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Capital Management Analysis in Steel Industry with Special Reference to Steel Authority of India

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Abstract

Finance is regarded as the soul of business. It's the finance that makes the resources of production dynamic. Thus, capital management in any industrial organization must be adequate and proper. Steel Authority of India (SAIL) is a maharatna company of Indian public sector which is operating as one of the biggest steel producing units through the combined efforts of integrated steel plants, special steel plants and subsidiaries. This paper studies captital structure of the organization and its management through various financial ratios and statistical analysis of the financial data. The analysis brought out the fact that the financial position of SAIL is satisfactory. Karl Pearson correlation coefficient showed a high negative correlation of net profit after interest and tax and also of net profit before tax with other financial items and a high positive correlation among other financial items. This proved that profit is a dependent variable which depends on how favourable other financial items are.

Keywords: Capital structure, Financial ratios, Correlation coefficient.

Introduction

The fundamental instruments on which human life is based and which fulfil his material and cultural needs are known as resources. They are also called natural resources as they are gathered from earth and occur naturally within environments. Major natural resources include biotic resources like forests, animals and the materials that can be obtained from them, fossil fuels such as coal and petroleum and abiotic resources such as land, fresh water, air & heavy metals including ores such as gold, iron, copper, etc. Minerals hold an esteemed place among natural resources for they have contributed towards improvement of standard of living in every stage of industrial development. The level of development of a country depends on the availability and optimum utilization of natural resources in every aspect of the economy whether it be agriculture, manufacturing, trade or transport. Iron is one of the most important mineral resource and is considered as the backbone of the civilization. Steel was first produced in Iran in 1000 BCE followed up by improved Indian and Chinese versions. The steel industry is often considered an indicator of economic progress, because of the

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critical role played by steel in infrastructural and overall economic development. The first attempt to establish an iron & steel industry on modern lines was made in 1830. However, it was not until 1875 that the foundation of India's present iron & steel industry was laid through a blast-furnace plant at Kulti, Calcutta. This was followed by several iron & steel companies being established across the country, namely, Tata Iron & Steel Company (TISCO), Indian Iron & Steel Company (IISCO), Mysore Iron & Steel Works, Steel Corporation of Bengal, among others. After independence, government took significant steps through industrial policies and five year plans for development of the nation. During the First Five Year Plan, with the authorized capital of 600 crores, Hindustan Steel Limited was established in theIndian public sector. In the early stages of its establishment, 3 integrated plants were set up at Rourkela, Bhilai, and Durgapur with assistance of Western Germany, Russia, and England respectively. The fourth plant at was set up in Bokaro during the fourth five year plan. Through the policy statement of Ministry of Steel & Mines and its subsequent approval by the parliament, Steel Authority of India (SAIL) was incorporated in 1973. Presently, the organization manages 5 integrated steel plants, 3 special steel plants and a Ferro Alloy plant.

Of the five main factors of production—land, labour, capital, organization and entrepreneurship, capital is the most important factor which activates all other factors. Capital is the foundation of business activities without which economic and commercial practices are not possible. It is essential to have an adequate amount of capital in the business. While constructing a building, various raw materials are mixed in a specific proportion, in the same way, in the capital structure of the business; funds obtained from various sources are combined in right proportion. Iron & steel industry involve high investment of capital. Keeping this fact in mind, the paper seeks to analyze the capital structure of SAIL and the financial ratios obtained from the financial statements.

Literature Review

Bhat (1980) analyzed financial leverage of Indian manufacturing companies by taking the variables of size of firm, income variability, development, profitability, operating leverage and dividend payment policy. Firm's financial leverage had no association with its size. There was a negative correlation between firm's leverage and dividend payout policy. Degree of operating leverage did not influence the level and usage of debt.

Mallik& Sur (1998) carried out research in Indian tea industry to assess the influence of working capital management on profitability. They measured the interrelationships between nine selected ratios regarding working capital management and the selected profitability measure which revealed both negative and positive associations.

Bhunia (2010) studied liquidity management in Iron & Steel industry of private sector of India and its effect on financial performance. The study revealed that investment in loans and advances should be minimized and efforts should be made towards increasing the assets and reducing the liabilities. A proper working capital management system in the companies would enhance the profitability of the company and assist in their further growth.

Chakraborty (2009) studied the relationship between working capital management and profitability in 25 pharmaceutical companies of India during 1996-97 to 2007-08. The partial regression coefficients used in statistical analysis of the data revealed that liquidity management, inventory management and credit management positively contributed towards improvement of corporate profitability.

Nandi (2011) studied the influence of financial ratios obtained from working capital management on profitability of National Thermal Power Corporation Limited (NTPC) between 1999-2000 to 2008-09 by using the statistical analysis techniques of correlation, regression analysis, etc. He measured sensitivity of return on investment (ROI) to changes in the level of working capital leverage (WCL) of the company.

Angamuthu & Sivanandam (2012) examined the long term and short term solvency status of 4 privately owned and one government owned cement companies between 2000-01 and 2009-10. There was no risk of solvency in fulfilling long term commitment in most of cement companies. They also had sufficient liquid assets to cover their short term debt.

Objectives of Study

1. To study and analyze the invested capital in SAIL
2. To study and analyze the capital structure of SAIL
3. To study and analyze return on invested capital in SAIL
4. To study and analyze the financial ratios obtained from the financial statements of SAIL
5. To statistically analyze the relationships between the various financial ratios based on capital structure.

Research Methodology

The selection of the research design is crucial for it determines what conclusions a researcher can draw about a phenomenon. It also facilitates research to be as efficient as possible yielding maximal information. This paper is based on analytical research design keeping in mind the basic concept that the financial position of SAIL is satisfactory in accordance with its capital structure. The practicality and efficiency of research work depends on the accuracy of data collected. This paper used financial data published in annual reports of SAIL from 2010-2014 as secondary data. For analysis of the collected data, ratio analysis was used as the main technique. Along with that, statistical methods of average, standard deviation, coefficient of variation, correlation, chi-square test, time series analysis, etc., were also used.

Data Analysis & Interpretationn

Interpretation (Annexure 1)

1. Table 1 shows that company has obtained its funds by issuing equity share capital, of which 80% is contributed by the Indian government. Of the remaining 20% of the share capital, insurance companies hold the largest share (7%), followed by foreign financial investors, banking companies, other institutions, mutual funds and domestic companies.

Thus, it's clear that SAIL as a public company fulfils the objective of its establishment. In the initial capital structure, 20% of the capital has been allocated to different classes of capital market. This change has been brought about by the new economic policies of liberalization, privatization and globalization.

Interpretation (Annexure 2)

2.1. Total average value of profit after tax of SAIL in the last 5 financial years is Rs. 3,397.8 crores which is 1.5 times more than the minimum and maximum value of the years 2012 and 2010. The value of coefficient of variation is 46.59 which shows considerable fluctuations in profits of the company. There is moderate skewness in the values of profit after tax of years under study. Kurtosis value is found to be negative with a platykurtic distribution.

2.2. During the last 5 years, average value of equity share capital of the company is Rs. 4,130.6 crores which is almost equal to the maximum and minimum values of issued share capital of different years taken under study. The percentage of coefficient of variation in share capital is very less which depicts position of stability. The mathematical values of skewness and kurtosis show negative trends with moderate level of skewness and platykurtic distribution.

2.3. The average value of the total amount of accumulation fund in the last 5 years of SAIL has been closer to the maximum and minimum values than to the total value of all the years takenunder study. But the percentage of coefficient of variation is less showing less variability in the amounts of funds. There is moderate skewness in the amount of accumulation fund but kurtosis measure is very low with platykurtic distribution.

2.4. The average value of the total loan amount of SAIL in the last 5 years has been 21.4 per cent greater than the minimum value and 27.60 per cent lesser than themaximum value. The percentage of coefficient of variation in total loan amount is excessive which brings out the fact that the company is using loan capital in highly varying amounts. The value of skewness is 0.703 shows moderate asymmetry in usage of loan amounts but value of kurtosis shows qualities of a platykurtic distribution.

2.5. During the last 5 years of SAIL, the average value of total net worth of the institution shows a midway position of total maximum and minimum value. Also the percentage of coefficient of variation is very less which displays the stability of financial position of the organization. Skewness is found to be in moderate amount while kurtosis measure depicts a platykurtic distribution.

2.6. The average value of the total assets of the last 5 years is more than the minimum amount of last 5 years and value of coefficient of variation is less which indicates that there is not much change happening in the total assets of the institution. There is moderate skewness and value of kurtosis is very less and shows a negative trend.

2.7. The average value of net fixed assets amount is 31.25 per cent more than the minimum amount and is Rs. 8,901.2 crores less in comparison of total

maximum amount. The value of coefficient of variation is less which is an indicator of stability of net fixed assets. There is substantial skewness in the values. Kurtosis measure shows a leptokurtic distribution, i.e., a high probability for extreme values.

2.8. The average value of net profit after interest and tax of SAIL during the last 5 years is much greater than minimum amount but is Rs. 4,343.4 crores less than the maximum amount. The coefficient of variation is quite high with 50 per cent chance of variability of values. The skewness measure is moderate while value of kurtosis shows a platykurtic distribution with comparatively lesser probability for extreme values than that for a normal distribution.

2.9. The average value of interest expenses paid by SAIL during the last 5 years is Rs. 654.2 crores which is Rs. 252.2 crores more than the minimum value. Interest expenses show whether the leverage of the company is within acceptable limits. The coefficient of variation is 34.48 per cent, skewness is very less indicating an approximately symmetric distribution and value of kurtosis shows a platykurtic distribution trend.

Interpretation (Annexure 3)

3.1. Share earnings ratio is the indicator of soundness of any institution. In 2010, the ratio was 16.35 which is highest in comparison of ratios of all other years. The continuous decline in the ratio in the next 4 years shows the rate of earnings per share of SAIL has gone down continuously. The share earnings ratio of the year 2014 is less than half of that of 2010. This position is not satisfactory. The average value of share earnings ratio is 9.68, coefficient of variation is 46.60 and there is moderate skewness.

3.2. The proportional value of accumulation fund and per share capital in SAIL has increased in all the next 4 years as compared to base year 2010. The value of this ratio in 2010 was 70.67 per cent which increased in 2014 to 93.28 per cent. There is an increase of 22.61 per cent which shows the strong financial position of SAIL. Also, the average value of accumulation fund and per share capital ratio is 83.88. The coefficient of variation is quite less, i.e., 10.59. The skewness measure shows symmetry in the values.

3.3. The ideal debt equity ratio of any institution should be less than 1:1 ratio so as to maintain a strong financial soundness. Debt equity ratio of SAIL has been less than the ideal ratio and is fluctuating during all the years taken under this study. This ratio was lowest in the year 2012. The rates of debt equity ratio show that long-term debt servicing capacity is good. The average value of debt equity ratio from 2010-2014 is 50.93 which is marginally higher than the ideal ratio. The value of coefficient of variation is 12.94 which is less.

3.4. Ownership fund ratio is important from the perspective of long term investment. Greater this ratio more is the financial soundness of the institution. During 2010-2014, for the management and arrangement of assets, an average of 50.66 per cent of the amount is taken from the ownership fund and rest of the amount is obtained from external sources. This does not provide adequate security and economic stability to long term capital investors for their invested

capital. The coefficient of variation is 4.05 and skewness is very high. Overall, the position of ownership fund is satisfactory.

3.5. Net fixed assets ownership fund ratio was at its highest rate of 62.75 per cent in the year 2014. The ideal rate of this ratio is 0.67:1. Considering this, net fixed assets ownership fund ratio of SAIL is found to be less than the ideal ratio during the years taken under the study. Its average value is 45.63 which is quite good from the perspective of long term investors. The coefficient of variation of this ratio is 21.08 per cent and skewness is high. Both of the measures indicate a favourable situation.

3.6. Debt service ratio is calculated to provide adequate security to the capital of long term capital investors, that's why higher the ratio, it's better for the organization. In the above table, value of this ratio in the year 2010 is 25.20 per cent which is highest among all the years taken under study. After 2010, there has been a trend of constant decrease in this ratiowith the lowest value being 3.33 per cent in 2014. This reduction shows that the burden of interest expenses is increasing than increase in net profit. The coefficient of variation is quite high, 82.12 per cent and skewness shows a state of symmetry.

3.7. Rate of return on ownership fund is considered an important ratio for every industrial organization. Increase in the rate of return shows an increase in efficiency of an enterprise. The above table shows that this ratio has been fluctuating over the 5 years. In 2010, this ratio stood at 20.27 per cent which was the highest among all the years taken under study. Later on, fluctuations were observed in this ratio which can't be considered satisfactory from the perspective of investors. The average value of this rate is 10.76 per cent and coefficient of variation is 57.15 per cent, which is quite high.

Interpretation (Annexure 4)

4.1. Chi square test was used in the above table for testing the authenticity of calculated values of proportional relationships among major financial items of capital management of SAIL. It's clear from the table that value of chi square test at 5 per cent level of significance and with 4 degrees of freedomis much more than the table value of 9.488. It reveals a high relationship among the items.

Interpretation (Annexure 5)

5.1. The above table shows inter-relationships among the financial items of capital management by calculating binary correlation coefficient and presented in form of correlation matrix. By analyzing the coefficient values of the table, it's clear that there is high level of correlation among the financial items at 0.01 per cent level of significance. The correlation coefficients at 0.05 per cent level of significance bring out the fact that profit after tax of SAIL has a high level of negative correlation with financial items mainly number/amount of equity shares, amount of accumulation fund, total loan amount, net worth/amount of ownership fund, total assets amount, net fixed assets amount and interest expenses. In the same way, net profit after interest and tax is negatively correlated with mainly number/amount of equity shares, amount of accumulation fund, total loan amount, net worth/amount of ownership fund, total assets amount and net fixed

assets amount. Except these two items, there is high level positive correlation among all other items.

Limitations of the Study

The paper is presented from the perspective of an external analyst on the basis of financial ratios calculated from the data contained in annual reports published by SAIL. The validity of the findings depends on the authenticity of financial data given by the company.

Conclusion

The profitability of any industrial institution depends on proper capital structure and management, i.e., in big industrial enterprises having a suitable capital structure is very essential. It's clear from the analysis of capital management of SAIL that it has obtained its share capital through the issue of equity shares which is uncomplicated and secure from the perspective of shareholders. 80 per cent of share capital of the company is invested by the government and rest 20 per cent is divided among other classes. Of the various financial ratios used for analysis, share earnings ratio and ownership fund ratio reveal less than satisfactory position of the firm, while accumulation fund and per share capital ratio, debt equity ratio and net fixed assets ownership fund ratio bring out financial soundness of the organization. Also, the debt service ratio and rate of return on ownership fund ratio demonstrate a satisfactory financial position of the undertaking.

Suggestions

For increasing the productivity of invested capital of SAIL, the authors suggest that the organization can consider using market based price policy, producing modern useful products, controlling the high interest expenses, modernizing integrated steel plants of SAIL and controlling the rising costs.

Works Cited

Agrawal, M.D., Agrawal, N.P., (1988), *Vittiya Prabandh*, Ramesh Book Depot, Jaipur.

Aggarwal, J.K., Sharma, R.K., (2005), *Prabandhkiya Lekhankan*, Ramesh Book Depot, Jaipur.

Kulshrestha, R.S., (2001), *Vittiya Prabandh*, Sahitya Bhawan Publishers & Distributors Pvt. Ltd., Agra.

Gupta, S.P., (1997), *Prabandhakiya Lekha Vidhi*, Sahitya Bhawan Publications, Agra.

Jain, B.M., (1995), *Shodh Pravidhievam Kshetriya Taknik*, Research Publications, Jaipur.

Shukla, S.M., Sahay, S.P., (2001), *Sankhyiki ke Siddhaant*, Sahitya Bhawan Publications, Agra.

Bhat, (1980), Determinates of Financial Leverage: Further Evidence, CA (29) (6), 451-452.

Nandi, K.C., (2011), Impact of Working Capital Management on Profitability, A Case Study of National Thermal Power Corporation Ltd., *The Management Accountant*, January, 22-27.

Chakraborty, (2009), Liquidity, Risk and Profitability Analysis: A Case Study of Madras Cements Ltd., *The Management Accountant*, October, 42(10), 784-789.

Mallik, A.K., Sur, D., (1998), Working Capital Management: A Case Study of Hindustan Lever Ltd., *Finance India*, Indian Institute of Finance, XII(3), 851-871.

Bhunia, A., (2010), A Study of Liquidity Trends on Private Sector Steel Companies in India, *Asian Journal of Management Research*, 1(1),618,628, http://www.ipublishing.co.in/ajmrvol1no1/EIJMRS1056.pdf, Access on April 23, 2012.

Angamuthu, R., Sivanandam, A., (2012), *International Journal of Exclusive Management Research*, February, 2(2), 1.

Chandra, Prasanna, (1997), *Financial Management Theory & Practice*, Tata McGraw-Hill Education (India) Private Limited, New Delhi.

Pandey, I.M., (1988), *Elements of Financial Management*, Vikas Publishing House Pvt. Ltd., New Delhi. http://www.sail.co.in/

Annual Reports of Steel Authority of India Limited, New Delhi, year 2009-10 to 2013-14.

Annexure 1: Analysis of Capital Structure

Class	Number of Holders	Amount (in crores)	Percentage
Indian government	01	3304.29	80.00
Insurance companies	12	292.95	7.09
Banking companies	75	129.51	3.14
Mutual funds	31	29.26	0.71
Foreign financial investors	175	241.68	5.85
Global deposit receipts	2	0.45	0.01
Domestic companies	3163	19.15	0.46
Others	388998	113.22	2.74
Total share capital	392457	4130.53	100.00

Source: Annual reports of SAIL.

Annexure 2: Statistical Analysis of Financial Items based on Capital Management

Count Value	Profit after Tax	Number/ Expenses Amount of Equity Shares	Amount of Accumula-tion Fund	Total Loan Amount	Networth/ Amount of Ownership Fund	Total Assets Amount	Netfixed Assets Amount	Net Profit After Intrest & Tax	Interest Expenes
Average	3997.6	4130.6	34647	19812.8	38777.6	76592.2	17869.8	5788.6	654.2
Standard Error of Average	832.97	0.245	1642.87	1675.7	1642.8	3331.67	2312.8		100.88
Standard Deiation	1862.57	0.548	3673.56	3746.98	3673.41	7449.84	5159	2928.70	225.58
Coefficient of variation	46.59	0.013	10.62	96.63	9.47	9.73	28.94	50.59	34.48
Median	3543	4130	35680	19375	39811	73829	16777	5151	678
Minimum	2170	4130	29186	16320	33317	67772	13615	3225	402
Maximum	6754	4131	38536	25281	42666	87313	26771	10132	968
Skewness	0.829	-0.609	-0.811	0.703	-0.812	0.557	1.82	0.847	0.361
Kurtosis	-0.392	-3.333	-0.084	-0.651	-0.086	-0.058	3.655	-0.434	-0.831

Source: Annual reports of SAIL.

Annexure 3 : Financial Ratio Analysis based on Capital Management

Year	Share earnings ratio	Accumulation fund & per share capital ratio in %	Debt equity ratioin %	Ownership fund ratioin %	Net fixed assets ownership fund ratio	Debt service ratio	Rate of return on ownership fund ratio in%
2010	16.35	70.67	49.56	49.16	40.87	25	20.27
2011	11.88	79.76	52.27	50.21	40.62	15	13.23
2012	8.58	86.37	40.99	53.97	43.02	70	18.90
2013	5.25	89.31	52.64	51.10	40.89	4.	5.29
2014	6.33	93.28	59.21	48.87	62.75	33	6.13
Average value	9.68	83.88	50.93	50.66	45.63	12	10.76
Standard error of mean	2.02	3.97	2.95	0.92	4.30	4	2.75
Standard deviation	4.51	8.88	6.59	2.05	9.62	.13	6.15
Coefficient of variation	46.60	10.59	12.94	4.05	21.08	8	57.15
Median	8.58	86.37	52.27	50.21	40.89	7	8.90
Skewness	0.829	-0.078	1.571	1.574	4.788	0	0.357

Source: Annual reports of SAIL

Annexure 4 : Chi Square Analysis Values of Proportional Relationship of Financial Items based on Capital Management

Count of Value	Share Earnings Ratio	Accumulation Fund & per share Capital Ratio in %	Debt Equity Ratio %	Ownership Fund Ratio %	Net-fixed Assets Ownership Fund Ratio	Debt Service Ratio	Rate of Return Onownership Fund Ratio in %
Value of Chi square test	1684.204	175.89	938.443	165.133	2116.406	1701.446	4641.885
Degrees of freedom	4	4	4	4	4	4	4
Table value at 5% level of significance	9.488	9.488	9.488	9.488	9.488	9.488	9.488

Source: Annual reports of SAIL.

Annexure 5 : Correlation Matrix of Proportional Relationship of Financial Items based on Capital management of SAIL

Financial Items	Profit After Tax	Number/ Amount of Equity Shares	Amount of Accumulation Fund	Total Loan Amount	Networth/ Amount of Ownership Fund	Total assets amount	Net Fixed Assets Amount & Tax	Net Profit After Interest	Interest Expenses
Profit aftertax	1								
Number/ Amount of equity shares	-0.898**	1							
Amount of accumulation fund	-0.970**	0.890**	1						
Total loan amount	-0.670**	0.456*	0.733*	1					
Networth/amount of ownership fund	-0.970**	0.891**	1.000**	0.733**	1				
Total assets amount	-0.848**	0.710**	0.913**	0.942**	0.913**	1			
Net fixed assets amount	-0.629**	0.624*	0.782**	0.831**	0.782**	0.901**	1		
Net profit After Interest & tax	0.96**	-0.896**	-0.987**	-0.712**	-0.987**	-0.885**	-0.693*	1	
Interest expenses	-0.877**	0.873**	0.947**	0.800**	0.947**	0.947**	0.911**	-0.910**	1

Source: calculated from annual reports of SAIL

*proven at 0.01% level of significance

**proven at 0.05% level of significance