An Empirical Analysis of Capital Structure and Long Term Solvency Position of Hindalco Industries Limited

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Abstract

The present study, through the application of ratio analysis and statistical techniques, determined the pattern of capital structure, long term solvency position, ability to pay fixed obligation to lenders, and proportion of debt in the capital structure of Hindalco Industries Limited. The duration of study is of 10 years - from the financial year 2003-04 to 2012-13. The results revealed that long term funds comprised of 86.69% of the total funds as compared to the short term funds, that is, 13.31% during the entire period under study. The company was using more owned funds, that is, 59.90% on an average than borrowed funds (26.79%). As per the results obtained, it can be concluded that Hindalco mostly preferred equity financing, so the financial risk of the company was low. But the company was not enjoying the benefits of capital gearing. The trend of interest coverage ratios were mixed, but the interest payment was fully covered by the earnings before interest and taxes. Hence, the study concluded that to enjoy the benefits of financial leverage, Hindalco Industries Limited should tap into the debt funds.

Keywords: **capital structure, long term solvency, capital gearing, financial leverage, leverage ratio**

JEL Classification: G3, G30, G32

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One of the most important and critical aims of finance managers is to maximize the shareholders' wealth, which is the result of some decisions like lower cost of capital, generate tax shield due to financing through debt, reducing conflict between shareholders and managers, and so forth. All these aims and decisions are related to corporate financial pattern or trend. Capital structure in financial terms means the way a firm finances its assets for operations with appropriate blend of debt, equity, or hybrid securities (Saad, 2010). The financial framework of any company consists of debt and equity, which are used to finance the company's operations.

Capital structure pattern means the capital structure with equity shares only ; capital structure with equity as well as preference shares ; capital structure with equity shares and debt ; and capital structure with equity shares, preference shares, and debt capital. The selection of a suitable pattern for financing a company's operations depends on numerous issues and elements such as age of the company, growth opportunities, profitability, volatility in earnings, collateral value of tangible assets, regulations of the country, attitude of the management, economic condition, government policies, effect of leverage, and so forth. In case there is a high proportion of debt capital in the capital structure of a company, then it is called levered company, and if all the operations of a

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company are financed with the help of equity capital only, then it is called unlevered company. Raising of funds through debt is cheaper as the interest is deductible from taxable income, but debt beyond a certain limit increases the financial risk and leads to financial distress or insolvency.

Capital structure decisions are vital for the survival and growth of any company or organization, because wrong decisions have negative consequences like financial distress, bankruptcy, or even liquidation (Najjar & Petrov, 2011). As a result, the finance managers are not merely in the position of raising funds. The finance managers of any company also participate in making the financing, investing, and dividend decisions of a firm.

In his paper, Reddy (2012) attempted to study the association between liquidity, profitability, and risk factor. The Altman's *Z*-score model was employed by the researcher to predict the risk of financial distress of Dr. Reddy's Laboratories Limited from the years 2005-2011. The results indicated that the liquidity and solvency position of the company were satisfactory. The *Z*-score analysis revealed that the company was not suffering from financial distress and there were indications of turnaround activities already undertaken by the company. Hence, this paper also provided empirical results about the importance of pattern of financial structure used by the organization.

Despite decades of intensive research, there is no generally accepted capital structure theory, and all the existing assumptions contradict each other. Moreover, the contemporary theories and empirical studies are primarily based on data from developed economies. Few studies are available that have been conducted from the perspective of the developing economies. Hence, it is not correct to say whether conclusions from theoretical and empirical research carried out in developed economies can be generalized for developing economies as well. Therefore, the present study aimed to identify the potential pattern or trend of capital structure of Hindalco Industries Limited. The study also examines whether the trend is in conformity with the predictions drawn by capital structure theories so that the finance managers in organizations can benefit from it to make an optimal mix of debt and equity to maximize the shareholders' wealth.

Capital Structure Theories

The review of empirical studies depict the analysis carried out in the past and the findings and conclusions of the researchers. A review of theories will give knowledge about the basis on which such studies are carried out. The capital structure is an eminent issue and decision, which has attracted both academicians and practitioners, as the objective of the finance managers is to maximize shareholders' wealth. To maximize wealth of the shareholders, it is important to reduce the cost of capital, and hence, these two aspects are inversely related. A number of theories are given by various researchers to explain the association between capital structure, cost of capital, and value of the firm.

Capital structure is a relationship between equity capital and debt capital to minimize the cost of capital and maximize the share price. Durand (1952) introduced two approaches of capital structure. One approach, which is called the net income method, states that with the use of leverage, the weighted average cost of capital will decline, and the total value of the company will increase. The alternative approach, called the net operating method, states that the total value of the company remains unaltered, and the weighted average cost of capital remains constant with the use of leverage. Solomon (1963), who came out with the intermediate approach of capital structure, argued that once the cost of debt declines upto the accepted level, the value of the company increases ; once, the leverage level exceeds the accepted level, the cost of debt will increase, as the probability to default in interest and principal payment increases, and the value of the firm also decreases. This is the traditional approach of capital structure, which may be called as the optimal capital structure.

The modern approach to capital structure began with the seminal paper of Modigliani and Miller (1958), which supported the net operating income approach of Durand, and rejected the traditional approach. They stated that the cost of capital remains invariant to any change in capital structure due to the arbitrage process. Modigliani and Miller's approach is based upon certain assumptions such as absence of taxes, asymmetric information, risk, and bankruptcy cost. Later, in 1963, they concluded that by incorporating corporate tax, the overall cost of capital is reduced, and the value of the company is increased.

The pecking order theory of capital structure is another important theory, which was developed by Myers and Majluf (1984), and was originally developed by Donaldson in 1961. The theory states that the finance manager of a company chooses the source of financing according to the following preferences: retained earnings or internal funds, debt capital, and equity capital. The company should issue debt capital, and it should issue equity capital in the last instance, when the retained earnings are not available.

Jensen and Meckling (1976) developed the agency cost theory of capital structure. The agency cost is the cost that must be paid to an agent. In case of a company, managers are the agents of shareholders. The agency cost arises due to conflicts between shareholders and managers. Shareholders' expectation from the management is to operate the company in such a way that it enhances their wealth, but the management wants to operate the company in such a way that it maximizes their personal power and wealth. This theory suggests that an increase in the level of leverage in the capital structure increases the manager's share in equity and mitigates the loss of conflict between the shareholders and the managers. There is an obligation to pay interest - due to debt financing, managers need to put in more efforts for operating a company, and this reduces the above-mentioned benefits.

Objectives of the Study

The objectives of this paper are as under :

(1) To analyze the capital structure pattern of Hindalco Industries Limited,
(2) To evaluate the long term solvency, and
(3) To ascertain the rationalization of the capital structure pattern.

Research Methodology

↳ **Scope :** Due to the proximity and access to data, the present study is restricted to Hindalco Industries Limited. This study is confined to analyze and evaluate the pattern of capital structure and long term solvency with the help of ratio analysis. The time period of this study is of 10 years, from the financial year 2003-04 to 2012-13.

↳ **Data Sources :** Only secondary data were used to attain the objectives of the study. The data were taken from www.indiabulls.com and was cross verified with the published annual reports of Hindalco Industries Limited, which were taken from the official website of the company, that is, www.hindalco.com.

↳ **Tools & Techniques of Data Analysis :** To identify and for the evaluation of the capital structure pattern, first, the balance sheet data was reviewed and was arranged in a specific manner, that is, share capital, reserves and surplus, secured and unsecured loans, current liabilities and provisions. To check and evaluate the long term solvency of the company under study, the debt-equity ratio was calculated, and to confirm the proportion of total debt (long term as well as short term) in the financial structure of the company, the total debt to the total fund ratio was calculated. To justify the ability of the company to fulfil its obligation toward lenders, the interest coverage ratio was determined. To identify the central value and to check whether it is represented to the whole sample mean, the standard deviation was calculated. To study the relationship between debt-equity ratio and net worth, the correlation method was used.

Analysis and Results

↳ **Array of Capital Structure :** To maximize the use of funds, a company should properly plan its capital structure. The basic objective of capital structure planning is to minimize the cost of capital and to maximize the stock price of the company. It is not possible to find out the optimal proportion of debt-equity where the capital

Table 1. Capital Structure Pattern of Hindalco Industries Limited

₹ in Million

Particulars	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	AVERAGE	
	(Figures in ₹)											%
Share Capital	925	928	986	1043	1227	1705	1914	1915	1915	1915	1447	0.43
Reserves & Surplus	67654	75738	95077	12,137	171736	235846	277156	295041	312997	332396	198678	59.47
Shareholder's Fund	68579	76666	96063	124180	172963	237551	279070	296956	314912	334311	200125	59.905
Secured Loan	17259	29523	28480	64102	62054	57132	51539	51703	111121	204412	67733	20.27
Unsecured Loan	8386	8477	20553	9584	21232	26111	12030	21012	43844	46378	21761	6.51
Borrowed Funds	25645	38000	49033	73686	83286	83243	63569	72715	154965	250790	89494	26.79
Long Term Funds	94224	114666	145096	197866	256249	320794	342638	369671	469876	585101	289619	86.69
Current Liabilities	8966	16783	21996	27434	28947	18689	54269	71941	56868	4,9756	35565	10.65
Provisions	1791	8400	9532	12841	9060	8032	7215	6446	12072	1,3604	8900	2.66
Short Term Funds	10757	25183	31528	40275	38007	26721	61484	78387	68940	63360	44465	13.31
Total Funds	104981	139849	176624	238141	294256	347515	404122	448058	538816	648461	334084	100.00

Source: Compiled from Annual Reports of Hindalco Industries Limited

structure delivers optimum results, as the capital markets are not perfect. The pattern of capital structure in Hindalco Industries Limited from the financial year 2004 to 2013 is exhibited in the Table 1.

From the Table 1, it is clearly evident that the long term funds comprised of 86.69 % of the total funds as compared to the short term funds, that is, 13.31% during the entire period under study. Hence, there was a greater proportion of long term funds in Hindalco Industries Limited to finance its assets. Shareholders' funds jumped from ₹ 68,579 million in the financial year 2004 to ₹ 3,34,311 million in the financial year 2013. Reserves and surplus increased by almost 391% from the financial year 2004. Shareholders' funds occupied, on an average, 59.90 % of the major chunk of the total funds as compared to the borrowed funds, that is, 26.79 %. In other words, borrowed funds were very less as against the shareholders' funds during the entire period of the study. Hindalco showed a preference to strengthen long term funds consisting of both shareholders' funds as well as long term borrowed funds in order to finance its operations.

Assessment of Long Term Solvency : The short term creditors, that is, suppliers of raw materials and bankers are more interested to know the current debt servicing ability of the company and the long term creditors, for example, financial institutions, debenture holders, and so forth are more concerned with the company's long term debt servicing ability or strength. Capital structure ratios were calculated to evaluate the solvency position of the company. The following ratios are taken as the capital structure ratios for this study: (a) debt equity ratio, (b) debt to total fund ratio, (c) interest coverage ratio.

Debt Equity Ratio : To measure the relative interest of owners and creditors in the company, the debt equity ratio was calculated. This ratio is a measure of a company's financial leverage calculated by dividing its total liabilities by stockholders' equity. It indicates what proportion of equity and debt the company is using to finance its assets. A high debt/equity ratio generally means that a company has been aggressive in financing its growth with debt. This can result in volatile earnings as a result of the additional interest expenses. The generally accepted standard norm of the debt-equity ratio is 2:1. The debt - equity ratio is calculated by using the following formula :

Debt/equity ratio = long term debt / net worth

Table 2 . Debt Equity Ratio of Hindalco Industries Limited

₹ in Million

Financial Year	Long Term Debt (₹)	Net Worth (₹)	Ratio (in times)
2004	25645	68579	0.37
2005	38000	76666	0.50
2006	49033	96063	0.51
2007	73686	124180	0.59
2008	83286	172963	0.48
2009	83243	237551	0.35
2010	63569	279070	0.23
2011	72715	296956	0.24
2012	154965	314912	0.49
2013	250790	334311	0.75
Mean	**89494**	**200125**	**0.45**
Standard Deviation	**66625**	**104388**	**0.16**
C.V. (%)	**74.45**	**52.16**	**35.46**
R	**0.73**		

Source: Compiled from Annual Reports of Hindalco Industries Limited

The debt equity ratio of Hindalco Industries Limited is presented in the Table 2. The Table 2 shows the debt equity ratios of Hindalco Industries Limited. The debt equity ratio is calculated by dividing the long term debt with shareholders' fund or net worth. It is clear from the Table 2 that the long term debt of Hindalco significantly increased from ₹ 25,645 million in financial year 2004 to ₹ 2,50,790 million in the financial year 2013. Shareholders' worth also moved remarkably from ₹ 68,579 million in the financial year 2004 to ₹ 3,34,311 million in the financial year 2013. The debt equity ratio also increased significantly from 0.37 times in the financial year 2004 to 0.75 times in the financial year 2013, but still, it was below the standard ratio of 2:1. The descriptive statistics, that is, mean, standard deviation, and coefficient of variance between debt and equity of Hindalco are 0.45 times, 0.16 times, and 35.46% respectively. It is important to mention here that in the situation of observing and recording data, a large standard deviation isn't necessarily a bad thing; it just reflects a large amount of variations in the group that is being studied. The coefficient of correlation between debt and equity of Hindalco is 0.73, which indicates a positive relation. On the basis of the above analysis, it may be concluded that Hindalco could finance its assets or operations by employing more debt capital to derive the benefits of financial leverage and trading on equity.

↳ **Total Debt to Total Fund Ratio :** The total debt to total fund ratio was calculated to know the proportion of debt in the financial structure of the company. Short term borrowings and long term borrowings, both were clubbed to calculate the total debt, and the net worth with the total debt is called the total fund. A high ratio shows that claims of creditors are greater than owners. A high proportion of debt results in pressure and inflexibility in a company's operations. The following formula was used to arrive at the total debt to total fund ratio :

Total debt to total fund ratio = total debt / total fund

The total debt to total fund ratio of Hindalco Industries Limited is presented in the Table 3. The Table 3 portrays the total debt to total fund ratio. It is clear from this Table 3 that debt was increasing, with the exception of the financial year 2009 in absolute terms, and the total fund showed an increasing trend during the period under study. This ratio is less than one, which shows the interest of the owner to finance the assets of the company. The mean,

Table 3. Total Debt to Total Fund Ratio of Hindalco Industries Limited

₹ in Million

Financial Year	Total Debt (₹)	Total Fund (₹)	Ratio (in times)
2004	36403	104981	0.35
2005	63183	139849	0.45
2006	80561	176624	0.46
2007	113961	238141	0.48
2008	121293	294256	0.41
2009	109964	347515	0.32
2010	125053	404122	0.31
2011	151102	448058	0.34
2012	223905	538816	0.42
2013	314150	648461	0.48
Mean	**133959**	**334084**	**0.40**
Standard Deviation	**81272**	**177834**	**0.07**
C.V. (%)	**60.67**	**53.23**	**16.93**
R	**0.95**		

Source: Compiled from Annual Reports of Hindalco Industries Limited

Table 4. Interest Coverage Ratio of Hindalco Industries Limited

₹ in Million

Financial Year	PBT (₹)	EBIT (₹)	Interest (₹)	Ratio (in times)
2004	12456	14068	1612	8.73
2005	19132	20832	1700	12.26
2006	21026	23278	2251	10.34
2007	35046	37470	2424	15.46
2008	30256	33062	2806	11.78
2009	26903	30272	3369	8.98
2010	22645	25425	2780	9.15
2011	25947	28147	2200	12.80
2012	27369	30305	2936	10.32
2013	20466	24826	4360	5.69
Mean	**24125**	**26768**	**2643**	**10.55**
Standard Deviation	**6365**	**6625**	**814**	**2.69**
C.V. (%)	**26.39**	**24.75**	**30.77**	**25.47**

Source: Compiled from Annual Reports of Hindalco Industries Limited

standard deviation, and coefficient of variation (CV) of total debt to total fund ratio in Hindalco are 0.40 times, 0.07 times, and 16.93% respectively. The relationship between two such variables is highly positive, that is, 0.95. Hence, it may be concluded that the financial risk of the company is low. However, the company could fail to enjoy the advantages of trading on equity.

↳ **Interest Coverage Ratio :** This ratio is used to determine how easily a company can pay interest on outstanding debt. The interest coverage ratio is calculated by dividing a company's earnings before interest and

taxes (EBIT) of one period by the company's interest expenses of the same period. The lower the ratio, the more the company is burdened by debt expenses. When a company's interest coverage ratio is 1.5 or lower, its ability to meet interest expenses may be questionable. An interest coverage ratio below 1 indicates the company is not generating sufficient revenues to satisfy interest expenses. The interest coverage ratio shows the number of times the interest charges are covered by funds that are ordinarily available for their payment. The lenders who provide funds to the company are interested to know whether a company will be able to earn sufficient profit to pay the fixed obligations to them. The Table 4 shows the interest coverage ratio of Hindalco Industries Limited.

This ratio shows how easily a company will be able to pay its fixed obligations, that is, interest PAL on outstanding loans. It can be inferred from the Table 4 that there was a fluctuation in earnings before interest and taxes (EBIT) of Hindalco under the study period. The interest coverage ratio also shows a fluctuating trend over the period under study. The mean, standard deviation, and coefficient of variation (CV) of interest coverage ratio in Hindalco are 10.55 times, 2.69 times, and 25.47 % respectively. It is evident the interest charged is fully covered by the earnings before interest and taxes.

Conclusion and Implications

This study reveals that in the capital structure of Hindalco Industries Limited, long term funds comprised of 86.69% of the total funds as compared to short term funds, that is, 13.31% during the entire period under study. The company used more owned funds, that is, 59.90% on an average than the borrowed funds (26.79%). As per this study, it can be concluded that Hindalco Industries Limited mostly preferred equity financing so that the financial risk of the company was low. However, the company did not enjoy the benefits of capital gearing. Funds raised through debt are relatively cheaper than equity financing as the interest is deductible from the taxable income. The company can raise more funds through debt as per its requirement to minimize its cost of capital. It is due to the tax shield available on interest payment. The trends of interest coverage ratios are mixed, but interest payment is fully covered by the earnings before interest and taxes. Hence, it is concluded that to utilize the benefits of financial leverage, Hindalco Industries Limited should tap into the debt funds.

The present study suggests that the companies should use more debt funds as a source to finance their business activities as debt has lower cost than equity. This study would aid the financial and fund managers to evaluate the pattern of financing and assess the leverage position of any company.

Limitations of the Study and Scope for Further Research

This study is based on only one company - Hindalco Industries Limited. The present study discussed the leverage position and pattern of financing of this company only, and the results of this study cannot be generalized for other companies. In this study, only the pattern of capital structure and level of leverage were examined. However, future studies can examine the major determinants of capital structure and its impact on the profitability of the companies.

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