

# Financial leverage, earnings and dividend – A Case study

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*This paper attempts to make an analytical study of theoretical approaches and practical application of financial leverage, earnings per share and dividend per share.*

Liberalisation, globalisation and privatization are the important issues to the entrepreneur and corporates threatening the existence of a firm. 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.

## **Financial leverage :**

Financial leverage is primarily concerned with the financial activities which involve raising of funds from the sources for which a firm has to bear a fixed charge. These sources include long-term debt (e.g. bonds, debentures etc.) and preference share capital. Long-term debts capital carries a contractual fixed rate of interest and its payment is obligatory. As the debt providers have prior claim on income and assets of a firm over equity shareholders, their rate of interest is generally lower than the expected return on equity shareholders. Further interest on debt capital is a tax deductible expense. These two phenomena lead to the magnification of rate of return on equity capital and hence EPS. It goes without saying that the effect of changes in EBIT on the earnings per share is shown by the financial leverage. Financial leverage can best be described as "the ability of a firm to use fixed financial charges to magnify the effect of changes in EBIT on the firm's earning per share."<sup>1</sup>

## **Earnings per share in the context of optimum capital structure:**

Earnings per share is the reward of an investor for making his investment and it is the best measure of performance of a firm. "The bottom line of Income Statement is an indicator of performance of 'think tank' or 'top level' of the company"<sup>2</sup>. Ordinary investors lacking in-depth knowledge and inside information mainly based on EPS to make their investment decision. So it should be the objective of financial management to maximise the EPS from the view point of both the investor and investee. Again the objective of financial management is maximisation of value measure in terms of market price of equity share of a corporate entity. Given the objective of the firm to maximise the value of equity share, a firm should select a desired combination of financing mix or capital structure to achieve the goal. Theoretically, optimum capital structure implies that combination of debt and equity at which overall cost of capital is minimum and value of the firm is maximum. The prevailing view is that the value maximisation criterion as a criterion of optimal capital structure, is measured in terms of market price of equity share i.e. the value of the firm is maximised when the market price of

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equity share is maximised. So according to this view, maximisation of market price of equity share leading to the maximisation of value of the firm is a criterion of optimum capital structure. But I beg to differ. Market price of equity share though basically depends on firm's earnings per share, it also depends to a great extent on many external factors such as government monetary and economic policies, political stability, state of economy, speculative trends etc. and it may be contended that market price of share has no direct bearing on the optimum capital structure. In this context an example of a firm may be drawn which is running with optimum debt-equity combination. Now due to the influence of some external factors i.e. sudden political change or something like this, the market price of its equity shares started decreasing and as a result value of the firm went on decreasing. Due to the downward movement of the value of the firm, its capital structure will not become optimum further and will need restructuring to become optimum again. In practice, change in market price of equity share may occur very rapidly and hence it is very difficult to change the composition of capital structure accordingly. Capital structure decision is an internal decision of the firm. So what I really think is that increase in market price of equity share due to the influence of external factors leading to the maximisation of the value of the firm should not be a criterion of optimum capital structure. Rather 'EPS may be a better substitute as a criterion of value maximisation in respect of optimum capital structure,<sup>3</sup> and as such maximising EPS should be the main slogan or mul-mantra of a firm in order to realise the objective of maintaining an appropriate capital structure.

#### **Dividend Policy decision:**

Dividend decision is the major decision area of financial management. A firm is to decide what portion of earnings would be distributed to the

shareholders by way of dividend and what portion of the same would be retained in the firm for its future growth. Both dividend and retention are desirable but they are conflicting to each other. A finance manager should be able to formulate a suitable dividend policy, which will satisfy the shareholders without hampering future progress of the firm. It is common that higher the earnings, higher will be the amount of dividend and vice-versa.

#### **Financial leverage, earnings and dividend:**

Use of fixed cost bearing capital in the capital structure is termed as financial leverage. Such capital specially debt is cheaper than the equity as the cost of debt is generally lower than that of equity and a tax advantage is attached with its use. In this circumstances, if total capital employed remains constant, increase in the financial leverage or use of debt implies that a relatively cheaper source of fund replaces a source of fund having relatively higher cost. Now if a company follows this practice its net return will be attributable to the low base of equity shareholders (lower base being due to the increase in financial leverage). As a result it will lead to the magnification of return to the equity and thus EPS. But one should keep in mind that the same holds good in favourable business environment where the company is able to earn a rate of return on investment being higher than its cost of financing. So long this situation continues, the return on equity or EPS will increase with the increase in financial leverage. The excess of the rate of return on investment over the fixed rate of interest and pref. dividend will go to the equity shareholders. However, during the period of adversity when the company is not in a position to earn greater (at least equal) rate of return than the cost of debt and pref. share, its return on equity and EPS, instead of increase, will actually decrease, with the increase

in the financial leverage.

As higher earnings would result in higher dividend, the above discussion follows that increase in the use of financial leverage increases the earnings per share and thus dividend per share. Conversely decrease in the use of financial leverage decreases the earnings and dividend per share.

Keeping these theoretical background in view, it is my humble effort to draw the attention of readers regarding subjectivity of this paper and its applicability into real corporate practice. For this purpose a case study has been introduced in the next section considering the case of Bharat Heavy Electricals Limited, a leading engineering company in India. Now it is proposed to present brief profile of the company in the subsequent paragraph.

#### **Company Profile:**

Bharat Heavy Electricals Limited (BHEL) is a public limited company having paid-up capital of Rs. 2448 million and turnover of Rs. 66,340 million in 1999 - 2000 covering the business in the area of process industry, transportation, transmission, telecommunication, conventional and non-conventional energy generation and power plant installation etc. throughout the country and abroad. The company made huge capital investment on plan capital programs and during the year 1999-2000 it amounted to Rs. 1,100 million of which Rs. 839 million was for modernisation. Harmonious and cordial industrial relations are maintained by the company following the participative style of management. The company also launched several new initiatives for synergising various aspect of human resource management system. In order to address the requirements of the changing business environment with competitive pressure and emerging opportunities in the new globalised economy, BHEL has taken several initiatives in the area of Service Business, Captive power, Metro

Rail Projects along with focus on core business areas. By the expertise knowledge in Information Technology (IT), BHEL can leverage itself to diversity into the new economy sector of Infotech and IT enabled services. With these strategic initiatives and continuous effort to enhance its competitiveness by reducing time and cost, improving quality and tapping new opportunities in the environment, BHEL is on its way to achieving its vision of being a world-class, innovative and profitable engineering enterprise.

#### Objectives of Study:

The objectives for which study has been undertaken are:

- 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).
- to summarise main findings of the study and offer some suggestion, if any, for improving

EPS by the use of financial leverage.

#### Hypothesis:

In order to realise the above objectives, the following hypotheses have been 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.
- EPS is positively correlated with DPS.

#### Research design and Methodology:

##### Collection of data:

The data of Bharat Heavy Electricals. Ltd. have been collected from the Annual Reports of the company. 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 covers a period of seven years from 1993-1994 to 1999-2000.

#### Techniques of analysis:

The study has been made by converting the collected data into relative. measures such as ratios, percentages rather than absolute one. For analysing the degree of association between DFL, EPS and DPS, statistical technique of Pearson's correlation analysis has been applied. The 't' test has been used to judge whether the calculated correlation co-efficient are significant or not.

#### Limitation of Study:

- The study is limited to seven years only. Generally twenty years data is ideal to form trend analysis. But I was able to collect seven years' Annual Reports of BHEL. That's why analysis has been made for seven years only.
- The study is based on secondary data collected from the Annual Reports of the company. It was not possible to collect the primary data from the company's office.
- The study is limited to BHEL,

not to be generalised for all public undertakings.

#### BHARAT HEAVY ELECTRICALS LTD.

Table - 1

#### Computation of EBIT, EBT & EAT

| Year    | Total capital employed | Long term debt | Equity share capital | Reserves & surplus | Net-worth | EBIT  | Interest | Earnings Before Tax(EBT) | (All Rs. in Million)<br>Earnings Dividend | After Tax(EAT) |
|---------|------------------------|----------------|----------------------|--------------------|-----------|-------|----------|--------------------------|-------------------------------------------|----------------|
| 1993-94 | 23941                  | 13839          | 2448                 | 7654               | 10102     | 4269  | 1096     | 3173                     | 367                                       | 1369           |
| 1994-95 | 22304                  | 10760          | 2448                 | 9096               | 11544     | 4690  | 1039     | 3651                     | 367                                       | 1409           |
| 1995-96 | 23707                  | 8822           | 2448                 | 12437              | 14885     | 6952  | 1129     | 5823                     | 490                                       | 3502           |
| 1996-97 | 27888                  | 8640           | 2448                 | 16800              | 19248     | 10235 | 1591     | 8644                     | 539                                       | 4632           |
| 1997-98 | 29846                  | 3896           | 2448                 | 23502              | 25950     | 10813 | 596      | 10217                    | 673                                       | 7195           |
| 1998-99 | 32526                  | 1701           | 2448                 | 28377              | 30825     | 9640  | 317      | 9323                     | 679                                       | 5446           |
| 1999-00 | 35985                  | 2407           | 2448                 | 31130              | 33578     | 8871  | 217      | 8654                     | 855                                       | 5994           |

Source: Annual Reports of BHEL

**Table - 2**  
**Computation of DFL, EPS, DPS, DIP Ratio, cost of debt,**

| Year    | DFL  | cost of equity and rate of return on investment. |           |                            | Rate of Interest (%) | Cost of Debt (%) | Cost of equity (%) | Rate of return on investment (%) |
|---------|------|--------------------------------------------------|-----------|----------------------------|----------------------|------------------|--------------------|----------------------------------|
|         |      | EPS (Rs.)                                        | DPS (Rs.) | Dividend Pay-out Ratio (%) |                      |                  |                    |                                  |
| 1993-94 | 1.34 | 5.60                                             | 1.50      | 27                         | 7.9                  | 4.7              | 3.6                | 5.7                              |
| 1994-95 | 1.28 | 5.80                                             | 1.50      | 26                         | 9.6                  | 5.8              | 3.2                | 6.3                              |
| 1995-96 | 1.19 | 14.30                                            | 2.00      | 14                         | 12.8                 | 7.7              | 3.3                | 14.8                             |
| 1996-97 | 1.18 | 18.90                                            | 2.20      | 12                         | 18.4                 | 11.0             | 2.8                | 16.6                             |
| 1997-98 | 1.05 | 29.40                                            | 2.75      | 09                         | 15.3                 | 9.1              | 2.6                | 24.1                             |
| 1998-99 | 1.03 | 22.30                                            | 2.77      | 12                         | 18.6                 | 11.2             | 2.2                | 16.7                             |
| 1999-00 | 1.02 | 24.50                                            | 3.49      | 14                         | 9.0                  | 5.4              | 2.5                | 16.6                             |

Source: Computed from the Annual Reports of BHEL.

**Notes and Explanations:**

1. DFL = Degree of Financial Leverage =  $\frac{EBIT}{EBT}$
2. EPS =  $\frac{EAT}{\text{No. of Equity Shares}}$
3. DPS =  $\frac{\text{Dividend}}{\text{No. of Equity Shares}}$
4. DIP Ratio =  $\frac{DPS}{EPS} \times 100$
5. Rate of Interest =  $\frac{\text{Interest} + \text{Long-term debt}}{\text{Total}} \times 100$
6. Interest on debt capital is an allowable expenditure for income tax purpose and it qualifies for deduction in computing taxable income. So it reduces effective cost of debt in the following way:  
Cost of debt (%) =  $\frac{\text{Rate of Interest}}{1 - \text{tax rate}}$   
Tax rate varied over the years with the changes in Tax Legislations. Tax rate being not available has been computed by approximating it to be equivalent of tax provisions. So an average tax rate has been approximated as  $\frac{\text{Total of 7 years' provision for tax} + \text{Total of 7 years' profit before tax}}{\text{Total of 7 years' profit before tax}} \times 100$ , which comes 40% approx. in case of BHEL.
7. The return expected by the equity shareholders may be referred to as cost of equity. There are various models for its computation. But in real term a firm has to incur cost in respect of equity shares in the form of dividend payment. So the most suitable formula is :  
Cost of equity (%) =  $\frac{\text{Dividend} + \text{Equity or Net worth}}{\text{Equity or Net worth}} \times 100$
8. Rate of return on investment =  $\frac{EAT + \text{Total Capital Employed}}{\text{Total Capital Employed}} \times 100$

**Table - 3**

| Analysis of Capital Structure |                                |                       |                                       |                    |                       |
|-------------------------------|--------------------------------|-----------------------|---------------------------------------|--------------------|-----------------------|
| Year                          | (a)<br>Percentage to Net Worth |                       | (b)<br>Percentage to Capital Employed |                    |                       |
|                               | Equity Capital (%)             | Reserve & Surplus (%) | Long term Debt (%)                    | Equity Capital (%) | Reserve & Surplus (%) |
| 1993 - 94                     | 24                             | 76                    | 58                                    | 10                 | 32                    |
| 1994 - 95                     | 21                             | 79                    | 48                                    | 11                 | 41                    |
| 1995 - 96                     | 16                             | 84                    | 37                                    | 10                 | 53                    |
| 1996 - 97                     | 13                             | 87                    | 31                                    | 09                 | 60                    |
| 1997 - 98                     | 09                             | 91                    | 13                                    | 08                 | 79                    |
| 1998 - 99                     | 08                             | 92                    | 05                                    | 08                 | 87                    |
| 1999 - 00                     | 07                             | 93                    | 07                                    | 07                 | 86                    |

Source: Computed from the Annual Reports of BHEL.

**Table - 4**

| Relationship between DFL, EPS & DPS |           |                             |                           |
|-------------------------------------|-----------|-----------------------------|---------------------------|
|                                     |           | Correlation Coefficient (r) | Calculated 't' value of r |
| (i)                                 | DFL&EPS   | (-)0.88                     | 4.14*                     |
| (ii)                                | DFL & DPS | (-)0.95                     | 6.80*                     |
| (iii)                               | EPS & DPS | 0.81                        | 3.09*                     |

Source: Computed with the data obtained from Table - 2

Note: Table value of (n - 2) i.e., 5 degree of freedom at 5% level of significance is 2.02.

\* Significant at 5% level of significance.

#### Findings of the study:

##### (i) Financial leverage practice and EPS of BHEL :

From the table 2 as presented above, it is seen that BHEL did not find debt capital cheaper than equity capital over the period of seven years from 1993-94 to 1999-2000. BHEL had to pay a higher rate of interest leading to a greater cost of debt than that of equity despite an average tax advantage attached with debt financing @ 40% over the period covered our study. Contrary to the common supposition of debt being cheaper than equity, it is surprising to note that the lowest cost of debt (4.7%) is greater than the highest cost of equity (3.6%) as evident in the year 1993-94. BHEL enjoyed equity as a cheaper source of finance by maintaining a lower payout ratio. So the basic assumption of the proposition which makes leverage advantageous was not fulfilled. As a result leverage benefit did not come true in case of BHEL. In the year 1993-94, BHEL used highest DFL (1.34) resulting lower EPS (As. 5.60) over the whole period of seven years under consideration. Although this year (along with remaining six prospective years) yielded higher rate of return on investment (5.7%) than after-tax cost of debt

(4.7%). It made the company conservative in using debt financing and the company started decreasing its DFL from 1.28 to 1.02 during the period of next six years under consideration. If one looks at the financial data of BHEL, given in table 2, a rising trend to EPS with the decline in DFL becomes evident. The table shows that EPS was increasing from As. 5.60 to As. 29.40 with the decrease in DFL from 1.34 to 1.05 during the period of first five years from 1993-94 to 1997-98. In the year 1998-99, EPS decreased to As. 22.30 as against Rs. 29.40 in 1997-98 with the decrease in DFL from 1.05 to 1.03. This might have taken place owing to the fact that this year debt carried the highest rate of interest (18.6%) leading to the highest cost of debt (11.2%). In the last year of consideration EPS increased with the decrease in DFL. Successively EPS of last two years showed an increasing trend with the decrease in DFL like all the preceding years.

So there is a clear conflict between the accepted leverage theorem and actual leverage practiced in BHEL. In theory there is a positive relationship between DFL and EPS in such a way that EPS increases or decreases with a corresponding increase or decrease in DFL with the fulfilment of main two criteria - one being debt capital cheaper than equity capital and another being rate of return on investment exceeding (after-tax) cost of debt. In case of BHEL, a negative relationship between DFL and EPS is evident from the data. While BHEL successfully fulfilled the second criterion, just indicated, for all the years, it failed to fulfill the first criterion for every year. The company could not enjoy debt as a cheaper means of financing over the whole period. Particularly the Indian corporate sector enjoys equity as a cheaper source of financing since dividend payment is optional here. The case of Bharat Heavy Electricals Ltd, discussed in this study, is just a representative one.

##### (ii) Capital structure policy of BHEL :

The logic of capital structure policy of BHEL is to increase its net-worth by ploughing back of profit and in this way to reduce cost of equity over the period. A firm can enjoy equity at a cheaper cost if its net-worth is strengthened by ploughing back of profits, which is not dividend bearing. Now if we have a mark on Table 1, an increasing amount of reserve and surplus included in net-worth is seen all over the period of seven years. Keeping the equity capital constant throughout the period of study, the company increased its net-worth with the utilisation of reserve & surplus by the same amount. The company increased its capitalisation from Rs. 23,941 million to Rs. 35,985 million with the decrease in the use of long-term debt from Rs. 13,839 million to Rs. 1,701 million during the study period. Both the excess capitalisation and reduction in the use of debt in each year were commensurated by the reserve and surplus i.e., by successful ploughing back of profit instead of making additional issue of equity shares. If the same was made by the fresh issue of equity shares the company would not be able to reward its shareholders more in terms of return. Since reserve & surplus was not dividend bearing, its utilisation brought down the cost of equity and at the same time it maintained the lower base of equity shareholders resulting higher amount of EPS (lower base means lower number of equity shares).

Table 3 has been prepared to reflect the relative method of finance adopted by the company. It is seen from the Table 3(a) that the net-worth of the company constituted equity capital and reserve & surplus and it was 24% of equity capital and 76% of reserve & surplus in the year 1993 - 94. In the following years the company started increasing the proportion of reserve & surplus from 79% to 93% with the decrease in the proportion of

equity capital from 21 % to 7% during the period from 1994-95 to 1999-2000. One can observe from the table that a percentage decrease in the equity capital led to the same percentage increase in the reserve and surplus. For example 3% decrease in the equity capital led to 3% increase in the reserve and surplus in the second year of study and so on. Thus increase in the proportion of reserve and surplus to networth in this way might cause reduction in the cost of equity from 3.6% to 2.2% during the study period. The same analysis may be drawn from Table 3(b) considering the relative percentage of long-term debt, equity capital and reserve & surplus to capital employed.

### iii) Dividend policy of BHEL :

Table 2 shows that DPS of first two years of consideration is same and thereafter the company has been increasing the DPS at a slow rate. The dividend payout ratio of the company is gradually decreasing during the first five years of consideration and then there is a slight increasing trend in the pay-out ratio for last two years. Overall, we can say, that BHEL is following a conservative dividend policy.

### iv) Financial leverage, earnings and dividend:

The first finding follows that the company has been experiencing a converse effect of financial leverage on earnings per share and as such earnings per share has been increasing with the decrease in the financial leverage. Now if we want to establish a relationship between financial leverage, earnings per share and dividend per share, we find that dividend per share has been increasing with the increase in the earnings per share and decrease in the degree of financial leverage with the exception of the year 1998-1999 as evident from Table 2. General view is that higher the earnings, greater is the dividend and vice-versa. In the second year consideration, there is no change in the DPS though there is a

slight increase in the EPS. Almost in all the remaining years there is an increase in the DPS with the increase in the EPS except 1998-99. But the proportionate increase in DPS is less than that of EPS during the period of four years from 1994-95 to 1997-98. As a consequence DIP ratio has been decreasing year by year till 1997 - 98, after that DIP ratio started increasing in 1998-99 and 1999-2000.

### (v) Correlation Analysis:

The co-efficient of correlation in between DFL, EPS and DPS are presented in table 4 to assess the closeness of association between each other. It is evident from the table that the correlation co-efficient between DFL and EPS is ( - ) 0.88. It indicates that there is a high degree of negative association between DFL and EPS supporting the explanation given earlier. The value of correlation co-efficient is also found to be highly significant at 5 per cent level of significance, as the calculated T value of 4.14 is higher than the table value of 2.02. So the hypothesis that DFL and EPS are positively correlated is outright rejected. Here the data as obtained from the Annual Report of BHEL are not consistent with the assumption that the hypothesis is true. In order to assess the degree of association between DFL and DPS, correlation co-efficient between these two variables has been calculated. It is seen that correlation co-efficient between DFL and DPS is (-) 0.95 indicating that there is a high degree of negative Correlation between DFL and DPS. The value of correlation co-efficient is found to be much significant at 5% level. Lastly, the co-efficient of correlation between EPS and DPS is 0.81 which is significant at 5% level. It is an accepted saying that higher the EPS, higher is the DPS and vice-versa. The calculated value of correlation co-efficient between EPS and DPS conforms with the accepted saying.

The study on the inter relation-

ship between the degree of financial leverage, earnings per share and dividend per share of BHEL showed both positive and negative association. The correlation co-efficient of three sets of variable selected for the purpose of our study has been analysed. The sign of correlation co-efficient between (i) DFL and EPS and (ii) DFL and DPS are not conformed with the hypothesis that DFL is positively correlated with EPS and DPS. The data could not provide any evidence in favour of this hypothesis. So this hypothesis is not accepted to be true in case of BHEL. The result of correlation co-efficient between EPS and DPS is what we have expected. So the hypothesis that EPS is positively correlated with DPS might be accepted to be true in case of BHEL.

### Conclusion:

BHEL could not enjoy the benefit of accepted leverage theorem. Rather it accrued the benefit of EPS through the reverse operation of financial leverage. So leverage theorem is not a general rule. The dividend policy of the company is conservative. The company has been maintaining a decreasing trend in its dividend pay-out. The company was enable to maximize the EPS by the reverse operation of financial leverage. The company successfully pulled down the degree of financial leverage to reap the EPS advantage. Thus the objective of this paper to maximize the EPS through judicious operation of financial leverage has been fulfilled.

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