

PROJECT APPRAISAL

Introduction

Project appraisal is an exercise whereby a lending financial institution makes an independent and objective assessment of various aspects of an investment proposition to arrive at the financing decision. Appraisal exercises are basically aimed at determining the viability of a project and sometimes, also in reshaping the project so as to upgrade its viability. This is done by allocating the term finance sought by a promoter.

The factors generally considered by institutions while appraising a project include technical, financial, commercial, economic, ecological, social and managerial aspects. This makes it necessary to recognise the inter-relationship underlying the various aspects of a project. For example, the size of the initial market and the estimates for demand build-up would determine the plant capacity and production phasing; these together would have a bearing on the profitability, which, in turn, would determine the means of financing. Location also has an important bearing on project cost and cost of production. Above all, the management behind the project has a decisive influence on most of these aspects. These considerations imply that project appraisal is viewed as a composite process as against the approach of viewing each aspect individually.

This chapter will focus on the appraiser's thinking process from the viewpoint of the lending financial institutions. This will help ensure necessary preparation on the part of the borrowers-entrepreneurs/businessmen/businesswomen.

Meaning

The exercise of project appraisal simply means the assessment of a project in terms of its economic, social, and financial viability.

This exercise is critical as it calls for a multi-dimensional analysis of the project that is, a complete scanning of the project.

Financial institutions and banks make a critical appraisal of projects which are submitted to them by the entrepreneurs for getting loans. They have traditionally been accepting the data provided by the entrepreneur as valid while assessing the project. In fact, the emphasis has largely been on the cash-flow and financial viability of a project in assessing their suitability for extending the loans.

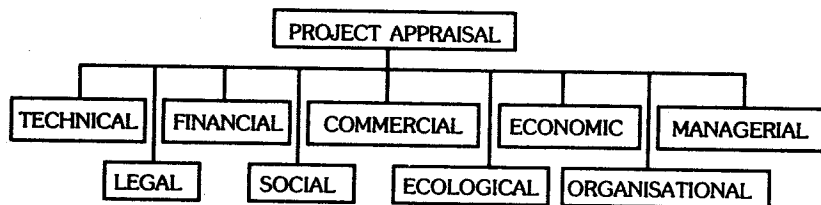


Fig. 22.1 Aspects of Project Appraisal

Definition

Project appraisal can be defined as the promoter taking a second look critically and carefully at a project as presented by the promoter person who is in no way involved in or connected with its preparation and who is as such able to take an independent, dispassionate and objective view of the project in its totality as also in respect of its various components. The person who carries out appraisal of a project is usually an official from the financial institutions or a team of institutional officials. Since all ending activities involve risk in a smaller or larger measure, project appraisal aims at sizing up the quality of projects and their long-term profitability aims at minimising the risk of lending by rectifying their weaknesses and improving their quality by incorporating into them features/ safeguards missed by the promoters either because of lack of knowledge or information.

Scope of Appraisal

The appraisal of a project is undertaken by the financial institutions with the twin objectives of determining the market potential of a project and selecting an optimal strategy. The methods of analysis vary from project to project. Nevertheless, certain common aspects of study from the angle of technology and engineering are with a mention:

- Choice of technical process and/or appropriate technology;
- Technical collaboration arrangements, if any;
- Size and scale of operations;
- Locational aspects of the project and availability of infrastructural facilities;
- Selection of plant, machinery and equipment together with background, competence and capability of machinery/equipment suppliers;
- Plant layout and factory buildings;
- Technical engineering services;
- Project design and network analysis for the assessment of project implementation schedule;

- Aspects relating to effluent disposal, management of entry, utilisation of by-products. etc.
- Project cost and its comparison with other similar projects, based on technology, equipment, product mix and time spread;
- Determination of project cost estimates, profitability projections, etc.
- Sensitivity analysis.

It must be remembered that the different aspects of a project are not independent entities but are highly inter-related; and a meaningful project appraisal depends upon the appreciation of this fundamental fact. For example, the size of the total market for a product as it exists now and the year to year estimates of the future progressive call for expansion of demand would determine planned capacity of the proposed unit and the phasing of production over the years. These in turn would influence the project cost and profitability which would determine the means of financing. The cost of the project and profitability are influenced to a significant extent by its location. Over and above this, the management behind the project, has a decisive role to play in almost all aspects of the project.

Steps Followed in Project Appraisal

Project appraisal is a scientific tool. It follows a specific pattern. First and foremost, an analysis of a region's economy provides a general framework within which the assessment of any project is made. This analysis indicates whether the project is in a potential environment which enjoys priority for economic development of the region/state concerned. This exercise itself usually involves the investigation of six different aspects: economic, technical, organisational, managerial, operational, and financial. The relative importance of these different aspects can vary considerably according to circumstances and type of project. The main stages of the system of project appraisal are:

Step 1	— Economic	Indicates priority use.
Step 2	— Technical	Involves scale of the project and the process adopted.
Step 3	— Organisational	Suitability is examined.
Step 4	— Managerial	Adequacy and competence are critically scrutinised.
Step 5	— Operational	Capability of the project.
Step 6	— Financial	Determines the financial viability for sound implementation and efficient operation.

PROJECT APPRAISAL FORMAT

<i>Criteria</i>	<i>Project-I</i>	<i>Project-II</i>	<i>Project-III</i>	<i>Project-IV</i>
1. Investment size				
2. Location				
3. Technology				
4. Equipment				
5. Marketing				
6. Power & Water				
7. Others' performance				
8. Working capital needs				
9. Labour component				
10. Economic viability				
Total				

Point Scale: A = 5 points; B=4 points; C=3 points; D=2 points; E=1 point.

Fig. 22.2 Steps of Project Appraisal

Economic Aspects

The economic aspects of appraisal are fundamental as they logically precede all other aspects — this is so because the bank will not finance a project unless it stands assured that the project represents a high-priority use of a region's resources. However, a purely financial analysis normally does not provide an adequate basis for judging a project's value to the economy, since the financial analysis looks at the project only from a limited viewpoint of the revenues entering the project's own accounts. So, an economic or social analysis looks at the project from the viewpoint of the whole economy, asking whether the latter will show benefits sufficiently greater than project costs to justify investment in it.

The economic benefits brought about by a successful project normally take the form of an increased output of goods or services, either directly or indirectly (as in a large class of cost-reducing projects). This increased production will also generate many different forms of additional income, such as increased wages or employment of labour, larger government revenues, higher earnings for the owners of capital, or most frequently, a combination of these income benefits.

In a large majority of cases, it is possible to quantify project costs and benefits, and to construct a rate of return or some other appropriate measure. Future costs and benefits are calculated, using either market or shadow prices, as found appropriate. Further both costs and benefits are put under subsidence to initiate the projects' estimated rate of return.

The latter is then compared with the minimum earning power of capital judged appropriate for each country. While the rate of return is an important test that all projects with quantifiable cost and benefits must pass, importance and its significance is usually overestimated. The rate of return is a necessary confirming test of projects that have to be justified within a much wider frame of reference, in which basic project objectives

and the nature of project benefits (e.g., foreign-exchange savings, increased employment and improved income distribution) play major roles.

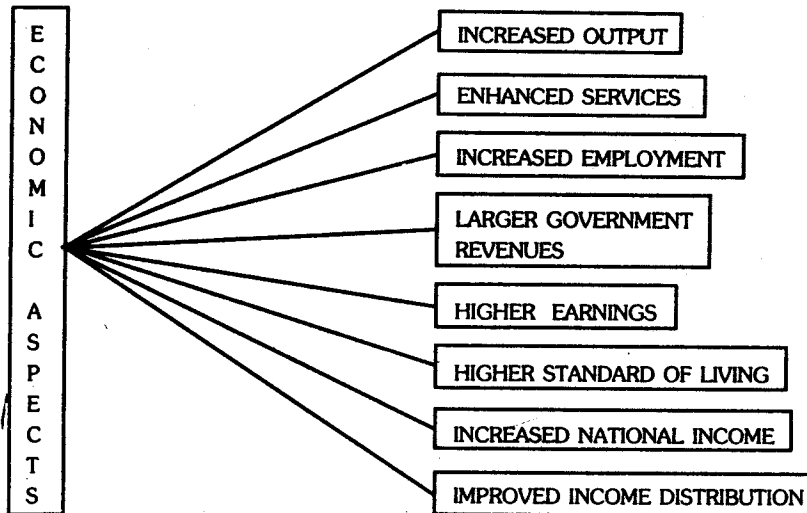


Fig. 22.3 Economic Aspects of a Project

Organisational Aspects

As a lender and a development institution, the bank places particular stress on the need for an efficient organisation and responsible management for the execution of the project. During appraisal, these two essential dimensions of a project are examined. If one or the other is found wanting, short-term remedial steps are recommended to the entrepreneur and the bank may make a clause for assistance — such as the recruitment of individuals or an organisation qualified to assist in running the enterprise, at least during the initial phase; or those for a longer term, such as a management study, reorganisation or creation of a new autonomous agency to operate the project. In either case, the need for training local staff to fill positions at all levels is examined, and training programmes may well be included as part of the project. The objective of this aspect of appraisal is to make sure that the project is adequately carried out and that a locally-staffed institution, capable of contributing effectively to the development of the sector in question, is created.

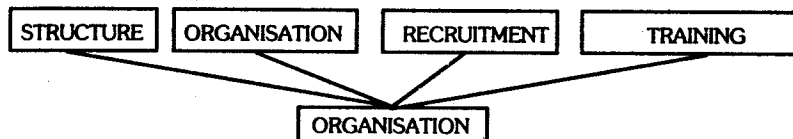


Fig. 22.4 Organisational Aspects

Managerial Aspects

If the management is incompetent, even a good project may fail. It is rightly pointed out that if the project is weak, it can be improved upon, but if the promoters are weak and lack in business acumen, it is difficult to reverse the situation. It is,

therefore, natural that financial institutions very carefully appraise the managerial aspects before sanctioning assistance for a project.

It may be relevant to recall here that there are provisions which enable financial institutions to exercise control over the assisted units. For example, they now stipulate the condition of option for conversion of loans into equity in respect of loans aggregating to Rs. 5 crore or more generally, and in respect of sick units, irrespective of the amount of assistance and the level of shareholding in the assisted company.

Further, there is a provision for appointment by the financial institutions of nominee directors on the boards of all MRTP companies assisted by them. As regards non-MRTP companies, nominee directors are appointed on the boards on a selective basis, especially in cases where one or more of the following conditions exist, viz., (a) the unit is running into problems and is likely to become sick, (b) institutional holding is more than 26 per cent and (c) the institutional stake by way of loans/investment exceeds Rs. 5 crores.

The Companies Act, the Industries (Development and Regulation) Act, etc., empower Government to exercise powers of control over the management, including the take-over of management of industrial undertakings.

All these indicate the importance given to proper managerial strategies to prevent mismanagement.

If a proper appraisal of the managerial aspects is made in the beginning itself, future problems in this area can be avoided to a very large extent. It is, therefore, necessary that the overall background of the promoters, their academic qualifications, business and industrial experience, their past performance, etc. are looked into in greater detail to assess their capabilities for implementing the project for which financial assistance has been sought.

Technical Aspects

The importance of technical appraisal in project evaluation needs no emphasis. Technical appraisal of a project broadly involves a critical study of the following:

Location and Site

An industrial feasibility study aspect refers to the appropriate and location selection of a geographical area where the project should be located the selection. Towards this end, the required site characteristics shall be kept in mind when selecting the location.

There are a number of important factors that influence industrial location because the site may significantly influence the cost of production and distribution, distribution efficiency, the operating environment, etc.

The problem of site selection gets complicated by the fact that at a particular location where one or a few factors are favourable, other factors may not be so. Selection of an optimum location, therefore, revolves round the combined consideration and evaluation of all the relevant factors.

The important factors that influence industrial location are the following:

1. *Raw Material Supplies:* Certain industries are located near the source of raw materials. This is particularly true of industries based on gross (weight-losing) localised material — industries with a high *Material Index* (the proportion of the localised material to the final product). For example, iron and steel mills are usually located near the ore deposits and sugar mills in the sugarcane cultivating regions. Similarly, the timber industry tend to be closer to forests or riverways leading from forests. Kallayi (near Calicut, Kerala), one of the largest timber business centres of the world, is on the banks of the Chaliyar river leading from the richly endowed Nilambur forests. In certain cases, even industries based on pure materials prefer to be located near source of raw materials. The jute industry in India, for example, is developed in the jute growing region. Similarly, the early development of the cotton textile industry was in the cotton growing region.

Industries using perishable raw materials also tend to be located in closer proximity to the raw material sources.

2. *Proximity of Markets:* Certain categories of industries tend to be located near the market. This is particularly true of the industries with the manufacturing process that involves an increase in weight and/or bulk. In such cases, the transport and distribution costs can be minimised by being closer to the market. Bottling of drinks is a very good example. Industries with fragile and perishable output also have a tendency to be located closer to the market.

When there are large markets geographically spread, nationally or internationally, manufacturing units may be established in close proximity to the major markets.

3. *Transportation Facilities:* Transportation facilities including the cost of transport play an important role in industrial location. No wonder, centres connected with sea, air, rail and road transport facilities exert a strong pull on industries. It is not only the transportation of the materials and finished products that it is to be considered but also the transportation facilities for the personnel.

In a vast country like India, there may be significant variations in transportation costs between different locations.

Places with a high transport disadvantage are not likely to attract industries. It is due to this reason that the Government of India is providing transport subsidy to industrial units located in certain hill regions and islands with a view to encouraging the industrial development of these regions.

4. *Power and Fuel Supply:* Power and fuel supply conditions have an important bearing on industrial location. Cheap power or fuel and its uninterrupted supply is an important attraction for industries, especially in the era of energy crisis. In the past, certain industries tended to be located near coal deposits. But the advent of electricity has greatly changed the industrial location patterns. Now, it is not very difficult to take power supply to the location of raw material supply so that the weight-long materials may be processed at their location.

Electrification of various parts of the country, including the villages, is encouraging decentralisation of industries.

5. *Water:* Certain industries like the paper industry by their very nature require large quantities of water. The quality and properties of the available water is as important as the quantity of water available and the stability of its supply. A number of industries also use the water sources for effluent disposal. While selecting the location, the possibility of the pollution of water by other industries making the water unfit for industrial and domestic purposes should also be considered. The requirements of water by the employees and their families housed near the industrial unit for domestic purposes and its availability should also be considered.

6. *Manpower:* The economic, social and political aspects of labour supply have an important influence on industrial location. Not only the quantity but an assessment of skill levels of the available manpower are very important. In certain regions, abundant cheap labour may be available; but if the labour does not possess the required skill, the industry will have to incur expenditure on training the labour.

Cheap labour is particularly important for industries where labour accounts for a significant part of the total value added. One of the important factors influencing the location of plants in the less developed countries by the multinationals (MNCs) is said to be the cheap labour supply.

For the assessment to be realistic, it is essential that the wage rates be compared with the level of productivity by the labour.

Certain socio-economic characteristics and political affiliations of labour are also important considerations. In certain localities and communities, labour turnover and absenteeism are high. These factors may not only tend to increase the expenses but also affect the smooth functioning of the enterprise.

Some regions may be characterised by the dominance of militant trade unions, widespread labour unrest, etc., seriously affecting the smooth functioning of industries. Industries prefer to consider other areas for their location.

It may be difficult to get professional, skilled manpower etc., if the location is very remote and deprived of civic amenities.

7. *Labour Laws and Government Policy:* Labour laws and the government's attitude and policy toward strikes and other labour problems and employee-employer relations, etc., may also influence location decision-making.

8. *Natural and Climatic Factors:* Natural and climatic factors also play an important role in the location of certain industries, as the absence of these conditions will necessitate additional expenditure to create favourable conditions artificially. For instance, humid climate is conducive to cotton textile industry. Favourable climatic conditions and other environmental factors played a major role in the location these industries.

9. *Strategic Considerations:* They also influence the location of industries. It is not likely that major industries will be located in strategically sensitive areas even if all economic factors favour such a location. Especially in the case of strategic industries, special care is taken to assure that the location chosen is not easily accessible to the military forces of other countries. For defence industries, strategic location may be the sole criterion.

10. *Taxes and Fees:* Variations in taxes, fees and charged may also influence industrial location.

11. *Incentives and Disincentives:* There are also certain incentives and disincentives which also may affect industrial location. For instance, in India, the Union and State Governments offer a number of fiscal, monetary and physical incentives for industries in the notified backward regions.

Certain disincentives like higher taxes may discourage industries in certain regions. Government may even ban new industrial units in congested areas large urban areas or developed regions.

12. *Site and Services:* Some industries require a large area of land which may not be available in a locality where all other factors are favourable. Availability of the required type and quantity of land at reasonable prices is, thus, an important factor.

With a view to developing industries in certain regions, Government has been providing developed sites and necessary facilities and services. Certain such locations like Hosur (Tamil Nadu) have been very successful in luring industries.

Similarly, industrial estates have been established in different parts of the country to encourage the development of industries.

13. *Socio-economic and Political Factors:* Socio-economic and political factors are also sometimes very important, especially in respect of location of public sector units. Some large-scale public sector units are located in backward regions on such considerations. Social and political considerations sometimes favour industrial location in certain sensitive regions.

14. *Miscellaneous Factors:* There are also a number of other factors that may influence industrial location — the attitude of the local community, proximity of complementary industries, prospects of development of the region, service facilities required by the industry, recreational and social facilities, proximity to important centres like metropolitan centres, personal factors, historical factors, etc.

Site

There are a number of important factors to be considered in the selection of the site. These include the load bearing capacity of the site, towards flood and earthquake hazards, access to transport facilities, facilities for water supply and effluent discharge, ecological factors, etc.

The nature of the industry has a bearing on the site selection. For example, some industries like the paper industry need abundant supply of water. For some industries, effluent discharge is a major problem. Environmental pollution is a serious problem that certain industries have to confront with. All these factors influence the selection of site.

As stated earlier, the Government provides 'site and service' in specified locations. However, some of the facilities needed for certain industries may not be available on these sites.

Size of the Plant/Scale of Operation

The size of the plant or scale of operations is an important factor that determines the economic and financial viability of a project.

In many industries, there are certain technological plant capacities which are economical. If the size is sub-optimal, there will be diseconomies of scale.

This is one of the important reasons for poor performance of many industrial units in India. Diseconomies of scale result in high cost and make survival in a competitive market, particularly in the international market, very difficult. The Government of India in this context, has emphasised that the plants or scale of operations should be of economic size.

An important aspect of technological size is that the available process technology and equipment are often standardised at specific capacities in production sectors. Operative capacities in such sectors are, therefore, available only in certain multiples.

There are, however, certain factors that may come in the way of optimal scale. For example, there may be demand constraints, i.e., the market demand may be too low that it cannot absorb the output of the large plant. In some cases there may be resource and input constraints. For example, the available raw material in a region may not be sufficient to feed a large plant. When there is important control, non-availability of economic size plants or equipments domestically makes the adoption of optimal scale impossible. Sometimes, there will also be scarcity of finance.

Another factor that may discourage the establishment of large-scale facilities is the risk of rapid obsolescence of technology or the product.

Technical Feasibility

Appraisal of technical aspects of a project involves scrutiny of such aspects of the project as:

- Manufacturing process/technology selected.
- Technical collaboration arrangements made, if any.
- Capacity/size of the project and the scale of operations.
- Location of the project.
- Availability of physical and social infrastructural facilities.
- Availability of various inputs covering raw materials as well as utilities.
- Selection of plant, machinery and equipment together with background, competence and capability of machinery/equipment suppliers.
- Plant layout/and factory building.
- Technical engineering services.
- Project design and network analysis for assessing the project's implementation schedules, etc.

The technical feasibility study should consider the adequacy and suitability of the plant, the equipments and their specifications, plant layout, balancing of different sections of the plant, proposed arrangements for procurement of the plant and equipments, reputation of the machinery suppliers, etc.

The feasibility study should also consider the technology required for a particular project, evaluate technological alternatives and select the most appropriate technology in terms of optimum combination of project components. The various implications of the acquisition of such technology should be assessed, including contractual aspects of technology licensing where applicable, etc.

Government of India's policy in this respect clearly states that while evaluating applications for industrial licensing, the following factors will be specifically considered:

- (i) Whether the proposed capacity is of economic size.
- (ii) Whether the processes proposed to be adopted are efficient from a techno-economic point of view.
- (iii) The extent to which diversification and expansion proposals will result in fuller utilisation of capacity and economies of scale.

Besides, proper evolution of alternative technologies is essential for selection of the appropriate one. This evaluation should be related to plant capacity and should commence with a quantitative assessment of output, production build-up and gestation period and qualitative assessment of product quality and marketability.

The selection of technology has to be related to the nature of the principal inputs that may be available for a project and to an appropriate combination of factor resources for both short and long periods.

Financial Aspects

The purpose of the appraisal of financial aspects of a project is generally to ensure its initiation of financial conditions for the sound implementation and efficient operation. The scope of this aspect of appraisal varies, of course, considerably with

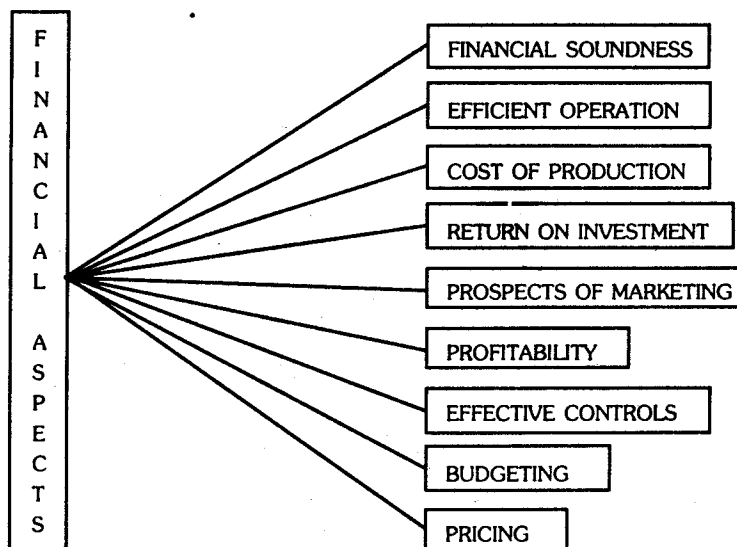


Fig. 22.5 Financial Aspects of Project Appraisal

the nature of the project and whether it is revenue-producing (e.g., industry, utilities, agriculture) or not (e.g., education, most highway projects).

For projects which involve the marketing of a product or service by an entity, the appraisal includes investigation of the availability and cost of raw materials power, labour, and services needed for production, and the prospects for marketing the product or service profitably.

In every case, it is necessary to ensure that satisfactory accounts are maintained for effective control over expenditure and revenue, and to disclose the project and entity carrying it out. Also, since the banks finance only a part of the investment cost of a project, it is necessary to ensure that funds from other sources are available on acceptable terms to meet the balance of the cost. This may be relatively simple where the government is able, without difficulty, to provide the rest of the necessary funds from budgetary sources; or it may be complicated, as in a project to expand or modernise a revenue-earning concern, where all the financial requirements of the concern during the construction of the project must be considered.

Financial appraisal also evaluates capacity of revenue-producing investments from the standpoint of the entity, industrial sponsor or other investor who would make them, in order to ascertain whether it is sufficiently attractive to warrant their participation. Establishing that the entity carrying out the project is in a position to manage its business in a cost-effective fashion, is another important aspect.

The financial aspect of project appraisal covers the following areas:

- (i) *Cost analysis:* In the case of cost analysis it is to be decided or to be worked out what would be the cost of production. There are different methods of finding out cost.
- (ii) *Pricing:* This strategy concerns the fixing up of the product's price. Price fixation is a very tedious job. The price must be fixed very judiciously, because the price is the cause of demand. If the price is high, the demand may be low and *vice versa* and a low price may mean a lower rate of profit also.
- (iii) *Financing:* The funds needed to finance the project is an important aspect of project appraisal. It is concerned with raising the funds and making their most efficient use. The funds must be raised from places where the rate of interest is lower.
- (iv) *Income and Expenditure:* The income and expenditure profile is concerned with the estimates regarding the income expected and expenditure involved in the project. This helps in ascertaining the cost involved in production and profit expected therefrom. Detailed proposed accounts should be made for future reference to know whether the plans are working out properly or not.

Financial institutions examine the project to ensure economic justification of investment details. They study the marketing scope of the project and also its worth to the national economy by analysing the consumption pattern and the potential demand for the project.

Market/Commercial Aspects

In setting up an industrial project, estimation of demand for the product/group of products proposed to be manufactured by a promoter is the first important step. Ideally, the market analysis should give a comprehensive account of the market opportunity, as well as of the marketing strategy appropriate for converting the opportunity into a reality. Marketing strategy in this context could be defined as an ever-evolving design or blueprint consisting of a set of inputs like product quality, price, design, dealer/agency discounts, distribution network/channels, packaging, etc.

To be of maximum benefit to a promoter, whether new or already established, market analysis should cover the following major aspects:

- (i) Analysis of market opportunity and specifying marketing objectives. This involves a scientific assessment of (a) total size of the market for a product; and (b) the share that could be secured by a firm, existing or new.
- (ii) Planning the process of marketing the product.
- (iii) Organisation of the marketing process.
- (iv) Control of the implementation of the marketing plan which facilitates taking corrective action when the actual results deviate from the estimates or expectations.

An intensive scanning and analysis of the proposed environment in which the industrial unit has to function should form the basis for analysing market opportunities as well as for specifying the marketing strategy. This is because the ever-changing environment in which the industry sector functions, restricts or expands the opportunities available to and the threats to be faced by an industrial unit.

Market opportunities expressed in terms of demand forecasts and market shares are based on a host of factors outside the control of the promoter, whereas marketing strategy and marketing process are largely under his control. Hence, the formulation of a detailed marketing plan, specification of a proper marketing strategy, and the manner in which the marketing process should be undertaken would enable the promoter to cope with the uncertainties in the market place more effectively than otherwise. It is also a fact that the estimated market share of a promoter and his marketing strategy influence and reinforce each other and should never be viewed in isolation.

Answers to the following questions would indicate the safeguards that may be necessary to take in the likely weak areas in the project:

- (i) What is the management culture in which the entrepreneur has been brought up?
- (ii) Is the entrepreneur's approach to project planning scientific and consistent with the requirements of the proposed project?
- (iii) In the initial stages of project planning, is the entrepreneur enlisting the support of mere helpers or of professional managers?
- (iv) How has the entrepreneur drawn the organisational structure of the unit? Does it show *ad hocism* or indicate that he has tried to merely fulfil certain

legal/other obligations or is it purposeful and does it indicate a good deal of foresight on his part?

The difference between an entrepreneur and manager has been dealt with earlier.

Political and Labour Considerations

Financial institutions also pay attention to political environment and labour conditions of the area where the project is to be located. Strikes, lockouts, industrial peace and communal harmony in the area play a decisive role in examining success or failure of the project.

The lending institutions examine the project to study its soundness on technical, economic, commercial and managerial grounds. If the appraisal report is found satisfactory, the loan application will be favourably considered. The manager then communicates his decision to the borrower and terms and conditions will be negotiated. The most important areas for the borrower and lender to negotiate are: timing in relation to negotiations method of financing based on certificates of work done, repayment schedule, rates of interest, commitment fees, security options, and monitoring and control requirements.

Technical Collaboration Arrangements

The Government of India has issued an illustrative list of industries where no foreign collaboration, financial or technical, is to be allowed in view of indigenous technology base having been well-established. However, looking to the need for constant upgradation of production technology in line with that of developed countries, the Administrative Ministries and Foreign Investment Promotion Board (FIPB) may permit import of technology in those field where:

- indigenous technology developed for items in the list is too closely held and is not available for use by new entrepreneurs on competitive terms;
- technology is required for updating of existing technology in India to meet domestic requirements efficiently or to be competitive in the export market; and
- such import is required for the manufacture of items with substantial exports, backed by buy-back guarantees.

The terms in the collaboration agreement are examined in detail by the appraising institutions with reference to the technical know-how, engineering services, procurement of imported equipment, price comparison with indigenously available equipment, performance guarantee by the collaborators, penalties for non-performance specified in the agreement, deputation of foreign experts during construction, initial and post-operation period, provision for training of Indian technicians etc. The reputation of the collaborators and past experience concerning tie-up arrangements with them, the competitiveness of the terms of collaboration in relation to the requirements of the project, the reasonability of financial collaborations and other costs by way of down-payment and royalties as also restrictive clauses in regard to marketing areas etc., are also looked into and worked upon by the appraiser.

In the case of financial collaborations, the terms relating to the right of participation of foreign collaborator in management and future issues of share capital are also critically examined and considered. The financial standing and reputation of collaborators, where necessary, are checked through the Indian Consulates/Missions abroad as also through the India Investment Centre.

Research and development is also studied in depth and it is ensured that during the validity of the collaboration period, the borrower is allowed free access to the latest developments that may take place at the collaborators' end. The collaborators are also required to agree for providing facilities to the borrower in establishing his own upto-date R & D organisation, both in terms of equipment and manpower.

Conclusion

To sum up, project appraisal is a science as well as an art. While the basic principles of appraisal could be mastered in a short time span, the successful practice of the art of carrying out appraisal requires keen observation, a knack for details, objectivity, decision-making. It is also necessary to look ahead of the project. Project appraisal is a key to broad-based, balanced industrial growth of the country. In a way, it calls for a judicious judgement and perspective outlook. It is, therefore, amply viewed as a composite process of development.

ANNEXURE I

TECHNICAL APPRAISAL REPORT OF A SMALL-SCALE UNIT

A technical appraisal report prepared by the Technical and Consultancy Department of a bank is given below for the study of the readers.

Name of Unit: K.C. Industries, Mumbai

Background of Proponent, Product & Technical Know-how

Proponent is a proprietary SSI concern engaged in the manufacture of "Drawn Copper Conductors" utilised by electrical equipment manufacturers since the past two decades. It is learnt that the proponent was enjoying working capital facility with the... Bank in the past. It is essential to verify the proponent's report from... Bank to its own satisfaction. The proponent has approached us for financial assistance towards working capital requirements.

Proprietor is Shri... and he is also interested in a similar units as partner in the firm XYZ... Corporation. It is learnt that this unit has been recently floated.

Technical know-how involved in 'Copper Wire/Strip-drawing activity' is available with the proprietor and the employed technicians.

Location

Proponent's factory is situated at ownership in ... Mumbai. Aggregate built-up area of both the galas is 120 sq. mt. (app.) and is sufficient for the manufacturing activity. Branch to verify the title of factory premises/gala to its own satisfaction.

Proponent is registered as SSU and has received the necessary permissions from the municipal authorities along with sufficient power connection of 80 kw. The proponent has employed 25 persons on a single-shift basis and is expected to employ an additional 20 persons for working on a double-shift basis. Sufficient water supply is expected at the factory premises.

Infrastructural facilities are satisfactory in general.

Raw Materials

The required raw materials are electrolytic Grade Copper Rods which are available from the local market and M.M.T.C. Raw material prices are susceptible to change.

Marketing

The proponent's product is being manufactured and sold directly to ... against firm and repeat orders.

The proponent has registered annual sales of Rs. 28.36 lakhs (appr.) and Rs. 93 lakhs (appr.) during year SY 2043 and 2044 respectively.

The present position of orders on hand aggregates to Rs. 22.70 lakhs.

The proponent is expected to register a projected annual sales of Rs. 135.25 lakhs during the SY 2045 under normal conditions.

Plant & Machinery

The proponent's machinery and equipment is as per attached annexure and annual production capacity is estimated at 60 MT on a double shift basis.

The initial hot drawing operation is being done by a third on job basis.

Working Capital

The proponent's working capital requirements or inventory level for estimated annual sales of Rs. 135.25 lakhs during the current year SY 2045 are given below:

	<i>Period</i>	<i>Total Rs. in lakhs</i>
1. Raw material paid stock	30 days	7.25
2. Work in process & finished goods	negligible	N.A.
3. Sales receivable from first-class party	75 days	27.75
		<u>35.00</u>

Note:

- (1) Normal margins to be stipulated.
- (2) Transactions with sister concerns to be viewed with care.

Profitability

Estimates towards cost of production are satisfactory in general.

The proponent is expected to register a pre-tax profit of Rs. 5.40 lakhs for the estimated annual sale of Rs. 135.25 lakhs during the current year SY 2045 under normal conditions. Variable cost is estimated at 86% of the sales prices.

Comments

- (1) The proponent's operations are technically feasible and economically viable.
- (2) Working capital facility may be considered in the light of observations made hereinabove and as per usual banking norms.

**TECHNICAL OFFICER
TECHNICAL & INDUSTRIAL
CONSULTANCY DIVISION
HEAD OFFICE**

14th December, 1996.

FACTORY DESIGN AND LAYOUT

Introduction

In creating a factory, an entrepreneur creates something which is attractive, useful and ingenious from material resources which lack the dimension of targeted benefits. For this, the entrepreneur uses his skills, abilities and strategies to combine a variety of material and human resources. These potential resources manifest themselves in the selection of the factory location, in planning and constructing the factory building, in procuring and installing machinery and equipment, in putting up other production facilities and auxiliary services, and in recruiting and selecting men of competence to use the physical resources for the purpose of producing goods.

In this Chapter, emphasis is being laid on the aspects of factory design, planning and layout.

This makes it imperative for ensuring smooth working of the small industrial activity be it in its administrative work or shop floor activity or even stores management.

Dr. Nau Nihal Singh has aptly observed: "The planning and control of the supply and movement of materials and components and the utilisation of plant and labour ensures that the necessary resources are available at every stage of manufacture to ensure the economic completion of a predetermined delivery programme, and constitute the management techniques of production planning and control."

Concept of Factory Design

The term factory design refers to the plan for a particular type of building, arrangement of machinery and equipment, and provision of service facilities, lighting, heating, ventilation, etc. in the building.

Importance of Factory Design

Factory design and layout of the factory are significant aspects of the factory organisations. They have direct relationship with the process of manufacturing, productively and value of the product. It also influences the operational costs of the enterprise. It also boosts the morale of workers and ensures maximum supervision.

Factors Affecting Factory Design

The following factors influence the design of a factory:

1. Location
2. Nature of the manufacturing process
3. Plant Layout
4. Functional Smoothness
5. Material Handling and movement
6. Cost of Building
7. Lighting, Ventilation and Service Facilities
8. Nature of Product
9. Future expansion, modernisation etc.
10. Projecting the image of a factory.

The factory design and layout should be flexible so that it may be adapted easily to technological change, modernisation, diversification and expansion with minimum cost and time.

Determinants of Factory Planning

In preparing a factory plan, the small entrepreneur has —

- (i) To determine the optimal size of the factory in accordance with the manufacturing plan, which includes a consideration of its envisaged future growth;
- (ii) To select a proper location for the plant on the basis of the availability of infrastructure and market centres;
- (iii) To prepare equipment layout on the basis of the class of work;
- (iv) To prepare production methods when materials move continuously through a series of machine operations;
- (v) To determine the type of structure required on the basis of the type of product with full safety measures;
- (vi) To provide service facilities for workers and machines;
- (vii) To schedule the construction and installation of machinery.

Any planning exercise requires of the planner a good knowledge of what is involved in the activity concerned, such as the nature of the materials to be handled, their quality and the quantity, the processes they have to be subjected to, inspection and quality control at various stages, assembly procedures, packing, etc. He should also know the sequence of operations. He should look ahead beyond the immediate future and anticipate changes, modifications, additions, deletions, etc., which may be forced upon his organisation as a result of expansion, obsolescence, diversification or any other reasons. Having anticipated these, provision should be made to accommodate such changes.

While working on a factory layout plan, a very important aspect to be kept in mind is the fact that the movement of materials from one stage of manufacture to the

next should be minimal. For this, this movement has to be streamlined. If this is not initiated, it will result in the wastage of human effort and time, both of which have a telling effect on the efficiency of an organisation and the cost of production. In industrial life, the economic and efficient usage of all the factors of production is the key to profitability and the ability to compete in the market.

Selection of Plant and Equipment

The adequacy and suitability of the plant and machinery is examined in the context of the selected process, basis of selection, reasonability of cost, reputation and ability of machinery suppliers, reliability of performance and proper balancing in various sections so that no section has under or over capacity. The arrangements/agreements with the machinery suppliers are examined with special reference to the price quoted, guarantees of workmanship and performance, provisions for spare parts and efficient after-sales service.

The plant and machinery might have been selected by the applicant on the advice of its collaborators, turn-key contractors or technical advisers. Similarly, the suppliers of the plant and machinery might have been suggested by the collaborators or consultants or selected through competitive bids. Full details, including the degree of sophistication in the selection of machinery and equipment as also the criteria in the selection of suppliers are obtained by the appraisers and examined. In the case of machinery and equipment proposed to be imported, unless the same is against a "tied-credit", it is ensured that the practice of calling competitive tenders is followed. Further, the institutions also ensure that the promoters are not in any way interested directly or indirectly with the parties supplying machinery to the project.

Project based on secondhand plant and machinery are generally not encouraged by the financial institutions. The borrower should not make any commitments or incur capital expenditure without specific sanction of financial assistance. Proposals involving acquisition of secondhand machinery for setting up new units where cost capacity exceeds 25 per cent of the total cost/capacity of machinery/proposed scheme are not normally entertained. In respect of schemes for expansion and diversification, this limit would, however, depend upon the actual need and other relevant factors. Likewise, the use of secondhand plant and equipment is specifically not encouraged for the production of sophisticated items or where the dimensional accuracy of the product is of paramount importance. However, the use of second-hand machinery and equipment is considered as an exception in those cases where the delivery period of new machinery is unduly long and the cost of new machinery is likely to be far in excess of secondhand machinery, thereby affecting the profitability and economics of the project.

In respect of machinery supply agreement for secondhand plant and equipment, it is ensured that the agreement provides for the following:

- * Responsibility should be undertaken by the suppliers for doing or getting done the required reconditioning/renovation and processing and a warranty/guarantee thereof.
- * Undertaking that each and every equipment to be supplied with or without reconditioning will be covered by a guarantee/warranty for free replacement

of parts, components, materials, or spares, if proved defective in design, materials workmanship, reconditioning, fatigue, etc. after erection at the factory site during such of the initial years of operation as may be mutually agreed upon.

- * Provisions for performance guarantee to the rated capacity.
- * Provision for providing adequate technical personnel for control and supervision during erection of the equipment with a view to ensuring proper performance and commissioning as visualised.
- * Provision for penalty, damages, indemnity, etc., if equipment is not found satisfactory.

Plant Layout and Factory Building

The subject of plant layout not only covers the initial layout of machines and other facilities but encompasses improvement in, or revisions of, the existing layout in the light of subsequent developments in the methods of production. In other words, a plant layout is "a floor plan for determining and arranging the desired machinery and equipment of a plant, whether established or contemplated, in the one best place to permit the quickest flow of material at the lowest cost and with the least amount of handling in processing the product from the receipt of the raw materials to the shipment of the finished products."

A more simple, clear and comprehensive definition is given by Knowels and Thomson. They say that a plant layout involves:

- "(i) Planning and arranging manufacturing machinery, equipment and services for the first time in completely new plants;
- "(ii) The improvements in layouts already in use in order to introduce new methods and improvements in manufacturing procedures.

During the course of appraisal, considerable emphasis is laid on a proper and scientific plant layout as once the plant and equipment are erected, it becomes difficult and costly to change at a later stage. The following aspects are kept in view while evaluating the plant layout:

- Production technology and product-mix;
- Efficient, economic and uninterrupted flow of human and materials resources;
- Proper space for maintenance;
- Future expansion/diversification of the project;
- Safety precautions particularly when explosive or bulky material is required to be handled;
- Proper lighting and ventilation;
- Proper layout of utilities and services and provisions for effluent disposal, where necessary;
- Effective supervision of work; and
- Proper storage and stacking space, where required.

The building designs are to be kept in conformity with the plant layout and construction of the building is to be carried out by experienced architects and contractors unconnected with the promoters/management group. In case where process requirement envisages special conditions like air-conditioning, aircooling, dust control, humidity control, etc., it is ensured that due care be taken in the design of the buildings.

Importance of Layout

The importance of a layout lies in enhancing manufacturing function and supervision and control. Some of the advantages are:

1. Economies in handling,
2. Effective use of available area,
3. Minimisation of production delays,
4. Improved quality control,
5. Minimum Equipment investment,
6. Avoidance of bottlenecks,
7. Better production control,
8. Better supervision,
9. Improved utilisation of labour,
10. Improved employee morale,
11. Maximisation of production,
12. Avoidance of unnecessary and costly changes,
13. Increased revenues and profits, and
14. Success of the enterprise.

Considerations in Factory Layout

While choosing the layout for a factory, the following factors should be taken into consideration.

1. Nature of Product: The type of product to be manufactured affects plant layout in several ways. Small and light products can be moved easily to the machines whereas for heavy and bulky products the machines may have to be moved. Large and heavy equipment requires assembly bays. One or a few standardised products can better be produced through product layout while process layout is more useful for producing a large variety of non-standardised products. Quality and fragility of the product also influence the layout.

2. Volume of Production: Normally high volume manufacturing requires product layout and low volume job production needs process layout.

3. Materials Handling: The pattern of layout depends to a great extent on the nature of materials and materials handling plan. It is necessary to provide adequate space for storage and adequate aisles for free movement of materials.

4. Type of Equipment: Specifications of machinery and equipment are a prime consideration in factory layout. General purpose machines need a different layout than

specialised machines. Adequate space must be provided for the location and movement of all machines and equipment.

5. Factory Building: Ideally, a building should be built to suit the best factory layout. But in practice the layout might have to be modified to fit a given building. The covered area, the number of storeys, elevators and stairs, parking and storage area all affect the layout. The plant site should also be considered in choosing the layout for a factory.

6. System of Manufacture: The type of manufacturing process is single most important determinant of factory layout. Continuous manufacturing system requires a different sequence of machines than intermittent manufacturing.

7. Lighting and Ventilation: In laying out a factory adequate provision must be made for lighting, ventilation and heating. These are essential for the health, comfort and productivity of workers.

8. Service Facilities: The layout of a factory must include proper service facilities required for the comfort and welfare of workers. These include canteen, lockers, drinking water, toilets, first aid, fire escapes, etc.

Technical and Engineering Services

One of the important aspects in the appraisal of projects is the institutional evaluation of the technical and engineering services. This becomes all the more important in large-size projects. Technical and engineering services comprise preparation of detailed drawings/designs of the plant layout, detailed specifications of plant and equipment, arrangements for process know-how, engineering know-how and consultancy, design and layout of utilities and services like power, water, steam, air supply, off-site facilities, etc. These also include the services for preparing tender documents for complete civil works, selection and procurement of equipment and their erection.

All the above services are sometimes entrusted to process and engineering consultants and in some cases, part of the work including coordination at various levels is taken care of by the project management team of the concern. The process consultants generally supply the essential know-how and basic engineering requirements. The engineering consultants provide detailed information of the various facilities involved in the project, including design parameters, preparation of specifications, inviting quotations, and their analysis, recommendation for purchases and award of contracts, inspection of the equipment purchased, arrangements for shipping and handling of equipment, supervision during construction/installation/erection of the equipment, assistance/supervision during commissioning etc. Consultants are often involved in the preparation of detailed project reports and in the furnishing of the information/clarification required by the institutions during appraisal. The background of the consultants, their scale of operations, experience on other projects and plants based on similar technology is looked into in depth. The possibility of infringement of existing patents is also examined and an endeavour is made to obtain necessary indemnity from the consultants. Another important aspect examined while evaluating the adequacy of consultant is the provision for technical training of the

personnel in the plant of the collaborators. It is also necessary to make arrangements for in-plant training by the representatives of the consultants, deputation of consultant's personnel for supervision during erection and commissioning, administration of the performance guarantees, trial-runs and initial operation of the plant.

Materials Handling

It is the responsibility of production managers and industrial engineers to plan a good layout which places "the right equipment at the right position to be worked in the right manner for completing the manufacturing process in the shortest possible time." This *inter alia* means that the layout should be such that the new materials, stores, intermediate stores and work places should be interlinked so that the production may flow uninterruptedly.

The Report on Materials Handling in Industry say that handling adds nothing to the value of the product but only to the cost. The advantages of materials handling are: (i) Reduced labour cost; (ii) Increased capacity of existing building, especially stores; (iii) Better machine utilisation; (iv) Larger turn-over; (v) Less capital tied up in work-in-progress; (vi) Easier stock control; (vii) Less fatigue for operations; (viii) More efficient production control; (ix) Better inspection and control of quality; (ix) improved safety.

In Fig. 23.1 two layouts are shown to indicate how unnecessary material handling can be avoided. The new layout ensures a smooth functioning of the production channels at reduced cost. At the same time, more space is made available. A proper layout not only improves material handling operations but also increases the production and productivity per employee.

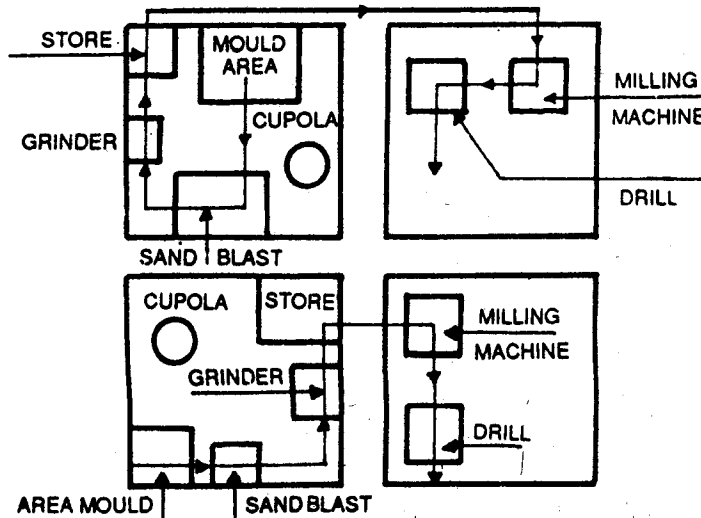


Fig. 23.1 Layout of a small-scale unit and scope for modernisation is shown in these two diagrams.

Optimum Size of the Plant

The scale and size of operations of the unit determine its efficiency and profitability. This is determined by the laws of returns. Accordingly, an industrial unit, with a capital investment of Rs. 10 lakh in plant and machinery, is a small unit. Earlier, even the number of workers employed was considered to be a factor determining the size of the plant.

In general, the following standards are employed to measure the size of a unit:

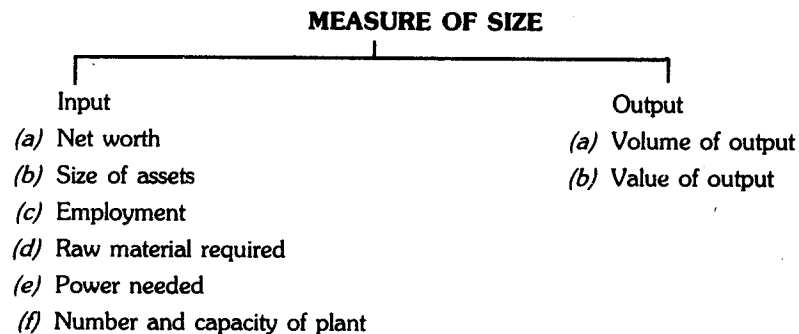


Fig. 23.2

The flexibility of small-scale units create large-scale employment opportunities, bring about a balanced and diversified economic development, ensure a somewhat equitable distribution of wealth, and a proper growth of these units. They survive for the following reasons: (i) individual tastes, (ii) changing fashions, (iii) widely fluctuating demand, (iv) new power sources, (v) standardisation of components, (vi) short gestation period, (vii) greater motivation, (viii) nature and process of production.

In other words, a small-scale unit can be easily formed. It has flexibility and ownership control. Such units are most suitable because of limited demand and changing tastes, local market, limited capital needs, limited managerial ability, limited risk of loss, shorter gestation period, reduced production lag, etc. Steinwall, in his book, *Small and Big Business*, has pointed out that small firms are protected by their goodwill, customer loyalty, the individual markets they possess, which the large firms conquer only at considerable expense. They also enjoy special Government support and patronage and ensure diversification of industries.

A firm may start and steadily move towards expansion in order to secure internal economies of scale to a certain extent, reduce costs and increase profits. After reaching a particular level, the law of diminishing returns or increasing cost begins to operate and acts as a brake on further expansion. Under the existing conditions of techniques and organisational know-how, a point is reached beyond which further growth becomes uneconomical and leads to waste or inefficiency. This level is probably known as the *optimum level*, indicating the most profitable combination of resources providing equi-marginal utility or return. Prof. E.A.B. Robinson has observed: "By the optimum firm we must mean a firm operating at that scale at which the conditions of technique and organising ability exist, and it has the lowest average cost of production per unit, when all these costs, which must be covered in the long run, are included."

The optimum size of the plant achieves equi-marginal returns from all resources or factors of production. It indicates a rational allocation of resources and a combination of inputs to secure maximum output under existing economic conditions and maximum profit due to the lowest average cost.

The optimum level of small industry organisations is influenced by (a) technical production economies, (b) managerial economies, (c) marketing economies and (d) nature, size and stability of demand.

Conclusion

The success of an enterprise to a greater extent depends upon the factory design and layout. The location, layout, amenities will influence productivity and facilitate better management. More importantly, the efficiency of the production flow depends largely on how well the various machines, production facilities and employee amenities are located in a plant. In a properly laid-out plant, the movement of materials, from the raw material stage to the end product stage, is smooth and rapid; the movement is generally in a forward direction; the materials do not criss-cross, or go backward and forward for further operations. Moreover, production bottlenecks and delays are few, materials handling costs are reduced.



UNIT 4

FINANCIAL ANALYSIS

Financial management is an integral part of business administration and ranks equally in importance with other key result areas such as production and marketing. The fundamental objectives of any venture are survival and growth, though there could be other social objectives too. It could, however, be said that all objectives centre around economic objectives which means maximisation of profits. Financial management plays a major role in fulfilling the above and includes functions like analysing and forecasting financial needs, managing working capital, planning the capital structure, etc.

Financial analysis refers to the process of obtaining relevant economic information about a project in order to establish its financial viability. It is undertaken as one of the feasibility analyses in project formulation. Most of the data required for financial analysis are obtained from market analysis, technical analysis and cost analysis. In order to develop adequate financial information, this strategy looks at the projected capital cost estimates including operating cost estimates and revenue estimates. The information collected for the purpose are printed in the form of proforma balance sheet, proforma operating statement and cash flow statement.

Financial analysis primarily deals with the interpretation of the financial data incorporated in the proforma financial statements and the presentation of the economic facts in such a form as to make a comparative evaluation/appraisal of projects. In other words, it is mainly concerned with the development of the project's financial profile. Financial analysis deals not only with the financial aspects of a project but also with its operational aspects. Its main purpose is to establish whether the project would enable to achieve the objectives for which it is undertaken. For easy and better comparison and explanation, ratio analysis is used. Through the ratios, the relationship between various financial factors of a project is explained and their trend forecasts are developed.

In order to complete the financial profile of a project, it is also necessary to evaluate the operational strategy and the investment strategy of the project. The break-even analysis is used to explain its operational characteristics.

Financial strategy is evaluated in terms of financial leverage, *i.e.*, debt-equity mix and its effect on financial returns from the project. Theoretically, different types of capital structure are available and the ultimate objective is to choose an ideal capital structure, *i.e.*, *financing mix*. Investment strategy is evaluated in terms of investment criteria such as IRR, NRV, etc. These project selection criteria depict the net contribution of the project towards the improvement of the economic position of the project implementing body.

“Ratios are measurements of business operation results studied over the years. They indicate the trends of an enterprise’s financial soundness, growth and intrinsic problems. They also reveal the inter-relationship between various aspects of enterprise operation. In this chapter, we discuss the use of financial analysis as a key to project appraisal as well as its implementation.”

CHAPTER 24

FINANCIAL ANALYSIS — AN INPUT IN FINANCIAL APPRAISAL

Introduction

Financial analysis assumed an increasingly important role as a scientific tool for appraising the real worth of an enterprise, its performance during a period of time and its pitfalls. This strategy helps in drawing out the complications of what is contained in the financial statements.

Concept of Financial Analysis

Financial analysis is defined as *the process of discovering economic facts about an enterprise and/or a project on the basis of an interpretation of financial data.* Financial analysis also seeks to look at the capital cost, operations cost and operating revenue. The analysis decisively establishes a relationship between the various factors of a project and helps in maneuvering the project’s activities. It also serves as a common measure of value for obtaining a clear-cut understanding about the project from the financial point of view.

An analysis of several financial tools provide an important basis for valuing securities and appraising managerial programmes. Financial analysis is vital in the interpretation of financial statements. It can provide an insight into two important areas of management — return on investment and soundness of the company’s financial position. David Hawkins observes that the analyst evaluates results against the particular characteristics of the company and its industry. He seldom expects answers from this process; but he hopes that it would provide him with clues as to where he should focus his subsequent analysis.

Internal management accounts provide information which is valuable for the purpose of control. The information is made available in the form of accounting data, which may be manifested as financial and accounting statements. A financial analysis reveals where the company stands with respect to profitability, liquidity, leverage and an efficient use of its assets. Financial reports provide the framework within which

business planning takes place. They are the key through which an effective control of a business enterprise is exercised. It is the process of determining the significant financial characteristics of a firm. It may be external or internal. The external analysis is performed by creditors, stockholders and investment analysis. The internal analysis is performed by various departments of a firm.

Significance of Financial Analysis

Financial analysis primarily deals with the interpretation of the data incorporated in the proforma financial statements of a project and the presentation of the data in a form in which it can be utilised for a comparative appraisal of the projects. It is, in effect, concerned with the development of the financial profile of the project. Its purpose is to find out whether the project is attractive enough to secure funds needed for its various constituent activities and once having secured the funds, whether the project will be able to generate enough economic values to achieve the objectives for which it is sought to be implemented. It deals not only with the financial aspects of a project but also with its operational aspects. As such, it is necessary to undertake such an analysis not only in the case of industrial projects but also in the case of non-industrial projects.

Analysis of financial statements has become very significant due to the widespread interest of various parties in the financial results of a company. In recent years, the ownership of capital of most public companies has become broad-based. A number of parties and bodies, including creditors, potential suppliers, debenture-holders, credit institutions like banks, industrial finance corporations, potential investors, employees, trade unions, important customers, economists, investment analysts, taxation authorities and Government have a stake in the financial results of a company. Various people look at the financial statements from various angles. A number of techniques have been developed to undertake analysis of financial statements in order to reach conclusions about the financial health, profitability and efficiency of an enterprise and also to compare an enterprise with other similar undertakings. The technique of ratio analysis is the most important tool of financial analysis. It helps in comparing the performance of various companies and judge their financial soundness.

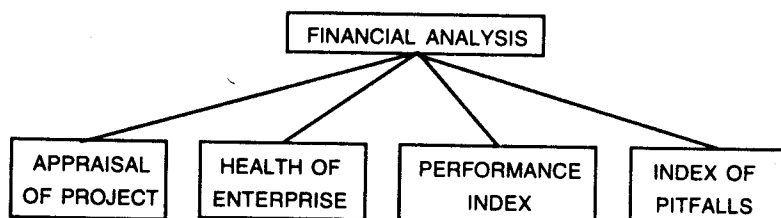


Fig. 24.1 Utility of Financial Analysis

Utility of Financial and Accounting Statements

Financial statements play a vital role in the internal financial control of an enterprise. These should, therefore, be properly constructed, analysed and interpreted by executives, bankers, creditors and investors. The following factors enhance the utility of financial statements:

1. *Large-Scale Production:* The ability to analyse financial reports is essential bridging the gap in personal relationships created by the size of business units.

2. *Regulatory Provisions:* Financial statements are often required by Government regulations. Accounting procedures are standardised to obtain correct and adequate data for the construction of financial statements.

3. *Income-Tax Accounting:* The income-tax authorities insist on the maintenance of proper and suitable accounting records.

4. *Executives:* Executives need information so that they may be in a position to plan for profits and ensure a sound financial condition for the firm. Financial statements serve the business executive as gauges and charts serve the engineer.

5. *Bankers:* The banker seeks liquidity, but looks upon his debtors not merely as clients but also as ordinary customers. His analysis has, therefore, to be thorough.

6. *Investors:* Whether buying an interest in a firm or purchasing the securities of a corporation, the investor's interest in the enterprise is continued for a number of years.

7. *Mercantile Credit:* Mercantile credit refers to the grant of credit by one merchant to another. The usual object of granting credit is to enable the customer to have some time in which he may realise his dues on the merchandise he has sold.

The entire future of a company hinges on the manager's ability to decide relevant financial data with a view to planning profit ability moves. Learning to read financial statements is the first essential element in any businessman's attempt to acquire financial management skills. The change in the elitism of stock ownership to broad public ownership has necessitated a concomitant change in the entire process of reporting corporate financial results. The role of management in the matter of preparation of financial statements is to add understanding to these statements, the fairness of which is to be viewed through the eye of the user, while that of the accountant is to close the communication gap and of the auditor to add credibility to them. For evolving a good economic information system, accounting innovations are of great importance. Without these, communication with the financial community would be difficult, the interest of present and future potential investors would not be served, the ability of the company to raise additional capital would be impaired and the government's regulatory measures and policies would not serve the best interests of society. Though a financial statement reveals less than it conceals, it provides the indicators of the enterprise's performance during the year.

Financial analysis seeks to spotlight the significant facts and relationships concerning managerial performance, viz., corporate efficiency, financial strengths and weaknesses and creditworthiness of the enterprise.

Financial Tools

Financial tools are of immense use to entrepreneurs in carrying out his planning and controlling functions. The financial tools are helpful to top management, creditors, investors, and labourers. The principal financial tools are:

- (i) Trend Analysis
- (ii) Variable Analysis

- (iii)* Ratio Analysis
- (iv)* Funds Flow Analysis
- (v)* Break-Even Analysis
- (iii)* Common size statements
- (vii)* Cash Budgetary and
- (viii)* Proforma statement

Conclusion

The financial analysis is a unique technique useful in the sphere of financial control, planning and review of financial condition of the business organisation. With the help of financial tools the entrepreneur can rationalise his decisions and reach the business goal easily.

The objective of financial analysis is to develop the project from the financial angle and to identify financial characteristics.

It is a tool in judging the performance of a project/enterprise. It helps the entrepreneur, banker and other concerned people to know about the health of an enterprise. It also indicates the direction in which it is progressing. It also gives the warning signals, if any, in its own way. Financial analysis gives a clearer picture of a project as far as its financial factors are concerned. Financial statements, particularly the ratios, require a detailed, critical examination to test their validity. This examination is possible by looking into the internal management of the concern. Briefly, financial analysis is a right step in financial management.

ANNEXURE I

VARIOUS INNOVATIVE INSTRUMENTS AS SOURCES OF FINANCE

Banks have traditionally been the main source of finance for the corporate sector. However, with liberalisation in the financial sector and the consequent disintermediation process which is slowly setting in, the financial market is being flooded with various innovative instruments as alternative source of finance for the corporate sector. Besides leasing, hire-purchase and venture capital which are dealt with in detail in separate articles in this issue, the salient features of some other innovative instruments of recent origin are explained below:

Commercial Paper

It is a short-term debt instrument meant for highly-rated corporate borrowers to diversify their source of finance. Companies with a minimum net worth of Rs. 10 crore and maximum permissible bank finance (MPBF) of at least Rs. 25 crore and having their shares listed on the stock exchange can enter the commercial paper market, with a credit rating from an approved agency (exempted for public sector companies). The companies can issue commercial paper in multiples of Rs. 25 lakh subject to a minimum and maximum size of an issue being Rs. 1 crore and 20 per cent of their MPBF. The maturity period of the commercial paper would be three to six months and this would be freely transferable. The issue of commercial paper requires RBI's prior approval.

Factoring

'Receivables' form a critical component in the working capital cycle of a growing concern, and if it gets choked, it generally leads to a health problem of the unit. Thus, collection of receivables and sales ledger administration acquires significance for a growing concern and to ensure timely availability of cash, the concern can appoint a factor, who is willing to undertake such jobs on its behalf. The job of a factor includes:

- (i) Bills/invoice discounting and collection of receivables on behalf of clients; and
- (ii) Total sales ledger administration.

Factoring is, therefore, a source of finance as well as service. Factoring has been accepted by the RBI and an institutional set-up for providing services used to commence shortly.

Forfeiting

Forfeiting is a method of export finance wherein the forfeiter purchases the claims from the exporter (seller) without recourse to him. The seller forfeits/surrenders his rights or claims to payments in preference for immediate cash. It differs from export factoring in that it is on a non-recourse basis and covers high value export transactions relating to export of capital goods and project exports. It is an alternative to buyer's/supplier's credit. It would enhance the competitive edge of Indian exports in international markets as and when introduced in the country.

Conclusion

Financial analysis is a tool in judging the performance of a project. It helps the entrepreneur, banker and other concerned people to know about the health of an enterprise. It also indicates the direction in which it is progressing. It also gives the warning signals, if any, in its own way. Financial analysis gives a clearer picture of a project as far as its financial factors are concerned. Financial statements, particularly the ratios, require a detailed and critical examination to test their validity.

This examination is possible by looking into the internal management of the concern. Briefly, financial analysis is a right step in financial management.



CHAPTER 25

RATIO ANALYSIS

Introduction

Ratio analysis is a key dimension of financial management, suggesting a relationship between profit and loss as mentioned in the balance sheet of an organisation. Its appropriate use will go towards giving a true picture of the financial health of the unit. Its benefits can be seen in areas of management, production, marketing, personnel management etc.

An enterprise keeps fit by ensuring that inter alia, its various financial proportions are feasible. The absolute accounting figures reported in the financial statements do not provide a meaningful understanding of the performance and the financial position of a firm. These figures convey effective meaning when it is related to some other relevant information.

In assessing the financial stability of a firm, a management should, apart from profitability, be interested in relative figures rather than in absolute figures. In fact, an analysis of financial statements is possible only when figures are expressed as percentages or ratios.

What is Ratio Analysis?

The latin word '*ratio*' stands for reason. In English '*ratio*' stands for the relationship. Ratio analysis is defined to mean "the establishment of a reasoned relationship" of a fixed variable character between measurements of certain phenomenon having some kind of linkage.

A ratio shows the arithmetical relationship between two figures. Thus we can say that the ratio of gross profit to sale is 1:4 or 25% (stated as percentage) or 25. It is obvious that absolute figures do not convey much. Thus if we say that Co. A made a profit of Rs. 50,000 and Co. B a profit of Rs. 60,000 we cannot automatically conclude that Co. B is more profitable. If we say that Co. A has made a profit of Rs. 50,000 against Rs. 5,00,000 employed as capital, it can be concluded that Co. A is more profitable since its net profit to capital employed ratio is 10% as against 5% of B. Ratios show the relationship between the relevant figures. With their help, we can reach useful conclusions about the performance and financial health of a company.

It goes without saying that ratios should be worked out on the basis of figures which are significantly related to each other. For example, the relationship of total debtors to authorised capital will be meaningless but that of total debtors to credit sales definitely is. It will be no use establishing ratios between figures which do not influence one another. It has been suggested by some accounts that in the arrangement of ratios properly, the "more desirable" item should be divided by the one that is "less desirable" so that any favourable change reflects itself by an increase in the ratio. For example, it is more desirable to have more current assets than current liabilities; hence current assets should be divided by current liabilities. This suggestion, however, is not universally accepted. Consequently, there is lack of uniformity in the expression of results; while discussing the ratios, along with name of each ratio, the formula for the ratios also need to be stated.

Nature and Conditions of Applicability for Inter-firm and Intra-firm Comparison

Accounting ratios may be employed to analyse and for analysing and comparing the working results of a concern for a year with that of another and also determining the efficiency of the employment of capital by comparing amounts of its capital, assets, liabilities and sales with those of another concern in the same industry. Internal comparison provided the conditions of working remain substantially the same from one period to another, can be helpful in determining the trends of the business and analysing factors which may have contributed either to a rise or a fall in its sales or that of gross profit. Inter-firm comparison, i.e., between firms in the same industry, also can be very instructive to the management in as much as the examination of ratios in different industries may illustrate: (1) different methods of trading followed by them; (2) different uses or sources of capital; (3) different policies followed as regards management, etc. But it must be emphasised that inter-firm comparison is practicable only if the accounting practices followed by different concerns retain their uniformity, the definition of terms have been agreed upon beforehand and accounting statements drawn up in a manner that comparable figures comparison based on accounting ratios is to ascertain significant variation in the rate of earnings or the financial structure that may exist between one unit and another in the same industry, so that any weakness revealed thereby may be remedied. But such a comparison would be valid only if the firms are of a similar size, carrying on a similar business and situated in localities which afford almost identical facilities for carrying on the business. In the case of firms engaged in diverse activities, a purposive comparison is practicable only if their total figures are broken down to arrive at separate figures as regards the different activities of the firm.

These ratios are a very sensitive tool. As such, to get at a correct indication which may serve as a useful guide for the determination of future policies, there must exist a high degree of comparability between one firm and the other. In the case of an internal comparison, the conditions under which the firm was working during different periods of time should be identical.

To make the comparison as informative as possible, the firms within an industrial group should be classified as those showing the highest, lowest and average returns

on capital employed as compared to fixed assets and a similar policy should be followed in regard to quantities of stocks, stores and work-in-progress held.

An intra-firm comparison of financial results of different units in the same industry can be made even by establishing a standard ratio.

The method is based on the broad principle that for every industry, there are certain characteristic financial and operating ratios, and depending upon the nature of its activities, the standards whereof can be set up by averaging the ratios of several concerns in the industry.

For example, if the gross profit ratios and some of the expense ratios of several sugar mills in an area are averaged, the average ratios would provide the standards that each mill must approximate to enjoy an average measure of success.

Although some ratios may hold good only for a particular industry, a basic ratio, e.g., yield on capital, may enable one to compare even one industry with another though the economic conditions in which each industry operates must always be kept in mind. For instance, the rate of return in the case of electricity companies is circumscribed by legal restrictions. This fact must be kept in view when comparing electricity undertakings with firms in other industries. Still, it is a ratio which alone can afford such a comparison. They give a better basis for a comparison of the performance of a firm in one year with that in another; they are very useful in establishing trends and forecasting and are of immense use to bankers and investors in judging a firm's prospects. Ratios are indicators of the performance and the financial position of a company.

The classification of variables is an important step towards financial statement analysis. To properly evaluate financial items, ratios must be selected for each group in such a way as to best disclose the degree of association between the variables within each general relationship. The step-wise regression method is one technique for choosing such a group or list of ratios. The variable considered the most important is given the smallest weight. When the step-wise regression method is employed, the variables are automatically and objectively ranked by degree of their importance; thus, any possible bias of an individual is excluded from influencing the order of the variables. The variables are ranked by the reduction in the unexplained variation which may be attributed to each of the independent variables. The variable that is responsible for the greatest reduction is ranked first while that causing the least reduction is placed last.

Advantages of Ratio Analysis

1. The process of producing financial ratios as observed by Lee, is concerned with the identification of the significant accounting data relationships which give the decision-makers insights into the company being assessed.
2. A ratio analysis involves a study of the total financial picture. By basing conclusions upon a thorough understanding of the importance of each ratio, the analyst can recommend and indicate positive action with confidence.
3. One of the most fruitful areas for the use of traditional financial ratios seems to be that of predicting company failures.

4. Ratios enable the company's management to analyse business situations and to monitor their performance as well as that of their competitors.
5. Ratio analysis helps the management to diagnose the situations, monitor the performance and chalk out future plans of the company.
6. There are certain priority ratios for the chief executives in to key areas which are common to nearly all business and with which the top management is seriously concerned with. These priority ratios enable the chief executives to understand the relationship between his organisation, at one end, and the market, investors, suppliers and employees, at the other. He is also in a position to watch how well is the organisation using its assets and how well it is providing for the future.
7. There are ratios which help the marketing manager, the purchase manager, the financial manager and others representing the middle management to know what the positions are like and how to find a way out in typical situations from time to time.

Limitations

1. Erich Helfert has pointed out that it is essential for a person analysing business performance to have a clear awareness of the tests he should apply and the specific reasons for which he should apply them. Temptation arises in financial ratio analysis to run all numbers, yet select only a few relationships which would provide clues for judgement.
2. Industry ratios pose a more difficult problem to the financial analyst because of the following reasons:
 - (a) It is difficult to determine the industry to which a company belongs.
 - (b) The whole emphasis of the system of accounting is on consistency rather than profitability among different companies at a single point in time.
3. There is clearly some latitude for window-dressing. Within limits, a company may be able to arrange its current assets and liabilities so as to have the desired ratios at the time the balance sheet is presented to stockholders.
4. Financial standard data are not exact, and have, therefore, to be treated with great caution.
5. The valuation contained in the final statements does not represent the actual position because it is based on the assumption that the financial statement presents a reasonable picture of what is happening in the business. The information relates only to a particular period and cannot be relied upon excessively. The ratios refer to past events and may not represent the present or future events.
6. Financial statements are generally based on historical or original cost. The current economic conditions are ignored.
7. V.V.Desai points out that the advancing artistry of the technique of ratio analysis has miserably failed to accomplish the expected impeccability or immaculacy. Moreover, it has made the technique more complicated and complex far beyond the understanding of ordinary businessmen.

8. Not all ratios and percentages are significant and useful. One should beware of the temptation to calculate them for their own sake.

9. R.H.Parkar is of the opinion that the limitations of conventional accounting should always be kept in mind and that accounting figures should not be treated as more precise than they really are.

10. A ratio is of little value in isolation. It is necessary to have some standard with which to compare it. The standard may be a budgeted one. It may be set by a company. It may be a historical one. It may be based on the past performance of the company. It may be based on industry comparison.

11. In using ratios computed by others, one should realise that the computation of a particular ratio has not necessarily been standardised.

12. A frequent comparison of ratios between companies is questionable, particular when there are important differences between companies, such as industry, nature of operations etc.

13. Most ratios represent averages and, therefore, may tend to obscure large variations in the underlying causative factors above and below the average.

14. Ratios are based on financial statements and suffer from the limitations inherent in these statements.

15. Changes in many ratios are closely associated or connected with one another.

16. While comparing the size of a ratio during the current period with the corresponding ratio during a previous period, it is possible that the conditions, during the two periods may have changed; for example, product lines, markets, economic conditions, prices etc.

17. While comparing the ratios of a particular firm with those of similar firms, the differences between the firms should be recognised; for example, methods of accounting operations and financing.

18. Not many results of financial statement analysis can be used by themselves as direct indications of good or poor management. Such analysis merely indicates probabilities or matters which might be investigated further. Davidson, Schindler, Stickney and Weil have pointed out that ratios derived from financial statements should be combined with an investigation of facts before valid conclusions can be drawn.

19. Ratios are likely to be misused. There are some situations in which they may appear to be misleading.

20. Westwick observes that ratios need the upper and lower warning lines because in most cases they have an optimum level.

21. Ratios are mathematical but this does not ensure that they are useful because the mathematical process does not attest to the fundamental relationship between the two factors in the computation. Unfortunately, everyone does not understand this fundamental fact and some financial ratios which have been advocated may have little or no value.

22. A ratio analysis is a guide rather than a solution to the present problems and future plans. It is not possible to suggest absolute ratios for a firm, which makes it imperative to consider issues as competition financial resources and objectives of a company.

Quantitative Approach

Ratio analysis may be defined as "the establishment of a reasoned relationship" of a fixed or variable character between measurements of certain phenomena having some kind of linkage. It is not confined to the four walls of financial management. There are vast and fruitful opportunities for its application to production (operations), marketing, personnel and general management.

The quantitative approach to management has manifested itself mainly in three forms:

- (i) the theory of probability and other branches of statistics;
- (ii) operations research; and
- (iii) applications of mathematics to economics, psychology, sociology and other behavioural studies having their bearing on decision-making, commercial viability or managerial efficacy of various types of entities.

Various factors have added to the significance of quantitative approach in management:

- (i) tremendous increase in the quantum of activity;
- (ii) technological change;
- (iii) needed fineness in the process of comparison;
- (iv) need for a computerised capsule approach;
- (v) emphasis on objectivity in decision-making; and
- (vi) call for greater conviction through the language of numbers.

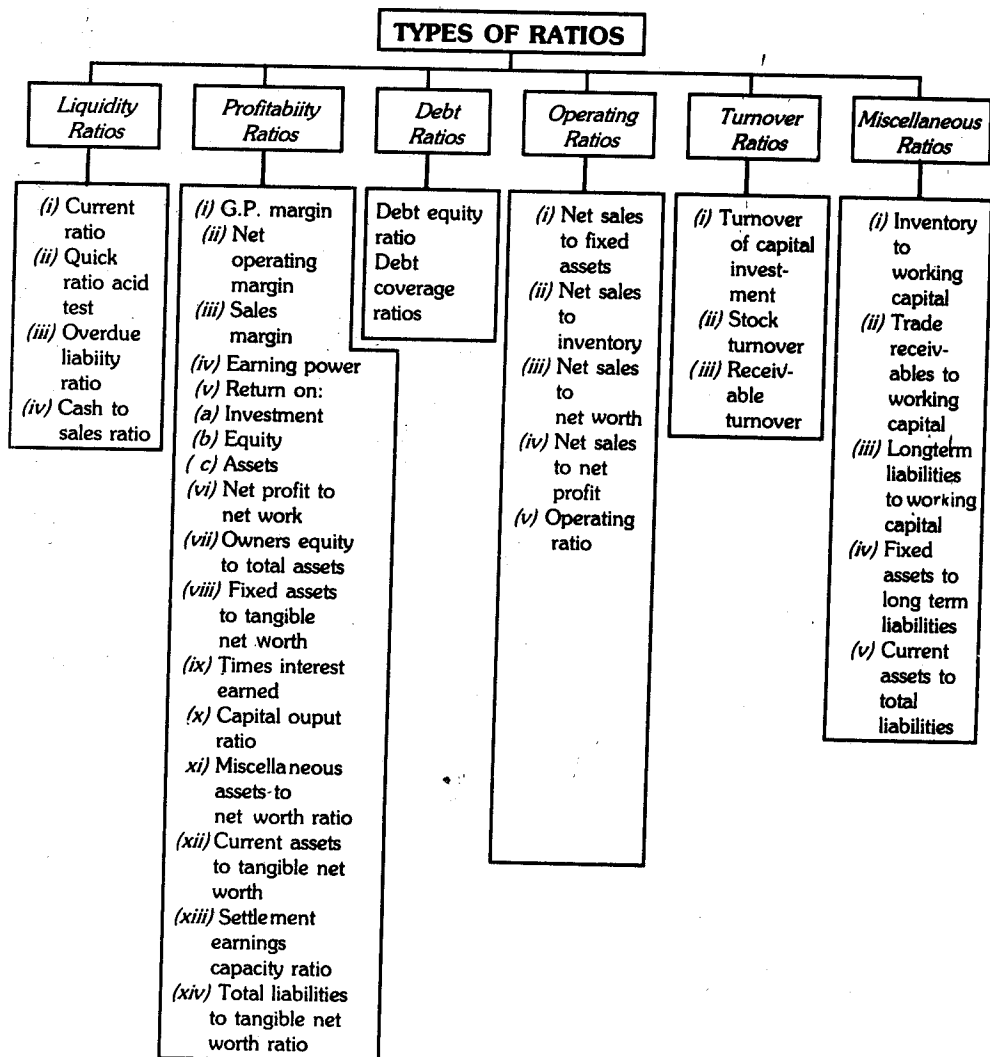
Among the limitations of quantitative approach are:

- (i) unreal assumptions;
- (ii) an excuse for not existing common sense;
- (iii) vast scope for window-dressing in accounting/manipulation of financial ratios; and
- (iv) phoney relationships not based on any significant linkage.

Classification and Significance of Financial Ratios

Financial Ratio Analysis (FRA) is a quantitative technique for assessing the financial health of a unit from the accounting data. FRA helps to describe the significant relationship between two comparable figures in the financial statements.

Chart 25.1



Ratios need to be interpreted:

- (i) to decide the perspective from the point of view of the shareholder, management, creditor, labour and the government.
- (ii) to compare with norms/budget, previous year's figures, industry average, inter-firm comparison.

The ratios can be conveniently classified under five categories.

<i>Classification of Ratios</i>	<i>Significance</i>
(i) Liquidity ratios	Liquidity refers to the ability of the firm to meet its obligations in the short run, usually one year. These ratios help determine the solvency of the firm.
(ii) Leverage ratios	Financial leverage refers to the use of debt finance, which is cheaper but a riskier source. Leverage ratios help in assessing the risk arising from the use of debt capital.
(iii) Activity ratios	Activity ratios are also called turnover/asset management ratios. They measure how efficiently the assets are employed by the firm.
(iv) Profitability ratios	Profitability reflects the financial result of business operations. The highlights of business performance are exhibited through profitability ratios. They serve as indicators of effectiveness and efficiency.
(v) Valuation ratios	The solvency, leverage, turnover and profitability of business create a 'market perception' and value for a company, based on which quotations in the stock exchange fluctuate. Valuation ratios offer important tips to investors and creditors.

Important among the above five groups of ratios are briefly stated here under:

A. Liquidity Ratios

<i>Ratio</i>	<i>Formula</i>	<i>Significance</i>
(i) Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	<p>(a) helps to determine the ability of the firm to meet current liabilities.</p> <p>(b) higher the current ratio, greater the short-term solvency.</p> <p>(c) Ratio of 1.33 and above indicates that the II method of lending is fulfilled and there is available sufficient NWC.</p>
(ii) Acid test ratio	$\frac{\text{Quick assets}}{\text{Current liabilities}}$	<p>(a) indicates a fair measure of liquidity.</p> <p>(b) measures the extent to which liquid resources are immediately available to meet current obligations.</p>

B. Leverage Ratios

(i) Debt-equity ratio	Debt Equity	(a) Lower the ratio, higher the protection to creditors. (b) General norm is 2:1. For highly capital-intensive projects, debt-equity ratio of up to 4:1 is allowed.
(ii) Asset coverage ratio	Net block Term liabilities	(a) Indicates the extent to which the cost of fixed assets is met out of long-term borrowed funds.
(iii) Debt service coverage ratio	Profit after tax (PAT) + Depreciation + Interest on LTL + Loan repayments	(a) Indicates the debt servicing ability of the firm. (b) Ratio of 2 is considered as satisfactory.

C. Activity Ratios

(i) Inventory turnover ratio	Net sales Inventory	(a) Reflects the efficiency of inventory management.
(ii) Debtor-velocity ratio	Receivables x 360 days	(b) Higher the ratio, higher the efficiency. Indicates the time given to debtors to repay their dues; to be studied with reference to company's policies.
(iii) Creditor-velocity ratio	Sundry Creditors × $\frac{360 \text{ days}}{\text{Purchases}}$	If the ratio is increasing, it can be due to short-term liquidity problem or it may indicate the company's ability to get more credit from the market.
(iv) Fixed assets-turnover ratio	$\frac{\text{Net sales}}{\text{Fixed Assets}}$	Measures the efficiency of all assets.

D. Profitability Ratios

(i) Gross profit ratio percent	$\frac{\text{Gross profit} \times 100}{\text{Gross sales}}$	(a) Ratio shows the margin left after meeting the manufacturing costs.
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Liquidity Ratios

These are the favourite ratios of lending bankers. Current ratio and quick or acid test ratio are grouped under liquidity ratios.

$$\frac{\text{Current assets}}{\text{Current liabilities}}$$

give the current ratio. This ratio will indicate whether short-term assets are sufficient to meet short-term liabilities and hence it is a measure of the liquidity of the business. Before attempting to compute this ratio, the lending banker should know what constitutes current assets and current liabilities. Here the lending banker should follow the usually accepted approach of bankers and not the definitions in the Companies Act. A large list of current assets and current liabilities can be seen in the guidelines issued by the Reserve Bank of India as a part of the CAS discipline.

Broadly speaking, current liabilities would include items payable or expected to be turned over within one year from the date of balance sheet. The term is used principally to designate obligations whose liquidation is reasonably expected to require the use of existing property classified as current assets or the creation of other current liabilities. The term "current assets" is used to designate cash and other assets or resources commonly identified as those which are reasonably expected to be realised in cash or sold or consumed or turned over during the operating cycle of the business, usually not exceeding one year.

While it is not necessary that calculation of current ratio should be based exclusively on the list provided by the RBI, it would help the lending banker to verify the claim of the borrower that a particular item is a current asset or is not a current liability. Similarly, although book debts are considered as current assets, if the debts exceed three or six months' time period, they are considered as current assets. The ideal ratio is stated to be 2:1. This ideal is, however, more a goal or comfort figure than a minimally accepted standard. Again, a high ratio may not mean that the business is solvent as finished goods, which are a part of current assets, should be sold and book debts, another current asset, should be actually realised. Nevertheless, given the saleability of goods and realisability of debts, the importance of this ratio cannot be belittled for a short-term lender like a bank.

Obviously, a ratio less than one is unacceptable to a lending banker because it means there are no sufficient current assets to meet the current liabilities. While the ratio of 2:1 is a goal, what should be the acceptable ratio? Can there be an acceptable ratio for all businesses for all times? Even if a borrower is brought under the second method of lending suggested by the Tandon Committee, what could be achieved is a ratio of 1.33:1. The ratio of the borrower should be compared with other units in the same line of business and the trend in the ratio should be watched year after year, together with the composition of the asset make-up.

Quick or Acid Test Ratio

Since the current ratio does not speak much about the liquidity of a business, acid test ratio is calculated to know whether the borrowing unit can generate funds quickly to pay off its creditors. Hence stock and work-in-process are deducted from the current assets and the result is divided by current liabilities. Too much emphasis need not be placed on this ratio as in the normal circumstances, for a going concern, this ratio is not in touch with reality. Again, although sundry debtors are included, if the realisability of debts is doubtful, the ratio will give a misleading picture.

Profitability Ratios

While the number of ratios can be grouped under profitability ratios, here only three ratios are dealt with. These are: *gross profit ratio*, *net profit ratio* and *return on the equity*.

Gross Profit Ratio (GDR)

$$\frac{\text{Gross profit}}{\text{Net sales}} \times 100$$

will give gross profit as a percentage of sales. This is one of the oldest and widely used financial ratios. It is of value for comparison between two similar business units or among different accounting periods. If the ratio compares favourably with the industry average year after year, it is a *prima facie* evidence of the soundness of the management. A steady and adequate rate of gross profit is a reliable evidence of efficient management. A lower ratio will indicate that the production expenses are on the high side.

Net Profit Ratio (NPR)

$$\frac{\text{Net profit}}{\text{Sales}} \times 100$$

will give net profit as a percentage of sales. Net profit is arrived at after deducting general, administrative and selling expenses and interest from gross profit. NPR used in conjunction with gross profit ratio will give certain worthwhile signals to the lending banker. If GPR remains steady and the net profit ratio falls, the lending banker should examine the expenses which have caused this fall and whether such expenses are extraordinary, non-recurring, etc.

Return on the Equity

$$\frac{\text{Net profit}}{\text{Shareholders' funds}} \times 100$$

will indicate the return available to the shareholders. Here net profit is taken after taxes. Only earnings attribute to ordinary shareholders are taken into account for calculation of the ratio. This is an important ratio for investors because it takes into account all the factors which affect the business. A lending banker may not be directly concerned with this ratio. Nevertheless, a fair return on the shareholder's funds indicates the health of the business and safety of the advance.

Debt-Equity Ratio (DER)

The long-term debt-equity ratio indicates the respective proportions of debt and equity capital in the total investment.

The DER is also a measure of investor leverage. The smaller the equity capital, the higher the income per unit share. Equity owners, therefore, favour high debt-equity ratio since such ratios give leverage to equity capital and allow equity owners to control projects even with a small amount of capital.

However, the financial institutions insist on a sound DER because higher the proportion of equity, higher the stake of the investors in the project and lower the risk for financiers. Financial institutions are usually very hesitant to finance projects if the equity component is less than 50 per cent of the total capital investment. There is, however, no single debt-equity ratio which is regarded as ideal or sound. This ratio depends on certain factors like the nature of the project, government policy, etc.

Financial institutions have to give due consideration to government policy in respect of debt-equity ratio. Government of India has been favouring different ratios for different projects. For example, according to the Industrial Policy Statement of 1977,

large industrial houses are expected to depend more on own funds for new projects and expansion schemes. The statement, read that, "while an appropriate debt equity ratio will be permitted in the case of industries like fertilizers, paper, cement, shipping, petro-chemicals, etc., which are relatively more capital-intensive in nature, the debt-equity ratio in the case of other less capital-intensive or less sophisticated industries will be so fixed as to reflect greater use of their own internally generated resources by the large houses."

Debt to Total Assets Ratio

The debt to total assets ratio is another leverage ratio which is of considerable significance to creditors because it highlights the long-run solvency of the company. Lower this ratio, the greater is the cushion against creditors' losses in the event of liquidation.

Debt service coverage ratio (DSCR) is calculated as under:

$$\frac{\text{Net profit} + \text{depreciation} + \text{interest on term loan}}{\text{Amount repayable on loan} + \text{interest on loan}}$$

Amount repayable on loan + interest on loan

Investment allowance and amortisation of expenses debited to the profit and loss account are added back to the net profit; and net profit is profit after tax. The ratio indicates the measure of safety available for payment of instalments of term loan and interest due. In other words, this ratio will indicate whether the business earns sufficiently to service its long-term debt with interest on it. This ratio is calculated by a bank when it has to consider a term loan application or when the working capital facility is to be converted into a long-term loan with repayment over a period of time. A ratio of 2:1 is satisfactory in as much as even if the earnings fall by 100 per cent, the borrower still will be able to repay the loan with interest. However, many a time a lower ratio is accepted provided it is not below 1.33:1.

Conclusion

A ratio is a mathematical relationship between two parameters. Ratio analysis is of major importance for financial analysis. Ratio is both a quantitative as well as qualitative index of measurement. Though it is primarily related to financial management, there are vast and fruitful opportunities for its application to production, marketing, personnel and general management. Thus ratio analysis equips the entrepreneur with timely and correct status of varied activities of his/her enterprise its utility enhances with the deepening knowledge and involvement of the entrepreneurs in his project work.



CHAPTER 26

INVESTMENT PROCESS

Introduction

Information on the utility and importance of ratio analysis has been aptly presented earlier. In this chapter, the investment process will be dealt in all its aspects.

The investment process helps the entrepreneur to make a clear assessment of the rate of return on his investments in a short and long-term basis.

Characteristics of Investment

The entrepreneur has to weigh the alternative investment process in accordance with his preferences to achieve his business goal.

The principal characteristics of investment are:

- | | |
|---------------|---------------|
| (i) Risk | (ii) Return |
| (iii) Safety | (iv) Utility |
| (v) Liquidity | (vi) Benefits |

Investment Profile of an Entrepreneur

The investment process of an entrepreneur are multi-dimensional. He invests in land and building, machinery and tools, procuring raw-material, marketing etc. The entrepreneur has to evaluate each process in an indepth manner to gain from the investment decision.

Classification

Investment proposals are broadly classified as follows:

1. Replacement Investments
2. Modernisation Investments
3. Rationalisation Investments
4. Expansion Investments
5. New Product Investments
6. Research and Development Investments

7. Marketing and sales investments
8. Human resource development investments
9. Welfare investments
10. Obligatory investments

Utility of Investment

Investment play a vital role in the overall economic development. In fact, the quantum of investment decides the process and direction of growth. In case of manufacturing enterprises investment determines its performance.

Broadly, the utility of investment is directed towards development, profit, power, wealth, capital generation and social good.

The Investment Process

The investment process is generally described in four stages. These stages are investment policy, investment analysis, valuation of securities, and portfolio construction.

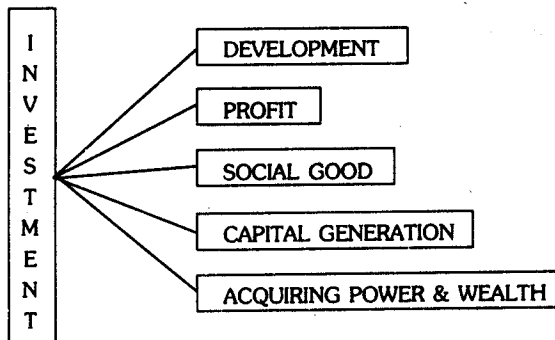


Fig. 26.1 Utility of Investment

Portfolio construction requires a knowledge of the different aspects of securities. These are briefly recapitulated here, consisting of safety and growth of principal, liquidity of assets after taking into account the stage involving investment timing, selection of investment, allocation of savings to different investments and feedback of portfolio as given in the table below:

The Process of Investing

I. Investment Policy

- Determination of investible wealth
- Determination of portfolio objectives
- Identification of potential investment assets
- Consideration of attributes of investment assets
- Allocation of wealth to asset categories.

II. Investment Valuation

Valuation of stocks	Valuation of Debentures and bonds	Valuation of other assets
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*III. Investment Analysis***Analysis of the Economy**

<i>Equity Stock Analysis</i>	<i>Debentures and Bond Analysis</i>	<i>Other Assets Analysis</i>
Screenings of industries	Analysis of yield structure	Qualitative analysis
Analysis of industries	Consideration of debentures	Qualitative analysis
Quantitative analysis of stocks	Quantitative analysis of debentures	

IV. Portfolio Construction

- Determination of diversification level
- Consideration of investment timing
- Selection of investment assets
- Allocation of investible wealth to investment assets
- Evaluation of portfolio for feedback.

Return on Investment (ROI) — A Key Profitability Ratio

A Key Profitability Ratio is the return on investment ratio (ROI), which is a measure of efficiency and provides a starting point for analysing the influences and trends in a company's performance.

It is defined as

$$\text{Return on Investment} = \frac{\text{Profit}}{\text{Capital employed}} \times \frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital employed}}$$

In determining the capital employed, any of the following three definitions can be used:

- (a) Gross Capital Employed = Fixed Assets + Current Assets
- (b) Net Capital Employed = Fixed Assets + (Current Assets - Current Liabilities)
- (c) Proprietors' Net Capital Employed = (Fixed Assets + Current Assets) - (Current Liabilities + Long-term borrowings)

The proprietors' capital employed can also be defined as Proprietors' net capital employed = Equity Capital + Preference Capital + Accumulated Reserves and Profits.

The definition of profit, used in calculating ROI, will change according to the meaning of capital employed.

Briefly:

- (1) If some asset has been excluded from the calculation of amount of capital employed, its income must also be deducted from the profits. Usually, fictitious and intangible assets are not included in the capital employed.

- (2) If "capital employed" is the gross capital, then interest paid on debentures/long-term liabilities/preference shares dividends should also be included in profits, i.e., added back to profits.
- (3) If capital employed is calculated in the sense of "net equity capital employed" then both debenture interest and preference dividends should be deducted from profits.

Generally, profits calculated for any type of capital employed must not include abnormal and non-recurring gains or losses, e.g., gains or loss on sale of fixed assets, gains on foreign exchange fluctuations, gains on insurance claims, etc.

A low ROI could be due to either low gross profit margins, a low rate of assets turnover or a combination of both. Therefore, if profit margins on sales cannot be improved due to strong domestic/international competition, then the only way to improve the return on investment is by increasing the rate of assets turnover, i.e., by increasing productivity. This could be further broken down, by working out the ratio of Sales: Fixed Assets and Sales: Working Capital, in order to find out whether these are satisfactory and whether there is room for improving the productivity of the fixed assets or of the working capital component of the capital employed. In other words, the Fixed Assets Turn-Over (Sales/Fixed Assets) or the Working Capital Turn-Over (Sales/Working Capital) must be separately assessed in order to find out which offers scope for improving productivity.

RETURN ON INVESTMENT

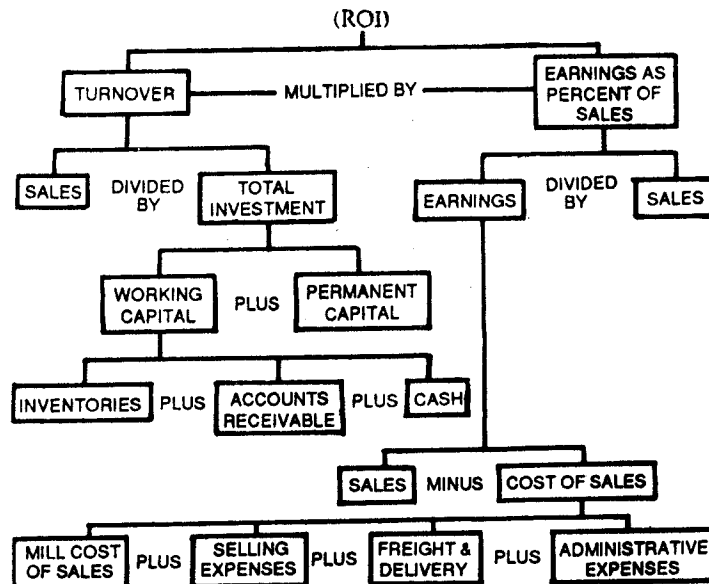


Fig. 26.2 Du Pont Chart

N.B.: Alternatively total investment can be analysed as Shareholders' equity plus Long-term borrowed fund plus Current Liabilities.

An important aspect of measuring the operating efficiency of management is to assess the Operating Ratio which is defined as:

$$\text{Operating Ratio} = \text{Operating Costs/Sales}$$

The higher the operating ratio, the lesser is the margin available for net profit to owners (and shareholders or proprietors) and for ploughing back into the company. A high operating ratio is indicative of inefficient management and must immediately be investigated.

Investment Ratio

Ratio analysis is defined to mean "*the establishment of a reasoned relationship*" of a fixed or variable character, between measurements of certain phenomena having some kind of linkage. They are the key tools of management. In this sense, investment variable ratios have acquired greater significance in financial management.

Deciding factors while starting a business

It is profitable for the entrepreneur of a new or proposed business to be familiar with the following factors in making a choice for a suitable form of ownership:

1. Type of business — service, trade, manufacturing.
2. Scope of operations — volume of business and the size of the market area served.
3. Degree of direct control and management desired by the owners.
4. Amount of capital funds required.
5. Size of the risk.
6. Continuity of the concern.
7. Costs and procedures and relative freedom from Government regulation.
8. Adaptability of administration.
9. Comparative tax advantage, etc.

Before the above-listed factors stand considered, it must be pointed out that these factors are inter-dependent. In reaching a decision, management is guided by some or all of these factors. The final choice, however, may be a compromise. Thus, the problem in choosing the best form is one of analysing and weighing the relative advantages and disadvantages to find to the one that will yield the highest net advantage. The obvious flexibility in the form of ownership suggested that most businesses operate under the type most suitable to their needs.

Let us now consider the impact of these factors on the form of business ownership.

1. *Type of business activity*: This is important factor having a direct bearing on the choice of ownership. In small trading businesses, professions and personal service trades, sole proprietorship is predominant. Examples are laundries, beauty parlours, repair shops, consulting agencies, small retail stores, medicine, dentist, accounting concerns, boarding house, restaurants, speciality shops, builders, painters, decorators, bakers, confectioners, tailoring shops, small-scale cobblers and shoe manufacturers, etc. The partnership is suitable in all those cases where a sole proprietorship is suitable, provided the business is to be carried on a slightly bigger scale. Manufacturing contains

the highest percentage of companies among all industries. Similarly, large chain stores, multiple shops, superbazaars, engineering companies are in the form of companies.

2. *Scope of operations:* If the scale of operations of business activities is small, sole proprietorship is suitable; if the scale of operations is modest — neither too small nor too large — partnership is preferable; whereas, in the case of large-scale operations, the company form is advantageous. The scale of business operations depends upon the size of the market area served, which in turn, depends upon the size of demand for goods and services. If the market area is small, local partnership is adopted. If the demand originates from a larger area, partnership or company may be adopted.

3. *Direct control and management:* In the sole proprietorship and partnership, the ownership and management and control are completely fused; in the case of a company, there is a divorce between ownership and management. If the entrepreneur is not ready or willing to part with control and management of the business, he will choose the sole proprietorship. If he is just not bothered about it, he will go in for partnership and company.

4. *Attraction of additional capital:* Every business may require additional funds from time to time to carry on its business operations. If it cannot obtain adequate capital, it may be headed for failure. In deciding on the legal form of ownership, the top executive must take into account the question of how new money is to be attracted and raised. In a proprietorship, the owner may raise additional capital by borrowing, by purchasing on credit or by investing additional amounts himself. Banks and suppliers, however, will look closely at the proprietor's individual financial resources before sanctioning loans or advances. Partnerships can often raise funds with greater ease, since the resources and credit of all partners are combined in a single enterprise. Companies are better equipped to attract capital from the market.

5. *Size of risk:* Size of risks vary from one organisation to another. The sole proprietor is liable for all the debts of business to the extent of his entire property. Likewise, partners are individually and jointly responsible for the firm's liabilities.

6. *Continuity of the concern:* While continuity of a concern is not guaranteed under proprietary and partnership, companies have the most permanent legal structure. Continuity of the concern is most stable.

7. *Costs, procedure and government regulation:* While proprietary and partnership concerns could be simply initiated, the company form of ownership is more complicated to form. In the formation of a company, a large number of legal formalities have to be gone through which involve a substantial amount of expenditure.

8. *Adaptability of administration:* In the case of a proprietary concern, administration goes with their individual. In a partnership it is shared. In both the cases, adaptability of administration goes with their knowledge and capacity to work. In a company, the administration is centralised in a small group of executives with less involvement.

9. *Comparative tax advantage:* In the case of proprietary concern, the income of the business is taxed as an individual assessee. If the business is higher, partnership form of organisation will be a right choice. As far as companies are concerned, they are taxed at a flat rate.

An entrepreneur has to weigh these major factors, as well as others in deciding the form of organisation while starting a business. Many a times, an enterprise, like a river, may be started as a proprietary concern, converted into a partnership when like minded people come together, are promoted into a joint-stock company when it grows substantially big. This organisational evolution is an ongoing process through interaction with the socio, political and economic environment.

For example, J.C. Basu put in Rs 15,000 of his savings and his brother-in-law, Ranjan Banerjee contributed an equal amount and set up the Trinity Forge in 1974. The business rose from Rs. 5.5 lakh in 1974 to Rs. 42 crore in 1996. It has now become a leading company in the forging industry.

The best and the brightest always stand out as the most outstanding. The best invariably prosper which leads to growth. And growth ultimately shows up in increased size. So in a free market economy, the size of the business (enterprise) is a fair indicator of excellence. Managing a larger enterprise is without doubt more difficult than running a small one. And so it is likely that many small enterprises are more profitable than their larger counterparts. But this is in no way detracts from the achievements of the latter. Large enterprises are better, by way of its inherent strength, the capacity to bear shocks and stresses, and simply by the fact that it has grown so big in a world where roughly everyone has had the same opportunities.

Incentives to Investment

Fiscal measures play a major role in the process of economic development. In fact, state intervention is used to sustain the level of effective demand for investment through various incentives. And, incentives stem from different instruments of fiscal policy, monetary policy and commercial policy (Chart 26.1).

Develop Capabilities

Advanced economies have grown through the centuries with the development and diversification of the industry and the resultant commerce. Every country slowly, and many times unknowingly, develops a sense of economic proportion. This sense ultimately determines, along with the economies of scale, the scale of economies. This sense of economic proportion brings with it the consciousness of capabilities - technological, managerial, financial and organisational. The advanced economies in the developed countries are due to their developed capabilities. So long as such capabilities have not been developed, large projects and larger conglomerates would prove to be sterile, difficult to establish, and much more rigorous to manage. Any national industrial economy must develop, as far as possible, naturally. On its inception, it must be properly protected and nourished. Then, with the passage of time, it will grow into healthy proportions. It will outgrow the gestation stage and eventually become self-reliant, self-sustained and self-accelerating, with stout muscles and stronger nerves. The national enterprise, which is equivalent to the sum-total of the entrepreneurial, managerial, financial, and technological capabilities, is the growth of time. Therefore, small industries in underdeveloped countries when they are emerging out of the traditional agricultural economy provide a cradle for modern medium and larger industries.

Chart 26.1
Incentives for Investment
STEM FROM

<i>Fiscal Policy</i>	<i>Monetary Policy</i>	<i>Commercial Policy</i>
(A) Budget Proposals eventually enacted as an Act of the Parliament, viz., The Income Tax Act (and periodic amendments thereof).	(B) Interest Rate & Lending Policy as announced by the Financial Institutions in consultation & collaboration with the Financial Institutions	(C) Selective Adhoc announcements from the Central/State Governments. Industrial Policy announced by the Central Government/and published in the form of 'Guidelines for Industries! Also announcements of incentives by the State Government or concerned financial institution.
<ol style="list-style-type: none"> 1. S 32 Normal Depreciation 2. S 32 (i) (ii)— Extra Depreciation @ 50% of Normal Depreciation. 3. S 35A Amortisation of Patents and copy rights. 4. S 80J/80I Tax Holiday 5. S 32A Investment Allowance 6. S 35B Export market development allowance 7. S 35C Agricultural development allowance 8. S 35D Amortisation of Preliminary Expenses. 	<ol style="list-style-type: none"> 1. Concessional Interest Rates 2. Repayment Moratorium 3. Extended Amortization Period 4. Participation in Risk Capital 5. Concessions in Undertaking/Underwriting Commissions 6. Commitment Charges 7. Consultancy Services 8. Reduced Security Margins 9. Refinancing Facilities 10. Concession with respect to promoters Contribution. 	<p align="center">STATE INCENTIVES</p> <ol style="list-style-type: none"> 1. Octroi Exemptions 2. Concessional Rates for Acquiring Land/Consuming Power 3. Contribution towards Feasibility studies costs. 4. Purchase Price Preference. 5. Industrial Housing Subsidy. <p align="center">CENTRAL INCENTIVES</p> <p>Central outright subsidy not exceeding 15 per cent of the fixed capital or Rs. 15 lakhs. (In the north-eastern hill region, there has been a recent hike in the capital investment subsidy from 15 to 20 per cent from March 1983. Transport subsidy under the Transport subsidy Scheme of 1971.</p>

The sense of economic proportion at any point of time determines the direction of economic development. There are several constraints which influence the process of industrialisation. The underdevelopment of a country is really the reflection of inadequate development of entrepreneurship in that country. When entrepreneurial growth is accelerated, modern industrial development automatically gains momentum. Narrow or non-existent entrepreneurial in various countries. How to broaden and strengthen the entrepreneurial base in the society is the real challenge facing the developing countries today.

Conclusion

Rapid industrial development would involve mobilisation of productive resources, investments and entrepreneurial energies. Investment is a continuous process of economic development. In particular, an enterprise's needs for investment is an ongoing business. The entrepreneur invests in enterprises and services after ascertaining adequate returns (Profit), Power and Wealth. Thus, investment is one of the basic foundation of development.



BREAK-EVEN ANALYSIS

Introduction

The determination of the break-even point of a firm is an important factor in assessing its profitability. It is a valuable control technique and a planning device in any business enterprise. It depicts the relation between total cost and total revenue at the level of a particular output. Ordinarily, the profit of an industrial unit depends upon the selling price of product (revenue), volume of business (it depends on price) and cost price of the product.

If an entrepreneur is aware of the product cost and its selling price, he can plan the volume of his sale in order to achieve a certain level of profit. The break even point is determined as that point of sales volume at which the total cost and total revenue are identical.

Break-even Point

Break-even point is an important measure being used by the proponents and banks in deciding the viability of a new project, especially in respect of manufacturing activities. This technique is useful dealing with a new project or a new activity of the existing unit.

The break-even point (BEP) establishes the level of output/production which evenly breaks the costs and revenues. It is the level of production at which the turnover just covers the fixed overheads and the unit starts making profits.

From the banker's point of view, the project should achieve a break-even position within a reasonable time from the start of production. The project which reaches a break-even point earlier is considered as a viable project by bankers. They cannot only expect earlier repayment of their advances in the case of such projects but can also be assured that the project can fairly adapt itself to the day-to-day developing technology. The projects which are unlikely to reach the break-even point in the third or fourth year of its commencement of production will not be a viable proposal for the bankers.

The break-even analysis also determines the margin of safety, i.e., excess of budgeted or actual sales over the break-even sales so that the bankers would know how sensitive a project is to recession. This is an important factor in determining the feasibility of the project and its ability to absorb the ups and downs in the economy. The bankers, as lenders of funds, insist upon a reasonable margin of safety so that fixed costs are met at a fairly earlier stage.

Algebraic Formulate of Break-Even Analysis

(A) Break-even point (BEP) in terms of sales:

$$\text{BEP} = \frac{\text{Fixed cost}}{\text{Total contribution}} \times \text{Total amount of sales}$$

(Total Sales - Total variable costs - Total contribution)

Example:

Sales	1000 units
Selling price per unit	Rs. 60
Variable cost per unit	Rs. 40
Fixed cost	Rs. 1500

$$\text{BEP (Unit volume)} = \frac{1,500}{60 - 40} = \frac{1,500}{20} = 75 \text{ units BEP in terms of units}$$

$$\text{BEP in terms of sales} = \text{Rs. } 75 \times \text{Rs. } 60 = \text{Rs. } 4500$$

(B) BEP (in terms of capacity utilisation)

$$\frac{\text{Total fixed costs}}{\text{Total contribution}} \times \text{Production in terms of per cent to installed capacity}$$

In this method, BEP in terms of capacity utilisation is calculated with reference to capacity utilisation in the normal year of production. For instance, if the unit is expected to achieve a capacity utilisation of 40%, 45%, 60%, 80% and of the installed capacity in the first five years, the BEP computation will be with reference to 80%.

Calculation of BEP

The break-even point can be calculated in terms of physical units and in terms of sales turnover.

(i) *In terms of physical units:* The number of units required to be sold to achieve the break-even point can be calculated using the following formula:

$$\text{BEP} = \frac{\text{FC}}{\text{SP} - \text{VC}} \text{ or } \frac{\text{FC}}{\text{C}}$$

where

FC = fixed cost

VC = variable cost

SP = selling price

C = contribution per unit (C = SP - VC)

Example, if:

FC = Rs. 1,00,000

VC = Rs. 2 per unit

SP = Rs. 4 per unit, and

Maximum productive capacity = 1,00,000 units per year.

$$\text{BEP} = \frac{1,00,000}{4 - 2} = 50,000 \text{ units (i.e., 50\% of the capacity)}$$

(ii) *In terms of sales volume:* BEP in terms of sales volume can be calculated using the following formula:

$$\text{BEP} = \text{SP} \frac{\text{FC}}{\text{SP} - \text{VC}}$$

where

FC = fixed cost

SP = selling price per unit

VC = variable cost per unit

A different way of calculating BEP is

$$\text{BEP} = \frac{\text{Fixed Expenses} \times \text{Sales}}{\text{Total Contribution}}$$

where total contribution is the total sales minus the total variable expenses.

In this case, the BEP will be in Rupees. Graphically, BEP is represented as below:

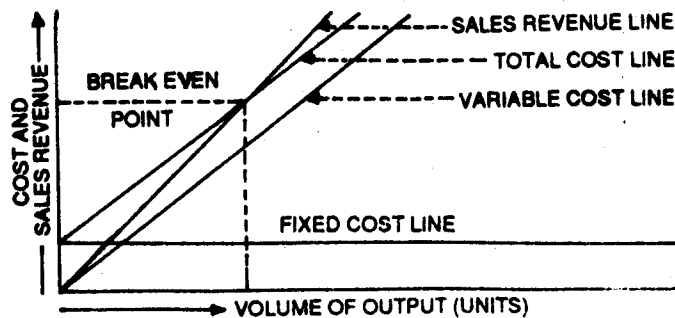


Fig. 27.1 Break-Even Analysis

Utility of the Break-Even Analysis

The utility of Break-Even Analysis is as follows:

- It serves as the most useful and important managerial tool to study Cost-Output-Profit relationship at varying level of output.
- It is useful in reviewing pricing policies.
- It aids in planning capitalisation of the enterprise.
- It provides the entrepreneur to decide whether to acquire or not assets involving additional fixed costs.

Shortcomings of the Break-Even Analysis

The BEP analysis is based on some assumptions, such as sales price, costs, production, sales, etc. The technique will be only of financial value unless all these assumptions are well-calculated. Besides, the technique is a preliminary and supplementary tool in the whole exercise of ratio analysis.

Another important factor in using the technique is to provide cost-escalation as a built-in safeguard against increase in prices.

The most important factor while using the technique, however is the proper analysis of various costs into fixed costs and variable cost as there are some types of costs which do not fall into either of the categories. These are the expenses which are partly fixed and partly variable. In a break-even analysis, these semi-fixed costs cannot be treated independently but have to be isolated into the usual categories of fixed and variable elements.

Break-Even analysis may not prove useful to rapidly growing enterprises and to enterprises which frequently change their product mix.

It has limited utility in the case of multiproducts.

It does not take due cognisance of factors like uncertainty and risk involved in estimates of costs, volume and profits.

It is not a potent tool for long range planning.

Irrespective of these shortcomings inherent in the usage of this technique, it is an important tool for the profitability analysis of the new project.

Quarterly Information System: Statements and their Scrutiny

The RBI appointed a working group to review the system of cash credit (Chairman: Shri K.B.Chore) in April 1979. A major recommendation of this Committee accepted by the RBI, was to regulate bank credit through the Quarterly Information System (QIS) statements. It is mandatory for all borrowers enjoying bank credit by way of fund-based working capital limits above and inclusive of Rs. 50 lakh to submit such statements. The salient features of the QIS statements are:

Features of Quarterly Information Statement

<i>Type of format</i>	<i>Nature of statements</i>	<i>Time limit for submission</i>
Form I	Estimates for the ensuing quarter giving projected level of production, sales, current assets, current liabilities including bank borrowings (projected).	To be submitted in the week preceding/commencement of the quarter to which the statement relates.
Form II	Performance during the quarter giving estimates as originally projected in QIS and actual position of production, sales, current assets and current liabilities.	To be submitted within six weeks from the close of the quarter to which the statement relates.
Form III	Half-yearly operating and funds flow statement.	To be submitted within a month from the close of the half year.

Checklist for Scrutiny**Form I: Projections for ensuring quarter****(i) Production/sales**

- (a) Whether quantity and value as a percentage of annual projection are reasonable, keeping in view orders on hand, past trends, seasonality, etc.
- (b) Capacity utilisation/BEP/margin of safety.

(ii) Inventory

- (a) Whether holding norms relevant to particular industry group are complied with and if not reasons for higher holding.
- (b) Whether there is a mismatch in various types of raw materials held and whether with the projected raw material holding, production as per projection can be achieved.
- (c) Abnormality, if any, in finished goods holding.
- (d) Whether stores and spares projected are within limit.

(iii) Receivables

Whether there is any abnormality in holding period, quantum, debtor velocity, overdues.

(iv) Other current assets

Whether advances to suppliers projected are as per practice. Whether cash and bank balance projections are reasonable.

(v) Creditors

- (a) Whether the actual credit received is truly projected — to be verified on the basis of past trends and current market practice.
- (b) Whether materials received against letters of credit are included under this head, and if such materials are included under inventory.

(vi) Other current liabilities

- (a) Whether advances received from customers and statutory liabilities are projected and are as per past trends.
- (b) Whether repayment obligations payable within a year are included.
- (c) Whether overall projections are comparable with the projections on the basis of which facilities were sanctioned.
- (d) Whether bank borrowing projections are reasonable and are within the sanctioned limit, within MPEF, under method, commensurate with available fully-paid stocks and receivables.
- (e) Whether sufficient net working capital and current ratio of over 1.33 is available.

Form II: Actuals for the past quarter

The actuals furnished are to be compared with the estimates given earlier as per Form I and variations if any, under individual components are to be analysed. Checks

applied for scrutiny of Form I can also be used for this purpose also with slight modifications.

Form III: Provisional half-yearly operational data with funds flow position

- (i) Whether the operations of the borrower are broadly as per projections or nearer to projections is to be scrutinised under various heads such as:
- (a) Sales
 - (b) Operating profit
 - (c) Closing stock
 - (d) Percentage of raw material consumed
 - (e) Percentage cost of production to sales.

Should the operative data indicate symptoms of slackness in the unit's activity, the borrower should be prepared to initiate corrective action to gear up and achieve projection so as to become eligible for drawal of facilities.

- (ii) Funds flow statement, *inter alia*, should scrutinise:
- (a) Whether short-term funds are used for short-term purposes or is there any diversion;
 - (b) Whether long-term sources are sufficient to sustain the provision of sufficient net working capital;
 - (c) How are the sources of funds deployed and whether they are proper.

With the abolition of CAS and introduction of CMA in its place, more responsibility devolves on banks to ensure the quality of credit. Therefore, banks have to be alert in checking the QIS statements. Imposition of penalty to ensure compliance of submission of statements by borrowers acts as a check on credit discipline.

Performance Analysis

Two types of ratio are very helpful in performance analysis — the profit and loss A/c ratios which show the relationship of various items of profit and loss A/c with sales and the turnover ratios which show how well a company is utilising its resources. The broadest measures of overall performance is, however, given by the ROI of return on investment. All these ratios have been discussed below:

Return on Investment: This ratio shows how much a company is earning on its capital employed. Thus, if a company has Rs. 5 lakh as equity capital and Rs. 3 lakh as loan, its total capital employed would be Rs. 8 lakh. Suppose it earns Rs. 80,000 in a year before interest and taxation, and ROI will be 10%. It is calculated thus:

$$\frac{\text{Net Profit before Interest before Interest and Income Tax}}{\text{Capital Employed}} \times 100$$

Net capital employed is the amount of funds invested in business. It can be calculated from the balance sheet in one of the following two ways:

- (a) Equity Share Capital + Preference Share Capital + Reserves and surplus + short-term and long-term liabilities minus non-operating assets (e.g., investments) and

miscellaneous expenditure if any such item appears on the assets side of the balance sheet).

Or

(b) Fixed Assets + Current Assets – Current Liabilities

It is obvious that the amount of net capital employed would be the same whichever way it is calculated. The following points may be noted in this regard:

(c) It is not generally proper to include outside investments when calculating the net capital employed. The profit is also the profit before interest on such investments. The idea is that the return on investment for funds employed within the business should be calculated separately from the return on investment for funds employed outside a business. However, if the ROI for the total business is to be calculated, investments should be included in the figure of net capital employed, and the income from such investments should also be taken into credit when calculating net profit before interest and tax.

Intangible assets (assets which have no physical existence like good-will, patent and trade-marks) should be included in the figure of capital employed, specially if they have been paid for. Only if these are totally fictitious and represent no rights or benefits to the business, should they be excluded from the figure of 'net capital employed.'

ROI is a very significant measure for inter-firm comparison and for evaluating performances of various units within a firm. Actually, ROI combines in itself the net effect of all types of performance ratios. Ratios of the profit and loss account and turnover ratios indicate the performance of a company. All these ratios are ultimately reflected in ROI. A slight fall in turnover efficiency or a rise in costs would immediately affect the ROI. It is because of this that ROI is called the broadest measure of performance.

The impact of Net Profit ratio and Turnover ratio on ROI can be seen as given below:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit before interest and tax}}{\text{Sales}} \times 100$$

$$\text{Capital Turnover Ratio} = \frac{\text{Sales}}{\text{Net capital employed}} \times 100$$

If we multiply the two, i.e.,

$$\frac{\text{Net Profit before interest tax}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Net capital employed}} \times 100$$

We get ROI.

Example:

	<i>Rs.</i>			<i>Rate of Return</i>	
Sales	5,00,000	5,00,000		50,00,000	
Capital	20,00,000	50,00,000	×	20,00,000	× 100
Profit	5,00,000	50,00,000		20,00,000	
		or 10% × 2.5		= 25%	

Thus once ROI is worked out, a further analysis is undertaken by working out the Net Profit Ratio (and Profit and Loss A/c ratios which affect it) and the Turnover Ratios (with other ratios affecting it). The table given on the next page shows these relationships. The exact cause of a low ROI can be treated only after a complete analysis through Profit and Loss Account ratios and turnover ratio, mentioned in Fig. 27.2.

Sensitivity Analysis

Under the sensitivity analysis, instead of using one estimate of each variable, several estimates used under varying conditions.

The element of uncertainty can be reduced by applying sensitivity analysis at the project planning stage by finding the optimistic and pessimistic alternatives. For example, considering the pessimistic solutions, the project's viability in the worst of all possible situations can be determined. If the sensitivity analysis shows that the project will be commercially viable under pessimistic conditions, the project can be considered non-risky.

With the help of sensitivity analysis, it is easy to identify the most important factors in a project, such as raw materials, labour and energy and to determine any possibilities of input substitution.

The break-even analysis can be made more realistic by applying the sensitivity analysis. For example, alternative break-even calculations can be done with optimistic and pessimistic estimates of costs and selling prices. Similarly, alternative estimates of the business prospects can be made on the basis of optimistic and pessimistic estimates of demand or capacity utilisation.

Sensitivity analysis, thus, helps to understand the extent to which a project can face adverse conditions.

Probability Analysis

Probability as used here refers to the frequency of occurrence of an event, measured as a ratio of the number of different ways that the specific event can happen to the total number of possible outcomes.

The purpose of probability analysis is to eliminate the need for restricting to a single optimistic, pessimistic or realistic estimation by identifying the possible range of each variable and attaching a probability of occurrence to each possible value of the variables within this range. These judgments take the form of probability distribution of each possible value and each variable is associated with a number between 0 and 1, so that for each variable the sum of all these numbers (probabilities) is equal to one. This numerical description of the likelihood of an event's occurrence makes possible

on objective measure of many situations that could otherwise be gauged only intuitively. Therefore, from a mathematical point of view, probability analysis consists of aggregating probabilities.

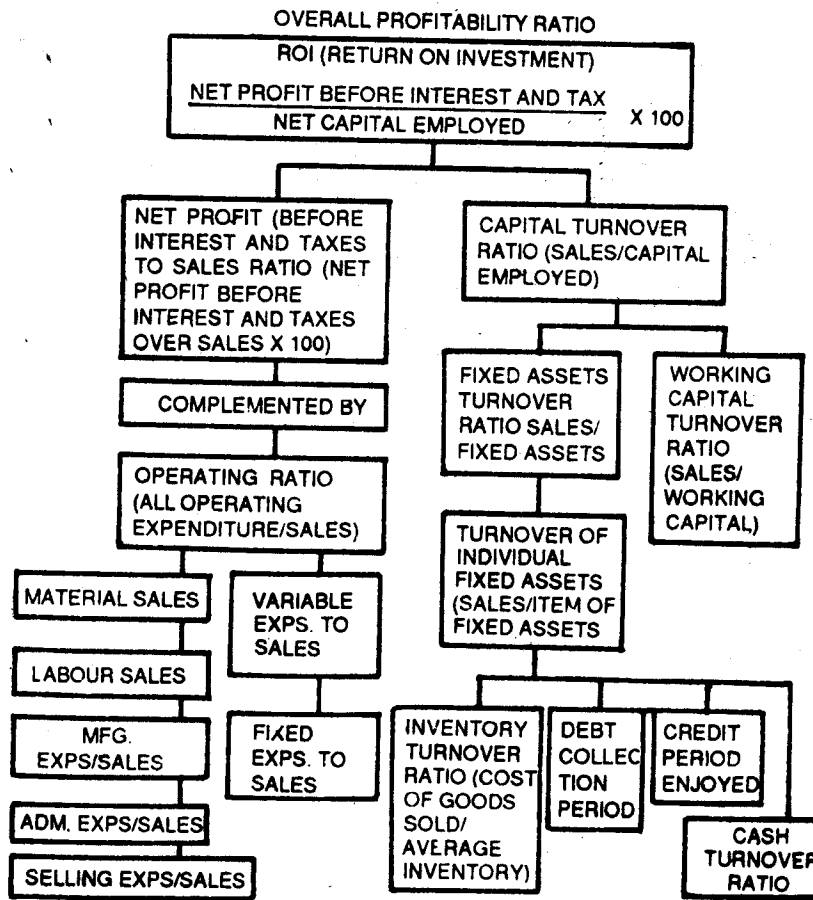


Fig. 27.2 Profitability Ratios

This analysis is carried out in the context of project preparation with the objective of improving the accuracy of cost estimates and, in turn, of probability forecasts.

The term investment is to be understood in its economic sense. Economical investment means to lay money for profit. In its broader sense, investment means utilising money for development.

Conclusion

The break-even analysis is an analytical technique for studying the cost-volume-profit relationship and operational leverage in an enterprise. A narrow interpretation of break-even analysis refers to a system determining the level of activity where total cost is equal to total sales, i.e., the point of zero profit and zero loss. It is a unique technique often used by the new enterprises and bankers in determining the viability of a new project. Its utility enhances with careful interpretations.



PROFITABILITY ANALYSIS

Introduction

Profitability analysis technique employed in several industrial countries are vitally important to assess the operational efficiency of a project and its profitability. It also seeks to correct the structural deficiencies and improve productivity and profits.

Profit is the primary objective of an enterprise. In view of the heavy investment which is necessary for the success of most enterprises, profit in the accounting sense tends to become a long-term objective, which measures not only the success of a product but also of the development of the market for it. The word "profit" implies a comparison of the operations of business between two specific dates, which are usually separated by an interval of one year. In order to optimise these corporate resources of wealth on which national prosperity depends, the basic financial objective of companies is to maximise, within socially acceptable limits, profits from the use of the funds employed by them. The maximisation of profit within a socially acceptable limit implies that a proper regard for public interest has been shown. No company can survive long without profit, for profit is the ultimate measure of its effectiveness. Also, and in a capitalist society, there is no future for a private enterprise showing repeat losses. The crucial measure of the effective performance of a business is profit, which really is a measure of how well a business performs economically.

Profit is a signal for the allocation of resources and a yardstick for judging managerial efficiency. It is wrong to believe that the importance given to profit planning in the literature on business finance does not reflect its genuine importance in the financial activities of a modern business firm. In fact, it is the growth of profit which enables a firm to pay higher dividends to its ordinary shareholders.

Profit results from transactions which should satisfy both the parties to it. The vendor should be satisfied that the price is acceptable, and that it gives him an appropriate return for the work he has done and the risks he has taken. The purchaser should be satisfied that he has had a full value for his money. Irrespective of the way in which a company's profitability is expressed, its profit potential depends on its ability

to price its products so that they provide value not only to the customer, but also to the company itself. Good pricing results in good profits.

Profit is a dominant goal of a business, and profit-making should be the main objective in terms of which the general effectiveness of an organisation is measured. Economists have long been concerned with profits and have framed theories to explain both their meaning and distribution. According to them, *profit is the reward for entrepreneurship*. A source of funds which is completely within the internal system is that of profit-making. The exact contribution which profits make to funds is a disputable matter. But the fact that funds are augmented by profits and reduced by losses should be beyond controversy.

Goals or objectives are the ends which a business enterprise seeks to achieve through its existence and operations. A typical business establishment seeks to achieve more than one goal and there are always restraints to the attainment of some goals. Objectives vary with the passage of time. Goals common to most contemporary business establishments are explained in figures 28.1.

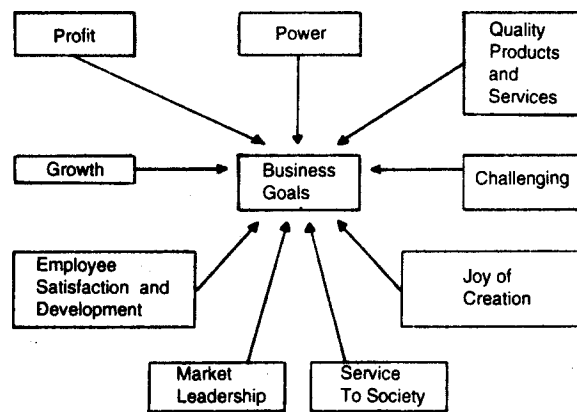


Fig. 28.1 Business Goals

Factors Affecting Profit

A number of factors influence profit variations. These are:

1. *Mix of product changes*: The effect of the mix of product changes upon profits is fairly easy to interpret and record, if a good system is in use.
2. *Volume of fluctuations*: The volume of sales plays a tremendous part in profit-making. So long as a sustained maximum volume continues at the top of capacity curve, break-even point would be far away. The profit path is wide and deep at the point.
3. *Performance changes on any Volume*: To attain real sophistication in profit calculation, the true profits at any given volume which should exist at a planned break-even point are separated from the profits created by the performance at one attained volume.

4. A change in fixed costs changes the break-even point, but not the marginal profit. The marginal point is the profit picked up above the break-even point.

5. A change in variable costs and selling prices changes both the break-even point and the marginal profit.

6. The rate of marginal profit is affected by a change in variable costs, selling price and operating performance as against planned performance.

7. When both the fixed and variable costs change and when they move in tandem, the effect of the break-even point is pronounced and definite. When they move in opposition to each other, the effect is very weak.

8. The marginal break-even point is that point of output at which out-of-pocket costs are recovered. Depreciation and amortisation costs are excluded from them.

If the fact that the central purpose of a business is to earn a profit is accepted, the first problem is to determine the factors which determine the level of profitability. Profitability should first measure the relationship between profits and the funds committed in the business to earn that profit.

The first step in devising the strategy is to measure the task. For private industry, the measure of a task is the gap between the level of profit achieved by a business without the introduction of any major changes and the level of profit which the target profitability measurement indicates should be earned. Value is what people think it is. Any analysis is in the final test, subject to the values that the world at large is prepared to place upon it. The final word is, of course, said by the people who are prepared to buy it. The value of the decision-maker to the sensitivity analysis is that he can choose that which, he thinks, is the most likely value for any variable and read off the resulting rate of return or NPV. He does not have to accept a single-valued estimate based on somebody else's appraisal of the outcomes. The measurement and control of profitability in a company or any other business organisation should form one of the principal objectives of the finance function of a management.

A return on investment has come to be regarded as perhaps the most important measure of industrial and commercial efficiency. This is, as it should be, whether in the different activities of a capitalist economy or in the field of public investment. Even the communist regime of the USSR which eschewed the profit motive, had recognised return on investment as a proper measure of efficiency.

Indicators for Measuring Income

T. A. Lee has suggested following indicators for measuring income. He is of the opinion that income is:

1. A guide to dividend and retention policy.
2. A measure of management effectiveness.
3. A measure of a management's stewardship of the entity's resources.
4. A means of evaluating the result of past decisions and of working on future decisions.
5. A managerial aid in a variety of decision areas within and outside the business entity.

Profit Pool

A new theory argues that the value chain must actually be used to identify the deepest sources of profits. And that identification must be the starting point for formulating corporate strategy. Although the concept of profit zones generates maximum profits, Gadiesh and Gilbert have come up with another profit perspective that provides a starting point for devising a strategy: profit pools.

A profit pool is the total quantum of profits that can be earned at all points along an industry's value-chain. Expectedly, the depth of the pool varies between different points on the chain. And the extent of this variation is a function of the products a company makes, the markets in which it decides to sell them, the customer group it targets, and the distribution channel it uses. The shape of the profit pool is actually a manifestation of the industry structure, and it reflects the competitive dynamics of a particular business. Profit pools are deepest in areas where potential competitors face entry-barriers, or in those overlooked by competitors.

Profit pools are not stagnant. Any change in the external environment — competitive activity, change in customer preferences, and supplier initiatives — will alter its shape and size. As a strategic tool, it can help companies answer one basic question: where and how are profits being made in the industry? The versatility of the concept, though, lies in its use as a diagnostic tool.

MAPPING A PROFIT POOL

<i>Step 1</i> <i>Define the pool</i>	<i>Step 2</i> <i>Determine the size of the pool</i>	<i>Step 3</i> <i>Determine the distribution of profits</i>	<i>Step 4</i> <i>Reconcile the estimates</i>
Task Determine which value-chain activities influence your ability to generate profits now and in the future	Develop a baseline estimate of the cumulative profits generated by all profit-pool activities	Develop estimates of profits generated by each activity	Compare the outputs of steps 2 and 3 and, if necessary, reconcile the numbers
Guidelines Take a broad view of the value-chain; look beyond traditional industry definitions	Seek a rough, but accurate, estimate	Shift between aggregation and disaggregation in your analysis	If the numbers don't add up, check all assumptions and calculations
Examine your industry from 3 perspectives: your own company's, other players; and the customer's	Take the easiest analytical routes available; go where the data are	Look at your own company's economics first, then look at large pure players, then look at large mixed players, then at a sample of smaller players	Collect additional data if necessary
Talk to industry players and analysts to uncover new or emerging business models	Try to take at least 2 different views of pool-size — for example, company-level and product-level	If relevant company data are unavailable, use proxies, such as product-level or channel-level sales	Resolve all inconsistencies; don't ignore them

Don't disaggregate activities more than is necessary	Focus on the largest components — for example, large companies, high-volume products; extrapolate smaller components from a sample	Think creatively	
Output List of all value-chain activities in your profit pool, in sequential order	Estimate of total pool profits, usually expressed as a range	Point estimates of profits for each value-chain activity	Final estimates of activity and total pool profits

Source: *How to Map Your Industry's Profit Pool*

A Starting Point for Strategy: The shape of a profit pool is a function of the market and competitive forces that influence a particular industry. Companies can use their understanding of profit pools to decide on the right strategies which will help:

- Identify new sources of profit in industries faced with shrinking margins.
- Regulate M & A decisions.
- Identify profitable customer segments to target them.
- Influence decisions related to the 4 Ps: Product, Price, Promotion and Place.
- Identify new business models that improve profitability.

Mapping Profit Pools: Gadiesh and Gilbert suggest a 4-step process to map a profit pool: definition of its boundaries; calculation of its size; estimation of the importance of each value-generating activity in the pool; and review of the calculations.

THE 22 PROFIT MODELS

<i>Profit Model</i>	<i>Leading Practitioners</i>
1. Customer Solutions Profit	GE, USAA, Nordstrom, ABB, Nalco, H-P
2. Product Pyramid Profit	SMH, Mattel
3. Multi Component Profit	Coca-Cola, Mirage Resorts
4. Switchboard Profit	Schwab, USAA, Auto-by-Tel, CAA
5. Time Profit	Intel, Bankers Trust, Sony
6. Blockbuster Profit	Merck, Disney, NBC
7. Profit-Multiplier Model	Disney, Virgin, Honda
8. Entrepreneurial Profit	Thermo-Electron, ABB, 3M
9. Specialisation Profit	ABB, EDS, Wallance
10. Installed Base Profit	Microsoft, Otis Elevator, Gillette, GE
11. De Facto Standard Profit	Microsoft, Oracle
12. Brand Profit	Intel, Coca-Cola, Nike
13. Speciality Product Profit	Hercules, Merck, 3M, Great Lakes Chem.

14.	Local Leadership Profit	Starbuck's, Wal-Mart
15.	Transaction Scale Profit	Morgan Stanley, British Airways
16.	Value Chain Position Profit	Intel, Blockbuster Video, Republic Inds
17.	Cycle Profit	Toyato, Dow Chemical
18.	After-Sale profit	GE, Sofbank
19.	New Product Profit	Compaq, Chrysler
20.	Relative Marketshare Profit	Procter & Gamble, Phillip Morris
21.	Experience Curve Profit	Miliken, Emerson Electric
22.	Low-Cast Business Design profit	Nuco, Southeast Air, Dell

Source: *The Profit Zone*

Profit Planning

It has already been pointed out that profits do not just happen. They must be produced. When a management plans its profit performance, projects its plans to possible multiples of volume, and then realises its profit plans, it may be said to have achieved profit control. Profit planning is a part of an overall planning process in which finance plays a major role.

This activity is now an important responsibility of the finance manager. While activities of this sort require an accounting background, they also rest heavily upon the knowledge of the business principles, economics, statistics and mathematics. Hence, from a company's viewpoint, any effort to confine profit planning activities within the framework of accounting procedures would be detrimental to the long-range interests of the firm.

Profit planning represents an overall plan of operations, covers a definite period of time, and formulates the planning decisions of management. It consists of the operating budget, the financial budget and the appropriation budget. The operating budget covers revenues and expenses. Its crucial elements are the sales budget and the various expense budgets. The financial budget contains the budgets, the balance sheet and supporting schedules. The appropriation budgets cover expenditure on advertising and research. The preparation of a profit plan begins several months before the end of the current year. The chief executive has the ultimate responsibility of profit planning and control programmes.

Effective profit planning cannot be carried out in a casual manner. It should emerge from a rigorously disciplined examination of all aspects of business aspects and alternative strategies which may become indispensable.

Long-term profit-planning implies a sacrifice of today's profit for tomorrow's. The sacrifice made in the immediate profit is taken by the management as an investment in the future on the basis of the philosophy that a management makes the future of a business today. In certain industries in India, competition has already become very keen. The doctrine of the *survival of the fittest* implies that managerial dynamism must be developed to cope with problems not only today but also in the foreseeable future.

Take the situation in Great Britain, where the switchover from insulated conditions to keen competition in the early fifties was so sudden that a large number of enterprises were in the red before they could realise what was happening. It is very likely that such a situation may eventually develop in India in the near future. Long-term profitability ensures sustenance and dynamic growth of enterprise. A myopic view of the question is a good riddance before it is too late. In this respect, Indian enterprises still have a long way to go.

Long-range profit planning is a systematic and formalised process for purposefully directing and controlling future operations with a view to achieving the desired objectives for periods extending beyond one year. Forward planning is vital in a competitive profit-and-loss economic system. The success of each enterprise in realising its optimum profit is determined by the extent to which it attains its objectives, develops co-ordinated plans to realise them and exercises control of all its activity so as to reach and even exceed expected results. The entire process constitutes a budgetary planning-and-control programme. It includes income, costs, profits, working capital, fixed capital, fixed assets, financing, and dividend distribution. It extends throughout the entire organisation, from the chief executive to the front-line supervisory staff.

Steps in the Preparation of Profit Plan

1. A sales budget is prepared first. It represents the revenue side of the profit plan, and involves a consideration of sales quantities and revenue.
2. A production budget mentions the number of units of each product which should be manufactured. It represents the conversion of projected sales into projected production as a basis for planning.
3. Direct materials budget deals with the number of units of each kind of raw material.
4. Purchase budget determines the number of units to be purchased and the timing of the purchases.
5. Direct labour budget is prepared on the basis of standard labour hours and average wage rates.
6. Manufacturing expenses or overhead budget is prepared for each department.
7. Inventory budgets indicate the budgeted value of final inventories.
8. The budgeted cost of goods sold is estimated.
9. Distribution and administrative expense budgets are prepared together with the sales budget.
10. All the above data are consolidated into the budgeted income statement.
11. The capital additions budget indicates the planned capital extensions, repairs to be capitalised, building and machinery acquisitions and other permanent capital additions.
12. The budgeted balance sheet indicates the effects of planned operations on the assets, liabilities and capital of the company.
13. The profit plan is put into operation.

Strategy making and profit planning are complementary exercises. Implicit in profit planning is the need for presenting analysis and choosing alternative actions and activities, leading to the achievement of desired company goals. Profit planning is largely a routine exercise and covers a definite span of time. Corporate strategy is often an *ad hoc* exercise with minor time span disciplines. In profit planning, attention is concentrated on the operational performance of the company. Corporate strategy is largely concerned with the staff at the overall policy level.

Intuition, flair, inherent skill, *ad hoc* decision-making — these may still ensure the profitability of a company but the odds are increasingly stacked against organisations which operate in this way. Brian Walley states that because of the increasing importance of technology, the future holds a promise of fewer successes for pragmatic approaches. A profit plan should be flexible enough to allow for the containment of likely counter-strategies of the competitors. The overall profit plan and approximate strategies should be acceptable in terms of profit and risk.

Characteristics of Profit Planning and Control

1. *Probe into the Future:* Profit planning is an indicator of what the future holds for a company.

2. *Flexibility:* This activity calls for an attitude of flexibility and a capacity to adjust to changes. Plans should contain strategies to advance or retreat, as the situation demands. Any programme of profit planning and control should provide some margin for adjustments. A budget should not dominate business but should help it. It is meant for the business and not vice versa. No straight-jacket should be imposed on profit planning and control.

3. *Sensitivity:* This activity requires sensitivity to change. It should be of real value in maintaining a company's competitive condition and ensure an excellent profit performance.

4. *Excellent Direction and Control:* Profit planning requires both centralised and decentralised direction and control. A businessman will have to decide this for himself in the light of the peculiar conditions of his own business.

5. *Support:* In order to make it a success, a meaningful support of the top management should be available. The top management must be effectively sold on the ideas of profit planning and control. Without this support, profit planning is bound to be a flop.

6. *Organisation:* Profit planning should rest on a sound organisational structure and clear-cut lines of authority and responsibility. The authority of different executives and supervisors should be properly spelled out.

7. *Confidence:* Management should ensure that its policies, plans, objectives and standards are all realistic. It should be confident that all the individuals responsible for profit planning and control put their heart and soul into making a success of the organisation.

8. *Performance:* In profit planning, programmes should be so developed as to ensure that the expectations of performance are justified. Fiscal values are estimated

for various accounting classifications. It is necessary to supplement fiscal expectations with the standards of performance.

9. *Participation*: This refers to the involvement of everyone in the organisation to the fullest extent in developing plans and in carrying out related responsibilities. Even lower levels of management should react favourably to participation in the process of profit planning and control.

10. *Individual Recognition*: The accomplishment of outstanding as well as sub-standard performances should be individually identified and recognised. The system of evaluation should be fair, understandable and reasonably accurate.

11. *Responsibility Reporting*: In responsibility reporting, costs are planned and adjusted in accordance with organisational responsibilities, and communicated to and from the individuals responsible for their incurrence. There should be effective responsibility accounting in terms of assigned responsibilities. A chart of accounts should be set up in terms of areas of managerial responsibilities.

12. *Management by Exception*: Executives should devote their time to unusual items rather than be concerned with paltry, routine matters. To make this principle effective, profit planning and control system must be designed in such a way that exceptions stand out.

13. *Standards*: Profit planning and control presume a system of goals, objectives and standards. These are in fact benchmarks of profit planning and control.

14. *Effective Communication*: To encourage participation, it is necessary to have effective communication among the individuals who are expected to participate in the programme of profit planning and control.

15. *Timeliness*: There should be a definite time schedule for planning performance reports, control action and follow-up. In other words, there should be a planner.

16. *Realism*: This activity should be realistic. Plans should be capable of being translated into actual practice. In profit planning, the management should avoid undue conservatism and irrational optimism. A most practical approach should be made to any programme of profit planning and control. Its uses should be properly understood and its limitations correctly visualised. The programme should not be too optimistic or too pessimistic, but should itself be a golden mean. Moreover, too many things should not be padded into a programme of profit planning and control.

17. *Significance*: Profit planning and control should neither be too precise, nor should it contain too little information. Such facts should only be included as would be essential for both these activities.

18. *Cost Consciousness*: Cost consciousness is more an attitude than anything else. Advantage should be taken to stimulate people from top to bottom and obtain their co-operation in the campaign for controlling expenditure.

19. *Follow-up*: The quality of performance should be checked as soon as possible. Poor performance should be subjected to corrective action. Outstanding performance should be recognised and persons who are responsible for it should be adequately and properly rewarded.

20. *Education:* Supervisory personnel should be educated in the objectives, potentials, fundamentals and techniques of profit planning and control. All budget problems should be made known to them.

Advantages of Profit Maximisation

Profit maximisation has been considered to be the most important business objective for the following reasons:

1. It is rational to accept profit for a business enterprise.
2. It is difficult to survive without profit maximisation.
3. Even for the attainment of social and economic welfare, profit maximisation has to be achieved.
4. A business with a high level of profitability will generate a high level of funds, out of which it can provide for expansion, in addition to a substantial and increasing return to its shareholders.
5. In the absence of profit, business activity would remain static. A firm cannot afford to do this because:
 - (a) Price levels are not stable. Profits, therefore, have to be made to create additional resources.
 - (b) Investors in business would expect a positive return on their investment. Profits are essential for ensuring this return.
 - (c) It would not be possible to maintain the same level of activity because of the pressures for the expansion of business. The resources required for this purpose have to be provided through profits.

Limitations of Profit Maximisation

1. Profit is essential, but it would be wrong to assume that every action initiated by the Board of Directors is aimed at maximising profits, irrespective of its social consequences.
2. One of the difficulties in looking at the comparative profitability of a number of companies lies in their different standards of valuing business assets.

Conclusion

Profit motive is the prime mover of business activity. In fact, profitability is the most useful overall measure to the health of an enterprise. In other words, the profitability of an enterprise in any one year is the relationship between the profit made and the funds employed to earn the profit. Profitability analysis is a useful tool/technique to entrepreneurs to take right decisions in maximising profits and to bankers and financial institutions to arrive at the viability of the enterprise and its financial needs.

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SOCIAL COST-BENEFIT ANALYSIS

Introduction

The Indian economy has been undergoing major structural changes since 1991. Wide-ranging reforms have been introduced in all the major sectors such as industry, trade, taxes and finance. The goal of the liberalization drive has been the dismantling of bureaucratic controls and infusion of private enterprise and competition.

In this emerging scenario of globalization, the Indian industrial sector requires considerable upgradation in many areas, as price competitiveness and quality have become the basis for survival. In a resource-scarce economy like India's, a yardstick is necessary to gauge the appropriateness of investments, as globalization accelerates.

One such measure is the use of social cost-benefit indicators, viz., the Economic Rate of Return (ERR), the Effective Rate of Protection (ERP) and the Domestic Resource Cost (DRC). These indicators explain comparative advantage and can assist in deciding whether a product should be manufactured domestically or imported. This kind of analysis is more relevant for a developing country like India, where there are many distortions, like inflation and unemployment, in the system.

The Concept

The term "social costs" refers to all those harmful consequences and damages which the community on the whole sustains as a result of productive processes, and for which private entrepreneurs are not held responsible manifested. The definition of the concept is comprehensive enough to include even certain "social opportunity costs", avoidable wastes and social inefficiencies of various kinds. Implicit in such an appraisal is the assumption that the principal objective of investment decision-making is to maximise the net present value of monetary flow or some variant of it.

The social cost-benefit analysis is a tool for evaluating the value of money, particularly of public investments, in many economies. It aids in making decisions with respect to the various aspects of a project and the design programmes of closely interrelated projects. Cost benefit analysis has become important among economists and consultants in recent years.