ENGINEERING AND TECHNOLOGY IN INDIA
Volume 3 | Issue 2 | October, 2012 | 71-76

RESEARCH ARTICLE

An empirical study of leverage and its impact on earning capacity in Indian engineering industry

■ **ASHA SHARMA**

ABSTRACT : The engineering sector in India comprises basic industries such as Metal, Steel, Electrical Machinery, Non-Electrical Machinery and Transport Equipments. Manufacturers, Exporters and Suppliers of engineering machinery and equipment largely produce industrial machines, rolling mills machinery, plant machinery, plastic moulding machines, construction machines and equipment, railway products, die casting equipment and other special purpose machines. Majority of Indian engineering firms are pursuing a systematic approach to quality control and standardization so as to curve out market positioning in the competitive world market place. Engineering industry in India has been constantly updating its technology base and diversifying its manufacturing range in tune with global market requirements. Indian exporters are well aware and do not lag behind in adopting eco-friendly manufacturing techniques which have become the new emerging requirements of the global development. For the purpose of analysis, ratio techniques and to test hypothesis other statistical tools *i.e.* correlation has been used for the research purpose. The result of the study indicates that there is a correlation between DFL and EPS and the difference is insignificant where as result of correlation coefficient at 5 per cent level of significan*ce* showed that the diffidence is significant between DFL and DPS and EPS and DPS. For the purpose of analysis, ratio techniques and to test hypothesis other statistical tools *i.e.* correlation has been used for the research purpose. The result of the study indicates that there is a correlation between DFL and EPS and the difference is insignificant where as result of correlation coefficient at 5 per cent level of significan*ce* showed that the diffidence is significant between DFL and DPS and EPS and DPS.

KEY WORDS : Financial leverage, Operating leverage, Dividend per share, Earning per share, Capital structure, Dividend policy

Article Chronicle : Received : 01.05.2012**; Accepted :** 18.07.2012

How to cite this Article : Sharma, Asha (2012). An empirical study of leverage and its impact on earning capacity in Indian engineering industry. *Engg. & Tech. in India,* **3**(2) : 71-76.

INTRODUCTION

Firms can raise money through a variety of means. Usually, money is raised through the issuance of different types of securities (such as stocks and bonds). The capital structure of a firm is the proportion of each type of security that the firm has used.

It is a double edged sword. Levered firms grow in boom period and in healthy financial position of a company with a great proportion as well as its graph of earning per share and dividend per share decreases with a high proportion, if company is running in losses. So both the aspects work. Impact of using debt money may be beneficial or risky, according to financial position. Its effect is in the same direction with high proportion. It is a good tool to use to run a business with high growth rate. Financial leverage works both ways. It accelerates EPS (and ROE) under favorable economic conditions, but depresses EPS (and ROE) when the going are not good for the firm. The favorable effect of the increasing financial leverage during normal and good years is on account of the fact that the rates of return on assets exceed the cost of debt.

AUTHOR FOR CORRESPONDENCE

ASHA SHARMA, Department of Management, Aravali Institute of Management, JODHPUR (RAJASTHAN) INDIA
Email: drashasharma.sharma07@gmail.com

About the engineering industry :

The Engineering sector is the largest in the overall industrial sectors in India. It is a diverse industry with a number of segments, and can be broadly categorized into two segments, namely, heavy engineering and light engineering. The engineering industry in India manufactures a wide range of products, with heavy engineering goods accounting for

bulk of the production. Most of the leading players are engaged in the production of heavy engineering goods and mainly produces high-value products using high-end technology. Requirement of high level of capital investment poses as a major entry barrier. Consequently, the small and unorganized firms have a small market presence.The light engineering goods segment, on the other hand, uses medium to low-end technology. Entry barrier is low on account of the comparatively lower requirement of capital and technology. This segment is characterised by the dominance of small and unorganised players which manufacture low-value added products. However, there are few medium and large scale firms which manufacture high-value added products. This segment is also characterised by small capacities and high level of competition among the players.

Characteristics of the Indian engineering sector :

- Fortunes of the sector linked with that of the overall industry
- Manufacturing sector is the key end-user sector of capital goods
- Labour is highly cost-competitive
- Inputs/raw materials used are mainly local/domestic in origin
- It suffers from low technological competitiveness
- High incidence of indirect taxation (excise duty, octroi duty/entry tax), central sales tax, sales tax, service tax, etc), as compared to other nations
- Machinery segments such as cement, sugar and most other non-electrical machinery
- Presence of a large width of products, with almost all major capital goods being manufactured locally
- Indian companies, in general, lack export thrust, as the focus is largely on the domestic market
- Most items produced compare functionally with those manufactured elsewhere in the world, but lag behind as far as finish is concerned
- Focus/investment in branding and marketing and customer orientation is low

Company profile :

Engineers India Limited was set up in 1965 to provide engineering and related technical services for petroleum refineries and other industrial projects. EIL is working under the administrative control of Ministry of Petroleum and Natural Gas, Government of India. In addition to Petroleum Refineries, with which EIL started initially, over the years it has diversified and excelled in various other fields. EIL today has emerged as Asia's leading design, engineering and turnkey contracting company providing a complete range of project services needed to conceptualize, plan, design, engineer and construct projects to meet the specific requirements of its clients in the fields of Petroleum Refining, Petrochemicals, Pipelines, Offshore Oil and Gas, Onshore Oil and Gas, Terminals and Storages, Mining and Metallurgy and Infrastructure.

Larsen and Toubro Limited (L and T) is a vertically integrated engineering and construction conglomerate with additional interests in manufacturing, services and Information Technology. L and T is one of the largest companies in India's private sector and has an international presence, with a global spread of offices. In fact it can be aptly called as an Indian multinational. Nearly 18 per cent of L and T's total revenue comes from overseas earnings. Larsen and Toubro is one of few organizations in Indian corporate sector that is truly professionally managed. L and T was founded as a partnership firm in 1938 in Mumbai by two Danish engineers, Henning Holck-Larsen and Soren Kristian Toubro. In 1944, Engineering Construction Corporation Limited (ECC) as incorporated as wholly owned subsidiary of Larsen and Toubro Limited. L and T was converted into a limited company on February 7, 1946. Starting with the import of machinery from Europe, L and T rapidly took on engineering and construction assignments of increasing sophistication. Today, L and T is a pioneer in engineering projects in terms of scale and complexity.

Objectives of study :

The objectives of the study was to study the methods of raising finance and financial leverage practice of the company, to examine the impact of financial leverage on EPS, to know about the dividend policy of the company, to assess the inter relationship between degree of financial leverage (DFL), earnings per share (EPS) and dividend per share (DPS) and to summaries main finding of the study and offer some suggestion, if any, for improving EPS by the use of financial leverage.

Hypothesis :

In order to realize the above objectives, given hypothesis was formulated. The company uses debt as a cheaper source of finance than equity, the company is enable to earn a higher rate of return on investment than the cost of financing investment, DFL and EPS are positively correlated in such a manner that increase in financial leverage leads to increase in the EPS, DFL is positively correlated with DPS and EPS is positive correlated with DPS.

EXPERIMENTAL PROCEDURE

***Collection of data* :**

The data of engineering industry has been collected from the annual reports of the company and capitaline data base. The data collected from this source have been used and compiled with due care as per requirement of the study.

Period of study :

The present study covered the period of five years from 2006-2010.

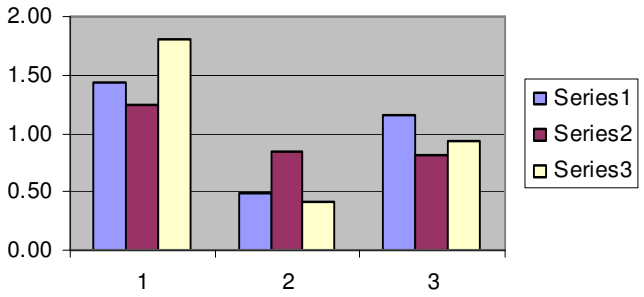
Techniques of analysis :

The study has been made by converting the collected data in to relative measures such as ratios, percentage rather than absolute one. For analyzing the degree of association between DFL, EPS and DPS, statistical technique of Pearson's correlation analysis has been used to judge whether the calculated correlation coefficient are significant or not.

Table A : Computations of EBIT, EBT and EAT

Engineering India Ltd				
Particulars	Mar. ' 10	Mar. ' 09	Mar. ' 08	Mar. ' 07
EBIT	672.39	471.19	295.80	222.09
EPS	79.53	51.83	34.53	27.23
Sales	1984.10	1531.03	691.95	537.79

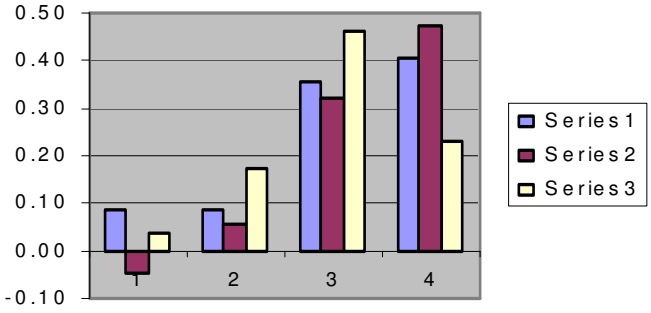
Particulars	Mar. ' 10	Mar. ' 09	Mar. ' 08
Degree of operating levarage	1.44	0.49	1.16
Degree of financial levarage	1.25	0.84	0.81
Degree of combine levarage	1.81	0.41	0.94



Larson and Toubro Ltd.

Particulars	Mar. ' 10	Mar. ' 08	Mar. ' 07	Mar. ' 06
Operating leverage	1.51930258	1.53232371	1.56277879	1.95907400
Finacial leverage	1.09954990	1.15447579	1.14961733	1.15265158
Combined leverage	1.67054900	1.76903061	1.79659759	2.25812973

Particulars	Mar ' 10	Mar ' 09	Mar ' 08	Mar ' 07
Degree of operating levarage	0.09	0.09	0.35	0.41
Degree of financial levarage	-0.05	0.06	0.32	0.47
Degree of combine levarage	0.03	0.17	0.46	0.23



EXPERIMENTAL FINDINGS AND ANALYSIS

The results of the present study as well as relevant discussions had been presented under following sub heads:

Engineering India Ltd.

Earning per share :

EPS as a measure of the profitability of a company from the owner's point of view. The earning per share is increasing as compared to last year from 77.23 to 49.90 which shows that the company profitability is very good. If you compared all five years the maximum profitability company is getting (Table 1).

Table 1 : Computation of DFL, EPS, DPS, DIP ratio, cost of debt, cost of equity and rate of return on investment

Engineering India Ltd.					
Investment analysis ratios	Mar ' 10	Mar ' 09	Mar ' 08	Mar ' 07	Mar ' 06
Earnings per-share	77.23	49.90	32.69	25.75	26.28
Dividend per-share	106.00	18.50	11.00	9.50	8.00
Dividend payout-ratio	155.23	34.12	35.16	40.86	34.57

Dividend per share :

The increase in dividends also indicates that the company is generating profits consistently. The dividend per share has increased as compared to last five years is very higher which shows better growth in dividend per share (Table 1).

Dividend payout ratio :

A lower payout ratio means a stronger financial position of the company. The ratio is increasing as compared to last five years very higher which shows that the company financial position is weak (Table 1).

Proprietory ratio :

This ratio indicates the proportion to which Tangible Assets are financed by Owner's Fund.The ratio is low as compared to previous years which shows that companies using his own fun (Table 2a).

Solvency ratio :

As per rules if the ratio is less than 1 is indicates the good position of solvency of business. The ratio is more than 1 in last three years which is not good (Table 2a).

Table 2a: Solvency ratio of Engineering India Ltd

Solvencey ratios	Mar. ' 10	Mar. ' 09	Mar. ' 08	Mar. ' 07	Mar. ' 06
Proprietory ratio	1.43	1.62	1.65	1.82	1.82
Solvency ratio	1.55	1.18	1.09	0.89	0.88

Net profit ratio :

It measures the overall profitability. The ratio is decreasing as compared to last year from 20.14 to 20.43 which shows that the managerial performance is bad due to which the overall profitability is decreased. If you compared last five years the lowest profit is earn in year 2010 (Table 2b).

Table 2b : Net profit ratio Engineering India Ltd.

Solvencey ratios	Mar. ' 10	Mar. ' 09	Mar. ' 08	Mar. ' 07	Mar. ' 06
Net profit ratio	20.14	20.43	23.89	23.07	16.18

Larson and Toubro Ltd. :

Dividend per share :

The increase in dividends also indicates that the company is getting profits. The dividend per share has increased as compared to last five years is very higher which shows better growth in profits. Increase in DPS from last year is 10.5 to 12.5. (Table 3a).

Earning per share :

EPS it is a tool to measure the profitability of a company. The earning per share is increasing as compared to last year from 59.45 to 72.66 which shows that the company is generating profit (Table 3a).

Table 3a : Analysis of the investment ratio of Larson and Toubro Ltd.

Investment analysis ratios	Mar.' 10	Mar. ' 09	Mar.' 08	Mar.' 07	Mar. ' 06
Earnings per-share	72.66	59.45	74.35	49.53	73.67
Dividend per-share	12.5	10.5	17	13	22
Dividend payout ratio	19.72	20.58	26.29	30.04	34.05

Solvency ratio :

Solvency ratio less than 1 shows bad indication of the company. The solvency position of this company Larsen and Tourbo is very poor because it is less than 1 (Table 3b).

Table 3b: Solvency ratio of Larson and Toubro Ltd.

Solvencey ratios	Mar. ' 10	Mar. ' 09	Mar. ' 08	Mar. ' 07	Mar. ' 06
Debt-equity ratio	0.37	0.53	0.38	0.36	0.32

Notes and explanations :

- DFL = Degree of Financial Leverage = EBIT I EBT
- EPS = EAT / No. of Equity Shares.
- DPS = Dividend / No. of Equity Shares.
- DIP Ratio = DPS / EPS x 100
- Rate of Interest = (Interest / Long-term debt) X 100
- Rate of return on investment = (EAT / Total Capital Employed) x 100

Financial leverage, earning and dividend :

In engineering industry there is a positive relationship between DFL and EPS in such a way corresponding increase or decrease in DFL with the fulfillment of main two criteria – one being dent capital cheaper than equity capital and another being rate of return on investment exceeded (after-tax) cost of debt.

Operating leverage practice and ebit of engineeing industry:

DOL to quickly estimate what impact various percentage changes in sales will have on profits, the effect of operating leverage can be dramatic. If a company is near its break even point, then even a small percentage increases in sales can yield large percentage in profits. This explains why management will often work very hard for only a small increase in sales volume.

Financial leverage, earning and dividend :

The earnings per share will increase if return on assets is higher than the interest cost, and EPS will reduce if return on assets is lower than the interest cost. The EPS will not be affected by the level of leverage if return on assets just equal to the interest cost.

The first finding follows that the company has been experiencing a converse effect of financing leverage on earnings per share and as such earnings per share and as such earnings per share has been increasing with the decrease in the financial leverage.

Correlation analysis :

Analysis of Table 4a :

The co-efficient of correlation in between DFL, EPS and DPS are presented in Table 4 to assess to closeness of association between each other. It is evident from the Table 4 a that the co-relation co-efficient between DOL and EPS is 0.415114. It indicates that there is a positive association between DOL and EPS supporting the explanation given earlier the value

of correlation co-efficient is also found to be highly insignificant lesser than the table value of 1.96. The co-relation co-efficient between DFL and EPS is 0.950706. It indicates that there is a positive association between DFL and EPS supporting the explanation given earlier the value of correlation co-efficient is also found to be highly insignificant lesser than the table value of 1.96. So the hypothesis that DOL and EPS are positively correlated is outright accepted. Here the data as obtained from the annual report of Engineering India Ltd. are consistent with the assumption that the hypothesis is true. In order to assess the degree of association between DOL and DPS the co-relation co-efficient between DOL and DPS is 0.680143, DFL and DPS correlation coefficient between these two variables has been calculated. It is seen that correlation co-efficient between DFL and DPS is 0.999989 indicating that there is a high degree of positive correlation between DFL and DPS. The value of correlation co-efficient is found to be much insignificant at 5 per cent levels. Lastly, the co-efficient of correlation between EPS and DPS is 0.932095 which is also insignificant at 5 per cent level. Still DPS and DOL is positive.

Table 4a : Relationship between DFL, EPS and DPS relationship between DFL, DOL, EPS and DPS

Corelation between DFL, DOL, EPS and DPS Engineering India Ltd.	
EPS and DOL	0.415114
EPS and DFL	0.950706
DPS and DOL	0.680143
DPS and DFL	0.999989
EPS and DPS	0.932095

Analysis of Table 4 b :

The co-efficient of correlation in between DFL, EPS and DPS are presented in Table 4 to assess to closeness of association between each other. It is evident from the Table 4b that the co-relation co-efficient between DOL and EPS is (0.32568). The co-relation co-efficient between DFL and EPS is (0.50177). It indicates that there is a negative association between DFL and EPS supporting the explanation given earlier the value of correlation co-efficient is also found to be highly insignificant lesser than the table value of 1.96. In order to assess the degree of association between DOL and DPS the co-relation co-efficient between DOL and DPS is (-0.32568), DFL and DPS correlation coefficient between these two variables has been calculated. It is seen that correlation co-efficient between DFL and DPS is 0.491905. Lastly, the co-efficient of correlation between EPS and DPS is 0.505885.

Table 4b: Corelation between DFL, DOL, EPS and DPS

Larsen and Toubro Limited	
EPS and DOL	-0.32568
EPS and DFL	-0.50177
DPS and DOL	-0.32568
DPS and DFL	0.491905
EPS and DPS	0.505885

Conclusion :

In such a complex corporate environment, it is the challenge to the finance manager to survive the firm in long-run perspective with the objective of maximizing the owner's wealth. With a view to achieve this objective, finance manager is required to pay his due attention on investment decision, financing decision and dividend decision. Assuming that sound investment policy and opportunity are there, it is my intention in this paper to optimize the financing decision and dividend decision in the context of achieving the stated objective. Financing decision refers to the selection of appropriate financing-mix and so it relates to the capital structure or leverage. Capital structure refers to the proportion of long- term debt capital and equity capital required to finance investment proposal. There should be an optimum capital structure, which can be attained by the judicious exercise of financial leverage. This paper mainly concentrates on the exercise of financial leverage in the context of understanding its impact on earnings and dividend per share.

Engineering industry could not enjoy the benefit of accepted leverage theorem. Rather it accrued operation of financial leverage. So leverage theorem is not a general rule. leverage theorem is not a general rule for every company. Engineers India Ltd. Is enjoying leverages with high earning capacity. The company has been maintaining a decreasing trend in its dividend pay-out. The company was enabling to maximize the EPS by the operation of financial leverage and operating leverage. The company successfully enhances the degree of financial leverage to reap the EPS advantage. The dividend policy of the company is aggressive but it is reverse with the company Larsen and Toubro Limited. It is negatively correlated. Thus, the objective of this paper to measure the impact of leverage on the EPS in steel industry, which has negatively correlated, has been fulfilled in the case of L and T Co. Ltd but not with the Engineering India Ltd.

Overall, there is difference between theory and practice. Leverage advantages and its impact on earning capacity is not similar in both the company even under the same industry. Still hypothesis is correct, as even in EIL correlation is positive but insignificant at 5 per cent level.

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