Chapter-7
Summary and Conclusions
CHAPTER VII
SUMMARY AND CONCLUSIONS

The development of an economy is characterized by changes in the structure of the economy in general and that of industry in particular. Some sectors of the economy grow faster than others, so that over time, there are marked changes in their relative importance. Again, within individual sectors and industries, there are changes in the relative importance of firms. The causes of such changes are complex and include changes in the pattern of demand, the innovation and introduction of new products and processes and the differing opportunities for technical progress in individual industries, the growing importance of the economic functions of the government and the changing pattern of international competitiveness. A detailed examination of the process of changes requires a good deal of attention to be paid to the firm.

The structural changes in industry have also generated controversy on the goals and objectives of the firm as the traditional objective of the firm of profit maximization has been challenged. The new theories of the firm have tended to focus on the managerial, behavioural and organizational aspects of the firm.

The classical theory of the firm relied heavily on the notion that firms are small, owner-managed organizations operating in highly competitive markets whose demand functions are given and where only normal profits could be earned. If the firm did not, therefore maximize profits it would fail to survive. But, in industrial markets, the leading organizations at the present time tend to be very large in absolute terms when measured by capital employed, level of sales, profits and number of employees. Their share of individual markets is often substantial. Their growth has been facilitated by the acceptance of the principle of limited liability during the past century and
by the establishment of short and long-term financial institutions. This has resulted in the growth of giant companies characterized by divorce between ownership and control.

In all the modern theories of the firm-managerial, behavioural and organizational-the pursuit of its own growth is a major objective for a firm. In fact, in some recent discussions of the objectives of the firm, especially those emphasizing the implications of the separation between ownership and control or decision-making within the firm, the maximization of the growth rate subject to some constraints is considered to be the primary objective of the firm.

The private corporate sector in India has long been playing an important role in the industrial development of the country. During its growth from tiny start to multi-dimensional sector, it has passed through a varied environment—from the liberal outlook of 1950s to a package of restrictions, culminating in the promulgation of the Monopolies and Restrictive Trade Practice Act, 1969 and other controls in the 1970s. The corporate firms have been able to register tremendous growth, the environment of controls not withstanding. The impact of the liberalisation, privatisation and globalisation of the 1990's on the expansion of this sector need not be over emphasized.

Considerable interest has been shown in various quarters in the past regarding the extent of growth of larger companies in terms of the increase in fixed assets, sales and profits. This study is only confined to the growth in net fixed assets. In view of the above discussion, it becomes important to know the factors responsible for growth of fixed assets and plant & machinery separately. In this context, the present study has the following specific objectives.
1. To analyse the investment pattern in Gross Fixed Assets of some selected companies in the corporate sector in India.

2. To analyse the investment pattern in Plant & Machinery separately in the above companies of Indian corporate sector.

3. To analyse the determinants of investment in Gross Fixed assets i.e., Gross Block and Plant & Machinery in some Indian industries.

4. To analyse the best models which determine the investment behaviour in fixed assets through Stepwise Multiple Regression Analysis and

5. To find out the extent of the presence of the econometric problems in the study.

The selection of the sample industries for the purpose of this study has been done on a more purposive basis. All the firms that belong to different industry groups as per the Official Directory of Bombay Stock Exchange, which appeared to have been making profits, have been listed out initially. Firms which satisfied the criteria specified (hereunder) for inclusion in the sample of the study exceeded 150 in number, a large number in fact, taking into consideration the magnitude of the required data to be collected over as many as 8 selected variables for a period of 10 years; the number of regression equations to be estimated et cetera.

As such, only those industries which were considered to be modern, highly relevant to the present day society, growth-oriented and profit yielding as (i) Chemicals, (ii) General Engineering, (iii) Electrical Equipment & Cables, (iv) Metals, Alloys, Cable Products and Structural, (v) Sugar & Breweries, (vi) Aluminium, (vii) Coal Mining, (viii) Electric Power were chosen purposively to restrict the size of the sample to a more manageable
limit eliminating the traditional industries like Cotton Textiles, Jute textiles et cetera.

The selection criteria of the companies for inclusion in the sample of the study have been that

a) Companies must have been incorporated in or before 1975, i.e., 15 years before the period for which analysis has been started here so that a minimum period of atleast 15 years must have been elapsed for them to establish themselves and invest in fixed assets;

b) Companies must have had a paid-up capital of more than Rs 10 lakhs in 1975 so that only medium and large companies as per the classification of the Reserve Bank of India are included in the sample; and

c) Companies must be continuously profit-making companies in all 10 years (which is the study period here) so as to ensure that only companies which receive profits on consistent basis are included.

Based upon the above selection criteria a total of 74 firms mentioned hereunder against the industry groups to which they belong, constitute the size of the sample for the purpose of this research investigation.

1. Chemicals-20,
2. General Engineering-17,
3. Electrical Equipment & Cables-14,
4. Metals, Alloys, Metal Products & Structuralss-6,
5. Sugar & Breweries-6,
6. Aluminium-3,
7. Coal Mining-3,
The data on the fixed investment behaviour of sample companies has been collected from various issues of the Bombay Stock Exchange Official Directory. The aggregate of the data belonging to the sample units in each industry constitutes the data for the study of industry behaviour.

The present study covers a period of 10 years from 1990 to 1999. The present study is mainly based on three models of Multiple Regression Analysis. These three models have been tested in the case of each company. They are:


The above three models have been tested in each case with the intercept term. Thus altogether 15+ equations are estimated in the case of each of the 74 sample firms and 8 industry aggregates. The total number of Regression Equations estimated in the study are 3,068.

Multiple Linear Regression Analysis is used to estimate the value of the intercept term and the regression coefficients of the explanatory variables in the regression equations. Out of the 15+ equations estimated in each case, only one equation is selected as the best model to describe the fixed investment behaviour of the company or industry. The procedure adopted for selecting the best model in each case involved the following steps:

a) To find out whether the model as a whole is able to explain the fixed investment behaviour, the Multiple Correlation Coefficient adjusted for degrees of freedom \( R \) of each model is tested at 5% and 10% level using the calculated 'F' values. Thus the models with significant 'R' values are picked up for further analysis.

b) The intercept term and the individual regression coefficients are tested for their significance using their calculated 't' values.
c) If, out of the 15+ estimated equations, only one equation is found in which the Multiple Correlation Coefficient \( R \), and all the individual regression coefficients are significantly found effective, that model is taken as the best model to describe the fixed investment behaviour of that company or industry.

d) If there are two or more equations in which \( R \) and all regression coefficients are found with significant effect, the model with the highest value of the Multiple Correlation Coefficient is selected as the best model to describe the fixed investment behaviour of the company or industry.

The presence of the econometric problems, namely multicollinearity, autocorrelation and heteroscedasticity, which arise when some of the basic assumptions of the Multiple Linear Regression Analysis are violated, is tested in the case of best models and it is found that their presence is very negligible in the present study.

This study has certain limitations in the sense that the accounting year of the sample companies is not uniform, the data is taken in absolute values without using any price deflator; and the study does not aim at recommending any policy measures either to companies or to the government because it is only exploratory in character.

The Summary of the analysis is presented in the tables and the following conclusions are drawn.

1. As an explanation of the behaviour of investment in total fixed assets & plant and machinery separately, the elimination model performed well.
2. The results of this analysis suggest that gross internal funds (retained earnings + depreciation) are more important for the fixed investment in almost all the industries in the present study.

3. Change in sales (growth in sales), stock of net liquidity, debt outstanding dividends are also significant determinants of fixed investment.

4. Growth of equity capital is significant determinant in Electrical Equipment & Cables Industry.

5. Provision for taxes is significant factor in Metals, Alloys, Metals, Products & Structurals and Electric Power industries.

6. Interest on borrowed funds is significant determinant in Metals, Alloys, Metal Products & Structurals and Sugar & Breweries industries.

7. In the present study the econometric problems are not found except in a few cases.

8. The study reveals that demand considerations in the long-run are of some importance in the entrepreneurial fixed investment decisions. Financial considerations seem to dominate over demand factors in fixed investment decisions.

9. The implication of the results of the present study is that profitability is an important consideration in entrepreneurial investment decisions. Profits influence dividend policies and hence retained earnings. Retained earnings in turn influence investment. Profits influence dividends and dividends influence the flow of external finance. External finance in turn exerts its influence on investment. Thus profits both directly and indirectly influence
investment, directly through retained earnings and indirectly through external finance.

10. As retained earnings is an important factor in the determination of investment, it is important to see that higher profitability is not dissipated through dividend disbursals. As self-financing is non-inflationary, it may be desirable to encourage asset expansion through internal savings rather than through borrowings.