:*

- a. Securing asset-based loans (accounts receivable, inventory, and equipment)
- b. Securing mezzanine and subordinated debt financing
- c. Securing institutional private placements of equity
- d. Achieving strategic partnering
- e. Identifying potential merger candidates

## **SUMMARY**

Restructuring is the corporate management term for the act of partially dismantling and reorganizing a company for the purpose of making it more efficient and therefore more profitable. It indicates to a broad array of activities that expand or contract a firm's operations or substantially modify its financial

structure or bring about a significant change in its organisational structure and internal functioning. It includes activities such as mergers, buyouts, takeovers, business alliances, slump sales, demergers, equity carve outs, going private, leverage buyouts (LBOs), organisational restructuring, and performance improvement initiatives.

There are a good number of reasons behind corporate restructuring. The prime reasons are to: induce higher earnings, leverage core competencies, divestiture and make business alliances, ensure clarity in vision, strategy and structure, provide proactive leadership, empowerment of employees, and reengineering Process.

Business firms engage in a wide range of restructuring activities that include: expansion, mergers (Amalgamation), purchasing of a Unit or Division or Plant, takeover, business alliances, sell-off, hive-off, demerger or corporate splits or division, equity carveout, going private, and leveraged buyout. Apart from these there are few other also: acquisition, consolidation, absorption, combination, takeover, reconstruction, restructuring, and diversification.

Corporate restructuring entails any fundamental change in a company's business or financial structure, designed to increase the company's value to shareholders or creditor. Corporate restructuring is often divided into two parts: operational restructuring, and financial restructuring.

### **REVIEW QUESTIONS**

1. What is corporate restructuring? List the characteristics of corporate restructuring?
2. Define corporate restructuring? Explain the reasons for corporate restructuring.
3. Discuss the motives behind the corporate restructuring.
4. Discuss in detail the different forms of corporate restructuring.

5. Write a short notes on:  
(a). Acquisition, (b). Reconstruction, (c). Takeover, (d). absorption.
6. Write a short notes on:  
(a). Merger, (b). LBO, (c). Equity carveout, (d). Hive-Off.
7. In how many categories do you divide the forms of corporate restructuring? And discuss the categories of corporate restructuring.
8. What is financial restructuring? Discuss the activities involved in financial restructuring.
9. Write a short notes on:  
(a). Takeover , (b). Name few forms of business alliances,  
(c). Meger, (d). Demerger.
10. Write a short notes on:  
(a). Spit-off, (b). Spin-off, (c). Operating Synergy , (d). Going private.

#### **SUGGESTED READINGS**

1. Allen D, *An Introduction to Strategic Financial Management*, London: CIMA / Kogan Page.
2. Verma, J.C., *Corporate Mergers, Amalgamations, & Takeovers*, New Delhi: Bhatrat Publishing House, 2002.
3. Hampton, J.J., *Financial Decision Making - Concepts, Problems, and Cases*, New Delhi: Prentice Hall of India, 2003.
4. Chandra, P., *Financial Management – Theory and Practice*, New Delhi: Tata McGraw Hill Publishing Company Limited, 2004.
5. Copeland, T.E., and Weston, J.F., *Financial Theory and Corporate Policy*, New York: Addison-Wesley.



6. Copeland, T., T.Koller, and Murrin, J., *Valuation: Measuring and Managing the Value of Companies*, New York: John Wiley (International Edition).
7. Sudarsanam, P.S., *Essence of Mergers & Acquisitions*, New Delhi: Prentice Hall of India.

### **Lesson 3.2**

## **MERGERS AND ACQUISITIONS**

### **LEARNING OBJECTIVES**

After reading this lesson, you should be able to,

- Give the meaning of Mergers and Acquisition.
- Discuss the types of Takeovers.
- Trace out the evolution of Mergers and Acquisitions in India.
- Explain the different types or Forms of Mergers.
- List out and discuss the Reasons for Mergers.
- Discuss the benefits of Mergers.
- Know the motives for Mergers and Acquisitions.
- Understand the impact of Mergers and Acquisitions on Society.
- Compute the costs and Benefits of mergers.
- Determine the forms of Compensation.
- Compute Swap Ratio.
- Discuss the basis for determining Exchange Ratio.
- Know how to evaluate Merger Proposal (steps involved in mergers).
- Know the tax aspects of Mergers and Amalgamations.
- Know evaluation of Merger as a Capital Budgeting Decision.

## **STRUCTURE OF THE UNIT**

- 3.2.1 Meaning of Mergers and Acquisition
  - 3.2.2 Evolution Mergers and Acquisitions in India
  - 3.2.3 Forms / types of Mergers
  - 3.2.4 Reasons for Mergers
  - 3.2.5 Benefits of Mergers
  - 3.2.6 Motivators of Mergers
  - 3.2.7 Impact of Mergers on General Public
  - 3.2.8 Costs and Benefits of a Merger
  - 3.2.9 Determination of Forms of Compensation (Cash vs Stock)
  - 3.2.10 Determination of Swap (Exchange Ratio)
  - 3.2.11 Basis for determining the Exchange Ratio
  - 3.2.12 Evaluation of Merger Proposal
  - 3.2.13 Steps for Merger and Amalgamation
  - 3.2.14 Tax aspects of Mergers / Amalgamations
  - 3.2.15 Accounting for Mergers and Acquisitions
  - 3.2.16 Evaluation of a Merger as a Capital Budgeting Decision
- 

A business may grow over time as the utility of its products and services is recognized. It may also grow through an inorganic process, symbolized by an instantaneous expansion in work force, customers, infrastructure resources and thereby an overall increase in the revenues and profits of the entity. Mergers and acquisitions are manifestations of an inorganic growth process. While mergers

can be defined to mean unification of two players into a single entity, acquisitions are situations where one player buys out the other to combine the bought entity with itself. It may be in form of a purchase, where one business buys another or a management buys out, where the management buys the business from its owners.

Mergers and acquisitions are used as instruments of momentous growth and are increasingly getting accepted by Indian businesses as critical tool of business strategy. They are widely used in a wide array of fields such as information technology, telecommunications, and business process outsourcing as well as in traditional business to gain strength, expand the customer base, cut competition or enter into a new market or product segment. Mergers and acquisitions may be undertaken to access the market through an established brand, to get a market share, to eliminate competition, to reduce tax liabilities or to acquire competence or to set off accumulated losses of one entity against the profits of other entity.

Mergers and acquisitions have become a symbol of the new economic world. Almost every day one reads of a new merger or acquisition doing the rounds of the corporate circles. It also brings with it complex issues relating to laws and regulations impacting such M & A decisions.

In today's business scenario, all companies are possible targets for acquisitions or mergers. As a result knowledge of the laws relating to them is extremely useful. At the same time they are critical to the health of the businesses and thereby the shareholders.

### **3.2.1 MEANING OF MERGERS AND ACQUISITION**

The term merger refers to a combination of two or more companies into a single company where one survives and the others lose their corporate existence. The acquired company (survivor) acquires the assets as well as liabilities of the merged company or companies. For example A Ltd. acquires the business of B Ltd. and C Ltd. The Generally, the company, which survives, is the buyer, which

retains its identity, and the seller company is extinguished. Merger is also defined as amalgamation. Merger is the fusion of two or more existing companies. All assets, liabilities and stock of one company stand transferred to Transferee Company in consideration of payment in the form of equity shares of Transferee Company or debentures or cash or a mix of the two or three modes.

**Acquisition** in general sense is acquiring the ownership in the property. In the context of business combinations, an acquisition is the purchase of by one company (called the acquiring firm) of a controlling interest in the share capital of another existing company (called the target). An acquisition may be affected by (a) agreement with the persons holding majority interest in the company management like members of the board or major shareholders commanding majority of voting power; (b) purchase of shares in open market; (c) to make takeover offer to the general body of shareholders; (d) purchase of new shares by private treaty; (e) acquisition of share capital of one company may be by either all or any one of the following form of considerations viz. means of cash, issuance of loan capital, or insurance of share capital. The effort to control may be a prelude

- To a subsequent merger or
- To establish a parent-subsidiary relationship or
- To break-up the target firm, and dispose off its assets or
- To take the target firm private by a small group of investors.

**Types of Takeovers** There are broadly *two kinds* of takeover bids or strategies that can be employed in corporate acquisitions. These include:

(1) Friendly Takeover, and (2) Hostile Takeover.

**1. Friendly Takeover:** Friendly takeovers are those takeovers that could be through negotiations, i.e., acquiring company negotiates with the Executives or BoDs of target firm, and gets their consent for takeover. The acquiring firm makes a financial proposal to the target firm's management and board. This

proposal might involve the merger of the two firms, the consolidation of two firms, or the creation of parent/subsidiary relationship. If both the parties do not reach to an agreement during negotiation process the proposal of acquisition stands terminated and dropped out.

- 2. Hostile Takeover:** Hostile takeover is the takeover in which acquiring company may not offer to target company the proposal to acquire its undertaking but silently and unilaterally may pursue efforts to gain controlling interest in it against the wishes of the management. Put in simple, a hostile takeover may not follow a preliminary attempt at a friendly takeover. For example, it is not uncommon for an acquiring firm to embrace the target firm's management in what is colloquially called a *bear hug*. There are various ways in which an acquirer company may pursue the matter to acquire the controlling interest in a target firm. The various ways of acquirer are known as "*raids*" or "*takeover raids*" in the corporate world. The raids when organized in systematic ways are called "*takeover bids*".

### **3.2.2 EVOLUTION MERGERS AND ACQUISITIONS IN INDIA**

Compelled by the present economic scenario and market trends, corporate restructuring through mergers, amalgamations, takeovers and acquisitions, has emerged as the best form of survival and growth. The opening up of the Indian economy and the government's decision to disinvest has made corporate restructuring more relevant today.

In the last few years, India has followed the worldwide trends in consolidation amongst companies through mergers and acquisitions. Companies are being taken over, units are being hived off, joint ventures tantamount to acquisitions are being made and so on. It may be reasonably be stated that the quantum of mergers and acquisitions in the last few years must be more than the corresponding quantum in the four and a half decades post independence.

Supreme Court of India in the landmark judgment of HLL-TOMCO merger has said, "in this era of hyper competitive capitalism and technological change, industrialists have realized that mergers/acquisitions are perhaps the best route to reach a size comparable to global companies so as to effectively compete with them. The harsh reality of globalisation has dawned that companies which cannot compete globally must sell out as an inevitable alternative".

Economic reforms and deregulation of the Indian economy has brought in more domestic as well as international players in Indian industries. For India economic reforms and deregulations means increase in competition, which demanded structural changes of Indian industries. The main restructuring strategy in India is mergers & acquisition. The first merger and acquisition wave took place in India towards the end of 1990s. Table 1 shows the number and percentage change in the number of merger and takeover activities in India from 1988 to 2003. These mergers and takeover include the realized as well as abortive bids. Table 1 exhibit

**Table 1 Number of Merger and Takeover in India from 1988 to 2003**

<b>Years</b>	<b>Number</b>	<b>Change in %</b>
1988	15	-
1989	18	20.00
1990	25	38.90
1991	71	184.00
1992	135	90.10
1993	288	113.30
1994	363	26.00
1995	430	18.50
1996	541	25.80
1997	636	17.60
1998	730	14.80
1999	765	04.79
2000	1,177	53.86

2001	1,045	- 11.21
2002	838	- 19.81
2003	834	- 0.48

**Source:** Collated from various newspapers including business dailies, various issues and also *Monthly Review of the Indian Economy*, CMIE, various issues.

a sharp rise in the overall merger and acquisition activity in the Indian corporate sector. While there were 58 mergers and takeover from 1988 to 1990, the number rose to 71 in 1991 and 730 in 1998. There was a jump in the number of merger and takeover activities in India from 1988 to 1993, the average rate of increase being around 89 per cent for the five-year period. Since then the rate of rise had maintained an average of 20.5 per cent. After 2001 year the M&A trend has shown declining. But there was substantial growth in the year 2000-01, with the total number of M&As deals 1,177, which is 54 percent higher than the previous year total deals.

### 3.2.3 FORMS / TYPES OF MERGERS

Mergers or acquisition types depend upon the offeror company's objectives, profiles, combinations which it wants to achieve. What ever may be the technical differences between mergers, acquisitions, and amalgamations, mergers can usually distinguished into the following three types: (1) Horizontal Mergers, (2) Vertical Mergers, and (3) Conglomerate Mergers.

**1. Horizontal Mergers:** This type of merger involves when two or more competitive firms that operate and compete in a similar kind of business and same stage of industrial process. The merger is based on the assumption that it will provide economies of scale from the larger combined unit, it eliminates competition, thereby putting an end to price cutting wars, possibility of starting R&D, effective marketing and management. For example in the Aerospace industry, Boeing merged with McDonald Douglass to create the World's largest

aerospace company. Another Compaq acquired Digital Equipment and then itself was acquired by Hewlett Packard. Glaxo Wellcome Plc. and SmithKline Beecham Plc. Mega merger. The two British pharmaceutical heavy weights Glaxo Wellcome PLC and SmithKline Beecham PLC early this year announced plans to merge resulting in the largest drug manufacturing company globally. The merger created a company valued at \$182.4 billion and with a 7.3 per cent share of the global pharmaceutical market. The merged company expected \$1.6 billion in pretax cost savings after three years. The two companies have complementary drug portfolios, and a merger would let them pool their research and development funds and would give the merged company a bigger sales and marketing force.

**2. Vertical Mergers:** Vertical mergers take place between firms in different stages of production/operation, either as forward or backward integration. It occurs when a firm acquires 'upstream' from it and or firms 'downstream' from it. Upstream stream merger extends to the firms supplying raw materials and to those firms that sell eventually to the customers in the event of a downstream merger. The basic reason is to eliminate costs of searching for prices, contracting, lower distribution cost, payment collection and advertising and may also reduce the cost of communicating and coordinating production and also have assured supplies and market, increasing or creating barriers to entry for potential competitors.

Unlike horizontal mergers, which have no specific timing, vertical mergers take place when both firms plan to integrate the production process and capitalise on the demand for the product. Forward integration take place when a raw material supplier finds a regular procurer of its products while backward integration takes place when a manufacturer finds a cheap source of raw material supplier. For example Merger of Usha Martin and Usha Beltron. Usha Martin and Usha Beltron merged their businesses to enhance shareholder value, through business



synergies. The merger will also enable both the companies to pool resources and streamline business and finance with operational efficiencies and cost reduction and also help in development of new products that require synergies.

**3. Conglomerate Mergers:** Conglomerate mergers are affected among firms that are in different or unrelated business activity. In other words, firms engaged in two different / unrelated business activities combine together. Firms opting for conglomerate merger control a range of activities in various industries that require different skills in the specific managerial functions of research, applied engineering, production, marketing and so on. This type of diversification can be achieved mainly by external acquisition and mergers and is not generally possible through internal development. The basic purpose of such merger is to effective utilization of unutilized financial resources and enlarge debt capacity through re-organising their financial structure so as to maximize shareholders earnings per share (EPS), lowering the cost of capital and thereby raising maximizing value of the firm and the share price. Mergers enhance the overall stability of the acquirer company and create balance in the company's total portfolio of diverse products and production processes. These types of mergers are also called *concentric mergers*. Firms operating in different geographic locations also proceed with these types of mergers. *Conglomerate mergers have been further sub-divided into:* (a) Financial Conglomerates, (b) Managerial Conglomerates, and (c) Concentric Companies

**a. Financial Conglomerates:** These conglomerates provide a flow of funds to every segment of their operations, exercise control and are the ultimate financial risk takers. They not only assume financial responsibility and control but also play a chief role in operating decisions. They also improve risk-return ratio; reduce risk; improve the quality of general and functional managerial performance; provide effective competitive process; provide distinction

between performance based on underlying potentials in the product market area and results related to managerial performance.

**b. Managerial Conglomerates:** Managerial conglomerates provide managerial counsel and interaction on decisions thereby, increasing potential for improving performance. When two firms of unequal managerial competence combine, the performance of the combined firm will be greater than the sum of equal parts that provide large economic benefits.

**c. Concentric Conglomerates:** The primary difference between managerial conglomerate and concentric company is its distinction between respective general and specific management functions. The merger is termed as concentric when there is a carry-over of specific management functions or any complementarities in relative strengths between management functions.

**4. Other types:** Apart from the above-discussed three (Horizontal, vertical, and conglomerate) types of mergers the following are the few other forms of mergers:

**a. Within Stream Mergers:** This type of mergers take place when subsidiary company merges with parent company or parent company merges with subsidiary company. The former type of merger is known as '*Down stream*' merger, whereas the latter is known as '*Up stream*' merger. For example, recently, ICICI Ltd., a parent company has merged with its subsidiary ICICI Bank signifying down stream merger. Instance of up stream merger is the merger of Bhadrachalam Paper Board, subsidiary company with the parent ITC Ltd., and like.

**b. Circular Combination:** Companies producing distinct products seek amalgamation to share common distribution and R&D facilities to obtain economies by elimination of cost on duplication and promoting market enlargement. The acquiring company obtains benefits in the form of economies of resource sharing and diversification.

c. **Cross Boarder Merger:** It takes place between or among companies belonging to different countries of the world. In the globalized era this type of merger or acquisitions become common. The business houses from France Germany, Holland, and Japan have been very active in acquisitions of companies in different parts of the world. This Type of mergers takes place due to the benefits like globalisation of markets for many products, away from competition in the home market, explosion of technology, and massive investments in R&D.

### **3.2.4 REASONS FOR MERGERS**

Why do mergers take place? It is believed that mergers and acquisitions are strategic decisions or corporate level decisions that are leading to maximization of a company's growth by enhancing its production capacity and marketing operations. In other words, the basic purpose of merger is to achieve faster growth of the corporate business. Faster growth may be had through product improvement and competitive position i.e. enhanced profitability through enhanced production and efficient distribution of goods and services or by expanding the scope of the enterprise through "empire building" through acquisition of other corporate units.

They have become popular in the recent times because of increased competition, breaking of trade barriers, free flow of capital across countries and liberalization, globalisation, and privatization of business as a number of economies are being deregulated and integrated with other economies.

There are a good number of reasons attributed for the occurrence of mergers and acquisitions. Corporate mergers and acquisitions take place with a view to:

1. Leverage the benefit of synergetic operating economies,
2. Diversification of business risk and maintain stability in earnings,
3. Get the benefit of tax shield,

4. Have faster growth of business and income,
5. Have the benefits of effective managerial,
6. Acquire specific assets,
7. Limit or elimination of competition,
8. Effective utilization of under-utilised assets,
9. Utilise surplus financial resources,
10. Displace existing management,
11. Circumvent government regulations,
12. Reap speculative gains attendant upon new security issue or change P/E Ratio,
13. Create an image of aggressiveness and strategic opportunity, empire building and to amass vast economic powers of the economy.

The above listed are few of the reasons for a merger.

### **3.2.5 BENEFITS OF MERGERS**

As we have read in the above that there are three main types of mergers. Why do corporations merge? It is believed that mergers and acquisitions are taking place with the objective of maximization of company's growth by enhancing its production and marketing operations. The major benefits of a merger or acquisition are:

#### **1. Synergy**

Synergy means working together. Synergy results from complementary activities. Increase in effective value is one of the prime reasons for mergers or acquisitions. For example, one company may have more profitable investment opportunities, while the other may have huge financial resources. Here synergy benefits are arrived only when these two companies with more investment opportunities and huge financial resources are merged. Other wise the two firms may be able earn

low profit, because of lack of investment opportunities or lack of financial resources. When the two firms with different complementary skills they can create more value which is higher than the sum of individual firms profits without merger. Generally synergy value is positive and this is the reason for mergers. For example, Merger of Hindustan Computers, Hindustan Reprographics, Hindustan Telecommunications, and Indian Computer Software Company into HCL Limited exhibited synergy in transfer of technology and resources to enable the company to cut down imports of components at a fabulous duty of 198 per cent.

**Illustration:** There are two firms Bharat Ltd and Hindustan Ltd are planning to merge, whose pre-merger values are Rs.420 lakhs, and Rs. 200 lakhs. They are merging with the objective of savings with present value of Rs.50 lakhs. For acquiring Hindustan Ltd. Firm Bharat Ltd will be required to pay Rs.220 lakhs (consisting of Rs. 180 lakhs in the form of equity shares and Rs.40 lakhs in the form of cash). Besides the purchase consideration the Bharath Ltd. need to incur acquisition cost of Rs. 10 lakhs. Determine the value of the gain, costs, and net gain from merger.

**Solution:** Gain is Rs. 40 lakhs

Cost = Purchase Value + Acquisition cost – Pre-merger value of Hindustan Ltd.

$$\begin{aligned}\text{Cost} &= \text{Rs. } 220 \text{ lakhs} + \text{Rs. } 10 \text{ lakhs} - \text{Rs. } 200 \text{ lakhs.} \\ &= \text{Rs. } 30 \text{ lakhs.}\end{aligned}$$

Net Gain = Expected savings – Cost;

$$= \text{Rs. } 40 \text{ lakhs} - \text{Rs. } 30 \text{ lakhs; } = \text{Rs. } 10 \text{ lakhs.}$$

## 2. Increase in Effective Value

Value of the firm increases when a firm acquires the assets of another firm. For example, P Ltd and Q Ltd merge and form a new company R Ltd, then the effective value of the R Ltd is expected to be greater than the sum of the P Ltd.

and Q Ltd. This is because of the synergy benefits. Reliance Industries has highest value of assets, which is possible after acquiring Larsen and Tubro.

### **3. Economies of Scale**

Economies of scale are unit cost reductions associated with a large scale of output. Manufacturing in large scale is possible when two or more companies combine. The economies of scale is possible because of intensive utilization of production capacities, distribution network, engineering services, research & development facilities, etc. economies of scale of generally possible in the case of horizontal mergers with the objective of intensive utilization of resources. There are no economies of scale in case of vertical mergers, but they take place with the objective of improved coordination of activities, lower inventory levels, and higher market power of the combined company. On the other hand conglomerate mergers helps in reducing or elimination of certain overhead expenses. But the benefits of economies of scale are available up to a certain level of operations beyond which the per unit average cost increases. Put in simple the economies of scale are available only at optimal level of operations, at which the average cost per unit is minimum.

### **4. Economies of Scope**

When two or more business units in different industries share resources such as manufacturing facilities, distribution channels, advertising campaigns, R&D cost, they may be able to realize economies of scope: the cost reductions associated with sharing resources across businesses. For example Procter & Gamble can enjoy economies of scope if it acquire a consumer product company that benefits from its highly regarded marketing skills and also helps in obtaining the benefits of economies of scale.

### **5. Fast Growth**

A merger often enables the amalgamating firm to grow at a faster rate than is possible through internal expansion, because acquiring company enters into a

new market quickly, avoids the time required to build new plant, and establishing new product lines. In other words, internal growth requires quite lengthy period it need to establish R&D, develop new product, market penetration and setting up a totally new administration.

## **6. Tax Benefits**

Certain mergers take place just to get the benefit of tax shields. Tax benefits are available for a firm, which acquires a firm that is running with cumulative losses or unabsorbed depreciation. The firm with accumulated losses or unabsorbed depreciation may not be able to get the benefit of tax shield. Section 72A of Income Tax Act, 1961 provides tax shield incentive for reverse mergers for the survival of sick units. However, when it merges with a profit-making firm, its accumulated losses can be set off against the profits of the profit-making firm and tax benefits can be quickly realized. An example of a merger to reduce tax liability is the absorption of Ahmedabad Cotton Mills Limited (ACML) by Arbind Mills in 1979. ACML was closed in August 1977 due to labor problem. At the time of merger in April 1979, saved about Rs.2 crore in tax liability for the next two years after the merger because it could set-off ACML's accumulated loss against its profits.

**Illustration:** Dream well Company acquires Well Do Company. At the date of acquisition the accumulated losses of Well Do Company are Rs.500 lakhs. Dream Well Company is running with a profit record due to the well-experienced management. The expected earnings before tax of Dream Well Company over three year period are Rs.150 lakhs, Rs.250 lakhs, and Rs.350 lakhs for the years 1,2, and 3 respectively. Determine the present value of tax gains to accrue on account of merger to Dream Well Company, if the company is in the tax bracket of 35 per cent and 12 per cent discount rate.

### Solution: Present Value of Tax Gain

Particulars	Years (Rs. In lakhs)		
	1	2	3
Earnings Before Tax	150	250	350
<b>Less:</b> Recovery of Loss	150	250	100*
Tax Benefit (Recovery of Loss x Tax Rate)	52.5	87.5	35.0
Present Value Factor at 12 per cent	0.893	0.797	0.712
Present Value of Tax Shield	46.8825	69.7375	24.92
<b>Total Present Value of Tax benefit to Dream Well Company</b>			<b>144.54</b>

\* (Rs.500 lakhs accumulated loss of firm Well Do Company – Rs.150 lakhs, Rs.250 lakhs loss adjusted in the year 1 and 2 respectively).

### 7. Limiting or Elimination of Competition

Some times elimination or limiting of competition may be the prime motive for merger or acquisition. Competition may lead to cut thought competition, which will benefit the consumer. Any two or more firms that are competing in the market with similar product, by price-cutting strategy can opt for merger or acquiring, there by making monopoly or limiting competition they can be better off. For example, now there is price war going on among Arial, Excel and Tide detergent soap and powers, and consumers are getting the benefits reducing prices. The firms that are manufacturing these products can go for merger or acquisition, by which they definitely avoid competition among them and they can limit the competition in the industry.

### 8. Stabilisation through Diversification

Diversification is another major reason or advantage in the case of conglomerate mergers. Merger between two companies, which are unrelated businesses, would be able to reduce the risk, increase rate of return on investment, and thereby increase market value of the firm. In other words, conglomerate mergers helps in stabilizing or smoothen overall corporate income, which would otherwise



fluctuate due to seasonal or economic cycles or product life cycle stages. In operational terms, the greater the combination of statistically independent, or negatively correlated businesses or income streams of the merged companies, the higher will be the reduction in the business risk and greater will be the benefit of diversification or vice versa.

An example of diversification through mergers to reduce total risk and improve profitability is that RPG Enterprises of Goenka Group. The group started its takeover activity in 1979. It comprises of a large number of companies, most of which have been takeover. The strategy has been to look out for any foreign disinvestments, or any cases of sick companies, which could prove right targets at low takeover prices. In 1988, RPG took over ICIM and Harrison's Malayalam Limited. Acquiring ICIM has provided an easy access to the electronics industry.

### **9. Utilisation of Surplus Funds**

There are four product lifecycles such as introduction, growth, maturity, and decline. A firm may need more funds in the initial stage for managing the cycle that is less profitable or not profitable, and growth stage also need funds for acquiring resources assets for managing the growth. But firm may have lot of funds in the maturity stage, and may not have profitable investment opportunities. Such a firm generally distributes dividends generously and even buys back its shares, if it is possible. However, most managements' of corporate have the practice of investing the surplus funds on investments, even though they are not profitable. In such a case, a merger with another firm involving cash compensation often represents a more efficient utilization of surplus funds.

### **10. Managerial Effectiveness**

There are cases where firms interested to merge with another company with the idea of getting benefit through managerial effectiveness. This is one of the potential gains of mergers is an increase in managerial effectiveness. This may

happen if a more effective management team replaces the existing management team, which is performing poorly. Often, a company, with managerial inadequacies, can gain immensely from the superior management that is likely to emerge as a sequel to the merger. Having greater congruence between the interests of managers and the shareholders is another benefit of merger.

### **11. Lowering the Finance Cost**

Merger helps in larger size operations and greater earnings capacity. This will help in reducing the cost of borrowing for merged firm. Because creditors are merged with merged firm and they enjoy better protection than the creditors of the merging firms independently. Generally when there is high and additional protection reduces the cost of debt, and imposes the cost of equity, by imposing additional burden on equity shareholders. There is benefit in the form of finance cost only when the reduction in cost of debt is higher than the increase in equity cost. Another aspect of the financing costs is issue cost. A merged firm is able to realize the economies of scale in flotation and transaction costs related to an issue of capital. Issue costs are saved when the merged firm makes a larger security issue.

### **3.2.6 MOTIVATORS OF MERGERS AND ACQUISITIONS**

Corporate restructuring in the form of merges or acquisitions are generally motivated by equity shareholders, managers, and the promoters of the combining companies. The following paragraphs make us clear about the factors that motivate the shareholders, managers, and promoters to lend support to these mergers and acquisitions:

#### **1. Equity Shareholders**

As you might have observed that the share price of a company goes up in the secondary market, when there is news about the company's future plans on mergers or acquisitions. Generally investors invest their surplus funds on a

company's equity, with the expectation of increase in share price thereby maximizing their value. Sometimes investors move from one company to another company, which is planning to restructure in the form of merger or acquisition. Shareholders may gain from mergers in different ways viz. from the gains and achievement of the company through maximization of profits by creating monopoly, economies of scale, minimizing risk by diversification of product line, acquisition of intellectual assets (human capital) which are not available otherwise, and better investment opportunity in combinations. These are the few factors that motivate shareholders to support mergers or acquisitions, but they may not be completely generalised for all mergers or acquisitions. However, one or more factors would generally be available in each merger or acquisition, which will motivate the shareholders to support mergers or acquisitions,

## **2. Managers**

Managers here we mean all the people who are working at middle level and at higher level. In other they include BoDs, managers at all functional levels. BoDs have been elected by equity shareholders of the company, and assigned the responsibility of managing the company, who in turn appoint other employees whose support is needed for managing the company. Managers are concerned with improving the operations of the company, managing the affairs of the company effectively for all round gains and growth of the company. Effective management of the company's operations and all round growth provides the managers better deals through raising their status, raising their perks and fringe benefits, placing their relatives in the organization, and by proving them as talented managers.

Some times before getting support from managers to mergers or acquisitions there is a need to assure guaranteed benefits to them. But sometimes they may not support the restructuring activity when they think that they are going to be displaced at the hands of new management in amalgamated company and resultant depreciation from merger or acquisition.

### **3.Promoters**

Promoters are those people who have started or promoted an organization. Generally promoters of private companies are benefited with the mergers of a public company. Managers do offer to company promoters the advantage of increasing the size of their company as well as financial structure and strength. Managers help the promoters in converting their closely held and private limited company into a public company without contributing much wealth and without losing control over the company. Take a merger of Jaiprakash Industries, which was formed out of merger of Jaiprakash Associates and Jay Pee Rawa Cement. Jayaprakash Associates was a closely held company. The merger enabled the promoters of Jaiprakash Associates to have a stake at 60 per cent worth Rs.39.85 crores, in Jaiprakash Industries Limited against an investment of just Rs.4.5 crore in Jaiprakash Associates. Thus the merger invariably results into monetary gains for the promoters and their associates in the surviving company.

Another example, take the Merger of Hindustan Computers, Hindustan Reprographics, Hindustan Telecommunications, and Indian Computer Software Company into HCL Limited exhibited synergy in transfer of technology and resources to enable the company to cut down imports of components at a fabulous duty of 198 per cent. In this merger Hindustan Reprographics was the only one public company and the remaining three merging organisations were private limited companies. The promoters of Hindustan Computers were allotted equity shares worth Rs. 1.27 crores on merger in a new company called HCL Limited. This gave the promoters of Hindustan Computers an 86 per cent stake in HCL's equity worth of Rs.1.48 crores. This gain was against the original investment of meager Rs.40 lakhs in Hindustan Computers and they did not invest any extra money in getting shares worth Rs 1.48 crores.

### **3.2.7 IMPACT OF MERGERS ON GENERAL PUBLIC**

The word restructure particularly merger has been symbolic with conflict, dislocation and economic and financial pain or gain. It is largely perceived in terms of its external consequences for investors, employees, competitors, suppliers, and host communities. The impact of mergers on general public could be viewed as aspects of benefits and costs to, (1) Consumers, (2) Workers or Employees, and (3) General Public.

#### **1. Consumers**

Mergers are *beneficial* to the consumers of products or services, only when the merger realized economic (i.e., enhanced economies, and diversification which lead to manufacture better quality products at lower prices) gains. These economic benefits are transferred to the consumers in the form of lowers prices, and better quality products or services, which directly raise their standard of living and quality of life. While mergers are going to be *costly* when they create monopoly or minimize competition among companies. Creating monopoly or limiting competition leads to produce low quality products or provides low quality services like after sales services at reasonably high prices.

#### **2. Workers**

Workers or employees community would be *benefited* from merger or acquisition only when the restructuring helps in satisfying their demands, in the form of employment, increased wages, improved working environment, better living conditions and amenities. But the merger or acquisition of a company by a conglomerate or other acquiring company may have the effect on both sides of increasing welfare in the form of enhanced quality of life or it also decrease the welfare in the form of retrenchment of some employees, which would result purchasing power and makes their life miserable one.

### **3. General Public**

As we have read in the above that mergers or acquisitions create monopoly or limit the competition. This will ultimately lead to centralized concentration of power in small number of corporate leaders, which results in the concentration of an economic aggregation of economic power in their hands. Here economic power means, the ability to control products' prices and industries output as monopolists. Generally such monopoly affects social and political environment to lean everything in their favor with objective of maintaining power and expand their business empire. This advances lead to economic exploitation.

But in a free economy a monopolist does not stay for a long period as other corporate enter into this field to reap the benefits of high prices set in by the monopolist. Entry of new companies in this business enforces competition in the market, which will help to consumers to substitute the alternative products. Therefore mergers or acquisitions costly to the public only when creation of monopoly and possibility of entry of new companies in that business area.

Put in simple mergers are dangerous, when they elimination of healthy competition; concentration of economic power; and adverse effects on national economy. However, mergers are essential for the fast growth of the organisations. At the same time the dangers of mergers are more than off-set by advantages of mergers. This is possible only when every merger or acquisition proposal must be examined keeping in view the advantages and dangers, there by allowing mergers or acquisitions that help to a group of stakeholders.

#### **3.2.8 COSTS AND BENEFITS OF A MERGER**

When a company 'A' acquires another company say 'B', then it is a capital investment decision for company 'A' and it is a capital disinvestment decision for company 'B'. Thus, both the companies need to calculate the Net Present Value (NPV) of their decisions.

To calculate the NPV to company 'A' there is a need to calculate the benefit and cost of the merger. The *benefit* of the merger is equal to the difference between the value of the combined identity ( $PV_{AB}$ ) and the sum of the value of both firms as a separate entity. It can be expressed as  $\text{Benefit} = (PV_{AB}) - (PV_A + PV_B)$

### **Basis for Computation of NPV of Acquirer and Acquiree**

(A). Cash compensation, or (B) Compensation in Stock.

But there is important difference between cash and stock compensation. If the compensation is paid in the form of cash, the cost of the acquisition is independent of the gains of the acquisition. On the other hand, if the compensation is paid in the form of stock, the cost of the acquisition is dependent on the gains of the acquisition. This can be seen in the following illustrations.

#### **(A) NPV of A and B in case the Compensation is in Cash:**

Assuming that compensation to firm B is paid in cash, the cost of the merger from the point of view of firm A can be calculated as:  $\text{Cost} = \text{Cash} - PV_B$

The net present value of the merger for the firm A is the difference between the benefit and the cost as defined above. So

$$\begin{aligned} \text{NPV for A Company} &= \text{Benefit} - \text{Cost} \\ &= [(PV_{AB} - (PV_A + PV_B))] - [(Cash - PV_B)] \\ &= PV_{AB} - PV_A - Cash \end{aligned}$$

The net present value of the merger from the point of view of firm B is the same as the cost of the merger for 'A'. Hence,

$$\text{NPV to B} = (\text{Cash} - PV_B)$$

**Illustration:** Firm A has a value of Rs. 1,00,00,000 and Firm B has a value of Rs. 25,00,000. If the two firms merge, cost savings with a present value of Rs. 25,00,000 would occur. Firm A proposes to offer Rs. 30,00,000 cash compensation to acquire Firm B. Calculate the net present value (NPV) of the merger to the two firms.

**Solution:** Given Values are:  $PV_A$ : Rs.1, 00,00,000;  $PV_B$ : Rs.25, 00,000;  
 $PV_{AB}$ : Rs.1, 50,00,000 (i.e.,  $PV_A + PV_B + PV$  of cost savings); Cash: Rs.30, 00,000.

**i. Cost of Acquiring Firm B** = Cash -  $PV_B$

$$= \text{Rs.}30, 00,000 - \text{Rs.}25, 00,000 = \mathbf{\text{Rs.}5, 00,000}$$

**ii . Benefit of Acquiring Firm B** =  $PV_{AB} - (PV_A + PV_B)$

$$= \text{Rs.}1, 50,00,000 - (\text{Rs.}1, 00,00,000 + \text{Rs.}25, 00,000) = \mathbf{\text{Rs.}25, 00,000}$$

**iii. NPV for A Firm** = Benefit - Cost

$$= \text{Rs.}25, 00,000 - \text{Rs.}5, 00,000 = \mathbf{\text{Rs.}20, 00,000}$$

**iv. NPV for B Firm** = Cash -  $PV_B$

$$= \text{Rs.}30, 00,000 - \text{Rs.}25, 00,000 = \mathbf{\text{Rs.}5, 00,000}$$

**(B) NPV of A and B in case the Compensation is in Stock:**

In the above scenario we assumed that compensation is paid in cash, however in real life compensation is usually paid in terms of stock. In that case, cost of the merger needs to be calculated carefully. It is explained with the help of an illustration

**Illustration:** Firm A plans to acquire firm B. Following are the statistics of firms before the merger –

<b>Particulars</b>	<b>A</b>	<b>B</b>
Market price per share (Rs.)	50	20
Number of Shares	2,50,000	1,25,000
Market value of the firm (Rs.)	1, 25,00,000	25, 00,000

The merger is expected to bring gains, which have a PV of Rs.25, 00,000. Firm A offers 62,500 shares in exchange for 1,25,000 shares to the shareholders of firm B. Calculate the net present value (NPV) of the merger to the two firms.



**Solution: i. Cost of acquiring Firm B** in this case is defined as

$$\begin{aligned}\text{Cost} &= \text{Offered Shares} \times \text{Market Price of Firm A's Share} \times \text{Market Value of Firm B} \\ &= 62,500 \text{ Shares} \times \text{Rs.50 per Shares} - \text{Rs. 25,00,000} \\ &= \mathbf{Rs. 6,25,000}\end{aligned}$$

The true cost, however, is higher than Rs..6,25,000. While calculating the true cost evaluator must recognize that Firm B's shareholders end up owning a fraction of the share capital of the combined Firm. The cost in this case is defined as –

$$\text{Cost} = \alpha PV_{AB} - PV_B$$

Where:

$\alpha$  Represents the fraction of the combined entity received by shareholders of B.

In the above example, the share of B in the combined entity is –

$$\alpha = 62,500 / (2,50,000 + 62,500) = \mathbf{0.2}$$

Assuming that the market value of the combined entity will be equal to the sum of present value of the separate entities and the benefit of merger. Then,

$$PV_{AB} = PV_A + PV_B + \text{Benefit} = 1,25,00,000 + 25,00,000 + 25,00,000 = \mathbf{Rs.1, 75,00,000}$$

$$\begin{aligned}\text{Cost} &= \alpha PV_{AB} - PV_B \\ &= 0.2 \times \text{Rs.1, 75,00,000} - 25,00,000 = \mathbf{Rs.10, 00,000}\end{aligned}$$

Thus NPV to A = Benefit – Cost

$$= 25,00,000 - \text{Rs. 10,00,000} = \mathbf{Rs.15, 00,000}$$

NPV to B = Cost to A = **Rs.10, 00,000.**

### **3.2.9 DETERMINATION OF FORM OF COMPENSATION (CSAH Vs STOCK)**

When a firm is planning to acquire another firm it is very important to determine the form of compensation. The compensation may be paid in the form of cash or stock. Determination of the form of compensation depends on the following four factors. (1) Overvaluation, (2) Taxes, (3) Sharing of Risks and Rewards, and (4) Discipline.

- 1. Overvaluation:** Cash form of compensation is less costly and it is preferable when the acquiring firm's stock is overvalued relative to the target or acquired firm's stock. On the other hand stock form of compensation is less costly and it is preferable when the acquiring firm's stock is under valued relative to the target or acquired firm's stock.
- 2. Taxes:** Acquired firm's shareholders are required to pay tax if they receive compensation in the form of cash. On the other hand payment of tax is not necessary if the acquired firm's pays compensation in the form of stock. Here generally acquiring firm need to find the acquired or target firm's majority shareholders' preferred form of compensation.
- 3. Sharing of Risks and Rewards:** Payment of compensation in the form of cash does not allow the target firm's shareholders to share risk and return of the merger, because they are not the owners of the combined firm. On the other hand, payment of compensation in the form of cash allows the target firm's shareholders to share the risk and return of the merger, since they are becoming the owners in the combined firm.
- 4. Discipline:** Empirical evidence suggests that acquiring another firm by paying compensation in the form of cash tend to succeed more compared to the acquiring another firm by paying compensation in the form of stock. This is because acquiring firm perceives that acquiring firm by paying cash compensation is more risky compared to stock compensation. In the corporate language this is called discipline, in such case the buyers are more disciplined, circumspect, and rigorous in their evaluation.

### **3.2.10 DETERMINATION OF SWAP (EXCHANGE RATIO)**

Calculation of Exchange Ratio from the perspective of the acquired and the acquiring firm

Whenever a Firm 'A' acquires another Firm 'B', the compensation to the shareholders of the acquired firm is usually paid in the form of shares of the acquiring firm. In other words, shares of Firm A will be given in exchange for shares of Firm B. Thus, the exchange ratio is a very important factor in any kind of merger. Firm A will want to keep this ratio as low as possible, while Firm B will want it to be as high as possible. Larson and Gonedes developed a model for exchange ratio determination. Their model holds that both firms would ensure that post merger; their equivalent price per share will at least equal their pre-merger price per share. Their model has been presented in somewhat simpler terms by Conn and Nielson for determining the exchange ratio. The symbols used in this model are:

ER = Exchange ratio	P = Price per share
EPS = Earning per share	PE = Price earning multiple
E = Earnings	S = Number of outstanding equity
shares	
AER = Actual exchange ratio	

In addition, the acquiring, acquired and combined firms will be referred to by subscripts A, B and AB respectively.

Firm A would ensure that the wealth of its shareholders is preserved. This implies that the price per share of the combined firm is at least equal to the price per share of firm A before merger:

$$P_{AB} \geq P_A$$

For the sake of simplicity consider that  $P_{AB} = P_A$

The market price per share of the combined firm is expressed as the product of Price earnings ratio of the combined firm and Earnings per share of the combined

$$\text{firm: } P_{AB} = (PE_{AB}) (EPS_{AB}) = P_A \quad \text{----- (1)}$$

Earnings per share of the combined firm can be expressed as:

$$EPS_{AB} = (E_A + E_B) / [S_A + S_B(ER_A)] \quad \text{----- (2)}$$

In equation 2  $ER_A$  represents number of shares of Firm A given in lieu of one share of Firm B.

Substituting formula of  $EPS_{AB}$  in equation 1 we get –

$$P_A = (PE_{AB}) (E_A + E_B) / [S_A + S_B (ER_A)]$$

From the above equation, we may solve for the value of  $ER_A$  as follows:

$$ER_A = (- S_A / S_B) + [(E_A + E_B) PE_{AB}] / P_A S_B$$

**Illustration:** The following relevant information for Firm A and Firm B. Determine the maxi. change ratio if PE ratio for combined firm is 3, 9, 10, 11, 12, 15, and 20.

Particulars	Firm A (Rs.)	Firm B (Rs.)
Market price per share – P	12	4
Earnings per share – EPS	1	0.5
Price / earnings ratio – PE (Times)	6	4
Total earnings – E	90,00,000	30,00,000
Number of outstanding equity shares - S	45,00,000	30,00,000

**Solution: Maximum Exchange Ratio for Firm A:**

$$\begin{aligned} ER_A &= (- S_A / S_B) + [(E_A + E_B) PE_{AB}] / P_A S_B \\ &= (- 45,00,000 / 30,00,000 ) + [(Rs.90,00,000+Rs. 30,00,000)PE_{AB}] / \\ &12(30,00,000) \\ &= (- 1.5) + [(Rs.1,20,00,000)PE_{AB}] / 3,60,00,000 \\ &= - 1.5 + 0.333(PE_{AB}) \end{aligned}$$

$ER_{AB}$	3	9	10	11	12	15	20
Max. $ER_A$	0.5	1.497	1.83	2.16	2.496	3.495	5.16

After discussing the maximum exchange ratio acceptable to the shareholders of Firm A above, we will now calculate the minimum exchange ratio acceptable to the Firm B ( $ER_B$ )

The basic condition is:  $P_{AB} (ER_B) \geq P_B$  ----- (3)

Using the equality form of above equation and substituting  $P_{AB}$  from equation 1 in equation 3 we get  $(PE_{AB}) (EPS_{AB}) (ER_B) = P_B$

Substituting the value of  $EPS_{AB}$  from equation 2 in the above equation, and solving the equation for  $ER_B$  we get:

$$ER_B = (P_B S_A) / [(PE_{AB}) (E_A + E_B) - P_B S_B]$$

**Illustration:** The following relevant information for Firm A and Firm B. Determine the mini. change ratio if PE ratio for combined firm is 3, 9, 10, 11, 12, 15, and 20.

Particulars	Firm A (Rs.)	Firm B (Rs.)
Market price per share – P	12	4
Earnings per share – EPS	1	0.5
Price / earnings ratio – PE (Times)	6	4
Total earnings – E	90,00,000	30,00,000
Number of outstanding equity shares - S	45,00,000	30,00,000

**Solution: Minimum Exchange Ratio for Firm B:**

$$\begin{aligned}
 ER_B &= (P_B S_A) / [(PE_{AB}) (E_A + E_B) - P_B S_B] \\
 &= (4 / 45,00,000) / [(PE_{AB}) (90,00,000 + Rs. 30,00,000) - (4) (30,00,000)] \\
 &= 1,80,00,000 / [(PE_{AB}) (Rs.1, 20,00,000) - 1,20,00,000] \\
 &= 1,80,00,000 / [(PE_{AB}) - 0] \\
 &= 1.5 / [(PE_{AB}) - 0]
 \end{aligned}$$

$ER_{AB}$	3	9	10	11	12	15	20
Max. $ER_{Ab}$	0.5	0.167	0.15	0.136	0.125	0.10	0.075

### 3.2.11 BASIS FOR DETERMINING THE EXCHANGE RATIO

When a firm plans to acquire two or more firms, acquiring firm need to pay some financial compensation to the target firm(s). Typically, acquiring firm offers its shares in exchange for the target firm's shares. Then how many shares of acquiring firm should be offered to target firm? The number of shares to be

offered depends on the exchange ratio. Exchange ratio (swap ratio) is the number of shares the acquiring firm is willing to give in exchange for one share of the target firm. For example take swap ratio of IOC-IBP merger, The Indian Oil Corporation (IOC) was approved a share swap ratio 125:100, that is 125 equity shares of IOC would be offered for every 100 equity shares of IBP, for merging its subsidiary IBP Co with itself. This ratio was offered due to the amalgamation that will help it save about Rs. 45 crores annually in overhead expenses. At the same time the merger will increase the IOC market share to 61 per cent.

How the swap ratio or exchange ratio is determined? What are the bases on which the exchange ratio is determined? The following are the commonly used bases for determining the exchange ratio:

1. Earnings per share (EPS) or Earnings approach,
2. Market price per share (MPS) or Market value approach,
3. Book value per share (BVPS) or Book value approach, and
4. Discounted Cash Flow (DCF) Value Per Share (DCF PS)

### **1. Earnings Per Share (EPS) or Earnings Approach**

Under this base EPS of acquiring firm and target firm are considered for determining exchange ratio. *EPS of target firm is divided by the EPS of acquiring firm for getting swap ratio.* For example, Firm A is planning to acquire Firm B, and it is negotiated with the executive of Firm B and came to an understanding that the exchange ratio is determined based on the both firms EPS. The EPS of Firm A is Rs. 8, and Firm B is Rs.4. The exchange ratio is 0.5 (i.e., Rs.4 / Rs.8). It indicates that half a share of acquiring Firm A will be exchanged for one share of target Firm B. In other words for every 2 shares of target Firm B one share of Firm A is offered. EPS base is right base because EPS reflect prima facie the earning power. But it suffers some *limitations*. They are it ignore the differences in growth rate of earnings of the two firms, ignores the gains in earnings arising

out of merger, ignores the differential risks associated with the earnings of the two firms.

## **2. Market Price Per Share (MPS) or Market Value Approach**

Under this approach exchange ratio is determined based on relative market prices of the shares of the acquiring firm and target firm. *Market price per share of target firm is divided by market price per share of acquiring firm for getting swap ratio.* Market price per share is determined by the following formulae:

$$\text{Market Price per share} = \text{Earnings Per Share (EPS)} \div \text{Capitalisation Rate}$$

For example, Firm A is planning to acquire Firm B, and it is negotiated with the executive of Firm B and came to an understanding that the exchange ratio is determined based on the relative market price per share. Acquiring Firm A's shares sell for Rs. 100, and target Firm B's shares sell for Rs.30. The exchange ratio is 0.3 (i.e., Rs.30 / Rs.100). In other words for 3 shares of the acquiring Firm A will be exchanged for every 10 shares of target Firm B.

Determination of exchange ratio based on the relative market price per share is definitely appropriate one, only when the both firms' shares are actively traded in a competitive market. But when trading is meager, market prices may not be reliable and it may be difficult to identify market price when the shares are not traded. Market price is not available if the any of the firms' shares are not quoted at a stock exchange. If it is quoted it may be difficult to identify the right price since they keep on fluctuating, and those who have vested interest may manipulate market prices.

## **3. Book Value Per Share (BVPS) or Book Value Approach**

Here relative book value per share of the two firms may be used for determining exchange ratio. *Book value per share of target firm is divided by the book value per share of acquiring firm for getting swap ratio.* Book value (BV)per share is determined by the following formulae:

$$\text{BV per share} = \frac{\text{Shareholders' Funds or Net worth}}{\text{No. of outstanding equity shares}}$$

For example, Firm A is planning to acquire Firm B, and it is negotiated with the executive of Firm B and came to an understanding that the exchange ratio is determined based on the book value per share. Firm A's book value per share is Rs. 20, and target Firm B's book value per share is Rs.14. The exchange ratio is 0.7 (i.e., Rs.14 / Rs.20). 7 shares of the acquiring Firm A will be exchanged for every 10 shares of target Firm B.

The proponents of book value approach contend that it provide a very objective basis. But, it is not very possible argument because book value per share is influenced by accounting policies, which reflect subjective judgments. Apart from this they are some more objections against book value approach of exchange ratio: book values do not reflect changes in purchasing power of money, and book values often are highly different from true economic values.

#### **4. Discounted Cash Flow (DCF) Value Per Share (DCF PS)**

Under this approach exchange ratio is determined based on discounted cash flow value per share of the acquiring firm and target firm. *Equity value using DCF method is divided by number of equity shares outstanding to get DCF value per share.* Equity value using DCF method is equals to the firm value using DCF method minus debt value. For example, Firm A is planning to acquire Firm B, and it is negotiated with the executive of Firm B and came to an understanding that the exchange ratio is determined based on the DCF value per share. Firm A's DCF value per share is Rs. 30, and target Firm B's DCF value per share is Rs.15. The exchange ratio is 0.5 (i.e., Rs.15 / Rs.30). It indicates that half a share of acquiring Firm A will be exchanged for one share of target Firm B. In other words for every 2 shares of target Firm B one share of Firm A is offered.



DCF value method of determining exchange is ideally suitable for firms who have credible business plans and cash flow projections for a period of 5 to 10 years for the merging firms.

### **3.2.12 EVALUATION OF MERGER PROPOSAL**

Top management defines the organisation's goals and outlines the policy framework to achieve these objectives. The organisation's goal for business expansion could be accomplished, inter alia through business combinations assimilating a target corporate which can remove the present deficiencies in the organisation and can contribute in the required direction to accomplish the goal of business expansion through enhanced commercial activity i.e., supply of inputs and market for output product diversification, adding up new products and improved technological process, providing new distribution new channels and market segments, making available technical personnel and experienced skilled manpower, research and development establishments, etc. Depending upon the specific need and cost advantage with reference to creating a new set up and/or acquiring a well established setup firm.

#### **Search for a Merger Partner**

The top management may use their own contacts with competitors in the same line of economic activity or in other diversified field which could be identified as better merger partners or may use the contacts of merchant bankers, financial consultants and other agencies in locating suitable merger partners. A number of corporate candidates identified and evaluated based on the organisational history of business and promoters and capital structure; organisational goals; product, market and competitors; organisational setup and management pattern; assets profile movable and immovable assets, land and building; manpower skilled, unskilled, technical personnel and detailed particulars of management employees; accounting policies, financial management and control; operational data; profitability projections; creditors profile and company's credit performance and

record with its bankers in particular. They may be short listed when they passed on the above detailed aspects of information.

### **Negotiating with Merger Partner**

Top management can negotiate at a time with several identified short listed companies suited to be merger partner for settling terms of merger and pickup one of them which offers favorable terms.

Negotiations can be had with target companies before making any acquisitional attempt. Same drill of negotiations could be followed in the cases of merger and amalgamation. Activity schedule for planning merger covering different aspects like preliminary consultations with the perspective merger partner and seeking its willingness to cooperate in investigations should be prepared. There are other aspects, too, in the activity of schedule covering, quantification action plan, purpose, shape and date of merger, profitability and valuation, taxation aspects, legal aspects and developmental plan of the company after merger.

### **3.13 STEPS FOR MERGER AND AMALGAMATION**

Once the merger partner has been identified and terms of merger are settled the following procedure can be followed.

#### **1. Scheme of Merger / Amalgamation**

Once two/more firms agree to merge with each other, and then they have to prepare a scheme of amalgamation. Generally the acquiring company prepares scheme of amalgamation after consulting its merchant banker or financial consultants. There is no specific form prescribed for scheme of amalgamation but scheme should generally contain the following information:

- Particulars about transferee (amalgamated) and transferor (amalgamating) firms and the business of transferor.
- Appointed date.

- Main terms of transfer of assets from transferor to transferee with power to execute on behalf or for transferee the deed/documents being given to transferee.
- Main terms of transfer of liabilities from transferor to transferee covering any conditions attached to loans / debentures / bonds / other liabilities from bank/financial institution/trustees and listing conditions attached thereto.
- Effective date when the scheme will come into effect.
- Conditions as to carrying on the business activities by transferor between “appointed date” and “effective date”.
- Description of happenings and consequences of the scheme coming into effect on effective date.
- Share capital of Transferor Company and Transferee Company specifying authorized capital, issued capital and subscribed and paid up capital.
- Description of proposed share exchange ratio, any conditions attached thereto, any fractional share certificates to be issued, Transferee Company’s responsibility to obtain consent of concerned authorities for issue and allotments of shares and listing.
- Surrender of shares by shareholder of Transferor Company for exchange into new share certificates.
- Conditions about payment of dividend, ranking of equity shares, *pro rata* dividend declaration and distribution.
- Status of employees of the transferor companies from effective date and the status of the provident fund, gratuity fund, super annuity fund or any special scheme or funds created or existing for the benefit of the employees.
- Treatment on effective date of any debit balance of transferor company balance sheet.

- Miscellaneous provisions covering income tax dues, contingencies and other accounting entries deserving attention or treatment.
- Commitment of transferor and transferee companies towards making applications/petitions under sections 391 and 394 and other applicable provisions of the Companies Act, 1956 to their respective High Courts.
- Enhancement of borrowing limits of the transferee company upon the scheme coming into effect.
- Transferor and transferee companies give assent to change in the scheme by the court or other authorities under law and exercising the powers on behalf of the companies by their respective Boards.
- Description of powers of delegates of transferee to give effect to the scheme.
- Qualification attached to the scheme, which require approval of different agencies, etc.
- Description of revocation/cancellation of the scheme in the absence of approvals qualified in clause 20 above not granted by concerned authorities.
- The transferor company will be dissolved without winding up after amalgamation is affected.
- Statement to bear costs, etc. in connection with the scheme by the transferee company.

The acquiring company should be ensured that the scheme of amalgamation is just and equitable to the shareholders and employees of each of the amalgamating company and to the public.

## **2. Approval of Board of Directors for the scheme**

In India the scheme of amalgamation / merger is governed by the provisions of Companies Act, 1956, under sections 391-394. Therefore, the scheme of amalgamation requires approval from respective bodies. Respective Board of

Directors for transferor and transferee companies is required to approve the scheme of amalgamation.

### **3. Approval from other Boards**

According to sec.391, of the Company's Act, 1956, the scheme of amalgamation should get it approved by shareholders of the acquiring firm and target firm. Generally shareholders of amalgamating companies should hold their respective meetings under the directions of respective High Courts, and consider the scheme of amalgamation.

Approval of the scheme by specialized financial institutions / banks / trustees for debenture holders

The Board of Directors should in fact approve the scheme only after it has been cleared by the financial institutions / banks, which have granted loans to these companies or the debentures trustees to avoid any major change in the meeting of the creditors to be convened at the instance of the Company Court's under section 391 of the Companies Act, 1956.

Approval of Reserve Bank of India is also needed where the scheme of amalgamation contemplates issue of share / payment of cash to Non-Resident Indians/Foreign nationals under the provisions of Foreign Exchange Management (Transfer or Issue of Security by a Person Resident Outside India) Regulation, 2000.

Approval from respective high courts, confirming the amalgamation. The court(s) issues orders for dissolving the amalgamating company, without winding up, on receipt of reports from the official liquidator and the regional director.

### **4. Examination of Object Clause**

Examination of object clauses of memorandum of association (MoA) of the transferor and transferee companies to ascertain whether the power of amalgamation / merger exists or not. Further, the object clause of MoA of

Transferee (amalgamated) Company should allow for carrying on the business of the transferor (amalgamating) company. If it is not so, it is necessary to amend the object clause, which require approvals from shareholders, board of directors, and Company Law Board.

### **5. Intimation to Stock Exchange**

The stock exchanges where transferor and transferee companies are listed or quoted their shares should be informed about the amalgamation proposal. At the same time, from time to time, all copies of notices, resolutions, and any orders should be send to the stock exchanges.

### **6. Application to Court for directions**

The next step is to make an application under section 391(1) to the High Court having jurisdiction over the Registered Office of the company, for an order calling a meeting of its members. The transferor company and the transferee company should make separate applications to the High Court. The application shall be made by a Judge's summons in Form No.33 supported by an Affidavit in Form No. 34 (see rule 82 of the Companies (Court) Rules. Ensure that the Affidavit is signed and sworn in the prescribed manner by the deponent prescribed in the Code of Civil Procedure, 1908 (Rule 67 of the Companies (Court) Rules, 1959). The following documents should be submitted with the Judge's summons:

- (a) A true copy of the Company's Memorandum and Articles;
- (b) A true copy of the Company's latest audited balance sheet; and
- (c) A copy of the Board resolution, which authorizes the Director to make the application to the High Court.

### **7. High Court directions for Members' Meeting**

Upon the hearing of the summons, the High Court shall give directions fixing the date, time and venue and quorum for the members' meeting and appointing an

Advocate Chairman to preside over the meeting and submit a report to the Court. The court for calling the meeting of creditors in case such request has been made in the application issues similar directions.

#### **8. Approval of Registrar of High Court to notice for calling the meeting of Members / Creditors**

Pursuant to the directions of the Court, the transferor as well as the transferee companies shall submit for the approval to the Registrar of the respective High Courts the drafts notice/s calling the meetings of the members in Form No.36 together with a scheme of arrangements and explanations, statement under section 393 of the Companies Act and form of proxy in Form No. 37 of the Companies (Court) Rules to be sent to the members along with the said notice. Once Registrar has accorded approval to the notice, then the Chairman appointed for the meeting by the High Court who shall preside over the proposed meeting of members should be signed it.

#### **9. Dispatch of Notices to Members / Shareholders**

Once the notice has been signed by the chairman of the forthcoming meeting as aforesaid it could be dispatched to the members under certificate of posting at least 21 days before the date of meeting.

#### **10. Advertisement of the Notice of Members' Meetings**

The Court may direct the issuance of notice of the meeting of these shareholders by advertisement. In such case rule 74 of the Companies (Court) Rules provides that the notice of the meeting should be advertised in such newspaper and in such a manner as the Court may direct not less than 21 clear days before the date fixed for the meeting. The advertisement shall be in Form No. 38 appended to the Companies (Court) Rules. The companies should submit the draft for the notice to be published in Form No. 38 in an English Daily together with a translation thereof in the regional language to the National Company Law Tribunal (NCLT).

The advertisement shall be released in the newspapers after the Registrar approves the draft.

### **11. Confirmation about the Service of the Notice**

Ensure that at least one week before the date of the meeting, the Chairman appointed for the meeting files an Affidavit to the Court about the service of the notices to the shareholders that the directions regarding the issue of notices and advertisement have been duly complied with.

### **12. Holding the Shareholders' General meeting and passing the resolutions**

The general meeting should be held on the appointed by each company for passing the scheme of amalgamation. The amalgamation scheme should be approved by the shareholders, by a majority in number of shareholders present in person or on proxy and voting on the resolution and this majority must represent at least  $3/4^{\text{th}}$  in value of the shares held by the members who vote in the poll. Getting approval of scheme amalgamation from shareholders is just enough it should also get approval (at least  $3/4^{\text{th}}$  in value of creditors, in each class, who have vote in either person or by proxy) from creditors of the company, for which company need hold separate meeting for creditors.

### **13. Filing of Resolutions of General Meeting with NCLT for Confirmation**

Once the shareholders' and creditors general meeting approves the amalgamation scheme by a majority in number of members holding not less than  $3/4^{\text{th}}$  in value of the equity shares, the scheme is binding on all the members of the company. The companies involved in the amalgamation / merger should present a copy of the resolution passed by the shareholders approving the scheme of amalgamation should be filed with the NCLT. Then the NCLT will fix a date of hearing. A notice about the hearing and the date of hearing has to be published in two newspapers. At the date of hearing NCLT here the parties concerned and ascertaining that the amalgamation / merger scheme is fair and reasonable, and then the NCLT will pass an order sanctioning the same.



#### **14. Filing the NCLT Order with the Registrar of Companies (RoCs)**

Once the approval of amalgamation order received from NCLT, then the same in true copies, must be filed with the registrar of companies within the time limit specified by the NCLT.

#### **15. Transfer of Assets and Liabilities**

Section 394(2) vests powers in the High Court to for the transfer of any property or liabilities from transferor company to transferee company, with effect from the appointed date. In pursuance of and by virtue of such order such properties and liabilities of the transferor shall automatically stand transferred to the transferee company without any further act or deed from the date the Court's order is filed with ROC.

#### **16. Allotment of Shares to Shareholders of Transferor Company**

Pursuant to the sanctioned scheme of amalgamation, the shareholders of the transferor company are entitled to get shares in the transferee company in the exchange ratio provided under the said scheme. If there is any cash payment to be made the same have to be arranged. There are three different situations in which allotment could be given effect to:

- i. Where transferor company is not a listed company, the formalities prescribed under listing agreement do not exist and the allotment could take place without setting record date or giving any advanced notice to shareholders except asking them to surrender their old share certificates for exchange by new ones.
- ii. The second situation will emerge different where Transferor Company is listed company. In this case, the stock exchange is to be intimated of the record date by giving at least 42 days notice or such notice as provided in the listing agreement.

iii. The third situation is where allotment to Non-Resident Indians is involved and permission of Reserve Bank of India is necessary. The allotment will take place only on receipt of RBI permission. In this connection refer to regulations 7, 9 and 10B of Foreign Exchange Management (Transfer or Issue of Security by a Person Resident Outside India) Regulations, 2000 as and where applicable.

Having made the allotment, the transferee company is required to file with ROC the return of allotment in Form No. 2 appended to the Companies (Central Government's) General Rules and Forms within 30 days from the date of allotment in terms of section 75 of the Act.

Transferee company shall having issued the new share certificates in lieu of and in exchange of old ones, surrendered by transferor's shareholders should make necessary entries in the register of members and index of members for the shares so allotted in terms of sections 150 and 151 respectively of the Companies Act, 1956.

### **17. Listing of Shares at Stock Exchange**

After the amalgamation is effected, the company, which takes over the assets and liabilities of the transferor company, should apply to the Stock Exchanges where its securities are listed, for listing the new shares allotted to the shareholders of the transferor company.

### **18. Court order to be Annexed to Memorandum of Transferee Company**

It is the mandatory requirement *vide* section 391(4) of the Companies Act, 1956 that after the certified copy of the Court's order sanctioning scheme of amalgamation is filed with the Registrar, it should be annexed to every copy of the Memorandum issued by the transferee company. Failure to comply with requirement renders the company and its officers liable to punishment.

### **19. Preservation of Books and Papers of Amalgamated Company**

Section 396A of the Act requires that the books and papers of the amalgamated company should be preserved and not be disposed of without prior permission of the Central Government.

### **20. Post Merger Secretarial Obligations**

There are various formalities to be complied with after amalgamation of the companies is given effect to and allotment of shares to the shareholders of the transferor company is over. These formalities include filing of returns with Registrar of Companies, transfer of investments of Transferor Company in the name of the transferee, intimating banks and financial institutions, creditors and debtors about the transfer of the transferor company's assets and liabilities in the name of the transferee company etc. All these aspects along with restructuring of organisation and management and capital are discussed in chapter relating to post-merger reorganization of Transferee Company.

### **21. Withdrawal of the scheme not permissible**

Once the requisite majority of Shareholders and creditors has approved the Scheme for merger, the Scheme cannot be withdrawn by subsequent meeting of shareholders by passing Resolution for withdrawal of the Petition submitted to the Court under section 391 for sanctioning the scheme.

### **22. Cancellation of Scheme and order of Winding-up**

It was held by the Supreme Court in J.K (Bombay) (P) Ltd. v New Kaiser-i-Hind that the effect of winding-up order is that except for certain preferential payments provided in the Act, the property of the company is applied in satisfaction of its liabilities, as they exist at the commencement of the winding-up.

So long as the scheme is in operation and is binding on the company and its creditors, its provisions undoubtedly govern the rights and obligations of those on whom it is binding. But once the scheme is cancelled under section 392(2) on the

ground that it cannot be satisfactorily worked and winding-up order passed such an order is deemed to be for all purposes to be one made under section 433. It is not because as if the scheme has been sanctioned under section 391 that a winding-up orders under section 392(2) cannot be made.

### 3.2.14 TAX ASPECTS OF MERGERS / AMALGAMATIONS

Amalgamation for the purpose of Income Tax, 1961, is recognized only when the conditions given under section 2 (1B) of the said Act, are fulfilled. Section 2 (1B) defines amalgamation, in relation to companies, means the merger of one or more companies with another company or the merger of two or more companies to form one company. The company(ies) merging are called amalgamating company or companies and the company with which the amalgamating merge or the company, which is formed as a result of the merger, is called amalgamated company. The amalgamated company is eligible to enjoy tax benefits if the following conditioned are fulfilled:

- i. All properties and liabilities of the amalgamating company(ies) immediately before the amalgamation become the properties and liabilities of the amalgamated company by virtue of the amalgamation;
- ii. Shareholders holding not less than 3/4<sup>th</sup> in value of the shares in the amalgamating company (ies) become shareholders of the amalgamated company by virtue of the amalgamation.

### TAX CONCESSIONS

**Tax concessions are available for amalgamated company, amalgamating company (ies), and Shareholders of the amalgamating company.**

#### I. Tax Concessions to Amalgamated Company

The tax concessions are available to amalgamated company, that too if the amalgamating company is Indian company.

## **1. Carry forward and Set off of Business Losses and Unabsorbed Depreciation**

Section 72 A, of the Income Tax Act, 1961, allows the amalgamated company to carry forward accumulated business losses as well as unabsorbed depreciation of the amalgamating company, provided the following conditions are fulfilled:

- a. Amalgamated company continues the business of amalgamating company for the minimum period of 5 years from the date of amalgamation order,
- b. Amalgamated company should hold at least  $3/4^{\text{th}}$  of the value of the assets of the amalgamating company (ies), acquired in the scheme of amalgamation, for a minimum period of 5 years.
- c. The amalgamated company ensure that the amalgamation is for genuine business purpose, by fulfilling the conditions that are prescribed for revival of amalgamating company (ies),
- d. Amalgamation should be of a company owning an industrial undertaking (the manufacturer or processing of goods, or manufacture of computer software, or generation and distribution of electricity, or business of providing telecommunication services like – cellular, domestic satellite, broad band network, etc., or mining, or construction of ships, aircrafts or rail systems)

## **2. Expenditure on Acquisition of Patent Right or Copy Rights**

Generally acquisition of patents rights or copyrights involves expenditure that may be recovered over a period of time. If there were any un-recovered amount in the books of amalgamating company the same would be allowed to be written off by the amalgamated company in the same number of balance installments. After payment of the last installment the rights may be sold by the amalgamated company for a profit or loss if they are no more required, and the profit or loss on sale of the rights is the profit or loss of the amalgamated company. The

expenditure on acquisition of rights is eligible for depreciation if it is spent after 31<sup>st</sup> March, 1998.

### **3. Capital Expenditure on Scientific Research**

Capital expenditure of research is must for any company that wants to stay back in the industry. The amount spent on scientific research is generally a huge amount, which is supposed to be recovered over the future period. If amalgamated company accepts an assets represented by capital expenditure on scientific research, on such asset any unabsorbed capital expenditure in the books of amalgamating company would be eligible to be carried forward and set off in the hands on amalgamated company.

### **4. Amortization of Preliminary Expenses**

Preliminary expense is the amount spent in the beginning of the firm. If there is any not written off amount in the books of amalgamating company the same would be allowed to deduct in the same manner as would have been allowed to the amalgamating company(ies).

### **5. Expenditure for Obtaining License to Operate Telecommunication Services**

When the amalgamating company transfers license to the amalgamated company and the expenditure spent on obtaining the license are yet to be recovered, the same is allowed to the amalgamated company in the same number of balance instalments. After payment of the last installment the license may be sold by the amalgamated company for a profit or loss if they are no more required, and the profit or loss on sale of the rights is the profit or loss of the amalgamated company.

## **6. Bad Debts**

When the amalgamated takes over the debts of amalgamating company the same would be allowed as a deduction to the amalgamated company in the same manner as would have been allowed to the amalgamating company.

From the above it can be understood that income tax act, is not providing any favor to the amalgamated company. In other words, whatever concessions or deductions would have been available to the amalgamating company (ies) are provided to the amalgamated company. Put in simple, the idea of providing tax concessions or deductions is not put any disadvantage to the amalgamated company due to the amalgamation.

### **II. Tax Concessions to Amalgamating Company(ies)**

**No Capital Gains Tax** According to section 47 (vi), where there is transfer of any capital asset from amalgamating company (ies) to any Indian amalgamated company, such transfer will not be considered as transfer of capital assets for the purpose of capital gains.

### **III. Tax Concessions to the Shareholders of an Amalgamating Company (ies)**

According to section 47 (vii), where a shareholder of an Indian amalgamating company(ies) transfers his/her shares, such transaction is not treated as transaction and there is no attraction of capital gains tax, provided the transfer of shares is made in consideration of the allotment of any share to him/her or shares in the amalgamated company.

## **3.2.15 ACCOUNTING FOR MERGERS AND ACQUISITIONS**

According to the Accounting Standard (AS) 14, 'Accounting for Amalgamations', issued by the Council of the Institute of Chartered Accountants of India. This standard will come into effect in respect of accounting periods commencing on or after 1.4.1995 and will be mandatory in nature. The Guidance Note on

Accounting Treatment of Reserves in Amalgamations issued by the Institute in 1983 will stand withdrawn from the aforesaid date.

In India merger, defined as amalgamation, which involves the absorption of the target company by the acquiring company that results in the uniting of the interests of the two companies. The accounting treatment in the books of the transferee company is dependent on the nature of amalgamation. If the amalgamation is in the nature of merger then the merger should be structured as pooling of interest. On the other hand acquiring purchases the shares of the target company, then it should be structured as purchase. Therefore there are two main methods of accounting for amalgamations:

- (1) The pooling of interests method; and (2) The purchase method.

### **1. Pooling of Interest Method**

Use of this method is confined to circumstances which meet the criteria referred to in paragraph 3(e) of Accounting Standard (AS) 14 (issued 1994) Accounting for Amalgamations for an amalgamation in the nature of merger. Under this method the assets and liabilities of the acquiring and the acquired companies are aggregated based on book values without making any adjustments. There is no goodwill, because there is no revaluation of assets and liabilities. Reserves is preserved and they appear in the financial statements of the transferee company in the same form in which they appeared in the financial statements of the transferor company. The difference in capital on account of the exchange ratio (swap ratio) is adjusted in the reserves.

**Illustration:** Company H acquires company B, and issues share worth Rs.20 crore to company B's shareholders. The balance sheets of the both the companies at the time of merger are as follows:



(Rs. In Crore)

Particulars	Company H	Company B	Combined Co.
<b>Assets:</b>			
Net fixed assets	25	38	63
Current assets	10	15	25
<b>Total</b>	<b>35</b>	<b>53</b>	<b>88</b>
<b>Liabilities:</b>			
Shareholders funds	11	19	30
Borrowings	17	21	38
Current liabilities	07	13	20
<b>Total</b>	<b>35</b>	<b>53</b>	<b>88</b>

From the above table it can be understood that the shareholders funds are recorded at the book values. Even shareholders of Company B received shares worth Rs.20 crore.

## 2. Purchase Method

Under this method the assets and liabilities of the acquiring company after the acquisition are stated into the books of the acquired company at their market values. The difference between the purchase consideration and the net book value of assets over liabilities is shown as 'goodwill, in the acquiring company books. The same has to be amortised over a period not exceeding five years. If the purchase consideration less than the net book value of assets over liabilities, the difference is shown as 'capital reserve'.

**Illustration:** Company H acquires company B, assuming to take all its assets and liabilities. The fair market value of company B's fixed assets and current assets is Rs. 27 crore, and Rs.9 respectively. Current liabilities are valued at book value while the fair value of debt is estimated to be Rs. 16 crore. Company H raises cash of Rs. 20 crore to pay to B's shareholders by issuing worth Rs. 20 crore to its own shareholders. The balance sheets of the both the companies before acquisition and after acquisition are shown below:

(Rs. In Crore)

Particulars	Company H	Company B	Company H After Acquisition
<b>Assets:</b>			
Net fixed assets	25	38	65
Current assets	10	15	24
Goodwill	--	--	07
<b>Total</b>	<b>35</b>	<b>53</b>	<b>96</b>
<b>Liabilities:</b>			
Shareholders funds	11	19	39
Borrowings	17	21	37
Current liabilities	07	13	20
<b>Total</b>	<b>35</b>	<b>53</b>	<b>96</b>

From the above table it can be understood that the company H paid purchase consideration that is higher than the net book values of assets over liabilities.

Thus, Rs. 7 crore shown as goodwill.

**Calculation of Goodwill:**

**Rs. In crore.**

Purchase consideration		20
Fair value of fixed assets	27	
Fair value of current assets	<u>09</u>	36
Less: Fair value of debt	16	
Fair value of debt current liabilities	<u>07</u>	<u>23</u>
Fair value of net assets		<u>13</u>
<b>Goodwill</b>		<b><u>07</u></b>

**3.2.16 EVALUATION OF MERGER AS A CAPITAL BUDGETING**

**DECISION**

When a firm plans to acquire any firm then it should consider the acquisition as a capital budgeting decision. Hence, such a proposal must be evaluated as a capital budgeting decision. Here the target company should be valued in terms of potential to generate incremental future free cash inflows. Free cash flows in the context of merger / amalgamation, are equal to earnings after tax plus non cash

expenses (depreciation and amortisation) less additional investments expected to be made in the long-term assets and working capital of the acquired company.

### Steps Involved in Evaluating Merger as Capital Budgeting Decision

It consists of the following steps –

#### Step 1: Determination of Cost of Acquisition or Amalgamation (CoA)

Particulars	Amount (Rs)
Payment to equity shareholders (No. of Equity shares issued in amalgamated company X Market Price of share)	XXXX
<b>Add:</b> Payment to	
Preference shareholders	XXX
Debenture holders	XXX
External Creditors	XXX
Preference shareholders	XX
Accepted obligations	<u>XXX</u>
	XXXX
<b>Add:</b> Dissolution expense	XXX
Unrecorded liability	<u>XXX</u>
	XXXX
<b>Less:</b> Cash proceeds from sale of assets of target company	XXX
<b>Cost of Amalgamation / Merger</b>	<b>XXXXX</b>

#### Step 2: Determination of Incremental Expected Free Cash Flows to the Company (FCF)

Particulars	Amount (Rs)
Operating Earnings after tax	XXXX
<b>Add:</b> Non cash expenses (Deprecation and amortisation)	XXX
<b>Less:</b> Investment in long-term assets	XX
Investment in working capital	XX
<b>Free Cash Flows</b>	<b>XXXX</b>

### **Step 3: Determination of Terminal Value (TV)**

Terminal value is the value of the project at the end of the expected closing period. It can be determined with the following equations:

*i. TV when FCF are likely to be constant till infinity*

$$TV = FCF_{T+1} \div K_o$$

*ii. TV when FCF are likely to grow (g) at a constant rate*

$$TV = FCF_{T+1} (1 + g) \div (K_o - g)$$

*iii. TV when FCF are likely to decline at a discount rate*

$$TV = FCF_{T+1} (1 - g) \div (K_o + g)$$

Where:  $FCF_{T+1}$  = the expected FCF in the first year after the explicit forecast period.  $K_o$  = Cost of capital

### **Step 4: Determination of Appropriate Cost of Capital or Discount Rate (DF)**

Cost of capital is generally used as discounting factor for determining present value of FCF. Here the cost of capital determined based on the risk level of amalgamating firm. If amalgamating company risk complexion is matching with the amalgamated firm then the acquiring firm can use its own cost of capital ( $K_o$ ) as discounting factor. On the other hand if there is any variation in the risk complexion of the amalgamating firm then appropriate cost of capital may be computed after considering the variation in riskyness (high or low) of the projected FCF from the target company.

### **Step 5: Determination of Present Value of FCF (PV FCF)**

Incremental projected FCFs (determined in step 2) during the explicit forest period are multiplied with the DF (determined in step 4) to get the present value of the FCF during the explicit forest period.

### Step 6: Determination of Net Present Value of FCF (NPV FCF)

Net present value of the incremental cash flows equals to PV of FCF (including TV) minus PV of Cost of amalgamation. Generally firms use NPV as a technique of evaluation of a merger or amalgamation or acquisition proposal. If the NPV is positive then the amalgamation is financially feasible.

**Illustration:** Hindustan Co. Ltd., is planning to acquire Tarapur Co.Ltd. (target firm). The balance sheet of Tarapur Co.Ltd. as on March 31 is as follows (current year)

Liabilities	Amount (Rs. In lakhs )	Assets	Amount (Rs. In lakhs )
Equity share capital (2 lakhs shares of Rs.50 each)	100	Cash	10
Retained earnings	100	Debtors	40
10% Debentures	100	Inventories	70
Creditors	100	Plant & equipment	280
	400		400

Additional Information:

1. Hindustan Co. Ltd., agreed to give 1 share (market price per share is Rs. 180) for every 2 shares of Tarapur Co. Ltd.,
2. The shares of Hindustan Co. Ltd., would be issued at its market price,
3. The debenture holders will get 11% debentures of the same amount.
4. The external liabilities are expected to be settled at Rs. 95 lakhs.
5. Dissolution expenses are Rs. 5 lakhs are to be met by the amalgamating company.
6. The FCFs of Tarapur's are expected to grow at 4 per cent per annum, after 6 years,
7. Relevant cost of capital for Tarapur is 12per cent,
8. Tarapur's says that there is unrecorded liability of Rs. 10 lakhs.

9. The expected incremental cash flows from amalgamation for 6 years are:

Year	1	2	3	4	5	6
FCFs (Rs. In lakhs)	75	100	125	160	115	65

You are required to advise the company regarding financial feasibility of the amalgamation.

**Solution: Step 1 Determination of Cost of Acquisition or Amalgamation (CoA)**

Particulars	Amount (Rs)
Payment to equity shareholders (1,00,000 X Rs.180)	18,00,000
11% Debentures	1,00,00,000
External Liabilities settlement	95,00,000
Unrecorded liability	10,00,000
Dissolution expenses of Tarapur firm	5,00,000
<b>Cost of Amalgamation / Merger</b>	<b>2,28,00,000</b>

**Step 2: Determination of Incremental Expected Free Cash Flows to the Company (FCF)**

The expected incremental cash flows from amalgamation for 6 years are given

Year	1	2	3	4	5	6
FCFs (Rs. In lakhs)	75	100	125	160	115	65

**Step 3: Determination of Terminal Value (TV)**

The FCFs of Tarapur's are expected to grow at 4 per cent per annum, after 6 years. So TV of the project at the end of 6 years can be calculated with the following formula:

$$TV = FCF_{T+1} (1 + g) \div (Ko - g)$$

Where: g = growth rate

$FCF_{T+1}$  = the expected FCF in the first year after the explicit forecast period.

$Ko$  = Cost of capital

$$\begin{aligned}
TV_6 &= FCF_6 (1 + g) \div (K_o - g) \\
&= \text{Rs. } 65 \text{ lakhs } (1+0.04) \div (0.12 - 0.04) \\
&= \text{Rs. } 67.6 \text{ lakhs } \div (0.08) \\
&= \text{Rs. } 845
\end{aligned}$$

**Step 4: Determination of Appropriate Cost of Capital or Discount Rate (DF)**

Hindustan Co. Ltd., is using 12 per cent as discounting factor

**Step 5: Determination of Present Value of FCF (PV FCF)**

Incremental projected FCFs (determined in step 2 plus step 3) during the explicit forest period are multiplied with the DF (determined in step 4) to get the present value of the FCF during the explicit forest period.

Year	FCF (Rs. In lakhs)	Discounting Factor (12%)	Present Values (Rs. In lakhs)
1	75	0.893	66.975
2	100	0.797	79.70
3	125	0.712	89.00
4	160	0.636	101.76
5	115	0.567	65.205
6	65	0.507	32.955
6 Terminal Value	845	0.507	428.415
<b>Total present value</b>			<b>864.01</b>

**Step 6: Determination of Net Present Value of FCF (NPV FCF)**

	(Rs. In lakhs)
Total PV of FCF including TV at the end of 6 year	864.01
<b>Less:</b> PV of cost of amalgamation	<u>228.00</u>
<b>Net Present Value</b>	<b><u>636.01</u></b>

**Decision:** The planned acquisition is financially feasible, since its NPV is positive (ie., Rs.636.01 lakhs)

## **SUMMARY**

A business may grow over time as the utility of its products and services is recognized. It may also grow through an inorganic process. Mergers and acquisitions are manifestations of an inorganic growth process. The term merger refers to a combination of two or more companies into a single company where one survives and the others lose their corporate existence. Mergers or acquisition types depend upon the offeror company's objectives, profiles, combinations which it wants to achieve. Mergers can usually distinguished into horizontal mergers, vertical mergers, and conglomerate mergers. Conglomerate mergers have been further sub-divided into: financial conglomerates, and managerial conglomerates

The basic purpose of merger is to achieve faster growth of the corporate business. There are a good number of reasons attributed for the occurrence of mergers and acquisitions, the main reasons are: leverage the benefit of synergetic operating economies, diversification of business risk, get the benefit of tax shield, acquire specific assets, limit or elimination of competition, effective utilization of under-utilised assets, utilise surplus financial resources, circumvent government regulations, and create an image of aggressiveness and strategic opportunity, empire building and to amass vast economic powers of the economy.

Corporate restructuring in the form of merges or acquisitions are generally motivated by equity shareholders, managers, and the promoters of the combining companies. Restructure particularly merger has been symbolic with conflict, dislocation and economic and financial pain or gain. It is largely perceived in terms of its external consequences for investors, employees, competitors, suppliers, and host communities.

Amalgamating and amalgamated firms need to calculate the net present value of their decisions. Basis for computation of NPV of acquirer and acquiree cash



compensation, or compensation in stock. The compensation may be paid in the form of cash or stock. Determination of the form of compensation depends on overvaluation, taxes, sharing of risks and rewards, and discipline. If the firm decides to give stock as compensation then the bases for exchange ratio is: earnings per share, or market price per share, or book value per share, or discounted cash flow.

Merger or amalgamation proposal should be evaluated based on the legal procedure, tax benefits, cost and benefits, and merger as capital budgeting decision. Merger evaluation starts with search for a merger partner, and ends with post merger secretarial obligations.

Amalgamation for the purpose of income tax, 1961, is recognized only when the conditions given under section 2 (1b) of the said act, are fulfilled. Tax concessions are available for amalgamated company, amalgamating company (ies), and shareholders of the amalgamating company. The tax concessions are available to amalgamated company, that too if the amalgamating company is Indian company. Carry forward and set off of business losses and unabsorbed depreciation, expenditure on acquisition of patent right or copy rights, capital expenditure on scientific research, amortization of preliminary expenses, expenditure for obtaining license to operate telecommunication services.

**Tax concessions to amalgamating company(ies) no capital gains tax according to section 47 (vi), where there is transfer of any capital asset from amalgamating company (ies) to any indian amalgamated company, such tranfer will not be considered as transfer of capital assets for the purpose of capital gains.**

According to the accounting standard (as) 14, 'accounting for amalgamations', issued by the council of the institute of chartered accountants of india. There are two main methods of accounting for amalgamations: the pooling of interests method; and the purchase method.

## REVIEW QUESTIONS

11. What do you mean by takeover? Discuss the types of takeovers.
12. Write a brief note on evolution of mergers and acquisitions in India.
13. What are the different forms of mergers? Explain in detail.
14. Explain the purposes or reasons for mergers.
15. Discuss the benefits of mergers.
16. “Merges or acquisitions are generally motivated by equity shareholders, managers, and the promoters of the combining companies”. Discuss.
17. “Merger has been symbolic with conflict, dislocation and economic and financial pain or gain”. Comment.
18. Write a note on:
  - (a). Differential Efficiency & Financial Synergy.
  - (b). Operating Synergy & Pure Diversification
19. Explain the benefits and dangers of mergers.
20. How do you determine the forms of compensation for mergers?
21. What is swap ratio? How do you compute it?
22. What do you mean by exchange ratio? Discuss the basis for determining exchange ratio.
23. What is scheme of amalgamation? List out the contents of scheme of evaluation.
24. Discuss the various steps involved in mergers or amalgamations.
25. “Mergers or amalgamations are eligible for some tax shields”. Discuss.
26. What are the important tax provisions relating to mergers or amalgamations?
27. Explain the methods of accounting for amalgamation.

28. What are cost of merger from the point of view of acquiring company?
29. Discuss the steps involved in evaluation of merger as a capital budgeting decision.
30. Write a short notes on: (a). Swap ratio. (b). Horizontal merger.  
(c). Operating Synergy. (d). Hostile takeover.

### PROBLEMS

1. Company P has a value of Rs. 2,00,00,000 and Company Q has a value of Rs.50, 00,000. If the two firms merge, cost savings with a present value of Rs.50, 00,000 would occur. Firm P proposes to offer Rs. 50,00,000 cash compensation to acquire Firm Q. Calculate the net present value (NPV) of the merger to the two firms.
2. Firm H plans to acquire firm B. Following are the statistics of firms before the merger –

Particulars	H	B
Market price per share (Rs.)	30	12
Number of Shares	1,50,000	75,000
Market value of the firm (Rs.)	75,00,000	15, 00,000

The merger is expected to bring gains, which have a PV of Rs.15, 00,000. Firm H offers 37,500 shares in exchange for 75,000 shares to the shareholders of firm B. Calculate the net present value (NPV) of the merger to the two firms.

3. The following information for Firm A and Firm B. Determine the maximum change ratio if PE ratio for combined firm is 3, 9, 10, 11, 12, 15, and 20.

Particulars	Firm A (Rs.)	Firm B (Rs.)
Market price per share – P	12	4
Earnings per share – EPS	1	0.5
Price / earnings ratio – PE (Times)	6	4
Total earnings – E	90,00,000	30,00,000
No.of outstanding equity shares - S	45,00,000	30,00,000

4. The following information for DW Co. and WD Co. Determine the minimum Swap ratio if PE ratio for combined firm is 3, 9, 10, 11, 12, 15, and 20.

Particulars	DW Co (Rs.)	WD Co. (Rs.)
Market price per share – P	12	4
Earnings per share – EPS	1	0.5
Price / earnings ratio – PE (Times)	6	4
Total earnings – E	90,00,000	30,00,000
No. of outstanding equity shares-S	45,00,000	30,00,000

5. Firm H acquires Firm B, and issues share worth Rs.30 crore to Firm B's shareholders. The balance sheets of the both the companies at the time of merger are as follows:

**(Rs. In Crore)**

Particulars	Firm H	Firm B
<b>Assets:</b>		
Net fixed assets	20	35
Current assets	12	15
<b>Total</b>	<b>32</b>	<b>50</b>
<b>Liabilities:</b>		
Shareholders funds	10	19
Borrowings	15	20
Current liabilities	07	11
<b>Total</b>	<b>32</b>	<b>50</b>

Show the combined firm's assets and liabilities using pooling of interest method.

5. Company H acquires company B, assuming to take all its assets and liabilities. The fair market value of company B's fixed assets and current assets is Rs. 30 crore, and Rs.10 respectively. Current liabilities are valued at book value while the fair value of debt is estimated to be Rs. 17 crore. Company H raises cash of Rs. 20 crore to pay to B's shareholders by issuing worth Rs. 20 crore to its own shareholders. The balance sheets of the both the companies before acquisition and after acquisition are shown below:

(Rs. In Crore)

Particulars	Company H	Company B
<b>Assets:</b>		
Net fixed assets	28	38
Current assets	11	15
Goodwill	--	--
<b>Total</b>	<b>39</b>	<b>53</b>
<b>Liabilities:</b>		
Shareholders funds	14	19
Borrowings	18	21
Current liabilities	07	13
<b>Total</b>	<b>39</b>	<b>53</b>

Show the combined firm's balance sheet by using purchase method

7. VS Co. Ltd., is planning to acquire SR Co.Ltd. (target firm). The balance sheet of SR Co.Ltd. as on March 31 is as follows (current year)

Liabilities	Amount (Rs.In lakhs )	Assets	Amount (Rs. In lakhs )
Equity share capital (4 lakhs shares of Rs.25 each)	200	Cash	20
Retained earnings	200	Debtors	80
11% Debentures	200	Inventories	140
Creditors	200	Plant	560
	800		800

Additional Information:

1. VS Co. Ltd., agreed to give 1 share (market price per share is Rs. 350) for every 2 shares of SR Co. Ltd.,
2. The shares of Hindustan Co. Ltd., would be issued at its market price,
3. The debenture holders will get 12% debentures of the same amount.
4. The external liabilities are expected to be settled at Rs. 190 lakhs.

5. Dissolution expenses are Rs. 8 lakhs are to be met by the amalgamating Co.
6. The FCFs of SR's are expected to grow at 5 per cent per annum, after 7 years,
7. Relevant cost of capital for SR is 12per cent,
8. SR's says that there is unrecorded liability of Rs. 10 lakhs.
9. The expected incremental cash flows from amalgamation for 6 years are:

Year	1	2	3	4	5	6
FCFs (Rs. In lakhs)	140	190	250	330	220	120

Your are required to advise the company regarding financial feasibility of the amalgamation.

#### **SUGGESTED READINGS**

8. Allen D, *An Introduction to Strategic Financial Management*, London: CIMA / Kogan Page.
9. Verma, J.C., *Corporate Mergers, Amalgamations, & Takeovers*, New Delhi: Bhatrat Publishing House, 2002.
10. Hampton, J.J., *Financial Decision Making - Concepts, Problems, and Cases*, New Delhi: Prentice Hall of India, 2003.
11. Chandra, P., *Financial Management – Theory and Practice*, New Delhi: Tata McGraw Hill Publishing Company Limited, 2004.
12. Copeland, T.E., and Weston, J.F., *Financial Theory and Corporate Policy*, New York: Addison-Wesley.
13. Copeland, T., T.Koller, and Murrin, J., *Valuation: Measuring and Managing the Value of Companies*, New York: John Wiley (International Edition).
14. Sudarsanam, P.S., *Essence of Mergers & Acquisitions*, New Delhi: Prentice Hall of India.

15. Weston, J.F. and Brigham, E.F., *Essentials of Managerial Finance*, Dryden Press, 1977.
16. Weston, J.FRED ET AL, *Mergers, Restructuring and Corporate Control*, New Delhi: Prentice Hall of India, 1996.
17. Emery, D.R. and Finnert, J.D., *Corporate Financial Management*, New Jersey: Prentice Hall Inte'l, 1997.
18. ICAI, Statements of Accounting Standards (AS 14): Accounting for Amalgamation, New Delhi.
19. [http://www.cireindia.org/resources/as14\\_defin.html](http://www.cireindia.org/resources/as14_defin.html)

#### **Unit- IV**

#### **LEASE FINANCING**

Leasing is used in many developed countries as a method of financing investments. Leasing has grown as a big industry in the USA and UK and spread to other countries during the present century. In the modern days with the expansion of world trade, leasing is not confined to domestic trade or production but has gone beyond the frontiers of a country because of which we have cross border leasing. The prospects of leasing in India are good due to growing investment needs and scarcity of funds with public financial institutions. This type of lease finance is particularly suitable in India where a large number of small companies have emerged.

#### **Meaning**

Leasing is a method of acquiring the right to use equipment for a consideration. Leasing is a contract between the owner (lessor) and the user (lessee) for a fixed term for the use on hire of a specific asset selected by the lessee; the lessor retain ownership of the asset and the lessees has possession and use of the asset on

payment of a specified rental over a period. It is a sort of contractual arrangement between the lessor and lessee and is regulated by the terms, conditions and covenants of such a contract. In other words, leasing arrangements provide an enterprise with the use of and control over assets without receiving title to them.

In general, a lease is a contractual arrangement under which the owner of an asset (lessor) agrees to allow the use of his asset by another party (lessee) in exchange of periodic payments (lease rents) for a specified period. The lessee pays the lease rent as a regular fixed payment over a period of time at the beginning or at the end of a month, quarter, half year or year. Although generally fixed, lease rents can be tailored both in terms of amount and timing to the profits and cash flow position of the lease. At the end of the lease contract the asset reverts back to the real owner i.e. the lessor. However, in long term lease contracts, the lessee is generally given the option to buy or renew the lease.

Normally, lease agreement contains certain conditions and warranties to govern its future operations. For instance, these may relate to maintenance of leased assets, payment of property, insurance and other taxes pertaining to leased asset, option of buying the asset at a specified price after the expiry of lease period, etc. The terms, conditions and options incorporated in lease arrangements vary widely from one contract to another.

### **Terms in the lease agreement**

In a lease contract, the lessor agrees to lease to the lessee and the lessee agrees to take on lease from the lessor subject to terms of the lease contract. The various terms involved in the formation of a lease contract are as follows:       **Lessor:**  
The party who is the owner of the equipment and who gives it for lease to the other party for payment of a periodical amount.

**Lessee:** The party who obtains the equipment for use for which he pays periodical rentals.



**Lease Property:** The subject of the lease, the asset, article or equipment that is on lease.

**Term of lease:** The lease period for which the agreement will be in operation.

**Lease rentals:** This refers to the consideration for lease. This may be connected with interest on lessor investment, maintenance cost of the equipment by the lessor, depreciation of the asset, and servicing charges or packaging charges for providing the above services.

**Warranties:** The lessee makes the selection of equipment based upon its own judgement. The lessor makes no express or implied warranties including those of merchant ability or fitness for particular use of the equipment and hereby disclaims the same. The lessor shall not be responsible for any repairs, service or defects in the equipment or the operation thereof.

**Manufacturer Warranties:** The lessor agrees that the Lessee shall be entitled to the benefits of the warranties provided the manufacturers/suppliers of the equipment. Any performance guarantee provided by the supplier shall be in the joint names of the lessor and the lessee and shall be enforceable by the lessor or the lessee or both of them.

**Title, identification, ownership of equipment:** Lease contract provides that the equipment shall at all time remain the property of the lessor. The lessee also agrees and undertake not to sell, assign, sublet, pledge, hypothecate or otherwise suffer a lien upon, or against the equipment or remove the equipment from the factory or office or site where originally put to use or located, without the prior consent of the lessor in writing which consent the lessor agrees will not be unreasonably withheld. Conditioned upon the lessee's compliance with and fulfillment of the terms and conditions of this agreement, the lessee shall have the right to have exclusive peaceful possession, operation and use of the equipment for the full terms of the lease and any renewals thereof.

**Equipment in transit:** The equipment leased, will be delivered by the manufacturers/suppliers to the location specified by the lessee. The lessor shall not be responsible for any damage incurred to the equipment prior to or during deliver. Prior to the dispatch of the equipment, the lessee shall ensure that transit insurance on the equipment being dispatched is provided by the supplier naming the lessor as loss payee.

**Indemnity:** The lessee agrees to comply with all laws and regulations relating to the transportation, possession, operating and use of the equipment and assumes all liabilities including injuries to or of persons arising from or pertaining to the transportation, possession, operation or use of the equipment. The Lessee agrees to and keep indemnified and hold safe and harmless the lessor against all such liabilities and also against loss of equipment by seizure by any person. Any fees, taxes or other charges legally payable by the lessee in relation to the possession and use of the equipment and which is paid by the lessor in the event of the lessee's failure to pay shall at the lessor's option become immediately due from the lessee to the lessor.

**Inspection :** The lessor or a representative shall have the right from time to time during the normal hours on any working day with prior notice in writing to the lessee to enter upon the lessee's premises for the purpose of the existence, condition and proper maintenance of the equipment.

**Repairs, loss and damage:** The lessor shall not be called upon to keep the equipment in good repair, condition and working order and the lessee at its own cost and expense will keep the in good repair, condition and working order. All parts, mechanisms and devices or any replacements made by the lessee to the equipment shall immediately be deemed part of the equipment for all purpose thereof and shall become the property of the lessor, any payment for such parts, mechanisms and devices from the lessor. In the event, any item of equipment is lost, stolen or destroyed or damaged beyond repair for any reason, the lessee shall

pay to the lessor the amount of lease rentals then remaining unpaid, including any renewal options entered into pursuant to this agreement.

**Insurance:** The lessee for the benefit of and on behalf of the lessor obtain and maintain for the entire term of this agreement at its own expense insurance against normal risks and such other risks of loss as are customarily insured against on the type of equipment leased hereunder and by businesses in which the lessee is engaged in for such amount, provided however, that the amount of insurance against loss or damage to the equipment shall not be less than the original cost of the equipment. Alternatively the lessor may insure the equipment as aforesaid and the lessee shall reimburse the insurance premium and other costs and expenses to the lessor.

### **Steps in leasing transactions**

The important steps involved in a leasing transaction can be summarized as follows:

- Firstly, the lessee has to take a decision about the asset required and determine the manufacturer or the supplier. He also decides about his other requirements, viz., the design specification, the price, warranties, terms of delivery, installation and servicing.
- The lessee then enters into a lease agreement with the lessor. He specifies to him his requirements as determined above. The lease agreement contains the obligations of the lessor and the lessee as: (i) The basic lease period during which the lease is irrevocable; (ii) The timing and amount of periodical rental payments during the basic lease period; (iii) Details of any option to renew the lease or to purchase the asset at the end of the basic lease period. In the case of absence of any such option to the lessee, the lessor takes possession of the asset and is entitled to any residual value associated with it; and (iv) Details regarding the responsibility for payment of cost of maintenance and repairs, taxes,

insurance and other expenses. In case of a “Net lease agreement”, the lessee pays all these costs. However, in case of a “Maintenance lease agreement”, the lessor maintains the asset and also pays for the insurance.

- After the lease agreement is signed, the lessor contacts the manufacturer or supplier to supply the asset to the lessee. The lessor makes payment to the manufacturer or the supplier after the asset has been delivered, tested and accepted by the lessee.

### **Legal aspects of leasing**

The provisions relating to bailment in the Indian Contract Act govern equipment leasing agreements. There are basically two parties involved in a leasing contract, lessor and lessee. Lessor is a person who is leasing the equipment to the lessee, whereby the lessee becomes the bailee, as he is in possession of the equipment and is using it in production. In the case of financial lease, the lessee will become the owner after paying the full value of the lease equipment. For this purpose, an agreement will be entered into under the Indian Contract Act between the lessor and lessee. Such a contract contains the following :

- Details of contracting parties i.e. lessor and lessee
- Details of the asset or equipment or property which is leased,
- Nature of the lease: The clause specifies whether the lease is an operating lease, a financial lease or a leverage lease.
- Amount, time and place of lease rental payments.
- Time and place of equipment delivery.
- Lessee’s responsibility for taking delivery and possession of leased equipment, maintenance, repairs, registration, etc. and the lessor’s right in case of default by the lessee.

- Lessee's right to enjoy the benefits of the warranties provided by the equipment manufacturer/supplier.
- Period Lease, Indemnity, Prohibition on sub-leasing etc.
- Insurance to be taken by the lessee on behalf of the lessor.
- Variation in leases rentals if there is a change in certain external factors like bank interest rates, depreciation rates, and fiscal incentives.
- Option of lease renewal for the lessee.
- Return of equipment on expiry of the lease period,
- Details on termination of the lease, about various conditions and also how the ownership of the asset or equipment will be treated at the point of termination of the contract
- Arbitration procedure in the event of dispute.

### **Types of leasing**

A lease financing transaction can be differently classified on the basis of differences in the terms and conditions such as, number of parties to the transaction; extent to which risks and rewards of ownership are transferred; and domiciles of the equipment manufacturer, the lessor and the lessee. Considering the differences in the above criteria the lease agreements can broadly be put into following categories.

**Financial lease:** A financial lease is a long-term arrangement which is irrevocable during its primary lease period. The financial lease is one which satisfies one or more of the following conditions:

- The lessor transfer title to the lessee at the end of the lease period.
- The lease contains an option to purchase the asset at a bargain price.
- The lease period is equal to or greater than 75% of the estimated economic life of the asset.

- At the beginning of the lease, the present value of the minimum lease payments equals or exceeds 90% of the fair value of the leased property to the lessor (less any investment, tax credits, realized by the lessor).

In case of a financial lease, practically all the risks incidental to the ownership of the asset and the benefits arising there from are transferred to the lessee, except the legal title which may or may not be eventually transferred. The lessee has also to bear costs of insurance, repairs and maintenance of the asset and other related expenses. The financial lease is also termed as ‘Close-end lease’ since the lease agreement, more or less is irrevocable and the rental payments are so fixed that they ensure return of the total investment at a pre-determined rate of return.

**Operating lease:** The International Accounting Standard committee defines an operating lease as any lease other than a finance lease. An operating lease has the following characteristics

- The lease term is significantly less than the economic life of the equipment.
- The lessee enjoys the right to terminate the lease at short notice without any significant penalty.
- The lessor usually provides the operating know-how, supplies the related services and undertakes the responsibility of insuring and maintaining the equipment, in which case the operating lease is called a ‘Wet lease’.

An operating lease where the lessee bears the cost of insuring and maintaining the leased equipment is called a ‘Dry lease’. The operating lease does not shift the equipment-related, business and technological risks from the lessor to lessee.

The lessor structuring an operating lease transaction has to depend upon multiple leases or on the realization of substantial resale value (on the expiry of first lease),

to recover the investment cost plus reasonable rate of return thereon. Hence, to deal in operating leasing one requires an in-depth knowledge of the equipment and the resale market for such equipment. In our country, as the resale market for most of the used capital equipments is not active, operating leases are not very popular. Nevertheless, this form of lease is ideal for firms engaged in industries with a high degree of technological risk.

**Sale and lease back:** In case of a sale and lease back arrangement, a firm sells an asset to another person who in turn leases it back to the firm. The asset is generally sold at its market value. The firm receives the sale price in cash and gets the right to use the asset during the basic lease period. The firm makes periodic rental payments to the lessor. The title to the asset now vests with the lessor who is naturally also entitled to any residual value the asset might have at the end of the lease period.

The sale and lease backs arrangement is beneficial both for the lessor and the lessee. The lessee gets immediate cash which results in improvement in his cash flow position. The lessor gets the benefits in terms of tax credit due to depreciation. The sale and lease back arrangements are popular with the companies which are facing short-term crisis.

**Leveraged leasing:** This form of leasing has become very popular in recent years. This type of lease agreement is used for financing those assets which require large capital outlays. Such a type of lease arrangement involves three parties - the lessee, the lessor, and the lender. Under this arrangement, the lessor borrows funds from the lender and himself acts as an equity participant. Normally, the amount borrowed is substantial Vis-à-vis the funds provided by the lessor himself. The lessor services the debt out of lease rents received. The position of the lessee under a leveraged leasing agreement is the same as on case of any other type of lease. The position of the lessor, however, undergoes a

change. The loan is generally secured by a mortgage on the asset besides assignment of the leased asset's rental payments.

**Primary and secondary lease:** The lease contract is sometimes divided into two parts, namely, primary lease and secondary lease. The primary lease provides for the recovery of the cost of the asset and profit through lease rentals during the initial years (say 4 to 5 years) of lease contract followed by the secondary/perpetual lease at nominal lease rents. In other words, more lease rents are charged in the primary and less in the secondary period of the contract. These forms of lease contracts are also referred to as front-ended lease and back ended lease respectively

**Domestic Lease:** If all parties to the lease transaction – the equipment supplier, lessor and lessee – are domiciled in the same country, it is a domestic lease.

**International lease:** If the parties to the lease agreement are living in different countries, the lease is an international lease. The term 'International leasing' covers three separate types of activities: Cross border leasing, Overseas subsidiaries, and Import leasing.

*Cross border leasing:* Leasing across national frontiers is cross border leasing. The cross border leasing exists where the lessee and lessor are domiciled in different countries. It includes export leasing.

*Overseas subsidiaries:* When a financial institution sets up leasing subsidiaries overseas, each conducting purely domestic business involving lessees in the same country they are called overseas subsidiaries.

*Import Leasing:* It is an arrangement by which a leasing company, a manufacturing company or the government enters into an agreement with a foreign company to acquire sophisticated equipments on lease basis. In fact, this activity requires a lot of government support and suitable changes in the import regulations.



**In-house leasing:** When an industrial house promotes a leasing company for the benefit of companies in the same group, that company is known as 'In-house company'. These companies are normally floated to take advantage of tax benefits and creating an additional source of finance through public issues by them. The in-house leasing companies enable the industrial house to claim greater amount of expenses as tax deductible charge than what it can claim otherwise. If the industrial house floats leasing company, it can charge depreciation on the leased assets in the books of the leasing company and lease rentals in the books of lessee as tax deductible charges. As such from the point of view of the industrial house as a whole the lease rentals as well as depreciation on the leased assets are claimed as tax deductible charges reducing the amount of taxable income.

#### **Hire purchase Vs lease financing**

In case of a hire purchase transaction, the goods are delivered by the owner to another person on the agreement that such person pays the agreed amount in periodical installments. The property in the goods passes to such person only on the payment of the last installment. In a hire purchase transaction, therefore, theoretically the seller continues to retain the title to the asset. The ownership has, however, to ultimately pass to the buyer unless the buyer exercises the option not to buy the asset by stopping payments of future installments. The buyer can claim depreciation on the cost of the asset and interest as expense for tax purposes. On the other hand, in case of lease financing, the lease rent is deducted as an expense for tax purposes. Depreciation on the leased asset is claimed by the lessor.

In case of a hire purchase on completion of the contract, the residual value of the asset goes to the buyer. While in case of a lease financing, the residual value goes to the lessor, in case where the lessee has a right to cancel the arrangement as in the case of vehicles or air craft leases. However, in case of a finance lease where

the financing is made for purchase of equipment useful only to the lessee, there is no provision for cancellation of the lease agreement. In such a case, the residual value devolves on the lessee. The residual value in such a case is zero or if positive it will be treated as miscellaneous income and be subject to taxation.

### **Lease evaluation**

A leasing transaction has to be beneficial both for the lessor and the lessee. Each one evaluates the transaction from his angle. In the following pages, we are explaining the techniques adopted by the concerned parties for evaluating a lease transaction.

### **Evaluation by lessor**

The Internal Rate of Return (IRR) is the most commonly adopted technique by the lessor evaluating lease transaction. Internal Rate of Return is that rate of return at which the sum of the discounted cash inflows equals the sum of discounted cash outflows. In other words, it is the rate which discounts the cash flows to 'zero'.

In case of a leasing transaction, the cash inflows are in the form of rentals received from the lessee, while the cash outflows are in the form of payments made by the lessor to the manufacturer or supplier of the leased asset. The internal rate of return is computed on the basis of these cash flows. It is then compared with the weighted average cost of capital of the lessor. In case the IRR is more than the weighted average cost of capital, the investment should be made.

The sources of long-term funds are mainly debt and equity. Debt capital consists of loans from banks/financial institutions, issue of debentures, etc. The equity capital represents the amount brought in by the shareholders and the earnings retained in the business. It may also be mentioned here that interest on debt is allowed as an expenditure for tax purpose, while dividend on shares is not allowed as an expenditure for tax purposes. The computation of cost of

shareholders' funds is most cumbersome. Generally, it is calculated according to "Dividend plus growth approach".

While estimating his cash inflows, the lessor takes into account the rental payments made by the lessee, depreciation on the asset leased out, investment allowance (if available) and the receipt of residual value, etc.

Besides considering the cash inflows arising from leasing out the assets, as explained above, the lessor also makes an assessment of risk involved in the leasing transaction. A lease, as a matter of fact, is a term loan in the form of an equipment or asset. Hence, while appraising a lessee, a lessor will apply the same principles which a banker applies while granting loans. The lessor, like a banker, is also mainly concerned with the six 'Cs', viz. character, capacity, credit (past experience of the creditors), conditions (within the economy), competition and collateral. In case, as a result of his appraisal, the lessor finds that the lease transaction is more risky, he may demand higher rentals, increased security deposit, personal guarantees, shorter lease term, additional collateral security, etc. The following illustration will considerably help the students in understanding how to evaluate a lease transaction from the point of view of the lessor.

**Example – 1:** The following are the details regarding an equipment to be given on lease by A Ltd.

- (i) Cost of equipment of the lessor Rs.1,00,000 financed 80% through debt and balance through equity. Cost of the debt amounts to 18% and equity 15% before tax.
- (ii) The lessor is in 55% tax bracket. The equipment is used for three shifts. The rate of depreciation is normal 15% and 7.5% for each shifts. The rate of depreciation is normal 15% and 7.5 for each additional shift. Depreciation is charged according to diminishing balance method.

- (iii) The salvage value of the equipment is Rs.16,000.
- (iv) The direct cost to the lessor is Rs.500 in the Ist year.
- (v) Estimated cost for maintenance and general administration in respect of the equipment to the lessor is Rs.1,500 per annum.
- (vi) The lessee agrees to pay the following:
  - (a) Annual rent-Rs.36,000 for 5 years. The payment is to be made at the end of each year.
  - (b)The security deposit of Rs.3,000 which is refundable at the end of the lease term.
  - (c)A sum of Rs.1,350 non-returnable management fees payable at the time of inception of the lease.

Suggest whether it is beneficial for the lessor to lease the equipment using IRR technique.

**Answer:**

(1) COST OF CAPITAL FOR LESSOR

Source	Amount	After tax cost	Total cost
Equity	20,000	15 %	3,000
Long-term Debt	80,000	8.1 %	<u>6,480</u>
			<u>9,480</u>

\*18 x 45/100 =8.1%

$$\text{Tax Adjusted Average Cost of Capital} = \frac{9,480}{1,00,000} \times 100 = 9.5\%$$

(2) COMPUTATION OF ANNUAL TAX LIABILITY

Years					
	1 Rs.	2 Rs.	3 Rs.	4 Rs.	5 Rs.
Lease Revenue	36,000	36,000	36,000	36,000	36,000
Direct Cost	-500	-	-	-	-
Maintenance & Administration Cost	-1,500	-15,00	-1,500	-1,500	-1,500
Depreciation	-30,000	-21,000	-14,700	-10,290	-7,203
EBT	4,000	13,500	19,800	24,210	27,297
Income Tax @ 55%	-2,000	-7,425	-10,890	-13,315	-15,013
Income after Tax	1,800	6,075	8,890	10,895	12,894

(3) COMPUTATION OF ANNUAL NET CASH INFLOWS

Years					
	1 Rs.	2 Rs.	3 Rs.	4 Rs.	5 Rs.
Lease Revenue	36,000	36,000	36,000	36,000	36,000
Sale of Equipment	-	-	-	-	+16,000
Direct Cost	-500	-	-	-	-
Administration cost	-1,500	-1,500	-1,500	-1,500	-1,500
Refund of deposit	-	-	-	-	-3000
Tax paid	-2,200	-7,425	-10,890	-13,315	-15,013
	31,800	27,075	23,610	21,185	32,487

(4) CASH OUTFLOWS AT YEAR 'O'

		Rs.
Cost of Equipment		1,00,000
Less : Management Fees	1,350	
Security Deposit	<u>3,000</u>	<u>4,350</u>
		95,650

(5) COMPUTATION OF INTERNAL RATE OF RETURN

Year	Cash outflow	Cash inflow	Discount factor at 15%	Present value	Discount factor at 12%	Present value
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
0	-95,650					
1		31,800	0.870	27,666	0.893	28,397
2		27,075	0.756	20,469	0.797	21,579
3		23,610	0.658	15,535	0.712	16,786
4		21,185	0.572	12,118	0.636	13,535
5		32,487	0.497	16,146	0.567	18,420
			<u>91,934</u>			<u>98,717</u>
		NPV	-3,716			+3,067

$$\text{IPR} = 12 + \left\{ \frac{3,067}{3,067 + 3,716} \times 3 \right\}$$

$$= 12 + 1.36$$

$$= 13.36 \%$$

The weighted average cost of capital is only 9.5% while the IRR from leasing out the asset is 13.36%. Hence, it is beneficial for 'A' Ltd. to lease out the equipment.

### **Evaluation by Lessee – Lease or buy decision**

The lessee of the asset while deciding whether to buy the asset or take it on lease will consider the benefits available under each of the alternatives. He will select the alternative which is most beneficial to him. It will be useful here to compare the distinctive features of 'buying' and 'leasing' which have to be kept in mind by the intending user.

<i>Particulars</i>	<i>Buying</i>	<i>Leasing</i>
[i] Initial cost	Incurred	Not incurred
[ii] Investment allowance & depreciation charges	Available	Not available
[iii] Salvage Value	Available	Not available
[iv] Management fees and lease rentals	Not Payable	Payable

A comparison of the benefits available under 'buying' and 'leasing' can be made according to discounted cash flow techniques, using either Net Present Value (NPV) or Internal Rate of Return (IRR) method.

#### **NPV Method**

According to this method, the following steps will have to be taken for evaluating a lease proposal :

- a. The present value of cash flows associated with the 'buying' alternative will be ascertained.
- b. The present value of cash flows under the 'leasing' alternative will be ascertained
- c. The decision between 'buying' and 'leasing' will be made by comparing the NPV under each of the alternatives. The alternative having higher NPV will be preferred. This will be clear from the following illustration.

**Example – 2:** A bulldozer, which has a service life of 10 years, can be purchased for Rs.1,80,000. It can also be hired at the rate of Rs.45,000 per annum payable at the beginning of each year. Operating costs are to be borne by the user.

A contractor requiring the use of the bulldozer only for a period of two years seeks your advice. If purchased, he expects to use it for 2 years and then sell it at 80 per cent of the purchase price. He can finance its purchase by his own resources to the extent of Rs.80,000 and the balance by borrowing at an interest rate of 18 per cent annum. The interest on the loan is payable annually at the end of each year and the loan can be repaid out of the sale proceeds of the bulldozer.

For income-tax purposes, depreciation is an admissible deduction at 25 per cent on diminishing balance method. Excess realization, If any, over the written down value is subject to tax. The effective tax rate for contractor is 50 per cent. Tax liabilities can be assumed to arise at the close of each year.

The contractor expects a minimum internal rate of 10 per cent net of taxes on his own funds. Prepare a suitable statement and advise the contractor, indicating clearly the basis for your recommendation.

**Answer**

The gross revenue from the use of the bulldozer will be the same whether it is purchased or taken on hire. Similarly, the operating costs will also be the same. It will, therefore, be proper to work out only the cash inflows and outflows that will be different under the two alternatives.

**A. Purchase**

[i] Outflows :

	Amount	P.V. Factor @ 10% p.a	Discounted value Rs.
Cash outflow on purchase [see note I )	80,000	1,000	80,000



* interest on borrowing for first year	9,000	0.909	8,181
*interest on borrowing for second year	9,000	0.826	7,434
Income-tax payable on profit On sale of the bulldozer	<u>21,375</u>	0.826	<u>17,657</u>
	<u>1,19,375</u>		<u>1,13,272</u>

\* The rate of income-tax being 50% the real incidence of interest on the firm will be only ½ of Rs.18,000

[ii] Inflows :

	Amount	P.V. Factor @ 10% p.a	Discounted value Rs.
Cash received on sale of the bulldozer after repaying borrowing [see note 3]	44,000	0.825	36,344
Saving in tax because of depreciation First Year	22,500	0.909	20,453
Second Year [see note 4]	<u>16,875</u>	0.826	<u>13,939</u>
	<u>83,375</u>		<u>70,736</u>

Thus, the purchase of the bulldozer will result in a net discounted cash outflow of Rs.42,536 [i.e., Rs.1,13,272 – 70,736]

(B) Hiring (or leasing)

[i] Outflows :

	Amount	P.V. Factor @ 10% p.a	Discounted value Rs.
Hire charges for the first year	45,000	1.000	45,000
Hire charges for the second year	<u>45,000</u>	0.999	<u>40,905</u>
	<u>90,000</u>		<u>85,905</u>

[ii] Outflows :

	Amount	P.V. Factor @ 10% p.a	Discounted value Rs.
Tax savings in the first year on Hire charges [see note 5]	22,500	0.909	20,453
Tax savings on hire charges for the Second year	<u>22,500</u>	0.826	<u>18,585</u>
	<u>45,000</u>		<u>39,038</u>

The net outflows in case the bulldozer is hired will be Rs.46,867 [i.e., 85,905 - 39,038].

It is, thus, clear that the net discounted outflows in case the bulldozer is purchased are lower than the net discounted outflows in case it is taken on hire. Hence, the first proposition (purchase) should be accepted, if there are no uncertainties involved.

In case, the amount realizable on the sale of the bulldozer at the end of two years [1,44,000] is rather uncertain and, on the face of it, 80% of the original cost appears to be high, the conclusion may well be in favour of hiring. Moreover, the rate of return mentioned is the minimum of 10%. In case it is possible to utilize the sum of Rs.80,000 in some more profitable venture, it may be better to take the bulldozer on hire.

Working Notes:

1. The net cash outflow on purchase is only Rs.80,000, sine Rs.1,00,000 is borrowed and repaid at the end of the two years. The interest on such borrowings is however, an outflow.
2. The written down value of the bulldozer after two years of the is Rs.1,01,250 [depreciation is Rs.45,000 in the first year and Rs.33,750 in the second]. Hence, there is a profit of Rs.42,750. It is presumed that the tax on this profit is payable immediately at the end of two years.

3. Cash realized on sale is Rs.1,44,000. However, Rs.1,00,00 [loan] has to be paid back. Hence, net cash inflow is Rs.44,000.
4. Depreciation is Rs.45,000 and Rs.33,750 for the first and the second years respectively. Savings in tax would be 50% of these amounts.
5. The hire charges will be paid in the beginning of the year, but the tax saving on the same will accrue only at the end of the year.

### **Tax provisions relating to leasing**

The principal income tax provisions relating to leasing are

- The lessee can claim lease rentals as tax-deductible expenses.
- The lease rentals received by the lessor are taxable under the head of business or profession.
- The lessor can claim depreciation on the investment made in leased assets.

The major sales tax provisions relevant for leasing are

- The lessor is not entitled for the concessional rate of central sales tax because the asset purchased for leasing is meant neither for resale nor for use in manufacture. ( It may be noted that if a firm buys an asset for resale or for use in manufacture it is entitled for the concessional rate of sales tax.)
- The 46<sup>th</sup> Amendment Act has brought lease transactions under the purview of 'sale' and has empowered the central and state government to levy sales tax on lease transactions. While the Central Sales Tax Act has yet to be amended in this respect, several state governments have amended their sales tax laws to impose sales tax on lease transactions.

### **Accounting considerations**

**For lessor:** Assets under financial leases should be disclosed as 'assets given on lease' as a separate section under the head 'fixed assets' in the balance sheet of the lessor. The classification of the assets should correspond to that adopted for other fixed assets.

Lease rentals should be shown separately under gross income in the income statement of the relevant period. It is appropriate that against the lease rental a matching lease annual charge is made to the income statement, which represents recovery of the net investment over the lease period. This charge is calculated by deducting the finance income for the period from the lease rental for the period. The annual lease charge would comprise minimum statutory depreciation.

There would be a lease equalization charge where the annual lease charge is more than the minimum statutory depreciation.

There would be a lease equalization credit where the annual lease charge is less than the minimum statutory depreciation. This would require a separate lease equalization account (LEA). The LEA should be transferred every year to the income statement. Statutory depreciation must be shown separately in the income statement. Accumulated statutory depreciation should be deducted from the original cost of the leased asset on the balance sheet of the lessor to arrive at the net book value.

Balance standing in the LAA should be adjusted in the net book value of the leased assets. The amount of adjustment in respect of each class of fixed asset could be shown in the main balance sheet or in a schedule.

The finance income should be calculated by applying the interest rate implicit in the lease to the net investment in the lease during the relevant period. Some lessors use a simpler method of calculating by apportioning the total finance income from the lease in the ratio of minimum lease payments outstanding during each of the respective periods comprising the lease term.

Leased asset for an operating lease should be depreciated on a basis consistent with the lessor's normal depreciation policy.

In the case of a sale and lease back transaction, if the rentals and sale price are established at fair value, profit or loss is normally recognized immediately. If the sale price is below fair value, profit or loss is recognized except that if loss is compensated by future rentals at below market price, it is deferred and amortized in proportion to the rental payments over the useful life and vice versa.

**For lessee:** A lessee discloses assets taken under a finance lease by way of a note to the accounts, disclosing the future obligations of the lessee as per the agreement.

Lease rentals should be accounted for on an accrual basis over the lease period to recognize an appropriate charge in this respect in the income statement, with a separate disclosure thereof. The appropriate charge should be worked out with reference to the terms of the lease agreement, type of asset, proportion of lease period to the life of the asset as per technical or commercial evaluation and other such considerations.

The excess of lease rentals paid over the amount accrued in respect thereof should be treated as pre-paid lease rental and vice versa.

In the case of operating lease, the aggregate lease rental payable over the lease term should be spread over the term on straight-line basis irrespective of the payment schedule as per the terms and conditions of the lease.

### **Advantages of Leasing**

Acquisition of capital assets generally needs substantial cash outlay. This is sometimes quite beyond the financial capacity of the actual user. Leasing serves as a source of long-term funds that can be used for acquisition of capital assets.

The basic advantages from leasing can be summarized as follows:

**Protects against obsolescence:** In the case of ownership, the firm bears the risk of the asset becoming obsolete. This dimension of potential risk is too important to be ignored and particularly in the present era of rapidly changing technologies. Leasing provides a cushion against all such hazards by shifting the risk of obsolescence of equipment of the lessor. This is particularly true of operating leases which are of short duration and cancelable at the option of the lessee.

**Faster and cheaper credit:** It has generally been found that acquisition of assets under a leasing arrangement is cheaper and faster as compared to acquisition of assets through any other source. Leasing companies are more accommodating than banks and financial institutions in respect of terms of financing. The rental payments are fixed keeping in view the expected profits and cash generation of individual lessees, which is generally not possible in the case of lending by banks and other similar institutions.

**Enhance liquidity:** Leasing arrangements enable the lessee to utilize more of his funds for working capital purposes in place of low yielding fixed assets. Moreover, acquisition of assets under lease arrangements does not alter the debt-equity ratio of the lessee. Hence, the lessee can resort to further borrowings in case the need arises.

**Boon for small firms:** Acquisition of assets by means of a leasing arrangement is particularly beneficial to small firms which cannot afford to raise their capacity on account of paucity of financial resources. It serves as a boon for technocrats who are unable to arrange funds even for promoters contribution or margin money as required by financial institutions.

**Absence of restrictive covenants:** The financial institutions while lending money usually attach several restrictions on the borrower as regards management, debt-equity norms, declaration of dividend, etc. Such restrictions are absolutely absent in the case of financing through a lease agreement.

**Convenience and flexibility:** If an asset is needed for a short period only, it does not seem to make much sense on the part of the firm first to spend time in selecting an asset, negotiating its purchase, arranging insurance, registration, etc. and then to repeat all these steps to resell the asset. Leasing obviates the need of this exercise and thus emerges out to be a very convenient and an inexpensive form of acquiring the use of services of the equipment.

**Whole financing:** Lease financing enables a firm to acquire the use of an asset without having to make a down payment for initial equity investment.

**Tax benefits:** Leasing finance provides enough opportunity for both lessor and lessee to gain in both income tax and sale tax. A lease payment is tax deductible. If an asset is purchased, it must be capitalized, and the annual depreciation charge is deducted as a tax-deductible item. Sales tax will be paid by the lessor as the equipment is bought by him. But later on, under financial lease he can claim a part of the sales tax from the lessee, when the equipment is transferred to the lessee. The lessee will be paying the sales tax on lesser amount. This is so because by the time the property or equipment is sold to him, its value gets reduced.

### **Disadvantages of leasing**

Acquisition of assets through leasing arrangements also results in certain disadvantages, as listed below.

**Deprived of ownership:** The lessee has only the right to use the asset as the ownership lies with the lessor. If the lessor's financial condition deteriorates or if the leasing company is wound up, the lessee may be deprived of the use of equipment interrupting its normal manufacturing operations.

**No scope for modernization:** Under the lease, the lessee is generally prohibited from making alterations/improvements on the leased asset without the prior approval of the lessor. It may cause problems to the lessee if the lessor disapproves of his plan of alteration. Moreover, the lessor may impose certain

restrictive conditions, sometimes, regarding the use of the asset, say, number of hours the equipment may be put to use and so on.

**In case of default:** In case the lessee makes a default in rental payments, the lessor is entitled, at his will, to take over the asset and the lessee has no right to prevent him from doing so. In case of a financial lease arrangement, the lessor may also file a suit against the lessee for damages.

**Costly:** Compared to term loans by banks, lease finance is costlier. If there is no investment allowance, the lease transactions bring tax loss. At the termination of the lease agreement, the asset is taken by the lessor and the lessee will lose the residual value.

### **Leasing in India**

In rural areas we come across leasing when agricultural lands are given on lease for a specified period. In Tamilnadu, temple lands were on lease for a long time and that used to be a source of income for the temples. However leasing of capital equipments is recent origin. Leasing has proved to be an effective system for financing capital equipment in Europe, Japan and USA.

The modern concept of financial leasing was pioneered in India during the year 1973 by setting up of “First Leasing Company of India Limited” in Madras by SPIC group as an exclusive leasing company. This company enjoyed a virtual monopoly for a period of six years. Then, a number of other leasing companies have come into existence. They are Mazda Leasing, Twentieth Century Leasing company, Ross Morarka Leasing Co., Pioneer Leasing, Express Leasing Co., etc. As a matter on fact, in the last decade, the pace at which the number of companies are entering into the leasing business, it can be said that there is a mushroom growth of leasing business, it can be said that there is a mushroom growth of leasing companies. It is estimated that there are about more than 600 leasing companies in India providing a package of financial services and more are expected to enter the capital market in the coming years. As a result of



amendment in the Banking Regulation Act, a large number of nationalized banks are also expected to participate directly in the leasing business.

During the last decade, there was a big spurt in the setting up of leasing companies in the country by most entrepreneurs of all sorts and has resulted in keen competition. Most of the new companies floated leasing business at the crest of leasing boom without any grip over the economies of leasing. They became more interested in seeking short-term gains at the expense of long-term results so that they could pay promised dividends to investors. But they could not do so.

Experience with leasing companies, however, has been somewhat mixed. Several of them are under-capitalized and not particularly well-managed. The last few years have seen a shake out in the business leaving the more efficient and better geared companies in business today. The euphoria of Indian leasing industry which took firm roots in the country more due to circumstance in the capital market during the 1984-86 boom period has however ended. Now the game is being played by such companies that follow a prudent policy both in terms of finalizing lease agreements as well as growth.

Leasing companies, like hire-purchase companies, are governed by the stipulation of their borrowing being restricted to ten times of their net worth and maintenance of minimum liquidity ratio of 15 per cent. The Narasimham Committee is of the view that having regard to the important and growing role of leasing and hire purchase institutions in the financial intermediation process, minimum capital requirements should be stipulated in addition to the existing requirements relating to gearing and liquidity.

### **Review questions**

1. Distinguish between financial lease and operating lease.
2. Distinguish between domestic lease and international lease.

3. How is accounting done for financial lease with respect to lessor?
4. How is accounting done for financial lease with respect to lessee?
5. Why companies go for leasing rather than purchasing equipment?
6. Describe the various legal provisions that govern the leasing business in India.
7. Explain the concept of leasing. State its advantages and limitations.
8. What factors would you, as a lessee, keep in mind while selecting the lessor.
9. Explain the important provisions of guidance regarding accounting treatment for leasing transactions.
10. Discuss the methods for evaluating the leasing proposal.
11. Leasing finance has proved its unique adaptability to various financial problems. Its use is being rapidly extended both to new industries as also to new applications. Discuss its merits as compared to other methods of financing.
12. What is financial lease? How is it different from other types of leases?
13. What are the important steps in a leasing transaction?

### **References**

- Maheswari .S.N, "*Financial Management, Principle and Practice*", Sultan Chand & Sons, New Delhi, 2004
- Narasimham, M., "*The Financial System*", Nabhi, New Delhi., 1992.
- Rustagi, R.P., "*Financial Management – Theory, Concepts and Problems*", Galgotia New Delhi., 2002.
- Santhanam .B, "*Financial Services*", Margham Publications, Chennai, 2003
- Joseph Anbarasu.D, et.al, "*Financial Services*", Sultan Chand & Sons, New Delhi, 2003
- Suneja H.R, "*Merchant Banker*", Himalaya Publications House, Mumbai, 2003

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## **VENTURE CAPITAL**

Capital is one of the most important factors of production. No entity can start functioning without required capital as this helps the entrepreneurs in acquiring machinery, equipment and other productive facilities. The companies engaged in traditional line of business can easily procure necessary financial capital from the conventional capital market. But the entrepreneurs face great difficulty while venturing out to procure financial capital for newly floated enterprises as at the initial stages of business the risk is very high and the return, quite uncertain. Common investors hesitate to invest their savings in such companies even though they lead to high industrial growth and economic development, because it is difficult to trade-off between risk and returns. Lack of finance deters the new entrepreneurs and technocrats from starting new ventures even though they may very well have innovative ideas and requisite technological knowledge. Hence the question arises that how these types of firms shall then be financed? Under the circumstance, the concept of venture capital fund was born with fundamental objective to provide initial capital and support in building capital base to the entrepreneurs, having a sound background of professional education, expertise and initiative to launch the business based on fast changing technology.

Venture capital is a form of equity financing specially designed for funding high risk and high reward projects. It plays an important role in financing hi-technology projects and helps to turn research and development into commercial production. Besides financing technology, venture capital is also involved in fostering growth and development of enterprises. Both the U.S.A. which is the birth place of venture capital, and the U.K. have already seen considerable activity in the area of venture capital.

When companies want to raise finance but are not in a strong position to borrow money, they can negotiate a sale of the part of the equity stake in a new business. This share capital for new or expanding business is often referred to as 'risk

capital,' emphasizing the risk involved in any investment in shares or suggesting the idea that it would lead to growth. Where normal lending seems appropriate instead, venture capital will not be provided and for some business, the offer of venture capital is linked to other loans such as convertible loans in a fixed time limit as part of a complete financing package.

### **Concepts**

Venture Economics had defined Venture Capital as 'providing seed, start-up and first stage financing' and also funding 'the expansion of companies that have already demonstrated their business potential but do not yet have access to the public securities market or to credit oriented institutional funding sources, venture capital also provides management in leveraged buy out financing.

The European Venture Capital Association has described it as risk finance for entrepreneurial growth oriented companies, and investment for medium or long-term to maximize returns. It is a partnership with the entrepreneur in which the investor can add value to the company because of his knowledge and experience.

Steven James Lee had defined it as actual or potential equity investments in companies through the purchase of stocks, warrants, options or convertible securities. Venture capital is a long-term investment discipline that often requires the venture capitalists to wait five or more years before realizing a significant return on the capital resources.

International Finance Corporation, Washington defines venture capital as equity or equity featured capital seeking investment in new ideas, new companies, new products, new processes or new services that offer the potential of high returns on investment. It may also include investment in turn around situations.

Thus the capital provided to start a venture is known as venture capital. Venture capital refers to organized private or institutional financing that provide substantial amounts of capital mostly through equity purchases and occasionally

through debt offerings to help growth oriented companies develop and succeed. The term venture capital denotes institutional investors that provide equity financing to young business and play an active role advising their managements. Venture capital is an important source of funds for technology based industries.

Venture capital is equity support to fund new concepts that involve a higher risk and at the same time, have growth and profit potential. Venture capital is a temporary start-up financing in the form of equity capital or loans, with returns linked to profits and with some measure of managerial control. Venture capitalists expect losses on some ventures to be greater than with traditional financing, but they invest because they think that greater than normal returns on others will more than make up for those losses. Venture capital is ideally suited to projects involving uncertainty, poor information and lack of collateral. However, venture capital finance is different from conventional finance, i.e. money lending and bank finance, because venture capital financier takes keen interest in business performance of the investee's firm. The concept of venture capital has been evolved as a method of seed capital or start up financing. In practice venture capital provides finance to budding entrepreneurs, having skills and business acumen, to attain their cherished goals. These new breed entrepreneurs often come forward with a new technology or idea or products or processes and approach a venture capital company for financial assistance. These entrepreneurs being new cannot meet the rigid requirements of the traditional financial institutions. In such cases venture capitalists come with all kinds of resources needed, e.g. financial and managerial assistance for proper implementation of these projects. Once these projects reach the stage of profitability, the venture capitalists sell their equity holding at a higher price to yield maximum capital gain as a reward for taking higher risks entailed in supplying seed capital.

## **Characteristics of the venture capital**

The main characteristics of the venture capital are long time horizon, lack of liquidity, high risk, equity participation and participation in management.

**Long Time Horizon:** Venture financing is a long-term illiquid investment; it is not repayable on demand. It requires a long-term investment attitude that necessitates the venture capital firms to wait for a long-period, say 5 to 10 years, to make substantial profits.

**Lack of Liquidity:** Because venture capital investment are made in private companies, the investments are illiquid until the company goes public or is sold and the proceeds are distributed to the limited partners. This illiquidity is inherent in the nature of the securities that venture capitalists' purchase and in the stages of development that a typical partnership must go through.

**High Risk:** Within a given portfolio of venture capital investments the returns will vary widely. A few will return many times the initial investments, others will fail completely, and many will simply struggle and become part of what is commonly known as 'the living dead'.

**High Returns:** Venture capital has historically achieved high rates of return. But venture capital performance has also varied greatly. This wide variation in returns over time emphasizes the importance of diversifying across time as well as industry and stage of investment.

**Equity Participation:** Actual or potential equity participation through direct purchase of shares, options or convertible securities. The objectives are to make capital gains by selling off the investment once the enterprise becomes profitable.

**Participation in Management:** Continuing participation of the venture capitalist in the management of the entrepreneur's business. This hands-on management approach helps him to protect and enhance the investment by actually involving

and supporting the entrepreneur. More than finance, a venture capitalist provides his marketing technology, planning and management skills to the new firms.

### **Methods of Venture capital**

For all entrepreneurs except a chosen few, “Raising money” is the hardest part of starting a business – and the most rewarding when one is successful at it. There are various methods of financing entrepreneurial ventures. They are seed money financing, development financing, later stage financing, turn around.

**Seed money financing:** The venture capital institution provides seed capital at the early stage of the borrowing concern. In seed capital, the funds are provided for testing the product and examining the commercial viability of the product. It enables the venture capital institution to find out the technical skill of the borrowing concern and its market potentiality. So, we can say seed capital is more of a product development and all the finance required at this stage is provided by the venture capital institution.

Once the product is tested in the market and after being satisfied with its acceptability by the market, financing will be provided for further development of the product and marketing of the product.

The start up may be classified into four categories.

- A new high technology, introduced by the entrepreneur.
- A new business started by an entrepreneur who has a thorough working knowledge and experience-normally started by persons who were working in an established firm and having gained sufficient experience.
- New projects started by existing companies
- A new company promoted by existing company. Here, the venture capital institution is keen to have a first-rated management which may have a second rated product. But not vice versa i.e., venture capital will not be

provided for a concern having a second-rated management but a first-quality product

**Development financing:** The borrowing concern has successfully launched the product in the market which is evident from its acceptability. However, the business has not become commercially successful for want of some more finance. It is at this stage, the venture capital institution provides more funds than at the initial stage. It is also known as expansion financing and financing can be for working capital or for expansion.

**Later stage financing:** The business concern which has borrowed venture capitals has now become a well established business. But still, it is not able to go in for public issue of shares. At this stage, the venture capital institution will provide finance.

*Messanine capital* : This is a stage where the borrowing company is not only well established but has overcome the risks and has started earning profits. But they have to go for some more years before reaching the stage of self sustenance. This finance is used by the borrowing company for purchase of plant and machinery, repayment of past debts, and entering new areas.

*Bridge capital* : This is a medium term finance ranging from one to three years and used for growth of the business.

*Management buy-outs:* Here, we deal about the nature of management that is likely to exist in the borrowing concern. In the case of management buy-outs, venture capital is used for removing the external control on the management, by acquiring all the shares and the voting rights.

*Management Buy-in:* In the case of buy-in, funds are provided for an outside group to buy an on going company. But this is not popular as it requires a ready management, an investor and a company to take over the existing one.



**Turn around:** A sick company may be taken over by providing two important inputs of capital and management.

*Financial turn around:* When the company is able to improve its conditions financially, it is called financial turn around, which is due to the financial assistance by venture capital institution.

*Management turn around:* Similarly, when the management of the company makes a turn around by becoming self dependent and is able face the challenges of business, it is called management turn around.

### **Modes of venture financing**

The financing pattern of the deal is the most important element. Venture capitalists carry out substantial financial engineering to provide enough flexibility to meet the requirements of the company. The venture capitalist typically makes an investment in equity and quasi-equity.

**Equity:** The venture capital company invests in the equity of the company either at par or premium. Investment in the form of equity is the most desirable form of venture financing, as it does not put any pressure on the cash flow of the company in the initial period. Ideally the venture capital assistance should be provided entirely through equity, reflecting an approach of sharing risks and rewards. However in order to retain the day-to-day management and control with the promoter, the normal limit of assistance by way of equity is to be at a level slightly lower than of the promoter's equity.

**Quasi-equity:** The quasi-equity instruments are converted into equity at a later date. The convertible instruments are used by the venture capitalist due to necessity of leverage, and need to provide incentive to the promoters. These instruments are normally converted into equity at the book value or at a premium in a later date. The premium automatically rewards the promoter for their initiative and hard work. Since it is performance related, it motivates the promoter to work harder so as to minimize dilution of their control on the

company. The convertible instruments include convertible debentures and convertible preference shares.

### **Venture capital investment process**

The venture capital investment activity is a sequential process involving following steps.

**Deal origination:** A continuous flow of deals is essential for the venture capital business. Deals may originate in various ways. Referred system is an important source of deals. Deals may be referred to VCFs by their parent organizations, trade partners, industry associations, friends, etc. Yet another important source of deal flows is the active search through networks, trade fairs, conferences, seminars, etc. A third source used by venture capitalists is certain intermediaries who match VCFs and the potential entrepreneurs.

**Screening:** As venture capital is a service industry and operates on small staff, before going in for the in-depth analysis, the VCFs screen out projects on certain broad criteria. For example, the screening process may limit project to areas on which venture capitalists are familiar in terms of technology, or product or market scope, etc.

**Evaluation:** During this process, the venture capitalists ask the firm for a business plan, wherein detailed information about the proposed venture is given and then an assessment of the possible risk and return on the venture is done. The venture capitalists evaluate project's risk in isolation and thus effects of risk on total portfolio investment are rarely assessed. As a result a little effort has been made to eliminate the risk factors in order to enhance profit as well to hedge the risk.

**Deal structuring:** This involves negotiating the terms of the deal, i.e. a return commensurate with the risk, minimizing taxes, and assuring investment liquidity, board membership and right to replace management in case of consistent poor managerial performance.

**Post investment activities and exit:** The most crucial stage in any venture capital investment is the exit. The goal of the venture capitalist is to sell the investment in a period at a considerable gain. The different possible routes for exit from venture investments are: Initial public offer, Trade sale, Promoters buy back, Company buy back, and Management buy out.

### **Factors determining venture capital investments**

Venture capital finance is a risky business. The factors which are taken into consideration in providing investment rather than loans are growth prospects, possible future dividends and a likelihood that the shares acquired would eventually become marketable. The venture capital schemes are carefully drawn up to allow the original owners to retain control of the company through a majority shareholding although the agreement usually allows the lender to appoint a director on the board of the company. A venture capitalist studies and critically examines the under mentioned variables to analysis the ventures before it takes financing decision.

**Management and organization pattern:** Venture capitalists judge a business proposition by assessing the entrepreneur, the man behind the project, the men who manage it. Experience shows that a successful entrepreneur possesses mental attributes and behavioral attributes. A venture capitalist would, before taking a decision to invest, carry out analysis of how the enterprise is organized with reference to the organizational chart, management team, equity holders, employee satisfaction, trade union activities and industrial peace, maintenance of personal records and strength and weaknesses.

**Production process:** This is an important aspect, especially for venture capitalists following policy directions to finance concerns engaged in import or use of new technology in production process. The important factors to be considered are 1. Equipment and machinery used, cost of such equipments and capital expenditure proposed to be incurred in acquiring the plant and equipment; 2. Skilled and

trained production personnel and their availability; 3. Subcontracting work in production process involved; 4. Inventory levels in the production department, delivery period involved in supply of inventory items, source of supply and reliability of suppliers, purchasing process and other related aspects; 5. Quality control and consumers' satisfaction.

**Marketing and sales:** Marketing is a critical area and the success of a company depends largely upon its marketing endeavours, policies and strategies. A venture capitalist would study a company's marketing strength with reference to strength of the product being marketed, with regard to its seasonality, customers' profile, credit terms customers, consumer-awareness literature disseminated by the company, advertising programme and allocated budget, and the firm handling advertising for the product; size of market, presence and strength of competitors, market growth and information system, etc; pricing system followed by the firm; periodic marketing reports; sales projections and probability of success based on realistic assumptions; salesmen's ability and capacity. The role of business associations in influencing market conditions, pricing of products, consumer motivations, etc., is also an important indicator.

**Profitability:** Venture capitalists favour those firms for investment that can project a high degree of profitability. Cash-generation capacity of the ventures is also examined before arriving at a decision for investment. If a company were unable to generate sufficient cash, it would definitely suffer from shortage of working capital. Time is another critical factor. The firms that can deal in their products in the market with a reasonably good rate of growth potential within reasonable a time span are financed by the venture capital funds.

**Reference information:** An entrepreneur provides reference for personal as well as corporate identification in the business plan. The venture capitalist analyse the following information provided by the entrepreneurs :

*Corporate structure* includes subsidiaries, divisions, departments, branches, regional offices, etc. The full details of their location, documents of incorporation, bye-laws, regulations, etc., should be verified to assess their main role in corporate matters.

*Legal matters:* Agreements and deeds entered into by the entrepreneur with various parties and related documents should be verified to ascertain the existing encumbrances upon the corporate title, properties or ownership. Any lawsuit relating to the entrepreneur pending in any court of law company's patent right, trade marks, copyrights and licenses, etc., should be verified and ascertained.

*Professional reference:* Banks, Auditors, Lawyers, Insurance agents, landlords or lessors, Customers, Suppliers, Competitors, Subcontractors, etc., who may be able to provide strategic information about the entrepreneur to the venture capitalist, which can help him, decide whether or not to invest in the venture.

### **Valuation Methods**

A Venture capitalist would find it worthwhile to value current outside investments made in an enterprise so as to take a decision about his share in the equity capital of the company. The venture capitalist use different valuation methods, some of them are Conventional valuation method, Present-value method and Revenue multiplier method.

**Conventional valuation method:** This is based on the expected increase in the initial investment that could be sold out to a third party or through public offering via the exit route. Price-Earning ratio is calculated on the maturing date, multiplying the earning level post-tax effect by P/E ratio on the future maturity date arrives at valuation of investment at a future date. This method does not take into account the stream of cash flows beginning from the date of investment till the date of liquidity of investment.

**Present-value method:** This method takes into account the stream of earnings generated during the entire period of the investment from the date of initial

investment till date of maturity at a presumed discounted rate. This method is popularly known as 'First Chicago method'. Three alternative scenarios styled as 'success', 'survival' and 'failure' are assumed for the entire maturing period of the project that are discounted by a uniform discount rate to arrive at the present value of investment.

Each scenario is assigned a probability figure. Probability figures are based on many factors, which affect the earning stream: price of raw material; price of finished good; marketing factors. The product is multiplied by respective probability figures to arrive at expected value in each scenario. The total of these scenarios gives the expected present value of the company. Based on such value the venture capitalist makes his investment. The problem with this method is that it is based more on a value judgment by the venture capitalist than empirical consideration.

**Revenue multiplier method:** Revenue multiplier is an assumed factor used to estimate the value of an enterprise. By multiplying the annual estimated sales by such factor, the valuation figure is derived. This method is based on sales income and not on earning. Assuming the absence of profit in the early stage of a project, the method is useful for valuation at the early stages.

The Multiplier (M) is obtained by using the following equation.

$$M = \frac{(1+g)^n(e)(PE)}{(1)+d^n}$$

Where,

M = Multiplier.

g = growth rate.

n = Number of years between initial investment and exit date.

e = Expected profit margin (post tax) percentage at the exit date.

PE = Expected price earning ratio at the exit date.

d = Appropriate discount rate for venture capital investment and undertaking risk.

Valuation, (V) is obtained by using the following equation:

$$V = \frac{R(1 + g)^n (a)(PE)}{(1+d)^n}$$

Utilization of earlier investment is an important part of investigation that would reveal the ability of management to economically and efficiently utilize funds.

### **Exit mechanism**

Exit mechanism is the most important aspects of venture capital industry. The success of venture capital activity largely depends on envisaging efficient exit mechanism from investments and successful implementation of disinvestments. An efficient exit plan enables venture investors to get appropriate returns on investments. Venture capitalists are supposed to plan exit from venture at the time of investment. The proposed exit plan should have least problems and conform to statutory provisions. The exit from investment can be envisaged through various routes.

**Sale of share on stock exchange after listing:** Venture capitalists generally invest in ventures at the start-up stage and propose to disinvest their holding after company brings out initial public offering (IPO) for raising funds to finance expansion. Consequent listing on stock exchange provides an exit route from investment.

**IPO/Offer for sale:** Venture capitalists may also disinvest their holding through offer for sale to public. This route is often preferred where venture is successful and its internal generations are adequate to meet immediate fund for expansion. Therefore, no IPO is envisaged and instead part of existing equity is offered for sale. In such cases, however, investee company should have equity not less than minimum threshold limit for listing and at least 25 per cent of equity is offered for sale.

**Strategic sales:** At times, venture capitalists disinvest their holding in ventures to strategic investors who may have some kind of synergy of their own business with companies they propose to invest. Arrangement is generally worked out where by promoters disinvest their substantial holdings and remain associated with ventures professions.

**Buy back of equity by company:** Recently, Companies(Amendment) Act, 1999 has allowed companies to buy its own equity shares. Even though venture capitalists may not intend to exit through this route, they may consider it as when the venture has failed to achieve high growth and the return from the investment is likely to be low/average.

**Promoters buy back.** Promoters buy back is not generally a preferred route for exit from investment. Venture capitalists consider it is an exit option where promoters are in a position to mobilize funds for buy back of equity held by venture investors. This option is normally exercised where growth of venture is low/average and returns from investment are also likely to be low/average.

### **Advantages of venture capital**

Venture capital has made significant contribution to technological innovations and promotion of entrepreneurship. Many of the path breaking technologies computers have emerged from small business set up by people with ideas (but no financial resources) and supported by venture capital. There are abundant benefits to economy, investors and entrepreneurs provided by venture capital.



#### Economy oriented

- Helps in the industrialization of the country.
- Helps in the technological development of the country.
- Generates employment.
- Helps in developing entrepreneurial skills.

#### Investor oriented

- Benefit to the investor is that they are invited to invest only after the company starts earning profit, so the risk is less and healthy growth of capital market is entrusted.
- Profit to venture capital companies.

#### Entrepreneur oriented

- Helps small and medium first generation entrepreneurs to translate their ideas into a reality.
- Promotes entrepreneurship and foster entrepreneurism in the country.

### **Venture Capital in India**

Prior to independence, we had one example of formal venture capital type of financing in our country. The Tata Group's Investment Corporation of India successfully promoted a number of enterprises like Associated Bearings, National Rayons and Ceat Tyres in that area. These enterprises were undoubtedly hi-tech areas at that time. However, in the post-independence period, the government term-lending institutions eclipsed such ventures.

Under public sector auspices, venture capital fund was first started by Industrial Finance Corporation of India (IFCI). It started the Risk Capital Foundation (RCF) way back in 1975. This has been converted into a company known as Risk capital and Technology Finance Corporation Ltd., (RCTFC) as a subsidiary of the IFCI with effect from 12<sup>th</sup> January 1988 for providing technology development

finance. It is funded by the Unit Trust of India, the IFCI and the World Bank. In 1976 the seed capital scheme was introduced by IDBI. Till 1984 venture capital took the form of risk capital and seed capital. In 1986 ICICI launched a venture capital scheme to encourage new technocrats in the private sector in emerging fields of high-risk technology.

Consequently, Government of India felt the need of venture capital funds in India in the context of structural development and growth of small-scale business enterprises. In 1986-87 a 5 per cent cess was levied on all know-how payments to create a venture capital fund by IDBI. The ICICI also became a partner of the venture capital industry in the same year. During 1988-89 the new and young entrepreneurs were facing difficulties to raise equity capital from the conventional market. Under the circumstance, the scheme to launch venture capital funds was formulated.

Initially, a fund under the nomenclature of 'venture capital fund' was required to be established with certain corpus for being invested in the new and young firms with high potential of returns. Government decided to allow then concessional treatment of capital gains arising out of liquidation of equity holding in the assisted firms. At present, several venture capital firms are incorporated in India.

The Indian venture capital industry is just about a decade old as compared to that in Europe and US. In this short span it has nurtured close to 1000 ventures, mostly in SME segment and has supported budding technocrat/professionals all through. The VC industry, through its investments in high growth companies as well as companies adopting newer technologies backed by first generation entrepreneurs, has made a substantial contribution to economy.

The Indian venture capital industry is dominated by public sector financial institutions. A few private sector venture capital firms have been set up recently. At present there are about fifteen venture capital funds in India that have provided venture finance of over Rs.4.6 billion to several ventures. VCFs in India are not

pure venture capitalists. They pursue both commercial as well as developmental objectives. Venture finance is made available to high-tech as well non-tech businesses. A large number of high-tech ventures financed by VCFs are in thrust areas of national priority such as energy conservation, quality upgradation, advanced materials, biotechnology, reduced material consumption, environment protection, improved international competitiveness, development of indigenous technology, etc. The venture capital firms in India can be categorized into the following four groups:

- Venture capital funds promoted by the all India development financial institutions such as Technology Development and Information Company of India Limited (TDICI) by ICICI, Risk Capital Technology Finance Corporation Ltd., (RCTCF) by IFCI and Risk Capital Fund (RCF) by IDBI.
- Venture capital funds promoted by the state-level developmental financial institutions such as Gujarat Venture Capital Limited (GVCL) and Andhra Pradesh Industrial Development Corporation's Venture Capital Limited (APIDC-VCL).
- Venture capital funds promoted by public sector banks such as Canfinance and SBI Caps.
- Venture Capital funds promoted by the foreign banks/private sector companies and financial institutions such as Indus Venture Capital Funds, Credit Capital Venture Fund and Grindlay's India Development fund.

### **Issues of Indian venture capital industry**

Following are the major issues faced by this industry in India.

**Limitations on structuring of venture capital funds:** VCFs in India are structured in the form of a company or trust fund and are required to follow a

three-tier mechanism-investors, trustee company and AMC. A proper tax-efficient vehicle in the form of 'Limited Liability partnership Act' that is popular in USA, is not made applicable for structuring of VCFs in India. In this form of structuring, investors liability towards the fund is limited to the extent of his contribution in the fund and also formalities in structuring of fund are simpler.

**Problems in raising of funds:** In USA primary sources of funds are insurance companies, pension funds, corporate bodies, etc., while in India domestic financial institutions, multilateral agencies, state government undertakings are the main sources of funds for VCFs. Insurance companies and pension funds while allowing themselves to invest in the VCFs would enlarge the possibility of setting up of domestic VCF. Further, if mutual funds are allowed to invest upto 5 per cent of their corpus in VCFs by SEBI, it may lead to increased availability of fund for VCFs.

**Lack of incentive to investors:** Presently, high net worth individuals and corporates are not provided with any incentives for investment in VCFs. The problem of raising funds from these sources further gets aggravated with the differential tax treatment applicable to VCFs and mutual funds. While the income of the mutual funds is totally tax exempted under section 10 (23D) of the Income Tax Act, income of domestic VCFs, which provide assistance to small, and medium enterprise is not totally exempted from tax. In absence of any incentive, it is extremely difficult for domestic VCFs to raise money from this investor group that has a good potential.

**Domestic VCFs vis-à-vis offshore funds:** The domestic VCFs operations in the country are governed by the regulations as prescribed by SEBI and investment restrictions as place by CBDT for availing of the tax benefits. They pay maximum marginal tax of 35 per cent in respect of non-exempt income such as interest through debentures, etc., while off-shore funds which are structured in tax havens such as Mauritius are able to overcome the investment restriction of SEBI

and also get exemption from income tax under tax avoidance treaties. This denies a level playing field for the domestic investors for carrying out the similar activity in the country.

**Limitations on industry segments:** In sharp contrast to other countries where telecom, services and software corner the largest share of venture capital investments, in India other conventional sectors dominate venture finance. Opening up of restrictions in recent time, on investing in the services sectors such as telecommunication and related services, project consultancy, design and testing services, tourism etc, would increase the domain and growth possibilities of venture capital.

**Limitation on exit mechanism:** The VCFs that have invested in various ventures have not been able to exit from their investments due to limited exit routes and also due to unsatisfactory performance of OTCEI. The threshold limit placed by various stock exchanges acts as deterrent for listing of companies with smaller equity base. SEBI can consider lowering of threshold limit for public issue/listing for companies backed by VCFs. Buy-back of equity shares by the company has been permitted for unlisted companies, which would provide exit route to investment of venture capitalists.

**Legal Framework:** Lack of requisite legal framework resulting in inadequate penalties in case of suppression of facts by the promoters-results in low returns even from performing companies. This has bearing on equity investments particularly in unlisted companies.

### **Review questions**

1. What is venture capital? What are the characteristic features of venture capital?
2. What are the stages involved in venture capital financing?
3. How a venture capital firm evaluates a borrowing company?

4. What are the different types of venture capital companies?
5. What is the significance of venture capital? How does it promote new class of entrepreneurs?
6. Write a note on the development of venture capital funds of India.

### **References**

- Gladstone.D., "*Venture Capital Handbook*", Prentice Hall, Englewood Cliffs:1988,
- Henderson, J.W., "*Obtaining Venture Financing: Principles and Practices*", Lexington Books, Massachusetts, 1988.
- Maheswari .S.N, "*Financial Management, Principle and Practice*", Sultan Chand & Sons, New Delhi, 2004
- Misra, Asim Kumar, "*Venture Capital Financing*". Shipra Publications, New Delhi: 1996.
- Narasimham, M., "*The Financial System*", Nabhi, New Delhi., 1992.
- Pondey, I.M, "*Venture Capital Experience In India*", Prentice-Hall, New Delhi, 1996.
- Rustagi, R.P., "*Financial Management – Theory, Concepts and Problems*", Galgotia New Delhi:, 2002.
- Santhanam .B, "*Financial Services*", Margham Publications, Chennai, 2003
- Joseph Anbarasu.D, et.al, "*Financial Services*", Sultan Chand & Sons, New Delhi,2003
- Satyanarayana Chary.T, "*Venture Capital Concepts & Applications*", MacMillan India Ltd., Delhi, 2005
- Suneja H.R, "*Merchant Banker*", Himalaya Publications House, Mumbai, 2003

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## **Unit – V**

### **structure**

- 5.1 Introduction
- 5.2 Objectives
- 5.3 Preference share capital
- 5.4 Convertible debentures
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- 5.6 Secured premium notes (SPN)
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### **5.1 Introduction**

A broad classification for a group of securities used by companies to raise money that combine both debt and equity characteristics is known as hybrid securities. Hybrid securities pay a predictable (fixed or floating) rate of return or dividend until a certain date. At that date the holder has a number of options including converting the securities into the underlying share. Therefore unlike a share the holder has a known cash flow and, unlike a fixed interest security, there is an option to convert to the underlying equity. It is important to note that hybrid security is structured differently and while the price of some securities behave more like fixed interest securities, others behave more like the underlying shares into which they convert. The importance hybrid instruments/sources of financing are preference share capital, convertible debentures, warrants, secured premium notes, deep discount bonds and options.

## **5.2 Objectives**

After reading this lesson, you should be able to

- (a) Explain the features, advantages and limitations of preference share capital
- (b) Discuss the method for valuation of convertible debentures
- (c) Differentiate between a warrant and convertible security and explain the theoretical value of a warrant
- (d) Define Secured Premium Note and the ascertainment of its rate of return
- (e) Explain an option and its role in fund raising activities of a firm.

## **5.3 Preference share capital**

Preference share is a type of security through which a company obtains funds in exchange for certain type of preferential treatment to its holders which are not usually accorded to holders of the company's equity shares. Preference share occupies a position (relative to the residual ownership claims issued by companies) similar to that of a limited partner in a general preference in the distribution of assets, in the event of liquidation of the business, and in income, with respect to distribution of earnings.

Section 85 of the Companies Act, 1956 defines preference shares as those which have the following two characteristics: (i) these shares have a preferential right to be paid dividends at a fixed rate, and (ii) these shares have preferential right to the return of capital in case of liquidation. Both these preferences are available to preference shareholders as against the equity shareholders. As a source of financing, the preference shares are given preference in income distribution as well as in distribution of assets in case of liquidation of the company.

Preference shares on one hand have a prior claim relative to equity shareholders in the income and in the firm's assets, but on the other hand, are subordinate to all



debts with respect to earnings and assets. Preference share is a hybrid security, processing some characteristics of debt and some of equity. Legally, it is part of a company's equity base and preference dividends are not a tax-deductible expense. Preference share carries a fixed dividend rate, and this fixed rate plus the preferred's prior claims to income and assets, make it resemble debt.

However, the preference share capital represents an ownership interest and not a ground for liquidation. This commitment includes that the preference shareholders have the right to receive dividends in priority over the equity shareholders. Indeed it is this preference which distinguishes preference shares from equity shares. A dividend need not necessarily be paid on either type of shares. However, if the Directors want to pay equity dividend, then the full dividend due on the preference shares must be paid. It should be noted, that even if earnings are sufficient to pay the preference dividend, and even if enough cash is available to make payment, the directors are not obligated to declare the dividend payable. Nor can the preference shareholders take legal action to obtain their unpaid dividends. The only commitment made by the company is that preference dividends will be paid in the amounts agree upon before any dividends are paid on equity share. This commitment in itself, however, is generally sufficient to cause management to treat preference dividends as if they were a legal, periodic obligation of the company. Theoretically, it is also possible that the company may pay only preference dividend but no dividend to equity shareholders.

The position of preference shareholders as the ownership holder of the company is limited and restricted vis-à-vis the equity shareholders. Section 87 of the Companies Act, 1956 provides that the preference shareholders can exercise the right to vote only on resolutions placed before the company which directly affect the rights attached to preference shares. However, they can vote on every resolution placed before the company, if the dividend on preference shares has

remained unpaid (i) in case of cumulative preference share, for an aggregate period of not less than 2 years, and (ii) in case of non-cumulative preference share for a period not less than 2 years (immediately preceding) or not less than 3 years comprised in past 5 years. However, as against the equity shares, which are not to be redeemed during the life time of the company, the preference shares must be redeemed within a period of 20 years from the date of issue (Section 80A of the Companies Act, 1956).

### ***5.3.1 Features/attributes of preference share capital***

The main attributes of preference shares capital are discussed below:

#### **1. Prior claim on income/assets**

Preference capital has a prior claim/preference over equity capital both on the income and assets of the company. In other words, preference dividend must be paid in full before payment of any dividend on the equity capital and in the event of liquidation, the whole of preference capital must be paid before anything is paid to the equity capital. Thus, preference capital stands mid way between debentures and equity as regards claim on income and assets of the company. It is also referred to as a *senior security*. Stated in terms of risk perspective, preference capital is less risky than ordinary shares but more risky than debentures.

#### **2. Cumulative dividends**

Preference capital is cumulative in the sense that all unpaid dividends are carried forward and payable before any ordinary dividend is paid.

#### **3. Redeemability**

Preference capital has a limited life/specified/fixed maturity after which it must be retired. However, there are no serious penalties for breach of redemption stipulation.

The preference shares have a stated call price which is above the original issue price and decreases over time. Like the call feature on bonds, the call feature on

preference shares provides flexibility to the issuer company. Since the market price of straight preference shares tends to fluctuate with changes in interest rate, the value of the preference share call feature is determined by the same considerations as is the call feature for bonds. The refund of preference share is illustrated in Example 5.1

**Example 5.1:** Amrit Manufacturing Company (AMC) is considering refunding its preference shares. They have a par value of Rs. 100 and a stated dividend of 12 per cent. The call price is Rs. 104 per share and 5,00,000 shares are outstanding. The AMC can issue new preference shares at 11 per cent. The new issue can be sold at par, the total par value being Rs. 5 crore. Flotation costs would be Rs. 13,60,000. Marginal tax rate is 35 per cent. A 90-day period of overlap is expected between the time the new preferences share are issued and the time the existing preference shares are retired. Should the AMC refund its preference shares.

### Solution

#### Analysis of preference shares refund using capital budgeting analysis

Net Cash Outflow:		
1	Cost of calling old preference shares (5,00,000 × Rs. 104)	Rs. 5,20,00,000
2	Net proceeds of new issues (Rs. 5 crore – Rs. 13,60,000)	<u>4,86,40,000</u>
3	Difference (1 – 2)	33,60,000
4	Preference share dividend on old preference shares during overlap (5,00,000 × Rs. 104 × 3/12)	<u>15,60,000</u>
5	Net cash outlay (3 + 4)	<u>49,20,000</u>
6	Annual net cash outflow on old preference shares: Preference share dividend	60,00,000
7	Annual net cash outflow on new preference share: Preference share dividend	<u>55,00,000</u>
8	Differences (6 – 7)	5,00,000
9	Present value (Rs. 5,00,000 ÷ 0.11)	<u>45,45,454</u>
10	Net benefit (Rs. 45,45,454 – Rs 49,20,000)	<u>(3,74,454)</u>

*Decision:* The preference share issue should not be refunded as the benefit is negative.

#### **4. Fixed dividend**

Preference dividend is fixed and is expressed as a percentage of par value. Yet, it is not a legal obligation and failure to pay will not force bankruptcy. Preference capital is also called a fixed income security.

#### **5. Convertibility**

Preference share capital may sometimes be convertible partly/fully into equity shares/debentures at a certain ratio during a specified period. A variant in India is cumulative convertible preference shares which combine the cumulative and convertibility features. It has, however, been a non-starter so far.

#### **6. Voting rights**

Preference capital ordinarily does not carry voting rights. It is, however, entitled to vote on every resolution if (i) the preference dividend is in arrears for two years in respect of cumulative preference shares or (ii) the preference dividend has not been paid for a period of two/more consecutive preceding years or for an aggregate period of three/more years in the preceding six years ending with the expiry of the immediately preceding financial year.

#### **7. Participation features**

Preference capital may be participating, entitling participation in surplus profits, if any, that is, profits after payment of preference dividend and equity dividend at a certain specified rate. Similarly, it may be entitled to participate in the residual assets after the payment of their normal claim according to a specific formula in the event of liquidation of the company.

#### ***5.3.2 Advantages of preference share capital***

Preference share capital as a source of long-term financing has the following advantages:

1. The preference shares carry limited voting right though they are a part of the capital. Thus, these do not present a major control or ownership problem as long as the dividends are paid to them.
2. As an instrument of financing, the cost of capital of preference shares is less than that of equity shares.
3. In case of the company is able to earn a rate of return more than cost of capital of preference shares, the financial leverage generated by the issue of preference shares produces magnified increase in EPS for the equity shareholders.
4. The preference shares financing may also provide a hedge against inflation because of the fixed financial commitment which is unaffected by the inflation.
5. As there is no legal compulsion to pay preference dividend, a company does not face liquidation or other legal proceedings if it fails to pay the preference dividends.

### ***5.3.3 Limitations of preference share capital***

The following are the limitations of preference share capital:

1. The cost of capital of preference share is higher than cost of debt as the preference dividend is not tax deductible and also because of larger investment risk assumed by the preference shareholders.
2. Though there is no compulsion to pay preference dividend, yet the non-payment may adversely affect the market position of the company and may reduce the market price of the equity shares and hence affect the value of the firm.
3. The compulsory redemption of preference shares after 20 years will entail a substantial cash outflow from the company.

4. If the company is not able to earn a return at least equal to the cost of preference share capital, then it may result in decrease in EPS for the equity shareholders.

#### ***5.3.4 Redemption of preference share capital***

As already stated, a company in India can issue only those preference shares which are redeemable within a period of 20 years. This results in repayment of preference share capital as per terms and conditions of issue. So long as the preference capital is appearing in the balance sheet, it represents the capital contribution by the owners of the firm and thereby provides a buffer or a security to the creditors of the company. However, whenever these shares are redeemed and the funds of the company are used to repay the preference share capital, the security available to the creditors stands reduced by the amount of repayment. This may be a cause of worry to the creditors who might have extended credit to the company on the basis of 'owners contribution'. So, in order to protect the interest of the creditors and to preserve the security available to them, section 80 of the Companies Act, 1956 provides the following conditions for redemption of preference shares:

- (i) Such shares must be fully paid up.
- (ii) Such shares can be redeemed out of profits which would otherwise be available for dividends or out of the proceeds of a fresh issue of shares made for the purpose of redemption.
- (iii) Any premium payable on redemption of such shares shall be provided from out of the profits or out of the company's share premium account.
- (iv) Where the shares are redeemed out of distributable profits, the face value of the shares redeemed must be transferred to the capital redemption reserve account, out the profits otherwise available for distribution as dividend (i.e., distributable profits).

- (v) The amount credited to capital redemption reserve account may be utilized by the company by way of issue of fully paid bonus shares only.

A perusal of the above conditions explains that the crux of these conditions is that the preference share capital which is being redeemed must be replaced by capital only either (i) directly by the issue of fresh capital, or (ii) indirectly by converting the profits into share capital. This will help preserving the security available to the creditors. However, it may be noted that the conditions laid down in section 80 do not ensure the cash availability to the firm for repayment. The firm, in addition to fulfilling the above conditions must also have sufficient liquidity to repay the preference share capital. The financial manager has to take care of this aspect also. In case the firm has accumulated profits as well as sufficient liquidity, then the firm faces no problem in redeeming the preference share capital. If not, the only way is to issue fresh capital (equity of preference) and out of the proceeds of such fresh issue, the existing preference capital may be redeemed. However, the issue of fresh capital, no doubt, is subject to the conditions prevailing in the capital market.

Thus, the issue of preference share, from the point of view of composition of capital structure has the important advantage of avoiding the obligation to make fixed interest payments while, at the same time, realizing the benefits obtainable from the use of financial leverage. Preference share capital financing also permits the company to avoid sharing control through participation in voting. The company need not pay dividends on preference shares if it so chooses, so long as it fails to pay equity dividend. Therefore, the existence of preference shares capital does not increase the financial risk of the firm.

The limited claim on corporate earnings possessed by preference shareholders provides the equity shareholders with an opportunity to gain (or loss) from the use of financial leverage in the corporate capital structure. From the point of view of a

bondholder, however, preference share is part of the equity cushion protecting him from loss. From the financial administrator's point of view, finally, preference share is both debt and equity; he must analyze his firm's situation from both points of view in order to mix its long-term fund sources into an appropriate capital structure from the firm.

In brief, preference capital (i) involves high cost; (ii) does not dilute control, (iii) has negligible risk and (iv), puts no restraint on managerial freedom. The shareholders receive modest returns and are vulnerable to arbitrary managerial actions. It is not a popular source of long-term finance in India.

#### **5.4 Convertible debentures**

Convertible debentures in India, for practical purposes, are of relatively recent origin. Yet during this short period the features of these debentures have undergone significant changes. In the early eighties when they became prominent for the first time they were typically compulsorily convertible (partially or fully) at a stated conversion price on a predetermined date. The terms of such debentures were fixed by the Controller of Capital Issues. Towards the end of eighties, more particularly in 1989, a strange aberration occurred. In that year several convertible debenture issues were made which had the following features: (i) they were compulsorily convertible (fully or partially) in one or more stages, (ii) the conversion price was left open to be determined later by the Controller of Capital Issues, and (iii) the issuer was given some latitude for determining the timing of conversion.

All the details about conversion terms, namely, conversion ratio, conversion premium/price and conversion timing are specified in the offer document/prospectus. The companies can issue fully convertible debentures (FCDs) or partly convertible debentures (PCDs). The number of ordinary shares for each convertible debenture is the *conversion ratio*. The *conversion price* is the price paid for the ordinary share at the time of conversion. Thus, conversion ratio



equals par value of convertible debentures divided by the conversion price. The *conversion time* refers to the period from the date of allotment of convertible debentures after which the option to convert can be exercised. If the conversion is to take place between 18-36 months, the holder will have the option to exercise his rights in full or part. A conversion period exceeding 36 months is not permitted without put and call options. The call options give the issuer the right to redeem the debentures/bonds prematurely on stated terms. The investor has the right to prematurely sell them back to the issuer on specified terms. In addition, compulsory credit rating is necessary for fully convertible debentures.

With the repeal of the Capital Issues Control Act and the enactment of SEBI Act in 1992, the rules of the game applicable to convertible debentures have changed. As per SEBI guidelines, the provisions applicable to fully convertible debentures (FCDs) and partially convertible debentures (PCDs) are as follows:

- The conversion premium and the conversion timing shall be determined and stated in the prospectus.
- Any conversion, partial or full, will be optional at the hands of the debenture holder, if the conversion takes place at or after 18 months but before 36 months from the date of allotment
- A conversion period of more than 36 months will not be permitted unless conversion is made optional with 'put' and 'call' options.
- Compulsory credit rating will be required if the conversion period of fully convertible debentures exceeds 18 months.
- From the SEBI guidelines it is clear that convertible debentures in India presently can be of three types:
  - (a) Compulsorily convertible debentures which provide for conversion within 18 months

- (b) Optionally convertible debentures which provide for conversion within 36 months.
- (c) Debentures which provide for conversion after 36 months but which carry 'call' and 'put' features.

#### **5.4.1 Valuation of convertible debentures**

Internationally, convertible debentures are convertible into equity shares at the option of the debenture holders. In India, in addition to such debentures, companies also issue debentures which are compulsorily convertible (partly or wholly) into equity shares. For example, in June 1989, Tata Iron and Steel Company (TISCO) offered 3 lakh partly convertible debentures of Rs. 1200 each at par. The principal terms of these partly convertible debentures were as follows: (i) compulsory conversion of Rs. 600 par value into an equity share of Rs. 100 at a premium of Rs. 500 on February 1, 1990, (ii) interest rate of 12 per cent per annum payable half yearly, and (iii) redemption of the non-convertible portion at the end of 8 years.

#### **Compulsory partly/fully convertible debentures**

What is the value of a partly convertible debenture like the one issued by TISCO? The holder of such a debenture receives (i) interest at a certain rate over the life of the debenture, (ii) equity share/s on part conversion, and (iii) principal repayment relating to the unconverted amount. Hence the value of such a debenture may be expressed as follows:

$$V_0 = \sum_{t=1}^n \frac{I_t}{(1 + k_d)^t} + \frac{aP_i}{(1 + k_e)^t} + \sum_{j=m}^n \frac{F_j}{(1 + k_d)^j}$$

where,  $V_0$  = Value of the convertible debenture at the time of issue

$I_t$  = Interest receivable at the end of period, t

n = Term of debentures

a = Equity shares on part conversion at the end of period, i

$P_i$  = Expected pre-equity share price at the end of period,  $i$

$F_j$  = Instalment of principal payment at the end of period,  $j$

$k_d$  = Required rate of return on debt

$k_e$  = Required rate of return on equity

**Example 5.2:** The Tata Iron and Steel Ltd (TISCO) had offered in June 1989, Rs. 30 lakh partly convertible debentures of Rs. 1,200 each at par. The conversion terms were: (i) compulsory conversion of Rs. 600 par value into an equity share of Rs. 100 at a premium of Rs. 500 within six months of the date of allotment, that is, on February 1, 1990. (ii) 12 per cent per annum interest payable half-yearly and (iii) redemption of non-convertible portion of the debentures at the end of 8 years.

It had also simultaneously issued 32, 54, 167, 12 per cent FCDs of Rs. 600 each at par on rights basis to the existing shareholders. Each debenture was fully convertible into one share of Rs. 600, that is, Rs. 100 par plus a premium of Rs. 500 within six months from the date of allotment of debentures.

Assuming 8 and 10 per cent as the half-yearly required rate of return on debt and equity respectively, find the value of a TISCO convertible debenture at the time of issue.

### Solution

Value of the PCD =

$$\left[ \frac{\text{Rs } 72}{1.08} \right] + \sum_{t=2}^{16} \left[ \frac{36}{(1.08)^t} \right] + \left[ \frac{1 \times \text{Rs } 1,200}{(1.10)^1} \right] + \left[ \frac{\text{Rs } 600}{(1.08)^{16}} \right]$$
$$= \text{Rs } 352.03 + \text{Rs } 1,090.91 + \text{Rs } 175.20 = \text{Rs } 1,618.14$$

**Cost:** The cost of partly convertible debenture ( $k_c$ ) is given as

$$S_0 = \sum_{t=1}^n \frac{I_t(1-T)}{(1+k_c)^t} + \frac{aP_i b}{(1+k_c)^i} + \sum_{j=m}^n \frac{F_j}{(1+k_c)^j}$$

$S_0$  = net subscription price of debentures at the time of issue

$I_t$  = interest payable at the end of period, t

T = tax rate

a = number of equity shares offered on the occurrence of conversion at the end of period, i

$P_i$  = per equity share price at the end of period i

b = proportion of net realizable proportion of  $P_i$  on the equity share issues to the public

$F_j$  = principal repayment instalment at the end of period, j

$k_c$  = cost of capital/discount rate

For the TISCO convertible issue as detailed in Example 2, assuming further issue expenses, Rs 80, 35 per cent tax rate and 75 per cent as the net realizable proportion of equity shares issued to public, the cost of capital (convertible debenture) on a semi-annual basis is the discount rate by solving the following equation:

$$1,120 = \frac{72(1 - 0.35)}{(1 + k_c)} + \sum_{t=2}^{16} \frac{36(1 - 0.35)}{(1 + k_c)^t} + \frac{1 \times 1,200 \times 0.75}{(1 + k_c)} + \frac{600}{(1 + k_c)^{16}}$$

### ***Optionally convertible debentures***

The value of a debenture depends upon three factors: (i) straight debenture value, (ii) conversion value and (iii) option value.

***Straight debenture value (SDV) equals the discounted value of the receivable interest and principal repayment, if retained as a straight debt instrument. The discount factor would depend upon the credit rating of the debenture.***

$$\text{Symbolically SDV} = \sum_{t=1}^n \frac{I}{(1 + k_d)^t} + \frac{P}{(1 + k_d)^n}$$

$$= \sum_{t=1}^8 \frac{12}{(1.16)^t} + \frac{100}{(1.16)^8}$$

Where,

Maturity period = 8 years, discount factor = 0.16, interest = 0.12 payable annually and face value of debenture = Rs. 100.

**Conversion value (CV):** if the holders opt for conversion, is equal to the share price multiplied by the conversion ratio, that is, the number of equity share offered for each debenture.

If the price of share is, Rs. 50 and one debenture is convertible into 5 shares (conversion ratio = 5), the CV = Rs. 250 (Rs. 50 × 5).

The value of a convertible debenture cannot be less than the SDV and CV which, in a sense, represent its two floor values. In other words, the value of convertible debenture would be the higher of the SDV and CV.

**Option value (OV):** The investors have an option, that is, they may not exercise the right/exercise the right at a time of their choosing and select the most profitable alternative. Thus, the option has value in the sense that the value of debenture will be higher than the floor values. Therefore, the value of the convertible debentures = Max [SDV, CV] + OV.

#### **5.4.2 Evaluation of convertible debentures**

Convertible debentures have emerged as fairly popular instruments of long-term finance in India in recent years. In the first place, they improve *cash flow matching* of firms. With the invariably lower initial interest burden, a growing/expanding firm would be in a better position to service the debt/debenture. Subsequently, when it would do well, it can afford the servicing of the financing instrument after conversion.

Secondly, they generate *financial synergy*. The assessment of risk characteristics of a new firm is costly and difficult. Convertible debentures provide a measure of

protection against error of risk assessment. They have two components: straight debentures and call option. In case the firm turns out risky, the former will have a low value while the latter will have a high value and *vice versa* if the firm turns out to be relatively risk free. As a result, the required yield will not be very sensitive to default risk. In other words, firms with widely varying risks can issue convertible debentures on similar terms whereas the cost for straight debentures would be substantially different. Thus, convertible debentures offer a combination/financial synergy/risk synergy to companies to obtain capital on more favourable terms.

Finally, convertible debentures can mitigate agency problems associated with financing arising out of conflicting demand of equity-holders and debenture-holders/lenders. The focus of the latter is on minimizing default risk whereas the former would like the firm to undertake high risk projects. This conflict can be resolved by the issue of convertible debentures. The debenture-holders would not impose highly restrictive covenants to protect the interest and firms can undertake profitable investment opportunities.

## **5.5 Warrants**

A warrant is an option to purchase a specified number of shares at a specified price during or at the expiry of a specified period. So, a warrant gives the holder the right to purchase from the company a fixed number of shares in future at a pre-determined price. The holder of the warrant may be allowed to transfer or sell his right in the secondary market or to keep the right as an investment. The holder of a warrant can choose whether or not to exercise the option. If it is exercised, then the investor becomes a shareholder in the normal way. If it is not, then the warrant lapses. The investor who chooses to exercise the warrant sends the required amount of cash and warrants to the issuing company at an appropriate time. In return, the company issues shares. Although, warrants are not a major

source of funds, their characteristics may help the company to attain the desired capital structure.

Warrants are generally issued with other securities (a bond or a preference share) in a package. Warrants may be attached to a debt issue to work as a *sweetener* and to add to the marketability of the issue. For companies that are marginal credit risks, the use of warrants may induce investors to purchase a debt issue that would otherwise be difficult or impossible to sell. During period of monetary restraint, even some financially sound companies may decide to use warrants to make their debt issue more attractive to investors. If a firm is a financially risky proposition, warrants may enable it to obtain debt or preference share capital financing. In case of a new firm, warrants may provide an opportunity to the debt holder or preference shareholders to share in the future success of the firm. As the initial capital is generally considered risky, its suppliers expect an opportunity to share in the rewards they hope will result from the use of the funds they supply.

The warrants, which generally originate by being attached to a new issue of debt securities, may be permanently attached to issue or may be detachable. A non-detachable warrant cannot be sold separately from the bond but can only be detached when the bondholder exercises his option and purchases shares. Detachable warrants may be sold separately from the bond consequently, the bondholder does not have to exercise his option in order to obtain value from the warrant. He may, if he wishes, simply sell the warrant in the market.

#### ***5.5.1 Warrants and convertible securities***

A warrant is different from convertible securities (convertible debentures as well as convertible preference shares). A convertible security requires surrender of the security in exchange for the equity shares. A warrant, on the other hand, requires a surrender of the warrant plus the payment of additional cash, called the option price or the exercise price, in order to obtain the equity shares. Warrants are

issued by a company to investors who may exercise them to buy the shares or may re-sell them to other investors.

A convertible security issue gives the holder the right to receive equity shares through the exchange of the convertible for the equity shares; the warrant entitles the security holder to purchase equity share at a specified price. Both securities provide the purchaser with the opportunity for a speculative gain if the company is successful and the market price of the equity share increases. However, despite the similarities between these two methods of raising new equity capital, they are not perfect substitutes for one another. It is, therefore, important for the financial administrator to know when it is preferable to issue debt plus warrants and when a convertible issue is the better course of action.

If the warrant is converted then the capital structure is shifted to a relatively lower leverage position because new equity capital is issued without any change in debts. If convertible securities are converted then the reduction in leverage would be more pronounced because new equity share would be issued with a reduction in debt. Therefore, the warrant conversion reduces the leverage but not as much as the convertible securities reduce. Another effect of the warrant conversion is the dilution of earnings and control because a number of new equity shares would be issued, hence affecting the controlling position of the existing shareholders.

So, the warrants and convertible securities differ both from the point of view of flow of capital funds as well as effect on the EPS. In case of conversion of convertible securities, new equity share is issued, but there is no infusion of new capital into the company. That occurred when the convertible issue was sold initially. All that takes place when the securities are converted is an exchange of one security (the bond) for another (the equity share)— a conversion of debt into equity. However, when warrants are exercised, the bonds with which they were issued when warrant holders exercise their option represent an inflow of new capital to the firm. These new funds can then be used to purchase additional



assets, to retire debt, or for any other purpose aimed at increasing the firm's earnings.

### **5.5.2 Warrants and share right**

A warrant is like a share right, but not exactly alike. The share right is issued to the existing shareholders free of cost, with generally, an option to exercise the right themselves or to sell it to other investors. In both the share right and the warrant conversion, the holder has to pay a price for getting new shares from the company and hence there is flow of capital from the investors to the company. From the point of view of the company, the warrant and the share right can be differentiated as follows:

- (i) The purpose of the warrant may be to make a debt issue or a preference capital issue attractive, whereas the right has an objective of raising fresh funds as well as to maintain the prorata share holding of the existing shareholders. The warrant has no such feature of maintaining ownership position.
- (ii) The share right is generally exercised in a short period of one month or so, whereas warrants are generally convertible after a year or so. Although both right and warrants result in flow of capital fund but warrants provide deferred equity financing.
- (iii) The right shares are generally issued at a price lower than the prevailing market price to induce the existing shareholders to apply for the right shares, whereas the conversion price of the warrants may be kept slightly higher than the current prevailing market price in order to accommodate the expected increase in market price in future.

Thus, a warrant has some unique features which are different from that of a right or a convertible security. The unique features of warrants can be summarized as follows:

- (i) Warrants are issued by attaching them to other securities. When issued in this fashion, warrants work as sweetener as they make the issue more attractive.
- (ii) Warrants can be detached from the original security and can be traded as a separate instrument.
- (iii) The number of equity shares that can be purchased is fixed and is stated on the face of the warrant instruments.
- (iv) The exercise price for which the shares can be purchased in future is also fixed.
- (v) Warrants issued generally have a specified period over which they can be exercised and become useless thereafter.
- (vi) Warrants carry no voting rights and are not entitled to receive dividend or interest payment. A warrant is only an option to purchase shares, the warrant holder is not entitled to any dividends paid on the equity shares nor does he have any voting power. However, if bonus shares are declared, the option price of the warrant may be adjusted to account for the change.

### 5.5.3 Valuations of warrants

Just like other securities, warrants also have a value. An important consequence of unique characteristics of warrant is that these have a theoretical value in addition to its resale market value. The *theoretical value* of a warrant equals the difference between the market price of the equity shares purchased through warrants and the total option price paid for these shares to the company. The theoretical value, also called the minimum value, can be expressed as follows:

$$TV_w = (MP - OP) \times N$$

Where,  $TV_w$  = Theoretical value of a warrant

MP = Market price of underlying equity shares

$N =$  Number of equity shares that can be purchased with one warrant

$OP =$  Option or exercise price of the equity shares.

In case, a warrant entitles to purchase only one equity share, then the

$$TV_w = (MP - OP)$$

Thus, the theoretical value may be defined as a discount allowed on equity shares to the warrant holder. If an investor buys warrants for their theoretical value and exercise them, they end up paying the same price for the equity shares as they would if they were to buy these shares in the market. However, if the market price of the equity shares is equal to or below the option price, then the theoretical value of a warrant would simply be zero as warrants will never have a negative value. When the market price of equity shares fall below the offer price, the theoretical value is negative as per the above equation. However, the theoretical value of the warrant identifies a price below which the warrant is not likely to sell, the theoretical value is said to be zero whenever the market price of the equity shares is equal to or less than the offer price.

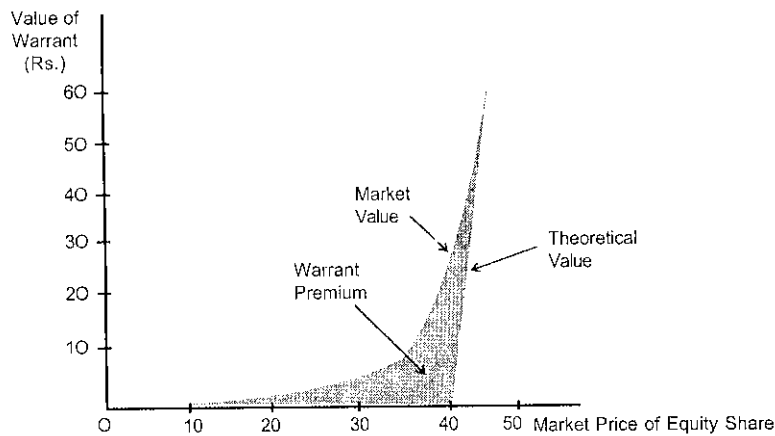
The warrant has a *market value* also and is generally higher than the theoretical value of the warrant. The theoretical value represents the minimum value of the warrant and will be equal to the market value only on the last day on which the warrant can be converted into equity shares. Prior to this date, the actual market value will be higher than the theoretical value, and the reason for this is obvious. If the right to convert the warrant can be exercised at any time during a given period then the investor has the option of holding the warrant instead of purchasing shares. Holding the warrant is equivalent to holding the equity shares, except that the investment in warrant is less and the warrant holder does not have the right of dividend and voting. It follows that an investor might prefer to purchase a warrant and not immediately exercising it. This option of not exercising the warrant, in addition to the opportunity of exercising it immediately

and acquiring the equity shares, has a value. This value is reflected in the market price of a warrant, and consequently the warrant's market price may exceed the theoretical value.

It may be observed that the advantage of a warrant over equity share is that the maximum possible loss is less than if the share itself is held (as the warrant is cheaper). If the equity share achieves a higher price, this advantage of holding a warrant rather than holding the equity shares becomes less important. For example, the current market price (MP) of the equity share is Rs. 100 and a warrant entitles to purchase two shares at a price of Rs. 40 per share. The theoretical value can be ascertained as follows:

$$\begin{aligned} TV_w &= (MP - OP) \times N \\ &= (100 - 40) \times 2 \\ &= \text{Rs. } 120. \end{aligned}$$

So, the theoretical value of the warrant is Rs. 120. If an investor buys a warrant for Rs. 120, his loss is restricted to Rs. 120 only, whereas if he chooses to buy two shares today at market price of Rs. 100 each, his loss may go even up to Rs. 200. If the price of the share falls sharply, then the shareholder may suffer full loss. However, the warrant holder can suffer a loss equal to the value of the warrant only, although his potential for price gain is same as that of the equity shareholder. This protection against the loss is maximum when the share price is close to exercise price of the warrant. The market value of a warrant has been presented in Figure 1.



**Fig-1**

It may be noticed that the market value of a warrant is close to the theoretical value at very high share price. The greatest difference arises when the market price equals the exercise price. In the above case, if the market price falls from Rs. 100 to Rs. 90, then the two shares will fall in value to Rs. 180 and the value of the warrant will also decline from Rs. 120 to Rs. 100 [i.e.,  $TV_w = (90 - 40)2$ ]. The loss on the warrant *i.e.*, Rs. 20 is equal to the loss on two share and there is no advantage of holding/purchasing of the warrant. Therefore, the market value of a warrant will approximate the theoretical value if the market price a share is very high. The market value of a warrant depends upon many factors such as:

- (i) *Share price:* A higher share price will increase the value of a warrant as shown in Figure 1.
- (ii) *Offer price:* A higher offer price will mean a lower value for the warrant as the warrant holder must pay more for the shares purchased.
- (iii) *Underlying risk:* The total risk of the volatility of the share price also affects the market value of the warrant. Figure 1 shows that a warrant may have a value even when the share price is below the offer price; and it may happen if there is a possibility that the

market price will rise above the offer price before the expiry of the conversion period.

- (iv) *Time to expiry*: The longer the time to expiry, the higher would be the value of the warrant.

The dividend condition that the warrant holders are not entitled to any dividend before exercising the right also affects the market value of the warrant. This dividend, however, is payable to the equity shareholders.

The behaviour of the market value line in Figure 1 may be summarized as follows: *First*, the market value of a warrant tend to stay at or above its theoretical value. *Second*, the market value will remain positive even when the theoretical value is zero because a positive price is required to induce trading. *Third*, the warrant premium reaches its highest level at about the exercise price of the underlying equity shares because the leverage effects and possibility of subsequent increase in market price of the equity share. The difference between the market value and the theoretical value, which is also known as warrant premium, has been shown as shaded area in Figure 1. It may be observed that the warrant premium is highest when the share price is at or close to the offer price and that the warrant premium decreases as the share price moves away, in any direction, from the offer price.

## **5.6 Secured premium notes (SPN)**

Secured Premium Note is a tradeable instrument with detachable warrant against which the holder gets equity share (s) after a fixed period of time. The SPN have feature of medium to long-term notes.

During August 1992, TISCO Ltd. issued a special debt instrument called the SPN, having a face value of Rs. 300. No interest was payable on this and it was to be redeemed in four equal installments of Rs. 150 each (totaling Rs. 600) at the end of 4<sup>th</sup> year to 7<sup>th</sup> year. Out of each repayment of Rs. 150, Rs. 75 was to be considered as repayment of the principal and Rs. 75 was to be considered as

capital gain. There was a warrant attached with the SPN, which entitled every SPN holder to get one equity share from the company at a price of Rs. 100. The rate of return on the SPN was not stated explicitly, however, may be ascertained from the point of view of SPN holders as follows:

**(i) If warrant option is not exercised**

In this case, the outflow of Rs. 300 today will result in inflows of Rs. 150 each at the end of 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> year. The rate of return is the value of 'r' in the following equation:

$$-300 = \frac{150}{(1+r)^4} + \frac{150}{(1+r)^5} + \frac{150}{(1+r)^6} + \frac{150}{(1+r)^7}$$

By trial and error procedure, the value of 'r', in the above equation comes to 13.7% (approx.).

**(ii) If warrant option is exercised**

In case, the SPN holder exercises his option at the end of 1<sup>st</sup> year from the date of allotment and the market price of the share at that time is Rs. 175, then the SPN holder will be able to make a capital gain of Rs. 75 (i.e., Rs. 175-100). The rate of return, in this case, is the value of 'r' in the following equation:

$$-300 = \frac{75}{(1+r)^1} + \frac{150}{(1+r)^4} + \frac{150}{(1+r)^5} + \frac{150}{(1+r)^6} + \frac{150}{(1+r)^7}$$

By trial and error procedure, the value of 'r', in the above equation comes to 19.5% (approx.). It may be noted that the full capital gain of Rs. 75 has been considered to find out the rate of return of the investor. However, if this capital gain is subject to tax, then the rate of return to the SPN holder will be less than 19.5%.

From the point of view of TISCO Ltd., the issue of SPN was a profitable proposition as no cash outflow was involved for the first 3 years (neither in the form of interest nor in the form of repayment) and a substantial inflow was

expected at the end of 1<sup>st</sup> year in the form of subscription to equity shares on the warrant conversion.

### **5.7 Deep discount bonds (DDB)**

A Deep Discount Bond is also a type of a zero interest bond. But it is not convertible. It has got a face value but the issue price of the Deep Discount Bond is a discounted value. The Deep Discount Bond is redeemed at the expiry of a specified period at the face value. The return to the Deep Discount Bond holders is available in the form of difference between the issue price and the realizable maturity value. There is no coupon rate and no interest is payable during the life of the Deep Discount Bond. The Industrial Development Bank of India issued in 1992, Deep Discount Bond of the face of Rs. 1,00,000 redeemable in 25 years. The issue price was however, Rs. 2,700 and the investor were given option to get redemption at the end of 5<sup>th</sup>, 10<sup>th</sup>, 15<sup>th</sup> and 20<sup>th</sup> year at different values. If an investor holds the Deep Discount Bond for full 25 years, then the rate of return comes to about 15.5%. Since then SIDBI, ICICI and IFCI have also issued Deep Discount Bond of different denominations and maturities.

There are three main advantages of deep discount bonds to the investor:

1. In some countries there may be some tax advantage in receiving a capital gain rather than an income gain.
2. Secondly, a deep discount bond is a leveraged instrument, because the bonds are sold at a discount a relatively small up-front payment gives the investor exposure to a larger nominal amount.
3. Thirdly, there is no or significantly reduced reinvestment risk for the investor i.e. the possibility that market interest rates may fall in the future; the bond has a longer duration than a bond of comparable maturity which pays fixed or floating interest.



## 5.8 Options

An option is a contract that gives the holder the right, but not the obligation, to buy or sell an underlying asset at a pre-specified price for a specified time period. An American option gives the option holder the right to buy or sell the underlying asset at any time before and on the expiration date of the option. A European option (e.g., options on the S&P 500 Index) gives the option holder the right to buy or sell the underlying option only on the expiration date. Most options traded on exchanges in the United States and abroad are American options. Options are classified as either call options or put options.

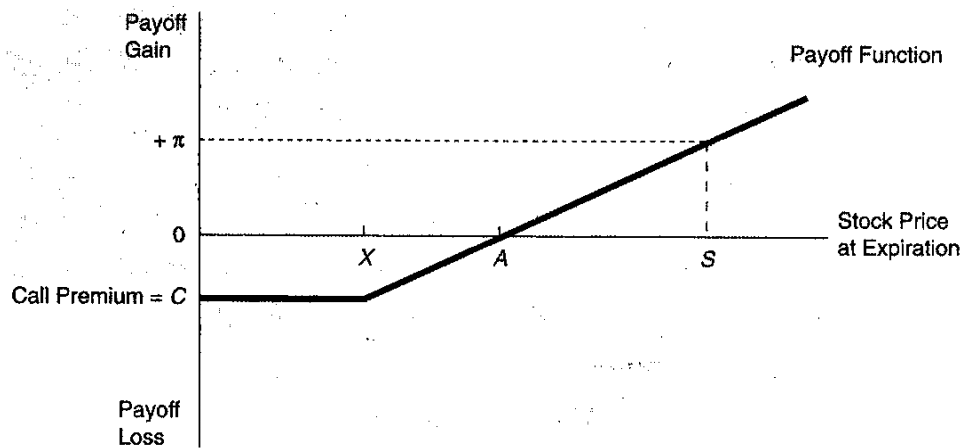
### 5.8.1 Types of options

Options may fall under any one of the following categories:

#### 1. Call options

A call option gives the purchaser (or buyer) the right to buy an underlying security (e.g., a stock) at a prespecified price called the *exercise* or *strike* price ( $X$ ). In return, the buyer of the call option must pay the writer (or seller) an upfront fee known as a *call premium* ( $C$ ). This premium is an immediate negative cash flow for the buyer of the call option. However, he or she potentially stands to make a profit should the underlying stock's price be greater than the exercise price (by an amount exceeding the premium) when the option expires. If the price of the underlying stock is greater than  $X$  (the option is referred to as "in the money"), the buyer can exercise the option, buying the stock at  $X$  and selling it immediately in the stock market at the current market price, greater than  $X$ . If the price of the underlying stock is less than  $X$  when the option expires (the option is referred to as 'in the money'), the buyer can exercise the option, buying the stock at  $X$  and selling it immediately in the stock market at the current market price, greater than  $X$ . If the price of the underlying stock is less than  $X$  when the option expires (the option is referred to as 'out of the money'), the buyer of the call would not exercise the option (i.e., buy the stock at  $X$  when its market value is

less than  $X$ ). In this case, the option expires unexercised. The same is true when the underlying stock price is equal to  $X$  when the option expires (the option is referred to as ‘at the money’). The call buyer incurs a cost  $C$  (the call premium) for the option, and no other cash flows result.



**Fig 2-Payoff function for the buyer of a call option on a stock**

**Buying a call option:** The profit or loss from buying a call option is illustrated in Figure 2. As Figure 2 shows, if, as the option expires, the price of the stock underlying the option is  $S$ , the buyer makes a profit of  $\pi$ , which is the difference between the stock’s price ( $S$ ) and the exercise price of the option ( $X$ ) minus the call premium paid to the writer of the option ( $C$ ). If the underlying stock’s price is  $A$  as the option expires, the buyer of the call has just broken even because the net proceeds from exercising the call ( $A - X$ ) just equals the premium payment for the call ( $C$ ).

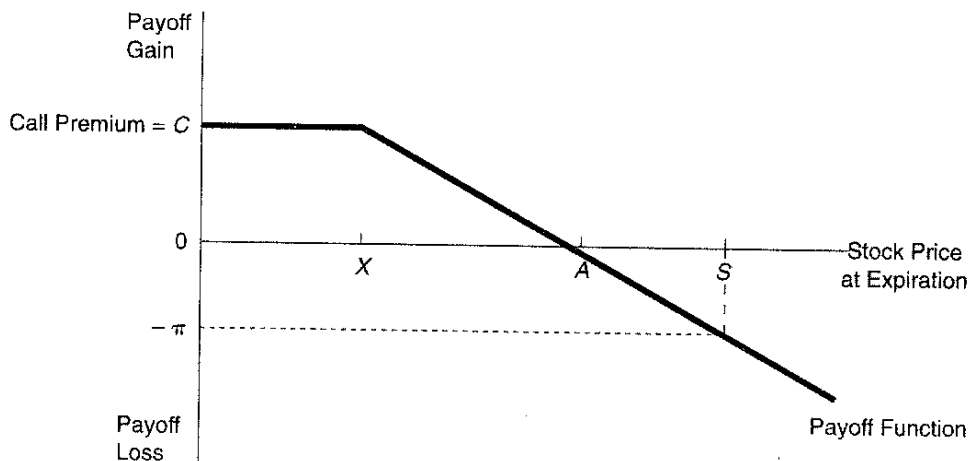
Notice two important things about call options in Figure 2:

1. As the underlying stock’s price rises, the call option buyer has a large profit potential. The higher the underlying stock’s price at expiration, the larger the profit on the exercise of the option.
2. As the underlying stock’s price falls, the call option buyer has a higher potential for losses, but they are limited to the call option

premium. If the underlying stock's price at expiration is below the exercise price,  $X$ , the call buyer is not obligated to exercise the option. Thus, the buyer's losses are limited to the amount of the up-front premium payment ( $C$ ) made to purchase the call option.

Thus, buying a call option is an appropriate position when the underlying asset's price is expected to rise.

**Writing a call option:** The writer of a call option sells the option to the buyer (or is said to take a short position in the option). In writing a call option on a stock, the writer or seller receives an up-front fee or premium ( $C$ ) and must stand ready to sell the underlying stock to the purchaser of the option at the exercise price,  $X$ . Note the payoff from writing a call option on a stock in Figure 3.



**Fig-3: Payoff function for the writer of a call option on a stock**

Notice two important things about this payoff function:

1. As the underlying stock's price falls, the potential for a call option writer to receive a positive payoff (or profit) increases. If the underlying stock's price is less than the exercise price ( $X$ ) at expiration, the call option buyer will not exercise the option. The call option writer's profit has a maximum profit equal to the call premium ( $C$ ) charged up front to the buyer of the option.

2. As the underlying stock's price rises, the call option writer has unlimited loss potential. If the underlying stock's price is greater than the exercise price ( $X$ ) at expiration, the call option buyer will exercise the option, forcing the option writer to buy the underlying stock at its high market price and then sell it to the call option buyer at the lower exercise price. Since stock prices are theoretically unbounded in the upward direction, these losses could be very large.

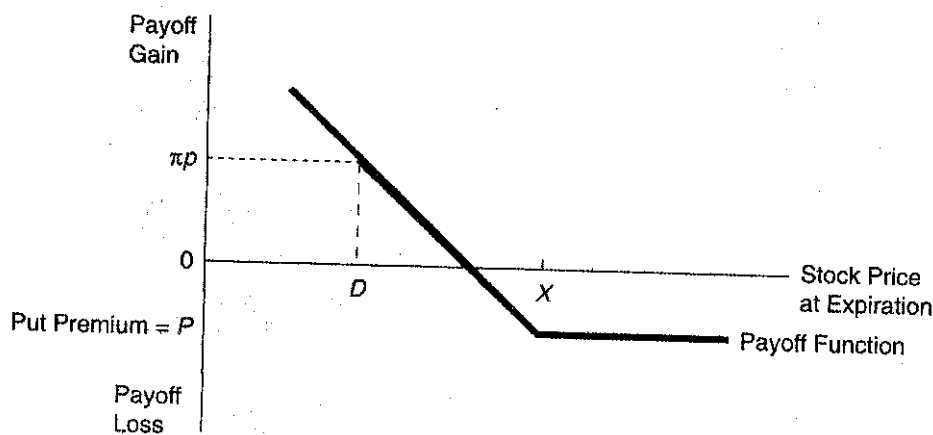
Thus, writing a call option is an appropriate position when the underlying asset's price is expected to fall. Caution is warranted, however, because profits are limited but losses are potentially unlimited. A rise in the underlying stock's price to  $S$  results in the writer of the option losing  $\square$  (in Figure 3).

## 2. Put options

A put option gives the option buyer the right to sell an underlying security (e.g., a stock) at a prespecified price to the writer of the put option. In return, the buyer of the put option must pay the writer (or seller) the put premium ( $P$ ). If the underlying stock's price is less than the exercise price ( $X$ ) when the option expires (the put option is 'in the money'), the buyer will buy the underlying stock in the stock market at less than  $X$  and immediately sell it at  $X$  by exercising the put option. If the price of the underlying stock is greater than  $X$  when the option expires (the put option is 'out of the money'), the buyer of the put option never exercises the option (i.e., selling the stock at  $X$  when its market value is more than  $X$ ). In this case, the option expires unexercised. This is also true if the price of the underlying stock is equal to  $X$  when the option expires (the put option is trading 'at the money'). The put option buyer incurs a cost  $P$  for the option, and no other cash flows result.

**Buying a put option:** The buyer a put option on a stock has the right (but not the obligation) to sell the underlying stock to the writer of the option at an agreed

exercise price ( $X$ ). In return for this option, the buyer of the put option pays a premium ( $P$ ) to the option writer. The potential payoffs to the buyer of the put option is shown in Figure 4.



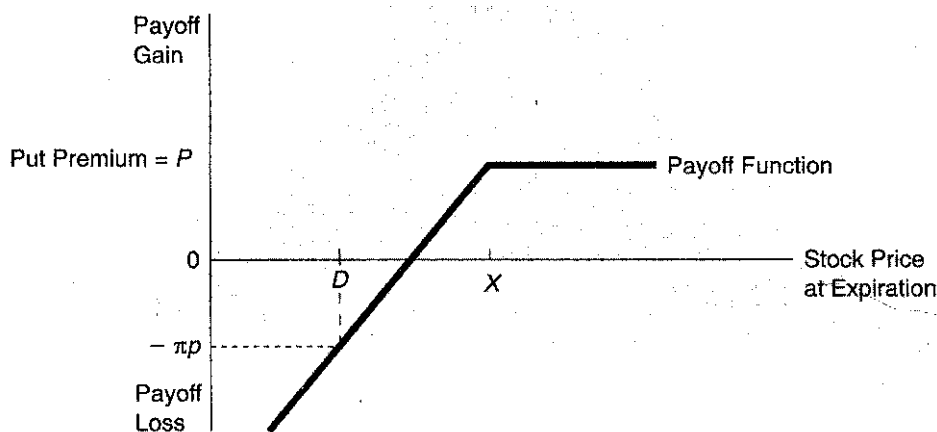
**Fig-4: Payoff function for the buyer of a put option on a stock**

Note the following:

1. The lower the price of the underlying stock at the expiration of the option, the higher the profit to the put option buyer upon exercise. For example, if stock prices fall to  $D$  in Figure 4, the buyer of the put option can purchase the underlying stock in the stock market at that price and put it (sell it) back to the writer of the put option at the higher exercise price  $X$ . As a result, after deducting the cost of the put premium,  $P$ , the buyer makes a profit of  $\pi p$  in Figure 4.
2. As the underlying stock's price rises, the probability that the buyer of a put option has a negative payoff increases. If the underlying stock's price is greater than the exercise price ( $X$ ) at expiration, the put option buyer will not exercise the option. As a result, his or her maximum loss is limited to the size of the up-front put premium ( $P$ ) paid to the put option writer.

Thus, buying a put option is an appropriate position when the price on the underlying asset is expected to fall.

**Writing a put option:** The writer or seller of a put option receives a fee or premium ( $P$ ) in return for standing ready to buy the underlying stock at the exercise price ( $X$ ) should the buyer of the put choose to exercise the option at expiration. See the payoff function for writing a put option on a stock in Figure 5.



**Fig-5: Payoff function for the writer of a put option on a stock**

Note the following:

1. When the underlying stock's price rises, the put option writer has an enhanced probability of making a profit. If the underlying stock's price is greater than the exercise price ( $X$ ) at expiration, the put option buyer will not exercise the option. The put option writer's maximum profit, however, is constrained to equal the put premium ( $P$ ).
2. When the underlying stock's price falls, the writer of the put option is exposed to potentially large losses. If the price of the underlying stock is below the exercise price (e.g.,  $D$  in Figure 5), the put option buyer will exercise the option, forcing the option writer to buy the underlying stock from the option buyer at the

exercise price ( $X$ ) when it is worth only  $D$  in the stock market. The lower the stock's price at expiration relative to the exercise price, the greater the losses to the option writer.

Thus, writing a put option is an appropriate position if the price on the underlying asset is expected to rise. However, profits are limited and losses are potentially large.

Notice from the above discussion that an option holder has three ways to liquidate his or her position. *First*, if conditions are never profitable for an exercise (the option remains 'out of the money'), the option holder can let the option expire unexercised. *Second*, if conditions are right for exercise (the option is 'in the money'), the holder can take the opposite side of the transaction: thus, an option buyer can sell options on the underlying asset with the same exercise price and the same expiration date. *Third*, if conditions are right for exercise, the option holder can exercise the option, enforcing the terms of the option. For an American option, this exercise can theoretically occur any time before the option expires, while for a European option this exercise can occur only as the option expires, i.e., on its maturity.

### ***5.8.1 Features of option contract***

#### **1. Highly flexible**

On one hand, option contracts are highly standardised and so they can be traded only in organised exchanges. Such option instruments cannot be made flexible according to the requirements of the writer as well as the user. On the other hand, there are also privately arranged options which can be traded 'over the counter'. These instruments can be made according to the requirements of the writer and user. Thus, it combines the features of 'futures' as well as 'forward' contracts.

## **2. Down payment**

The option holder must pay a certain amount called 'premium' for holding the right of exercising the option. This is considered to be the consideration for the contract. If the option holder does not exercise his option, he has to forego this premium. Otherwise, this premium will be deducted from the total payoff in calculating the net payoff due to the option holder.

## **3. Settlement**

No money or commodity or share is exchanged when the contract is written. Generally this option contract terminates either at the time of exercising the option by the option holder or maturity whichever is earlier. So, settlement is made only when the option holder exercises his option. Suppose the option is not exercised till maturity, then the agreement automatically lapses and no settlement is required.

## **4. Non-linearity**

Unlike futures and forward, an option contract does not possess the property of linearity. It means that the option holder's profit, when the value of the underlying asset moves in one direction is not equal to his loss when its value moves in then opposite direction by the same amount. In short, profits and losses are not symmetrical under an option contract. This can be illustrated by means of an illustration:

Mr. X purchases a two month call option on rupee at  $\text{Rs. } 100 = 3.35\$$ . Suppose, the rupee appreciates within two months by 0.05 \$ per one hundred rupees, then the market price would be  $\text{Rs. } 100 = 3.40\$$ . If the option holder Mr. X exercises his option, he can purchase at the rate mentioned in the option i.e.,  $\text{Rs. } 100 = 3.35\$$ . He gets a payoff at the rate of 0.05 \$ per every one hundred rupees. On the other hand, if the exchange rate moves in the opposite direction by the same amount and reaches a level of  $\text{Rs. } 100 = 3.30\$$ . The option holder will not



exercise his option. Then, his loss will be zero. Thus, in an option contract, the gain is not equal to the loss.

## 5. No obligation to buy or sell

In all option contracts, the option holder has a right to buy or sell an underlying asset. He can exercise this right at any time during the currency of the contract. But, in no case, he is under an obligation to buy or sell. If he does not buy or sell, the contract will be simply lapsed.

### 5.8.2 Option values

The model most commonly used by a practitioners and traders to price and value options is the Black-Scholes pricing model. The Black-Scholes model examines five factors that affect the price of an option:

1. The spot price of the underlying asset
2. The exercise price on the option
3. The option's exercise date
4. Price volatility of the underlying asset
5. The risk free rate of interest

The profit and loss from exercising an option is a function of the spot price of the option's underlying asset and the exercise price on the option. The difference between the underlying asset's spot price and an option's exercise price is called the option's intrinsic value. For a call option, the intrinsic value is:

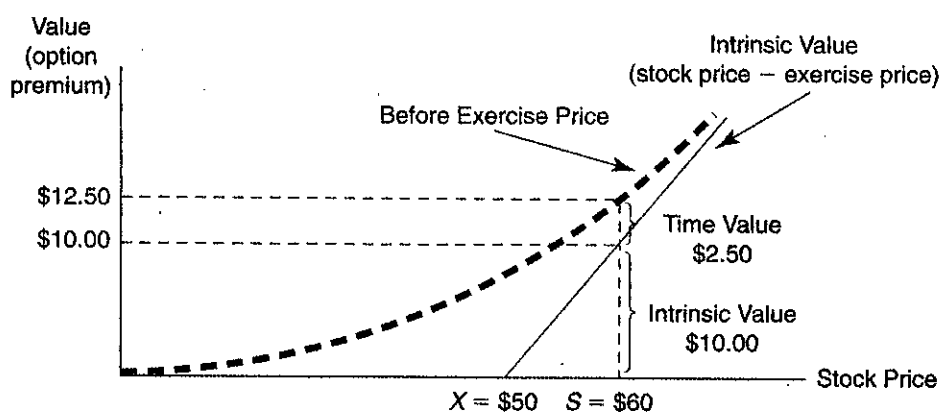
Stock price – exercise price	If Stock price > Exercise price (option is in the money)
Zero	If Stock price $\leq$ Exercise price (option is out of the money)

For a put option, the intrinsic value is:

Exercise price – Stock price	If Stock price < Exercise price (option is in the money)
Zero	If Stock price $\geq$ Exercise price (option is out of the money)

At expiration, an option's value is equal to its intrinsic value.

Figure 6 illustrates the time value effect for a call option. For example, suppose you have a call option on a stock with an exercise price of \$50 and an expiration in three months. The underlying stock's price is currently \$60. The intrinsic value of the option is \$10 (\$60 - \$50). The option is currently selling on the Chicago Board of Trade for \$12.50. Thus, the value of the call option is greater than its intrinsic value by \$2.50. The difference between an option's price (or premium) and its intrinsic value is called its time value. If you exercise the option today (prior to expiration), you receive the intrinsic value but give up the time value (which in this example is \$2.50).



**Fig-6: The intrinsic value versus the before exercise value of a call option**

The time value of an option is the value associated with the probability that the intrinsic value (i.e., the stock price) could increase (if the underlying asset's price moves favourably) between the option's purchase and the option's expiration date itself. The time value of an option is a function of the price volatility of the underlying asset and the time until the option matures (its expiration date). As price volatility increases, the chance that the stock will go up or down in value increases. The owner of the call option benefits from price increases but has limited downside risk if the stock price decreases, since the loss of value of an option can never exceed the call premium. Thus, over any given period of time,

the greater the price volatility of the underlying asset, the greater the chance the stock price will increase and the greater the time value of the option. Further, the greater the time to maturity, the greater (longer in time) the opportunity for the underlying stock price to increase; thus, the time value of the option increases.

It is this 'time value' that allows an out of the money option to have value and trade on the option markets. As noted above a call option is out of the money if the exercise price is greater than the underlying stock's price, or the intrinsic value of the option is zero. This option still has 'time' value and will trade at a positive price or premium, however, if investors believe that prior to the option's expiration, the stock price will increase (to a value greater than the exercise price). As an option moves towards expiration, its time value goes to zero. At any point in time, the time value of an option can be calculated by subtracting its intrinsic value (e.g., \$ 10) from its current market price or premium (e.g., \$ 12.50).

The risk-free rate of interest affects the value of an option in a less than clear-cut way. All else constant, as the risk-free rate increases, the growth rate of the stock price increases. As the risk-free rate of interest increases, the required rate (and ultimately realized rate) of return increases on all investments. The result is greater stock price growth. However, the present value of any future cash flows received by the option holder decreases. For a call option, the first effect tends to increase the price of the option, while the second effect tends to decrease the price. It can be shown that the first effect always dominates the second effect. That is, the price of a call option always increases as the risk free rate increases. Conversely, the two effects both tend to decrease the value of a put option. Thus, the price of a put option decreases as the risk free rate increases.

### **5.8.3 Benefits of options**

Option trading is beneficial to the parties. For instance, index-based options help the investment managers to insure the whole portfolio against fall in prices rather than hedging each and every security individually.

Again, option writing is a source of additional income for the portfolio managers with a large portfolio of securities. Infact, large portfolio managers can guess the future movement of stock prices accurately and enter into option trading. Generally, the option writers are the most sophisticated participants in the option market and the option premiums are simply an additional source of income.

Options trading is also quite flexible and simple. For instance, option transactions are index based and so all calculations are made on the change in index value. The value at which the index points are contracted forms the basis for the calculation of profit or loss, fixing of option price etc.

In an option contract, the loss is pegged to the minimum of amount i.e., to the extent of the option premium alone. Hence, the players in the option market know that their losses can be quantified and limited to the amount of premium paid. This may also lead to high speculation. Therefore, it is very essential that options trading must be encouraged for the purpose of hedging risks and not for speculation.

## **5.9 Summary**

Hybrid securities combines the attributes of both debt and equity investment. It is designed to satisfy the requirements of the issuers, investors, the regulators and rating agencies. Preference shares entitles investors for fixed dividend payments. The preference dividend paid by the company is not tax deductible. Some investors preference share because rating agencies and analysts may view preference share as 'equity like', but this benefit is at best illusory, convertible preference shares are corporate fixed income securities that the investor can choose to turn into a certain number of shares of the company's common stock

after a predetermined time span or on a specific date. Convertible debentures are debentures, which, at a specified time after the issue, are converted to equity shares at the option of the holder. In general a debenture may be fully or partly convertible. As the name suggests, a partly convertible debenture is a debenture only a part of which is convertible into an ordinary share. A warrant is an option that gives the holder the privilege of buying a specified number of share of the company at a specified exercise price at any time- on or before the expiration date. Warrants usually come as attachments to bonds to make an issue more attractive to investors. A deep discount bond is a debt security with no coupon (zero-coupon) or substantially lower coupon than current interest rates. The bonds are issued at a discount to their nominal value, with the discount reflecting the prevailing market interest rate. Option can be viewed as an instrument that provides its holder with an opportunity to purchase or sell a specified asset at a stated price on or before a set expiration date. The two most common types of options are called calls and puts. A call option is an option to purchase a specified future date at a stated price. A put option is an option to sell a given number of a stock on or before a specified future date at a stated striking price.

#### **5.10 Self assessment questions**

1. What is preference share? Discuss the merits and demerits of preference share as a source of finance.
2. Explain the method for valuation of compulsorily convertible debentures into shares.
3. How is the value of an optionally convertible debenture affected by the straight debenture value, conversion value and option value?
4. What is warrant? What the theoretical value of a warrant seek to measure?
5. Write short notes on:

(a) Deep Discount Bond

(b) Secured Premium Note

6. What is an option? Define call and put options. Do they play any role in fund-raising activities of a firm?

### **5.11 Further readings**

- Corporate Finance by S.R. Vishwanath
- Managerial Finance by Lawrence J. Gitman
- Financial Management by M.Y. Khan and P.K. Jain
- Fundamentals of Financial Management by V. Sharan