Chapter VII

Summary of Findings
And Conclusion
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SUMMARY OF FINDINGS AND CONCLUSION

7.1 Introduction
7.2 Objectives of the Study
7.3 Period of Study
7.4 Data and Sources of Data
7.5 Methodology
7.6 Summary of findings
7.7 Policy Implications
7.8 Scope for Further Research
7.9 Conclusion
CHAPTER VII
SUMMARY OF FINDINGS AND CONCLUSION

7.1 INTRODUCTION

The financing decision is an intricate and highly complex process and it requires choices of sources of finance to be made with great care. Firms choose their financing mode with cost and risk in mind, but can be influenced by control and disclosure considerations as well. Given the market conditions and preference of owners, firms are likely to choose a capital structure i.e., debt - equity mix, that best serves their interest. There has been an inconclusive debate on the issue of the association between financing decision and the firm's valuation. The existing theories and the empirical studies conducted so far provide contrasting results. The theories suggest that firms select capital structures, depending on characteristics that determine various costs and benefits associated with debt and equity financing. Empirical work in this area has lagged behind the theoretical work, as the relevant firm characteristics are expressed in fairly abstract concepts and are rarely directly observable. Moreover, the theories that have been made in the developed countries, need to be tested for their adaptability in countries like India, for the firms are facing different environments.

Besides, the trade and financial liberalisation introduced in India since 1991 has an impact on the financing pattern of corporate units. A need at the present juncture is, therefore, felt to study the impact of such changes on the composition of capital structure of large public limited companies of select industries and the consequent change in the financial leverage of corporate entities. It is true that a number of research studies have already been conducted on Indian corporate financing and capital structure; no continuous effort has been made to examine the changes that might have occurred in the capital structure of Indian corporate units, especially the large ones, due to
changes in the financial market and changes in the government policy on account of economic liberalisation. The present study provides adequate insight into the trend and composition of capital structure, the extent of financial leverage and the financial risk faced by the large public limited companies in India.

7.2 OBJECTIVES OF THE STUDY

The present study titled, "Determinants of Financial Leverage in the Select Indian Private Corporate Sector – An Inter - Industry Analysis" has been taken up with the following objectives:

1. To analyse the debt - equity structure of large private manufacturing firms in the select industries.
2. To study the extent of financial leverage and the resultant financial risk of the corporates.
3. To identify the factors determining corporate debt.
4. To study the impact of debt - equity choice on return on equity and market price of the shares.

7.3 PERIOD OF STUDY

The study covered a period of 11 years from 1991 - 92 to 2001 - 02 – the post - liberalisation era of the Indian economy. Selection of this 11 - year period was not based on any specific purpose such as to include specific episodes or exclude others, but on the availability of relevant data.

7.4 DATA AND SOURCES OF DATA

The study was based on secondary data. The financial data needed for the study were collected from the Official Directory of the Bombay Stock Exchange and Capital Line 2000 – Corporate Database of the Capital market. The sample was drawn from the companies listed on the Bombay Stock Exchange; only quoted public limited companies were considered for the study. The sample companies had been drawn from twelve different major
industries which included automobile, food and beverages, cement, chemical and fertilizer, electrical and electronics, diversified sector, engineering, paint, paper, pharmaceutical, steel and textile industry. The following parameters were used to identify the sample.

1. Companies with current year (2001 - 02) turnover of more than or equal Rs.100 crores.
2. Companies which are non-financial
3. Companies having positive networth as on 31st March 2002.
4. Companies having continuous data for the past 11 years from 1991 - 92 to 2001 - 02. A sample of 271 companies satisfying all the above criteria was selected for the study.

7.5 METHODOLOGY

The methodology adopted included the following:

The debt-equity structure of industries was analysed using multiperiod variables, on the basis of data from each year in the 11-year time span. Summary statistics – mean, standard deviation, coefficient of variations, measures of skewness and kurtosis were used to study the variations in debt-equity structure of each industry. Analysis of variance (Anova) was applied to study the inter-industry variations if any, in the debt-equity structure of the industries.

Leverage ratios, ratios of profitability and institutional variables used in this study – effective tax rate, non-debt tax shield, corporate size, business risk, growth rate, earnings rate, dividend payout ratio, interest coverage ratio, capital intensity, collateral value of assets, were calculated on the basis of the average values of the 11-year period. Karl Pearsons coefficient of correlation analysis and multiple regression analysis (step reduction method) were used to study the degree of association between various institutional variables determining corporate debt ratio. The impact of debt on return on
equity and market price of the shares was also studied using multiple regression analysis (step reduction method).

7.6 SUMMARY OF FINDINGS

The findings of the study were summarised in the order of the objectives.

I. The debt - equity structure of the select industries of the Indian private corporate sector was analysed using descriptive statistics representing mean, standard deviation, co-efficient of variation, skewness $\beta_1$ and Kurtosis $\beta_2$. The following were the key findings:

- The era of post - liberalisation, which happens to be the period of study i.e., 1991 - 92 to 2001 - 02, had been witnessing the Indian industry moving towards lower debt - equity ratio in tune with the developed nations. The average debt - equity ratio of the industries selected for the study, stood at 1.194 : 1 during the period under review. The food and beverages industry had the lowest average debt - equity ratio of 0.577 : 1, while the textile industry had the average debt - equity ratio of the highest order of 2.667 : 1.

- The empirical results highlight the fact that the capital structure differs on the basis of the nature of industry and products produced (vide Table 3.1). While chemical and fertilizer industry, diversified sector, paper industry, paint industry, steel industry and textile industry had debt dominated capital structure, food and beverages industry, pharmaceutical industry, electrical and electronics industry, cement industry and automobile industry had equity oriented capital structure.

- The contribution of share capital to total funds stood, on an average at 8.08 per cent and reserves and surplus at 44.79 per cent, thus making the total equity contributions to total funds at 52.87 per cent during the period of study.
Though the overall debt-equity ratio had declined, the debt capital still occupied a dominant place in the capital structure of the companies. The contribution of debt (both long-term and short-term) to the total funds stood at an average of 47.13 per cent during the period of study.

The contribution of debenture capital to total funds was at 8.24 per cent, followed by term loans from banks and financial institutions at 14.36 per cent, other secured long-term loans at 2.23 per cent, making the total long-term debt at 24.83 per cent. The short-term loans accounted for 22.30 per cent, of which secured loans were at 9.69 per cent and unsecured loans were at 12.61 per cent during the period of study. The variations in the use of short-term debt was very minimal among the industries during the period of study.

The ratio of share capital to total funds ranged from 5.00 per cent to 11.00 per cent during the study period across the select industries. Diversified sector and automobile industry accounted for a lower share of 5.17 per cent and 6.10 per cent respectively, while chemical and fertilizer industry and electrical and electronic industry had higher share of 10.81 per cent and 10.38 per cent respectively. The measure of skewness $\beta_1$ indicated that all the industries were positively skewed. The measure of Kurtosis $\beta_2$ was higher ($\beta_2 > 3$) in 10 industries, diversified sector, automobile industry, cement industry, chemical and fertilizer industry, electrical and electronics industry, food and beverages industry, paper industry, pharmaceutical industry, steel industry and textile industry - reflecting the similarity among the select companies regarding their dependence on share capital.

The contribution of reserves and surplus to the total funds was quite substantial in all industries except steel, cement and chemical and fertilizer industry. The ratio of reserves and surplus to total funds varied from 20.00 per cent to 62.00 per cent across the industries during the period of study. Steel industry accounted for the lowest share of 20.72 per cent and food industry had stood first among the industries
having the highest share of 62.73 per cent, followed by pharmaceutical industry, with 61.27 per cent and paint industry, with 53.40 per cent. The measure of skewness $\beta_1$ revealed that all the industries were positively skewed. Higher $\beta_2$ values ($\beta_2 > 3$) in 11 industries - diversified sector, automobile industry, cement industry, chemical and fertilizer industry, electrical and electronic industry, engineering industry, food and beverages industry, paper industry, pharmaceutical industry, steel industry and textile industry imply similarity among the majority of firms in these industries regarding their dependence on reserves and surplus as a major source of funds.

The period of post-liberalization had witnessed debenture capital losing its attraction as a source of debt capital. The contribution was at the lowest (3.41 per cent) in electrical and electronics industry and at the highest (13.87 per cent) in diversified sector. The skewness $\beta_1$ of all industries was positive and all the select 12 industries had $\beta_2 > 3$, reflecting similarity in their policy on the use of debentures as a source of fund.

Industries which were debt prone - cement, chemical, fertilizer, paper, steel and textile - depended more on borrowing from financial institutions and banks rather than debentures. The food industry had the lowest share of 4.00 per cent and the steel industry accounted for the highest share of term loans to total funds at 24.12 per cent. The values of $\beta_1$ revealed that all the select industries were positively skewed. Higher $\beta_2$ values ($\beta_2 > 3$) could be noticed in 11 industries, to the exclusion of paint industry.

The share of other secured loans (long-term) to total funds was found to be very negligible in all the industries except in steel industry which alone accounted for 6.52 per cent.

Short-term loans - both secured and unsecured, together accounted for 22.30 per cent of the total funds during the period of study. All the industries were positively skewed and higher $\beta_2$ values were
obtained by all the industries in respect of short-term secured loans and 11 industries in respect of short-term unsecured loans.

Food industry, pharmaceutical industry, paint industry, automobile industry and electrical and electronics industry seem to have a preference for short-term loan rather than long-term loan.

An analysis of variance revealed that there existed a significant difference in respect of average debt-equity structure, between the select industries of Indian private corporate sector. In other words, the variations in the average debt-equity ratio of all the select industries — automobile, cement, chemical and fertilizer, diversified sector, electrical and electronics, engineering, food and beverages, paint, paper, pharmaceutical, steel and textile — were found to be statistically significant, as 'P' value at 0.005 was significant. ('P' value ≤ 0.05 is significant). This phenomenon had been found to be true in the case of share capital, total debt, long-term debt, short-term debt, debenture, loans from financial institutions, other secured long-term loans and short-term secured loans. The reason behind this difference was obviously due to the differences in the nature of the industries, the financing policies of their management and investment opportunities that they might have had.

On the other hand, it could be noted that the difference between all the select industries was insignificant (as 'P' value was more than 0.05) in respect of reserves and surpluses and short-term unsecured loans.

II. The extent of financial leverage and risk prevalent in the select industries was studied using leverage ratios. The measures of leverage and risk considered for the study included the ratio of total debt to total capital, ratio of total debt to net assets, ratio of total debt to total capital, ratio of long-term debt to total assets, debt-equity ratio, interest coverage ratio and degree of financial leverage.
The ratio of total debt to total assets had varied from 24.00 per cent to 52.20 per cent. It was at the lowest in food industry (24.00 per cent) and pharmaceutical industry (26.70 per cent). On the other hand, cement industry (52.20 per cent), steel industry (46.50 per cent) and electrical and electronics industry (46.00 per cent) were at high leverage. The average ratio on an aggregate had stood at 37.80 per cent over the period of study.

Moving to the ratio of total debt to net assets, food industry and pharmaceutical industry had a lower ratio of 30.00 per cent and 34.20 per cent respectively, whereas, the cement industry (78.40 per cent) and electrical and electronics industry (71.50 per cent) were on a higher leverage in terms of ratio of total debt to net assets. The inter - industry average ratio of total debt to net assets was at 50.40 per cent over the period of study.

The ratio of total debt to total capital ranged from 30.10 percent to 80.00 per cent. It was at the lowest, again, in food industry (30.10 per cent), followed by pharmaceutical industry (36.30 per cent) and engineering industry (39.40 per cent). The ratio was at the highest, again, in cement industry (80.00 per cent), followed by electronics industry (74.20 per cent), steel industry (58.20 per cent), textiles (51.10 per cent) and chemical industry (51.80 per cent). The average ratio of total debt to total capital for the period of study was 51.00 per cent.

In terms of the ratio of long - term debt to total assets, pharmaceutical industry was at the lowest of 9.10 per cent, followed by paint industry with 9.50 per cent and food and beverages industry with 10.60 per cent. Higher levels of leverage in terms of this ratio was noticed in cement industry with 35.20 per cent, steel industry with 28.70 per cent and paper industry with 23.40 per cent. The inter - industry average was at 18.90 per cent over the period of study.
The debt-equity ratio had oscillated between 0.58:1 to 2.67:1. Lower debt-equity ratio prevailed in food and beverages industry (0.58:1), pharmaceutical industry (0.704:1) and engineering industry (0.89:1) and higher debt-equity ratio (exceeding one) could be noticed in textile industry (2.67:1), steel industry (2.06:1) and paint industry (1.72:1). The inter-industry average was at 1.26:1 over the period of study.

The interest coverage ratio, a measure of financial risk, reflecting debt servicing ability, moved between 2.05 times to 19.13 times. The industries which were comfortable at high ratios included pharmaceutical with 19.13 times, automobile with 12.93 times and diversified sector with 11.19 times. An alarming low coverage ratio could be noticed in debt-prone industries which included paper with 2.05 times, steel with 2.08 times, textiles with 2.23 times and cement with 2.71 times. The inter-industry average ratio rested at 6.83 times.

The degree of financial leverage had varied between 1.33 times to 3.47 times across the industries, over the period of study. Low degree of financial leverage was experienced in paper industry (1.325 times), pharmaceutical industry (163 times) and diversified sector (1.98 times). Industries experiencing high degree of financial leverage included paint (3.47 times), steel (3.27 times), textiles (3.08 times) and food (3.01 times). The inter-industry average was at 2.37 times.

The food and beverages industry had presented a picture different from all other industries. The extent of financial leverage, as noticed from the various leverage ratios, was lower in food industry than in all other industries. Still, the industry had experienced financial risk as revealed by its average degree of financial leverage (3 times). This supports the optimal capital structure theory which states that too much of debt or too little debt are both bad for corporate health.

III. The determinants of corporate debt of the select industries were analysed using correlation analysis and multiple regression
(step reduction method) analysis. The key findings were presented industry-wise.

a. Automobile Industry

The regression results (Table 5.3 (v)) of the automobile industry indicate that in category - I of the automobile industry, non-debt tax shield (45.50 per cent), corporate size (39.00 per cent) and effective tax rate (15.50 per cent) had significantly determined the debt ratio. In category – II, of the automobile industry interest coverage ratio (28.70 per cent) and effective tax rate (26.40 per cent) were significant in determining the debt ratio. Other significant factors included business risk (14.60 per cent), earnings rate (13.50 per cent) and dividend payout ratio (13.40 per cent). Both interest coverage ratio and earnings rate were negatively correlated to the debt ratio. Category - II of the automobile industry had met their financial requirements more through their internal resources than depending on debt.

In the case of category - III and the automobile industry as a whole, non-debt tax shield determined the debt ratio to the tune of 96.10 per cent and 96.50 per cent respectively and it was also significantly correlated with debt ratio in both the cases. Again the debt ratio was significantly correlated with earnings rate and collateral value of assets.

This goes with the classical financial theory which suggests that large profitable firms tend issue less equity and prefer higher debt levels. The automobile industry had taken advantage of the falling interest rates, especially during in the later part of the study period.

In sum, non-debt tax shield was the most significant factor to determine the debt level in automobile industry followed by corporate size and interest coverage ratio.
b. Cement Industry

Looking at the regression results (Table 5.4 (v)), it could be understood that effective tax rate (94.40 per cent) significantly decided the debt ratio in category - I of the cement industry. Effective tax rate (56.20 per cent) and non - debt tax shield (33.70 per cent) had significantly determined the debt ratio in category - II of the cement industry. The non - debt tax shield was also positively correlated with debt ratio, implying greater borrowing power of the firms. In category - III, earnings rate (32.70 per cent), effective tax rate (31.60 per cent) and growth rate (16.10 per cent) were significant in determining the debt ratio. The earnings rate and effective tax rate were negatively related to the debt ratio. Capital intensity (24.90 per cent), effective tax rate (23.60 per cent) and business risk (13.50 per cent) were the significant factors in determining the debt ratio of the cement industry as a whole. While the effective tax rate and business risk were negatively correlated with the debt ratio, the capital intensity was significantly correlated with the debt ratio.

This implies that debt was still a source of external finance for the cement industry as a whole, though very large firms had met their financial requirements from own sources and were trying to reduce their dependence on debt due to business risk and financial risk. *In sum, the tax factors, earnings rate, capital intensity growth rate and business risk were significant determinants of financial leverage in cement industry.*

c. Chemical and Fertilizer Industry

The regression results (Table 5.5 (v)) highlights the fact in category - I of the chemical and fertilizer industry, the effective tax rate (100 per cent) was the sole determinant of the debt ratio. In category - II, non - debt tax shield (78.00 per cent) and corporate size (21.40 per cent) were the significant determinants of the debt ratio. In category - III and the chemical and fertilizer industry as a whole, it was the effective tax rate significantly determining the
debt ratio to the extent of 38.10 per cent and 38.60 per cent respectively. Further, the effective tax rate was negatively correlated with the debt ratio in both category - III and chemical and fertilizer industry as a whole.

**On the whole, the tax factors namely, effective tax rate and non-debt tax shield exert significant influence on the debt levels of the chemical and fertilizer industry.**

d. Diversified Sector

The results of the multiple regression analysis (Table 5.6 (iv)) of the diversified sector point out that in category - II of the diversified sector, the effective tax rate (100 per cent) was the sole determinant of the debt ratio. In category - III, business risk (17.00 per cent), interest coverage ratio (11.90 per cent) and collateral value of assets (10.50 per cent) were the significant determinants of the debt ratio. In the case of diversified sector as a whole, business risk (17.40 per cent), interest coverage ratio (11.50 per cent) and collateral value of assets (10.00 per cent) were the significant determinants of the debt ratio. Both the variables - business risk and interest coverage ratio were negatively correlated with the debt ratio of category - III and diversified sector as a whole. This highlights the fact the diversified sector, which was prone to more risks, preferred less debt in the capital structure.

In sum, the variables - business risk and interest coverage ratio were the significant determinants of the debt ratio of the diversified sector.

e. Electrical and Electronics Industry

The results of the multiple regression analysis (Table 5.8 (v)) of the electrical and electronics industry discloses that in category - I of the electrical and electronics industry, non-debt tax shield (57.20 per cent) and effective tax rate (42.80 per cent) were the significant determinants of the debt ratio. Whereas in category - II, non-debt tax shield (80.90 per cent) and business
risk (11.90 per cent) were the significant determinants of the debt ratio. Again, in category - III, the effective tax rate (65.10 per cent), business risk (12.60 per cent) and non-debt tax shield (10.50 per cent) were the significant determinants of the debt ratio. The other significant factor was interest coverage ratio (4.50 per cent). While the effective tax rate and interest coverage ratio were negatively correlated with the debt ratio, the non-debt tax shield was positively correlated with the debt ratio of the category - III. It could be inferred from these that tax factors play a modest role in capital structure decision. The large firms in the electrical and electronics industry, which were at lower effective tax rate due to financial distress, did not wish to increase their financial risk with a higher debt ratio. But the positive correlation between debt ratio and non-debt tax shield implies greater borrowing power of the firms in category - III of the electrical and electronics industry.

Effective tax rate (22.70 per cent), business risk (20.10 per cent) and capital intensity (14.10 per cent) were the significant determinants of the debt ratio of the electrical and electronics industry as a whole. The effective tax rate and business risk were negatively correlated with the debt ratio. This implies that the electrical and electronics industry, which is high growth oriented, risk prone and at lower effective tax rates, did not wish to increase its financial risk with a higher debt ratio.

On the whole, tax factors and business risk were the most significant factors influencing debt ratio of the electrical and electronics industry compelling it to move towards lower debt levels.

f. Engineering Industry

The regression results (Table 5.7 (v)) discloses that in category - I of the engineering industry, business risk (50.50 per cent) and non-debt tax shield (35.70 per cent) were the significant determinants of the debt ratio. In category - II, effective tax rate (58.90 per cent) and non-debt tax shield
(41.10 per cent) were significant factors to determine the debt ratio of the firms.

In category - III of the engineering industry, corporate size (37.60 per cent), effective tax rate (36.40 per cent) and interest coverage ratio (12.80 per cent) were the significant determinants of debt ratio. While the effective tax rate and interest coverage ratio were negatively correlated with the debt ratio, the corporate size was positively correlated with the debt ratio. It could be generalised from this that larger firms in the engineering industry had depended both on borrowed funds as well as retained earnings to a great extent. Besides, it also highlights the fact the firms which were prone to more risk had lesser debt in their capital structure.

For the engineering industry as a whole, interest coverage ratio (34.60 per cent) and effective tax rate (22.60 per cent) were the significant determinants of debt ratio of the firm. Both the variables – interest coverage ratio and effective tax rate were negatively correlated with the debt ratio of the engineering industry as a whole, indicating the fact the firms in the engineering industry had preferred lesser debt in their capital structure.

g. Food and Beverages Industry

The results of multiple regression analysis (Table 5.9 (v)) of the food and beverages industry depicts that in category - I of the food and beverages industry, effective tax rate (100 per cent) was the sole determinant of the debt ratio. In category - II of the food and beverages industry, the corporate size (54.30 per cent) and effective tax rate (41.40 per cent) had significantly determined the debt ratio. It is noted that the corporate size had a very significant negative relationship with the debt ratio.

In category - III of the food and beverages industry, the corporate size (45.70 per cent) and interest coverage ratio (14.30 per cent) had significantly determined the debt ratio. Again, the variables – corporate size
(45.10 per cent) and interest coverage ratio (18.40 per cent) had significantly determined the debt ratio of the food and beverages industry as a whole.

The corporate size, effective tax rate and interest coverage ratio were negatively correlated with the debt ratio of food and beverages industry reflecting the industry's preference for lower debt to avoid financial risk. The firms in food and beverages industry having higher future growth potential had used less debt.

**Corporate size, effective tax rate and interest coverage ratio are the significant determinants of debt in food and beverages industry.**

h. **Paint Industry**

The regression results (Table 5.10 (v)) of the paint industry point out that in category - III of the paint industry, non - debt tax shield (74.40 per cent) and effective tax rate (23.20 per cent) were significant determinants of the debt ratio. The variable non - debt tax shield had a high significant but negative correlation with the debt ratio.

In the paint industry as a whole, effective tax rate (92.80 per cent) significantly determined the debt ratio and the other factor was non - debt tax shield (4.60 per cent). Both the variables were negatively correlated with the debt ratio of the food and beverages industry.

**The tax factors - effective tax rate and non - debt tax shield - are the determinants of debt policy of the firms in paint industry which moved towards lower debt in its capital structure.**

i. **Paper Industry**

A close look at the regression results (Table 5.11 (iv)) of the paper industry reveals that in category - II of the paper industry, business risk (81.60 per cent) had significantly determined the debt ratio. Other significant factors are effective tax rate (8.10 per cent) and non - debt tax shield
(8.00 per cent). In category - III of the paper industry, business risk (54.20 per cent), growth rate (20.60 per cent) and non - debt tax shield (16.70 per cent) significantly determined the debt ratio.

Growth rate (45.20 per cent), capital intensity (11.90 per cent), corporate size (10.60 per cent) and business risk (10.10 per cent) were the significant determinants of the debt ratio of the paper industry as a whole. Further, the growth rate was significantly but negatively correlated with the debt ratio. It implies that the larger firms in paper industry with high future growth potentials use less debt, thus, supporting contracting cost theory.

**On the whole, business risk, growth rate, non - debt tax shield, capital intensity and corporate size are significant factors in determining the debt ratio of the paper industry.**

### j. Pharmaceutical Industry

The regression results (Table 5.12 (v)) of the pharmaceutical industry reveal that in category - I of pharmaceutical industry, the effective tax rate (100 per cent) is the sole determinant of the debt ratio. In category - II, corporate size (30.60 per cent), earnings rate (24.00 per cent), non - debt tax shield (21.20 per cent) and effective tax rate (18.80 per cent) were significant in determining the debt ratio of the firm. It was noted that the earnings rate was significantly but negatively correlated with the debt ratio.

In category - III, effective tax rate (53.80 per cent) and earnings rate (25.70 per cent) had significantly determined the debt ratio. Other significant factor was interest coverage ratio (11.30 per cent). Besides the effective tax rate and earnings rate were negatively correlated with the debt ratio whereas interest coverage ratio was positively correlated with the debt ratio of category - III. It could be generalised from these that the firms in category - III of pharmaceutical industry had financed their growth and expansion by depending more on internal sources than on debt.
The significant determinants of debt ratio of the pharmaceutical industry as a whole included effective tax rate (37.80 per cent), earnings rate (18.80 per cent) and corporate size (16.10 per cent). The effective tax rate had significant but negative correlation with the debt ratio.

**In sum, the tax factors – effective tax rate and non-debt tax shield, earnings rate and corporate size were the most significant determinants of debt policy of the pharmaceutical industry. The high growth oriented pharmaceutical industry is tilted move towards retained earnings than on borrowed funds owing to lower effective tax rate and business risk.**

**k. Steel Industry**

The regression results (Table 5.13 (iv)) of the steel industry reveals that in category - II, the effective tax rate (100 per cent) was the sole determinants of debt ratio of the firms. In category - III of the steel industry, business risk (21.40 per cent) and effective tax rate (20.40 per cent) were significant factors determining the debt ratio. Other significant factors were corporate size (17.70 per cent) and non-debt tax shield (14.40 per cent). The variable business risk had a significant but negative correlation with the debt ratio of category - III.

In steel industry (all select firms), corporate size (22.00 per cent) and business risk (21.70 per cent) significantly determine the debt ratio of the steel industry. The tax factors – effective tax rate (14.10 per cent) and non-debt tax shield (11.80 per cent) were the other significant factors in determining the debt ratio of the steel industry. The variable business risk had a significant but negative correlation with the debt ratio of the steel industry.

**On the whole, the variables – business risk, corporate size, effective tax rate and non-debt tax shield were significant determinants of debt ratio in steel industry.** The steel industry which is highly capital intensive had financed its growth and expansion through debt.
But the volatility in its operating profits (measured in terms of business risk) had cautioned the industry in depending further on debt.

I. Textile Industry

The results of multiple regression analysis of the textile industry (Table 5.14 (v)) reveal that in category - I, effective tax rate (93.90 per cent) significantly determines the debt ratio of the firms. Other significant factor was non - debt tax shield (6.00 per cent). It is noted that the effective tax rate had a significant positive correlation with the debt ratio. This implies that the firms in category - I of the textile industry were still debt prone. They relied more on debt to finance their growth and expansion and to avail themselves of higher tax shield on interest.

In category - II of the textile industry, non - debt tax shield (74.30 per cent) and corporate size (22.10 per cent) had significantly determined the debt ratio. In category - III, effective tax rate (37.80 per cent) and earnings rate (19.20 per cent) had significantly determined the debt ratio. Further effective tax rate was negatively correlated with debt ratio. The larger firms were trying to reduce their debt levels due to more risk.

In textile industry (all select firms) effective tax rate (16.40 per cent) earnings rate (15.50 per cent) and business risk (11.80 per cent) had significantly determined the debt ratio. Other factors determining the debt ratio included growth rate (5.10 per cent) and collateral value of assets (5.00 per cent). It is noted that variables - effective tax rate and business risk had a significant but negative correlation with the debt ratio. This indicates that the textile industry's dependence on debt for financing its expansion was on the decline.

In sum, the textile industry which was highly debt oriented earlier, is gradually reducing debt in its capital structure. Effective tax rate, non - debt tax shield, earnings rate, corporate size and business risk are the determinants of debt in textile industry.
TABLE 7.1
DETERMINANTS OF THE CORPORATE DEBT OF THE SELECT INDUSTRIES DURING 1991-92 TO 2001-02

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Industries</th>
<th>Select institution variables</th>
<th>Industry (as a whole)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Automobile</td>
<td>ETR, NDTS and CS</td>
<td>ICR, ETR, BR, ER and DPR</td>
</tr>
<tr>
<td>2.</td>
<td>Cement</td>
<td>ETR</td>
<td>ETR and NDTS</td>
</tr>
<tr>
<td>3.</td>
<td>Chemical and Fertilizer</td>
<td>ETR</td>
<td>NDTS and SIZE</td>
</tr>
<tr>
<td>4.</td>
<td>Diversified Sector</td>
<td>-</td>
<td>ETR</td>
</tr>
<tr>
<td>5.</td>
<td>Engineering</td>
<td>BR and NDTS</td>
<td>ETR and NDTS</td>
</tr>
<tr>
<td>6.</td>
<td>Electrical and Electronics</td>
<td>NDTS and ETR</td>
<td>NDTS and BR</td>
</tr>
<tr>
<td>7.</td>
<td>Food and Beverages</td>
<td>ETR</td>
<td>SIZE and ETR</td>
</tr>
<tr>
<td>8.</td>
<td>Paint</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9.</td>
<td>Paper</td>
<td>-</td>
<td>BR, ETR and NDTS</td>
</tr>
<tr>
<td>10.</td>
<td>Pharmaceutical</td>
<td>ETR</td>
<td>SIZE, ER, NDTS and ETR</td>
</tr>
<tr>
<td>11.</td>
<td>Steel</td>
<td>-</td>
<td>ETR</td>
</tr>
<tr>
<td>12.</td>
<td>Textile</td>
<td>ETR and NDTS</td>
<td>NDTS and SIZE</td>
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</tbody>
</table>

ETR – Effective Tax Rate; NDTS – Non-Debt Tax Shield; SIZE – Corporate Size; BR – Business Risk; GR – Growth Rate; ER – Earnings Rate; DPR – Divided Payout Ratio; ICR – Interest Coverage Ratio; CI – Capital Intensity; CVA – Collateral Value of Assets.

Looking at the empirical results, it could be stated that in category - I of the select industries, effective tax rate and non-debt tax shield were the most significant factors in deciding the debt ratio of the select firms. In category - II of the select industries besides tax factors, business risk, corporate size and...
earnings rate seem to have gained significantly in determining the debt ratio in an increasingly competitive and free market era. In category - III of the select industries, earnings rate, growth rate, interest coverage ratio, corporate size, business risk and collateral value of assets, along with tax factors had decided the debt - equity ratio of the select firms. All the select variables with an exception of dividend payout ratio play a role in deciding the financial leverage of the select industries.

IV. The impact of financial leverage on shareholders' earnings was studied through multiple regression analysis (step reduction method) and the following inferences were drawn:

- The financial leverage had no impact on return on equity in paint industry (incremental value being zero).
- In the case of automobile industry, cement industry, chemical and fertilizer industry, food and beverages industry, pharmaceutical industry, steel industry and textile industry the leverage had no significant impact on return on equity, as revealed by the lower incremental values varying from 1 per cent to 8 per cent.
- The use of debt had resulted in exerting some impact on return on equity in the case of electrical and electronics industry and engineering industry to the extent of 13.40 per cent and 10.20 per cent respectively.
- Regrouping of sample firms based on leverage class highlighted the fact that there was a definite impact of debt on shareholders' earnings (EPS and ROE) as noticed from the values of beta co - efficients. The degree of change on return on equity was found to be higher in medium leverage class (beta - co - efficient at 1.794) and low leverage class (beta - co - efficient at 0.725). On the other hand, the impact of debt was found to be too low in high leverage class and all select firms.
• It is very obvious from the values of beta co-efficients of market price per share in respect of various leverage classes, that the use of debt had no significant impact on the market price of shares.

7.7 POLICY IMPLICATIONS

In the post-liberalization era, where business is not the same as it used to be, the private sector may encounter difficulties in raising funds due to the high degree of risk faced by them, with increased focus on fundamental analysis. With the dismantling of the erst-while licensing regime, slashing of custom and excise duties and disinvestment in government controlled companies, majority of the industries have become fiercely competitive. With increasing competition returns have become uncertain. Thus empirical findings of this study is important for term lending institutions like Industrial Development Bank of India (IDBI) and Industrial Finance Corporation of India (IFCI), Industrial Investment Bank of India (IIBI), regulatory authorities like SEBI, commercial banks, mutual funds, etc., in their policy formulation.

The corporate management, in order to maximise wealth of the shareholders, strives to optimise the value of the firm, which in turn, depends upon a scientifically designed capital structure called optimal capital structure. The knowledge and understanding of the factors which determine such capital structure, particularly in the changing circumstances will certainly give an added edge to the corporate management to manage their funds in a better way than ever. The study is equally important to the investors in their rational judgement about the degree of financial risk and in deciding their investment strategy.

7.8 SCOPE FOR FURTHER RESEARCH

▲ In the present study, only factors specific to the firm were considered. Inclusion of more industry-related factors and macro-economic factors in further research may provide additional insight into identifying specific debt-equity choice of the industries.
The study could be extended to service sector also to bring out the deviations in financing policy and capital structure, if any.

7.9 CONCLUSION

The choice between debt and equity assumes significance for finance managers of private corporate sector due to the fact that their decisions are expected to maximise the shareholders earnings / wealth. Debt is considered to be cheaper, but it is likely to eat away profits and impose a high interest burden. On the other hand, equity could lead to lower earnings per share. The present study, covering 271 companies of 12 major industries in the private corporate sector for a period of 11 years from 1991 - 92 to 2001 - 02, revealed that the preference for equity has a marginal edge over debt.

The study presents the profile of debt financing in India. Summary statistics and analysis of variance were used in analysing the debt equity structure of the select industries. The nineties had witnessed a shift regarding the use of debt by the corporate sector. The dominance of debt had shown a marginal decline, au contraire, there is recuperation of equity in the capital structure of the private corporate sector in India. There is a heavy reliance on retained earnings as a source of finance. Another important finding of the study is that, there is a shift towards preference for short - term debt in lieu of long - term debt. The debenture capital, once a preferred mode of raising debt, is losing its attraction in the post - liberalization era. It reveals further, that the shareholders of private corporate sector firms in India are subjected to a high degree of financial risk (measured in terms of interest coverage ratio and degree of financial leverage).

Capital structure and their determinants have been the primary subject of research in corporate finance. An attempt has been made in the present study to take another look at the determinants of financial leverage as discussed in the financial economics literature. To gain a deep insight into the possible determinants of debt, the sample firms of the select industries were
grouped into 3 categories, based on their paid up share capital. Correlation and multiple regression analysis were used in analysing the important parameters, category-wise. The results were found to be fairly different from the empirical findings reported earlier. It has been found that tax factors—effective tax rate and non-debt tax shield, corporate size, business risk and earnings rate seem to be important determinants of corporate debt-equity choice. The study revealed that growth oriented industries such as food and beverages industry, pharmaceutical industry, paint industry prefer less debt in capital structure. On the whole, debt shows a declining trend in the select industries, though it is still a dominant component of capital structure.

The empirical results reveal that the impact of financial leverage on the average market price of shares of the firm is insignificant. But the use of financial leverage helps the corporate to magnify the return on equity, if the firm is in leverage class of 25-50 per cent. This may support the optimal capital structure theory which states that both too much of debt or too little debt are bad for corporate health. A thorough grounding in both the theory of financing decisions and in the tools of capital structure management, will assist finance officers in making sound choices that maximise shareholders' wealth.