Inspira-Journal of Commerce, Economics & Computer Science (JCECS)
ISSN : 2395-7069 General Impact Factor : 2.4668, Volume 04, No. 04, October-December, 2018, pp. 181-187

LEVERAGE ANALYSIS AND CORPORATE EARNINGS: A CASE STUDY OF HINDALCO INDUSTRIES LIMITED

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ABSTRACT

Effective utilization of assets towards the improvement of earnings is a crucial managerial decision in corporate organizations. Leverage refers to debt or to the borrowing of funds to finance the purchase of a company's assets. Leverage, increases the company's risk of bankruptcy. It also increases the company's returns; specifically its return on equity. This is true because, if debt financing is used rather than equity financing, then the owner's equity is not diluted by issuing more shares of stock. The present study makes an attempt to analyze the impact of both financial leverage as well as operating leverage on the profitability (measured through Earning Per Share "EPS") of Hindalco Industries Limited, the world's largest aluminium rolling company and one of Asia's biggest producers of primary aluminium. This company is selected based upon the market capitalization for the research purpose. The financial statements of Hindalco have been collected over a period of 9 years (2010 to2018). The exploratory research design is adopted in this study which employs secondary data. The findings suggest that financial leverage has positive correlation while operating and combined leverage has negative correlation with EPS. Significance of correlation at .05 significance level suggest that operating, financial and combined leverage had no significant relationship with Earnings per share with the exceptions of few.

KEYWORDS: *Operating Leverage, Financial Leverage, Profitability, Combined Leverage.*

Introduction

The employment of an asset or source of funds for which the firm has to pay a fixed cost or fixed return may be termed as Leverage. There are three types of leverages namely: Operating Leverage, Financial Leverage and Combined Leverage. Leverage is one of the key determinants of the amount of financial resources needed to consider the financing mix that focus on increasing profits. It is often said that leverage is a necessary evil for a business to be progressively profitable. At the same time it has also been said that leverage is a double-edged sword. So that the sword doesn't cut through your neck it is mandatory that leverage be deployed only up to an extent where return on investment is greater than the cost of capital. This shall ensure maximization of shareholder's wealth.

Review of Literature

A lot of research has already been conducted on the impact of financial leverage on firm profitability.

Bhat has examined the determinant of financial leverage and investigated the relationship between leverage ratio and institutional characteristics viz firm size, growth,profitability, variation in income, and debt service and dividend payout by using correlation and regression analysis. The study observed that the institutional characteristics are important determinant of financial leverage ratio.

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Beck et al. in survey data explained that small firms are basically different than large firms in terms of financing options. Small firms claim that they receive relatively less bank financing and cannot compensate for this lack of financial credit with trade credit.

Soni Bindiya and Trivedi Jigna, in their paper suggested that financial leverage had no significant relationship on profitability while operating leverage had significant relationship on profitability with the exceptions of few.

Akinlo O. and Asaolu T. examined the profit profile of firms in Nigeria and analyzed the impact of leverage on profitability. The results showed that firm size had a significant positive effect on profitability, while leverage had negative effect. They suggested that expansion, increased sales and low debt ratios had enhanced firm's profitability.

Franklin John and Muthusamy, examined the Pharmaceutical industry in India and found that this sector is engaged with relatively more amount of debt capital so that the value of firm's could be increased. The study also indicated that interest coverage and cash flow are negatively associated with leverage.

Kumar Ramanain his study found that, that degree of operating leverage is statistically significant positive correlation with the ROI. . It is also observed that degree of financial leverage is positively correlated with the ROI.

Corporate Overview

The Hindustan Aluminum Corporation Limited was established in 1958 by the Aditya Birla Group. In 1962 the company began production in Renukootin Uttar Pradesh. In 1989 the company was restructured and renamed Hindalco. Over the years, Hindalco has grown into a major vertically integrated aluminium company in the country. In 2007, the landmark acquisition of Novelis Inc., the world's largest aluminium rolling company, placed Hindalco's footprint across the globe.

With a consolidated turnover of US$18 billion, Hindalco is the world's largest aluminium rolling company and one of Asia's biggest producers of primary aluminium. Its copper smelter is today one of the world's largest custom smelter at a single location.

Hindalco has been accorded Star Trading House status in India. Its aluminium is accepted for delivery under the High-Grade Aluminium Contract on the London Metal Exchange (LME), while its copper quality is also registered on the LME with Grade "A" accreditation.

Objectives of the Study

The main objectives of this empirical study are stated below:

- To analyze the Degree of Operating, Financial and Combined Leverages in Hindalco Industries Limited.
- To study the relationship between Leverage and profitability in Hindalco Industries Limited.
- To examine the financial performance of theHindalco Industries Limited.

Research Methodology

In view of the objectives of the study listed above an exploratory design has been adopted. The main source of data used for the study is secondary data derived from the published annual reports of the selected company collected from official website and other links (nine years financial statements available at www.moneycontrol.com). The information related with theoretical background has been collected from websites, journals, magazines, newspapers, books and from Government of India publications. Present study covers the profitability performance and leverage status of selected company for nine consecutive financial years. The period of the study starts from 1st April 09 and ends on 31st March 2018. The rationale behind selecting this period is the availability of data. Moreover these are normal years as well as latest financial period for this study.

Hypothesis of the Study

For better analysis of the leverage and profitability position of selected company, the following hypothesis is framed:

- There is no significant relationship between DOL and EPS
- There is no significant relationship between DFL and EPS
- There is no significant relationship between DCL and EPS

Tools and Techniques of Analysis

The so collected data have been suitably re-arranged, classified and tabulated as per the requirement of the study and the following techniques have been applied:

- For examining the leverage analysis in Hindalco Industries Limited, degree of operating leverage, financial leverage and combine leverage are calculated.
- Karl Pearson's simple Correlation and significance of correlation have been used to examine the relationship between leverage and profitability.
- PBIT margin, Net Profit Ratio, Return on Net Worth, Return on Capital Employed and Debt to Equity ratio have been calculated to measure the financial performance.

Limitations of the Study

- Present study is based on secondary data and the same does not indicate the current situation of the company.
- The economic condition varies at different point of time and that will affect the findings of the present study.
- The study is limited to nine years only.

Operational Definition of the Selected Parameters Used in the Study

- **Degree of Operating Leverage (DOL)**

The leverage ratio that sums up the effect of an amount of operating leverage on the company's earnings before interests and taxes (EBIT) is known as Degree of Operating Leverage. Operating Leverage takes into account the proportion of fixed costs to variable costs in the operations of a business.

- **Formula for Determining Degree of Operating Leverage**

DOL = % Change in EBIT / % Change in Sales

- **Degree of Financial Leverage (DFL)**

Degree of financial average is defined as the percentage change in earnings per share divided by percentage change in EBIT. *It* assesses how sensitive a company's net income is to a change in the company's operating income.

- **Formula for calculating Degree of Financial Leverage**

DFL = % Change in EPS / % Change in EBIT

The degree of financial leverage or DFL helps in calculating the comparative change in net income caused by a change in the capital structure of business. This ratio would help in determining the fate of net income of the business. This ratio also helps in determining the suitable financial leverage which is to be used to achieve the business goal.

- **Degree of Combined Leverage (DCL)**

The Degree of Combined Leverage (DCL) is the leverage ratio that sums up the combined effect of the Degree of Operating Leverage (DOL) and the Degree of Financial Leverage (DFL) has on the Earning per share or EPS given a particular change in sales. This ratio helps in ascertaining the best possible financial and operational leverage that is to be used in any firm or business.

- **Formula for Degree of Combined Leverage (DCL)**

DCL = %Change in EPS / %Change in Sales = DOL * DFL

Data Analysis and Interpretation

Table 1: Degree of Operating Leverage

Year	Sales	Operating Profit	% Change in EBIT	% Change in Sales	DOL
Mar-10	19,456.98	2814.16	--	--	--
Mar-11	23,626.87	2,814.70	.019	21.43	.00088
Mar-12	26,353.06	3,030.58	7.67	11.54	.6646
Mar-13	25,784.31	2,482.61	-18.08	-2.16	8.3703(Unfavourable)
Mar-14	27,573.06	2,793.01	12.5	6.94	1.8011
Mar-15	34,094.41	3,461.70	23.94	23.65	1.0122
Mar-16	33,875.19	3,042.97	-12.09	-.64	18.89(Unfavourable)
Mar-17	36,499.14	4,391.22	44.31	7.74	5.7248
Mar-18	42,798.04	4,454.57	1.44	17.26	.0834

Source: Calculated from the annual reports of the Hindalco Industries Limited

Interpretation

The degree of operating leverage of the firm was in mixed trend during the study period from 2011 to 2018.It is negative in the year 2012-13 and 2015-16 and maximum in 2016-17. Though the sale of the company is increased by two folds but the operating profit has not increased in that proportion. Therefore, it is observed that the firm is not maintaining optimum operating leverage.

Table 2: Degree of Financial Leverage

Year	EPS	Operation Profit (Rs. in Cr.)	% Change in EPS	% Change in EBIT	DFL
Mar-10	10.01	2814.16	--	--	--
Mar-11	11.17	2,814.70	11.59	.019	610
Mar-12	11.69	3,030.58	4.65	7.67	.606
Mar-13	8.88	2,482.61	-24.03	-18.08	1.329(Unfavourable)
Mar-14	7.09	2,793.01	-20.15	12.5	1.612(Unfavourable)
Mar-15	4.48	3,461.70	-36.81	23.94	1.5375(Unfavourable)
Mar-16	0.64	3,042.97	-85.71	-12.09	7.089(Unfavourable)
Mar-17	7.56	4,391.22	1081.25	44.31	24.4
Mar-18	6.45	4,454.57	-14.68	1.44	10.19(Unfavourable)

Source: Calculated from the annual reports of the Hindalco Industries Limited

Interpretation

The financial leverage of the firm has been fluctuating during the study period. DFL is highest in the year 2010-11 but in almost all the period under study it is unfavourable. Above table also depicts that earnings per share was highest in the year 2011-12 and after that it had decreased and was least in 2015-16. The detailed study of the financial statement shows that in 2009-10 finance cost of the company was Rs.594.03 crores while it increased to Rs. 1900.54 crores in the year 2017-18. Thus heavy loans decreased the per share margin. Therefore, it is observed that the firm is not maintaining optimum financial leverage. A moderate financial leverage is good for the firm. It is suggested to the firm to maintain moderate financial leverage which optimizes high percentage in EPS than the percentage change in EBIT.

Table 3: Degree of Combined Leverage

Year	% Change in EPS	% Change in Sales	DOL	DFL	DCL
Mar-10	--	--	--	--	--
Mar-11	11.59	21.43	.00088	610	0.5368
Mar-12	4.65	11.54	.6646	.606	1.09
Mar-13	-24.03	-2.16	8.3703(Unfavourable)	1.329(Unfavourable)	6.298
Mar-14	-20.15	6.94	1.8011	1.612(Unfavourable)	1.117(Unfavourable)
Mar-15	-36.81	23.65	1.0122	1.5375(Unfavourable)	.658(Unfavourable)
Mar-16	-85.71	-.64	18.89(Unfavourable)	7.089(Unfavourable)	2.664
Mar-17	1081.25	7.74	5.7248	24.4	.234
Mar-18	-14.68	17.26	.0834	10.19(Unfavourable)	.008(Unfavourable)

Source: Calculated from the annual reports of the Hindalco Industries Limited

Interpretation

The degree of combined leverage of the firm was in mixed trend during the study period from 2011 to 2018.It is highest in the year 2012-13 and lowest in 2014-15. The study of capital structure shows that long term borrowings of the firm has continuously increased up to 2015-16 which resulted in increased financial burden for the company. It was Rs. 5163.93 crores in 2009-10 and increased to Rs. 23904.29 in 2015-16. Afterwards company repaid its long term loan and tried to make its leverage at moderate level.

Table 4: Correlation between Earning per Share and DOL

		EPS	DOL
Earnings per Share	Pearson's Correlation	1	-.66958
	N	8	8
Degree of Operating Leverage	Pearson's Correlation	-.66958	1
	N	8	8

Significance of Observed Correlation t= $\frac{r}{\sqrt{1-r^2}}\sqrt{n-2}$

Significance of Correlation at 0.05 level

Calculated Value of't'= -2.20

Table Value of't' = 1.96

Degree of Freedom = n-2, 8-2= 6

From the table no 4 it is revealed that for Hindalco Industries Limited the Degree of Operating Leverage is inversely related to the Earnings per Share as the coefficient of correlation comes out as -.66958. This result is statistically insignificant at 0.05 level of significance as the significant level (t=-2.20) is less than the table value. It means that the firm is not maintaining an optimum level of operating leverage.

Table 5: Correlation between Earning per Share and DFL

		EPS	DFL
Earnings per Share	Pearson's Correlation	1	.43846
	N	8	8
Degree of Financial Leverage	Pearson's Correlation	.43846	1
	N	8	8

Significance of Correlation at 0.05 level

Calculated Value of't'= 1.097

Table Value of 't' = 1.96

It is evident from the above table that the co-relation, co-efficient between DFL and EPS is .43846. 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 at 5% level of significance, as the calculated value of T (1.097) is lesser than the table value of 1.96. So the hypothesis that there is no correlation between DFL and EPS is out rightly accepted.

Table 6: Correlation between Earning per Share and DCL

		EPS	DCL
Earnings per Share	Pearson's Correlation	1	-.08233
	N	8	8
Degree of Combined Leverage	Pearson's Correlation	-.08233	1
	N	8	8

Significance of Correlation at 0.05 level

Calculated Value of 't'= -.2023

Table Value of 't' = 1.96

Table No 6 exhibits a low degree negative relationship between degree of combined leverage and EPS, as the coefficient of correlation is -.08233. This is statistically not significant at the 0.05 level of significance because calculated value of T (-.2023) is lesser than the table value of 1.96. Thus it may be conceded that the degree of combined leverage for Hindalco Industries Limited is not at an optimum level.

Table 7: Financial Performance of Hindalco Industries Limited

Year	PBIT Margin	Net Profit Margin	Return on Net Worth	Return on Capital Employed	Debt to Equity Ratio
Mar-10	14.46	9.84	6.86	5.54	0.23
Mar-11	11.79	8.95	7.19	5.82	0.3
Mar-12	11.39	8.41	7.1	4.9	0.46
Mar-13	9.52	6.52	5.08	2.98	0.72
Mar 14	10.02	5.07	3.84	2.3	0.72
Mar-15	10.02	2.67	2.48	1.47	0.77
Mar-16	8.87	1.61	1.3	0.81	0.67
Mar-17	11.88	4.21	3.28	6.46	0.48
Mar-18	10.4	3.35	2.9	2.05	0.41
Average	10.9277778	5.625555556	4.447777778	3.592222222	0.528888889
Min	8.87	1.61	1.3	0.81	0.23
Max	14.46	9.84	7.19	6.46	0.77
SD	1.5805539	2.783227986	2.073160645	1.982113226	0.186812113

Interpretation

PBIT Margin: The above table depicts that up to the year 2015-16 the profit before tax and interest has declined though sales figure was in upward movement. Increase in the cost of raw material is the main reason for decline in PBIT margin. Average PBIT margin during the period under study was 10.92%.

Net Profit Margin: From the above table it is understood that net sales have increased by amount throughout the period but net profit margin has decreased from 9.84% in 2009-10 to 3.35% in 2017-18. This decline may partly because of decrease in operating profit ratio and partly because of increase in interest burden and increased depreciation charges. Average net profit margin is 5.62% for this period.

Return on Net Worth: Return on Net worth of Hindalco for this period was 1.3% minimum in 2015-16 and 7.19 maximum in 2010-11 with an average of 4.44%. In remaining years it has fluctuating trend. If we analyze the financial statements it comes out that from march 10 to March 16 investments in capital assets increased by nearly 80%, which is financed by secured loans.

Return on Capital Employed: It measures the relationship between net profit before interest and tax and total long term sources of funds or fixed assets plus net working capital. It exhibits how well management has used the funds supplied by the creditors and the owners thus, measures productivity as well as profitability. The above table shows that except in 2016-17, ROCE of the company has declined during the period under study.

Debt to Equity Ratio: Debt-to-equity ratio is the key financial ratio and is used as a standard for judging a company's financial standing. It is also a measure of a company's ability to repay its obligations. Optimal debt-to-equity ratio is considered to be about 1, i.e. liabilities = equity and Hindalco limited has maintained this ratio below the optimal level. But if we link this ratio with Profit and other returns it can be judged that may be due to the increasing trend in this ratio, other profitability ratios have declined. After 2016-17 company has paid its loan and this ratio came down to.48:1 and other financial indicators gained its momentum. Analysis of Balance sheet indicates that in 2016-17 company has repaid its 5000 crores long term loan.

Conclusion

The leverage analysis indicates the long term financial performance. Hindalco is the world's largest aluminium rolling company and one of Asia's biggest producers of primary aluminium. The research study concentrates on relationship between leverage and profitability of Hindalco Industries Limited.It is observed that the firm is not maintaining optimum operating, financial and combined leverage. Operating profit is not increased in proportion of sale; similarly heavy debt equity ratio up to 2015-16 has increased financial cost which put negative impact on Earnings per share of the selected company. High fixed financial costs increased the FL and, thus, financial risk.Thus leverage proved as double edged sword. A moderate financial leverage and low operating leverage is desirable for the firm.

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