



**‘A STUDY OF LEVERAGE ANALYSIS AND PROFITABILITY FOR DR
REDDY’S LABORATORIES’**

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ABSTRACT:

This paper discusses the relationship between Financial Leverage and Return of Investment, Operating Leverage and Return on Investment, and Combined Leverage and Return on Investment, for Dr Reddy’s Laboratories, the pharmaceutical firm having the highest sales turnover for the financial year 2013-14. The purpose of this paper is also to understand the decisions made by Dr Reddy’s Laboratories with regards to its asset utilization and Leverage management. This research paper thus analyzes the impact of these decisions on the Shareholder’s earnings and the Earnings before Interest and Taxes. Ratio analysis and correlation analysis has been deployed for meeting the objectives of the present study. Current Ratio, Quick Ratio, Debt to Equity Ratio, Total Asset Turnover Ratio and Return on Investment has been analyzed for understanding the financial performance of Dr Reddy’s Laboratories. The study has been carried out during the period of the financial period 2010 to 2014.

Keywords: *Operating Leverage, Financial Leverage and Combined Leverage, Profitability.*



INTRODUCTION:

Leverage means to have fixed expenses for a business. In a business there may be two kinds of leverage, operating leverage and financial leverage. If a business has fixed expenses it's said to have an operating leverage and if a business bears the cost of funds in terms of interest it's said to have a financial leverage. Where in operating leverage measures the impact of percentage change in earnings before interest and taxes due to percentage change in Sales, Degree of financial leverage is a measure of percentage change in earning per share due to percentage change in the earning before interest and taxes.

It's 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's 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.

These attributes have drawn a lot of attention from the researchers in the field of Finance.

REVIEW OF LITERATURE:

Scholars in varied industries have extensively researched Leverage and profitability. These have motivated the corporate to identify and improvise upon their financial performance.

In February, 2014, Bindiya Soni and Jigna Trivedi, in a research paper titled, "A Study on Leverage Analysis and Profitability for Selected Paint Companies in India¹" analyses the impact of both financial leverage as well as operating leverage on the profitability (measured through Earning Per Share "EPS") of the selected paint companies of India. Five listed paint companies of India were selected based upon the market capitalization for the research purpose. The study investigates the impact of degree of financial leverage and degree of operating leverage on EPS with the help of correlation analysis. Along with this analysis, the paper also investigates the impact of debt-equity ratio on the EPS of the said firms to see the impact of debt on the wealth of the firms. The findings suggest that financial leverage had no significant relationship on profitability while operating leverage had significant relationship on profitability with the exceptions of few.



Kumar Ramana, in a paper titled, "An Empirical Study on Relationship between Leverage and Profitability in Bata India Limited²", elaborates on leverage and its relationship between profitability in Bata India Limited. This research paper analyzes the performance of Bata India Limited. The exploratory research design is adopted in this study which employs secondary data. The financial statements of Bata India Limited have been collected over a period of 7 years (2005-06 to 2012-13). The data collected is analyzed by the percentages, averages, ratios and Correlation analysis tools. The research evidence of the study indicates that there is a statistically significant positive correlation between the degree of operating leverage and the ROI. It is observed that the degree of financial leverage is positively correlated with the ROI. It means that the degree of financial leverage of Bata India was not at an optimum level. It is suggested that Bata should revise its capital structure to include an optimum blend of equity and borrowed funds so that it has a positive impact on Return on Investment. Moreover, the degree of combined leverage is positively correlated with the ROI of Bata India. The financial performance of Bata India is satisfactory. Bata India is employing less debt funds, so it cannot get the financial leverage benefits. Therefore, Bata India has to revise its capital structure so that financial leverage will help to maximize the shareholders' wealth.

V. Kalpana, in a paper titled, "A Study on Leverage Analyses and its Impact on Profitability of Select Steel Companies Traded in Bse", analyzes the impact of leverage on the profitability of the select firms and the relationship among financial leverage, operating leverage and Composite leverage with earnings per share of the firms. In addition to this, it investigates how the profitability is influenced by fixed financial charges and fixed operating costs. In this study, select steel companies which are traded in BSE are taken for analysis, and the study is based on secondary data. Hypotheses are examined with the help of correlation and test of significance and also analysis of variance (ANOVA). From this study, it is found out that there is a negative correlation between DOL and EPS, DFL and EPS, and DCL and EPS. The result shows that the use of debt and fixed cost expenses would reduce the profitability of the firms. It implies that in order to increase the earnings, the firms need to reduce the use of debt in capital structure and fixed costs in operation of the firm.



A research paper by Mehdi Moradi, Mahdi Salehi and Zakiheh Erfanian, titled, “A Study of the Effect of Financial Leverage on Earnings Response Coefficient through out Income Approach: Iranian Evidence”, provides evidence about factors influencing the earnings response coefficient. The study includes corporations listed on the Tehran Stock Exchange. Research data has been collected from the seven years period from 2002 to 2008, and data analysis was done using multiple regressions. Results indicate that the earnings response coefficient for the low-leverage firms group is larger than the high-leverage ones, with differences in the means among groups statistically significant.

In a research discussion paper for the bank of Finland, titled, “Bank Leverage ratio requirement, credit allocation and bank stability”, authored by Ilkka Kiema and EsaJ okivuolle, in 2011, have studied the effects on credit allocation and bank stability of introducing a leverage ratio requirement (LRR) on top of risk-based capital requirements, as in Basel III. For the current 3% LRR, both low-risk and high-risk loan rates and volumes remain essentially unchanged, because banks previously specializing in low-risk lending can adapt by granting both low-risk and high-risk loans. For sufficiently high LRRs, low-risk lending rates would significantly increase and high-risk lending rates would fall. In the presence of severe ‘model risk’ concerning low-risk loans, as happened in the subprime crisis, the current 3% LRR might even reduce bank stability, counter to regulatory intentions. This is because the allocation effect caused by the LRR, which makes bank loan portfolios more alike, may turn beneficial risk spreading into harmful risk contamination. For higher levels of LRR, however, bank stability is likely to be improved even in the presence of model risk. It was shown that if the LRR is above but close to the risk-based capital requirement on low-risk loans, such as the 3% LRR in Basel III, then both low- risk and high-risk loan rates and volumes remain essentially unchanged.

Sanjay J. Bhayani and Butalal Ajmera in a research paper titled, “An Empirical Analysis Of Financial Leverage, Earnings And Dividend: A Case Study Of Maruti Suzuki India Ltd.⁶”, have studied the theoretical approaches and practical application of financial leverage, earnings per share and dividend per share of Maruti Udyog Ltd. with data for the period of 2001-02 to 2008-09. For the purpose of analysis, researcher has used ratio techniques and to test hypothesis for correlation-co-efficient ‘t’ has been used. 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% level of significance showed that the diffidence is significant between DFL and DPS and EPS and DPS.

Priyanka Sharma, Ankit Saxena and Karishma Choudhary, in a research paper titled, “Leverage Analysis Of Amul –Anand Milk Union Limited⁷”, Ahmedabad, in February 2014, have conducted a comparative study and analysis of firms financial leverage, operating leverage and combined leverage has been done of five years i.e. from 2007-08 to 2011-12.

Syed Shah Fasih Ur Rehman in a research paper titled, “Relationship between Financial Leverage and Financial Performance: Empirical Evidence of Listed Sugar Companies of Pakistan⁸”, in 2013, has investigated the influence of financial leverage on financial and whether financial leverage has an effect on financial performance by taking evidence from listed sugar companies of Pakistan. The results of the study show the mix results. The results show the positive relationship of debt equity ratio with return on asset and sales growth, and negative relationship of debt equity ratio with earning per share, net profit margin and return on equity.

Rajni Saini , in a research paper titled, “Impact Of Financial Leverage On Shareholders Return And Market Capitalization: Empirical Evidence Of Telecommunication Sector Companies, India⁹”, has empirically explored the impact of financial leverage on shareholders return and market capitalization of telecommunication sector companies in India. To measure this, financial statements of seven listed firms have been analyzed over a period of seven years. Descriptive Statistics, Co-relation and t-test has been conducted to find out nature of relationship and the state of influence of the financial leverage on shareholders’ return and market capitalization individually. The research evidence of the study indicates that, there is positive correlation between financial leverage and shareholder return but negative correlation between financial leverage and market capitalization. On the basis of t-test it is conclude that, there is no significant impact of financial leverage on shareholders’ return though financial leverage is having significant impact on market capitalization of telecommunication sector companies in India.

Sukhdev Singh and Rajni Luthra, in a research paper, titled, “Impact of Leverage on the Capital Structure Practices of Selected Telecommunication Companies¹²”, have analyzed the impact of leverage on the capital structure practices via profitability of selected telecommunication



companies in India. This paper investigates the relationship between leverage and earning per share and it also describes how the earning capacity of the firm is influenced by fixed operating costs and fixed financial charges. This study has also described the relationship between debt equity ratio and earning per share and how effectively the firm uses debt financing. In this paper, selected telecommunication companies have been taken for analysis and one-way anova and t-test have been used to test the hypothesis. Skewness and Kurtosis have also been used to check “Lack of Symmetry “to understand the distribution of data and flatness or peakedness. The results of the study suggested that leverage and profitability and growth are related and leverage is having an impact on the capital structure practices of the firm.

Khushbakht Tayyaba, in a research paper titled, “Leverage” – An Analysis and Its Impact On Profitability With Reference To Selected Oil And Gas Companies, in July 2013, has studied the effect of leverage on the profitability of the oil and gas sector. The study shows the relationship between leverage (Financial, operating and combined) and Earning per Share (EPS) of this sector. It analyses how earning capacity of this sector is affected by operating costs and fixed financial charges. It also shows the relationship between the Debt equity ratio and Earning per Share (EPS) and how this sector does debt financing efficiently. In this paper, oil and gas companies are selected for analysis and hypotheses are examined with the balanced panel using descriptive statistics, correlation and estimate equation.

D. Vijaya lakshmi and Padmaja Manoharan in a research paper titled, “Determinants of leverage -An Empirical analysis on Indian metal sector¹⁵”, identify and analyze the determinants of leverage of Indian metal sector. A panel data approach has been applied to analyze the data. The study reveals that the variables, namely, profitability, size and tangibility are the key determinants of leverage of Indian metal sector.

OBJECTIVES:

Encouraged by the research done in the past the following objectives have been undertaken in the current paper.

- To analyze the financial performance of Dr Reddy’s Laboratories
- To examine the Leverage analysis in Dr Reddy’s Laboratories
- To study the relationship between Leverage and profitability in Dr Reddy’s Laboratories



Hypotheses:

H1: There is significant positive correlation between Operating Leverage and Profitability of Dr Reddy's Laboratories

H2: There is significant positive correlation between Financial Leverage and Profitability of Dr Reddy's Laboratories

H3: There is significant positive correlation between combined leverage and Profitability of Dr Reddy's Laboratories

RESEARCH METHODOLOGY:

To carry out the research objectives Dr Reddy's Laboratories has been selected being one of the topmost pharmaceutical firms in India in terms of Net Sales. The source of data for analysis is the published annual report of the firm and taking into account the availability of data the period of the study has been taken from 2010-2014.

The data collected from the published annual reports of the selected company for the four year period have been suitably re-arranged, classified and tabulated as per requirements of the study. Ratio analysis and Graphical representation of the relationship has been studied.

DATA ANALYSIS:

The financial data for Dr Reddy's Laboratories has been explored and tabulated for the aforesaid objectives.

Table No.1 has depicted the trends in degree of operating leverage using the relationship with percentage change in Earnings before interest and taxes and percentage change in Sales. It maybe observed that the trends have been undulating over the period between 2010-14.

Table No.1: The exhibit depicts the financial performance of Dr Reddy's Laboratories in terms of Sales and operating profits and calculation of Degree of Operating Leverage.

Year	Sales (Rs Cr)	Operating Profit (Rs Cr)	%EBIT	%Sales	DOL
2014	9728	2762			
2013	8434	1986	39.07%	15.34%	2.55
2012	6780	1862	6.66%	24.40%	0.27
2011	5285	1220	52.62%	28.29%	1.86
2010	4470	1089	12.03%	18.23%	0.66



Table No.2 has depicted the trends in degree of financial leverage using the relationship with percentage change in Earnings before interest and taxes and percentage change in Earning Per Share. It may be observed that the trends have been undulating over the period between 2010-14. Especially in the year 2012 there has been excessive use of financial leverage with a very marginal growth for the EPS between 2011-12.

Table No.2: The exhibit depicts the financial performance of Dr Reddy's Laboratories in terms of Earning per Share and operating profits and calculation of Degree of Financial Leverage.

Year	EPS (Rs)	Operating Profits (Rs Cr)	%EPS	%EBIT	DFL
2014	113.62	2762			
2013	74.51	1986	52.49%	39.07%	1.34
2012	53.81	1862	38.47%	6.66%	5.78
2011	52.78	1220	1.95%	52.62%	0.04
2010	50.11	1089	5.33%	12.03%	0.44

Table No.3 has depicted the trends in degree of operating leverage, degree of financial leverage and degree of combined leverage. It may be observed that the trends have been ascending over the period between 2010-14, except for a dip in the year 2011.

Table No.3: The exhibit depicts the Degree of Operating Leverage, Degree of financial Leverage and the Degree of Combined Leverage for Dr Reddy's Laboratories

Year	% Change in EPS	% Change in Sales	DOL	DFL	DCL = DOL*DFL
2014					
2013	52.49%	15.34%	2.55	1.34	3.42
2012	38.47%	24.40%	0.27	5.78	1.58
2011	1.95%	28.29%	1.86	0.04	0.07
2010	5.33%	18.23%	0.66	0.44	0.29

Table No.4 has depicted the trends in current ratio, quick ratio, debt-equity ratio, total asset turnover ratio and return on investment (Return on capital employed). It may be observed that the trends have been undulating over the period between 2010-14.



Current Ratio and Quick Ratio depict the short term liquidity of the firm. It may be observed that the firm has been maintaining an ever increasing level of firm's short term liquidity position. This maybe inferred by observing the ascending level of current ratio on a year on year basis. The same may be observed for the quick ratio as well except for the year 2012 where a slight dip may be observed.

The fact that the firm has been maintaining a very high financial leverage, it may be observed that the Debt-Equity Ratio has been growing over the years of study form 2010 through 2014.

Though the total asset turnover ratio has had a dip in the year 2013 it has had an upward trend through out the period of 2010-14. That indicates improvised asset utilization for the firm. This maybe confirmed with the ever improving Return on Investment for the firm.

Table No.4: The exhibit depicts the Current Ratio, Quick Ratio, Debt-Equity Ratio, Total Asset Turnover Ratio and Return on Investment for Dr Reddy's Laboratories

Year	Current Ratio	Quick Ratio	Debt-Equity Ratio	Total Asset Turnover ratio	ROI
2014	1.96	2.7	0.29	0.81	21.11%
2013	1.62	2.02	0.2	0.9	19.36%
2012	1.7	1.84	0.23	0.82	19.22%
2011	1.66	1.91	0.24	0.7	14.20%
2010	1.49	1.45	0.1	0.69	15.87%

Table No5, 6 and 7 discusses the coefficient of correlation between Degree of Operating Leverage and Return on Investment, Degree of Financial Leverage and Return on Investment and Degree of Combined Leverage and Return on Investment respectively. Correlation is a statistical technique, which measures an association or relationship between two or more variables. If there is a relationship or association between two variables then correlation is called simple correlation. If there exists a relationship or association among the variables (more than two variables) then correlation is called multiple correlation. The Karl Pearson coefficient of correlation varies from -1 to +1. When two variables are negatively correlated then the correlation is called negative correlation and the Karl Pearson coefficient of correlation is negative. When



two variables are positively correlated then the correlation is called positive correlation and the Karl Pearson coefficient of correlation is positive. When there are no correlation two variables then it is called zero correlation and the Karl Pearson coefficient of correlation is zero. If the correlation coefficient between two variables is -1 then there exists perfect negative correlation. If the correlation coefficient between two variables is +1 then there exists perfect positive correlation.

From the table No 5 it is revealed that for Dr Reddy's Laboratories the Degree of Operating Leverage is inversely related to the Return on Investment as the coefficient of correlation comes out as -0.026. This result is statistically significant at 0.01 level of significance as the significant level (p value=0.0001) is less than 0.01. It means that the firm is not maintaining an optimum level of operating leverage.

Table No.5: The exhibit depicts the Correlation Coefficient between Degree of Operating Leverage and Return on Investment for Dr Reddy's Laboratories

Correlation coefficient Between DOL and ROI			
	Variables	DOL	ROI
DOL	Pearson Correlation	1	-0.025535
	Sig (2-tailed)		0.0001
	N	4	4
ROI	Pearson Correlation	-0.025535	1
	Sig (2-tailed)		0.0001
	N	4	4

Table No 6 exhibits a positive relationship between degree of financial leverage and return on investment, as the coefficient of correlation is 0.701. But this is statistically not significant at the 0.01 level of significance because the significant level is (p value=0.1336) greater than 0.01. Thus it may be conceded that the degree of financial leverage for Dr Reddy's Laboratories is not at an optimum level.

Table No.6: The exhibit depicts the Correlation Coefficient between Degree of Financial Leverage and Return on Investment for Dr Reddy's Laboratories



Correlation coefficient Between DFL and ROI			
	Variables	DFL	ROI
DFL	Pearson Correlation	1	0.700475001
	Sig (2-tailed)		0.1336
	N	4	4
ROI	Pearson Correlation	0.700475001	1
	Sig (2-tailed)	0.1336	
	N	4	4

Table No 7 exhibits a positive relationship between degree of combined leverage and return on investment, as the coefficient of correlation is 0.865. But this is statistically not significant at the 0.01 level of significance because the significant level is (p value = 0.3681) greater than 0.01. Thus it may be conceded that the degree of combined leverage for Dr Reddy's Laboratories is not at an optimum level.

Table No.7: The exhibit depicts the Correlation Coefficient between Degree of Combined Leverage and Return on Investment for Dr Reddy's Laboratories

Correlation coefficient Between DCL and ROI			
	Variables	DCL	ROI
DCL	Pearson Correlation	1	0.8650
	Sig (2-tailed)		0.3681
	N	4	4
ROI	Pearson Correlation	0.8650	1
	Sig (2-tailed)	0.3681	
	N	4	4

FINDINGS AND CONCLUSION:

The leverage analysis indicates the long-term financial performance. The research study concentrates on relationship between leverage and profitability has reveals that Dr Reddy's Laboratories has been steeply enhancing its leverage ratio, the degree of combined leverage being 3.42 for 2013. Therefore, it is observed that the firm is not maintaining an optimum combined leverage. The average financial leverage ratio maintained by Dr Reddy's Laboratories is 1.90.



Therefore, it is observed that the firm is not maintaining optimum financial leverage. The average degree of operating leverage maintained by Dr Reddy's Laboratories is 1.33. Therefore; it is observed that the firm is not maintaining optimum level of operating leverage. A moderate financial leverage and low operating leverage is desirable for the firm.

With regard to liquidity, the average of current ratio maintained by Dr Reddy's Laboratories is 1.67, which is less than standard norm of 2:1. Therefore, it is observed that the liquidity position of Dr Reddy's Laboratories is not satisfactory so the firm cannot meet its short term obligations effectively. The Quick Ratio of the firm was in mixed trend during the study period from 2010 to 2014. Moreover, the average of Quick ratio maintained by Dr Reddy's Laboratories is 1.98 which is far more than the standard norm of 1. Therefore; it is observed that the liquidity position of Dr Reddy's Laboratories is not satisfactory so the firm though can meet its short term obligations effectively but at the opportunity cost of excessive liquidity. It thus is recommended to reduce the quick assets to an optimum level, which shall help boost the profitability of the business.

With regard to financing policy, the average total debt capital employed by Dr Reddy's Laboratories was 17 percent over the total capital employed. Therefore, it is observed that the firm is heavily depending on the shareholders funds to extent of 83 percent for its capital requirements and utilizing very less borrowed funds nearly to the extent of 17 percent. Hence, the firm did not get leverage of borrowed funds which enhances the wealth of the shareholders. Moreover, the average of debt equity ratio maintained by Dr Reddy's Laboratories is 0.212. It is observed that Dr Reddy's Laboratories has used less debt capital than the equity funds and hence the firm can't get leverage benefits. But nevertheless the firm has been exponentially increase the debt component in the capital structure, which has reflected in the enhanced profitability in terms of growing earning per share year on year.

The total Assets turnover ratio of the firm was in mixed trend during the study period from 2010 to 2014. The average of Total Assets turnover ratio maintained by Dr Reddy's Laboratories is 0.784. Therefore, the firm did not utilize total assets effectively in generating the sales of the firm. It indicates that firm's management efficiency was not superior.



With regard to Profitability performance, the average ROI maintained by Dr Reddy's Laboratories was 17.95 % during the study period from 2010 to 2014. The firm's overall efficiency is satisfactory as an Industry leader.

With regard to profitability and leverage relationship analysis, it is observed that degree of operating leverage is significant negatively correlated with the ROI .It means that degree of operating leverage of Dr Reddy's Laboratories was not at a good position. The degree of financial leverage is positively correlated with the ROI and statistically not significant. It means that degree of financial leverage of Dr Reddy's Laboratories was not at optimum level. It is found that degree of combined leverage is positively correlated with the ROI but not significant statistically. It means that degree of combined effect of leverage of Dr Reddy's Laboratories was not at optimum level. It is suggested to Dr Reddy's Laboratories to revise its capital structure which should include the optimum blend of equity and borrowed funds so that it has positive impact on Return on Investment. With regard to profitability performance, the performance of Dr Reddy's Laboratories is satisfactory but not with leverage as leverage is not maintained at optimum level.

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