

Capital Structure and Financial Performance

A Case Study of STEEL AUTHORITY OF INDIA LIMITED (SAIL), VISAKHAPATNAM, ANDHRA PRADESH

Mr. P. Sanjeevi*
Dr. G. Srinivasa Rao**

Abstract

Capital structure is the most significant discipline of company's operations. To understand how companies finance their operations, it is necessary to examine the determinants of their financing or capital structure decisions. Company financing decisions involve a wide range of policy issues. The relationship between capital structure and financial performance is one that received considerable attention in the finance literature. How important is the concentration of control for the company performance or the type of investors exerting that control are questions that authors have tried to answer for long time prior studies show that capital structure has relating with corporate governance, which is the key issues of state owned enterprise. To study the effects of capital structure or financial performance, will help us to know the potential problems in performance and capital structure. The analyze has been made the capital structure and its impact on Financial Performance during 2002 to 2012 (10 years) financial year of Steel Authority of India Limited. This point of study considered Capital structure is dependent variable and financial performance parameters i.e. Gross Profit ratio, Net Profit Ratio, Return on Capital Employed, Return on Equity, Return on Total Assets and Return on Fixed Assets are independent variables.

Introduction

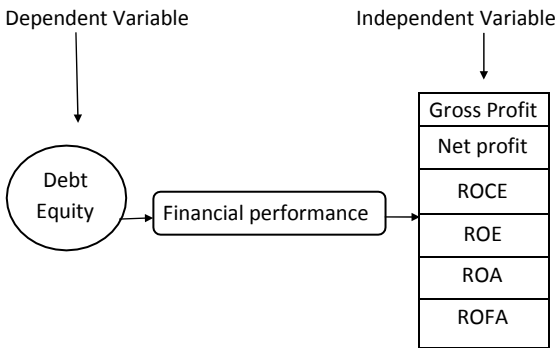
Capital structure is most significant discipline of company's operations. To understand how companies finance their operations, it is necessary to examine the determinants of their financing or capital structure decisions. Company financing decisions involve a wide range of policy issues. The relationship between capital structure and financial performance is one that received considerable attention in the finance literature. How important is the concentration of control for the company performance or the type of investors exerting that control are questions that authors have tried to answer for long time prior studies show that capital structure has relating with corporate governance, which is the key issues of state owned enterprise. To study the effects of capital structure or financial performance, will help us to know the potential problems in performance

and capital structure. The analyze has been made the capital structure and its impact on Financial Performance during 2002 to 2012 (10 years) financial year of Steel Authority of India Limited. This point of study considered Capital structure is dependent variable and financial performance parameters i.e. Gross Profit ratio, Net Profit Ratio, Return on Capital Employed, Return on Equity, Return on Total Assets and Return on Fixed Assets are independent variables.

*Assistant Professor, Samata College, Visakhapatnam

**Associate Professor, Head - Department of Management Studies, Samata College, Visakhapatnam

Conceptual Frame work



Mode of Analysis

Capital structure:

Role of debt to Total funds = $\frac{\text{Debt}}{\text{Total funds}} \times 100$

Financial Performance:

Gross profit = $\frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$

Net profit = $\frac{\text{Net Profit}}{\text{Net Sales}} \times 100$

ROA = $\frac{\text{PAT}}{\text{Total Assets}} \times 100$

ROI/ROE = $\frac{\text{PBIT}}{\text{Equity}} \times 100$

ROCE = $\frac{\text{PAT}}{\text{Capital Employed}} \times 100$

ROFA = $\frac{\text{PAT}}{\text{Gross Block (FA)}} \times 100$

Objectives of The Study

The focus of this study is impact of capital structure on performance of the Steel Authority of India Limited.

- To assess the financial performance of the Steel Authority of India Limited.
- To reveal the impact of capital structure on financial performance.

- To evaluate the interrelationship between capital structure and performance.

Hypothesis of The Study

Keeping the above objectives in mind, the following hypothesis were framed and tested during the study period.

NULL HYPOTHESIS (Ho)

- Ho (1):** There is no significant relationship between Capital Structure and Gross Profit.
- Ho (2):** There is no significant relationship between Capital Structure and Net Profit.
- Ho (3):** There is no significant relationship between Capital Structure and Return on Capital Employed.
- Ho (4):** There is no significant relationship between Capital Structure and Return on Equity.
- Ho (5):** There is no significant relationship between Capital Structure and Return on Total Assets.
- Ho (6):** There is no significant relationship different between Capital Structure and Return on Fixed Assets.

Research Methodology

The study was concerned with steel industry and it has been confined to only one public limited viz. Steel Authority of India Limited. The study was on the secondary data, which was obtained from the published sources i.e. Annual reports for the period of 10 years from, 2002-03 to 2011-12. The collected data was analyzed with the help of ratio analysis. The many accounting ratios used to predict the financial performance of the company, gives a warning only when it is too late to take corrective action.

Limitations of The Study

The following are the limitations of the present study.

- The study was limited to 10 years from 2002-03 to 2011-12.
- The study was limited to one company.
- The data of this study has been primarily taken from published annual reports only.

About The Company

Introduction

Steel Authority of India Limited (SAIL) is engaged in the business of manufacturing and marketing steel and its allied products. It is a fully integrated iron and steel maker, producing both basic and special steel products for construction, engineering, power, railway, automotive and defense industries and for sale in export markets. SAIL is also among the five Maharatnas of the country's Central Public Sector Enterprises. The company primarily operates in India and is headquartered in New Delhi, India. The Government of India owns about 86 percent of SAIL's equity and retains voting control of the Company.

Historical Perspective

Hindustan Steel (HSL) was initially designed to manage only one plant that was coming up at Rourkela. For Bhilai and Durgapur Steel Plants, the preliminary work was done by the Iron and Steel Ministry. Since April 1957, the supervision and control of these two steel plants were also transferred to Hindustan Steel. The registered office was originally at New Delhi. It moved to Calcutta in July 1956 and ultimately to Ranchi in December 1959. The one MT phases of Bhilai and Rourkela Steel Plants were completed by the end of December 1961. The one MT phase of Durgapur Steel Plant was completed in January 1962 after commissioning of the Wheel and Axle plant. The crude steel production of HSL went up from 0.158 MT (1959-60) to 1.6 MT. A new steel company, Bokaro Steel Limited was incorporated in January 1964 to construct and operate the steel plant at Bokaro. The second phase of Bhilai Steel Plant was completed in September 1967 after commissioning of the Wire Rod Mill. The last unit of the 1.8 MT phase of Rourkela - the Tandem Mill-was commissioned in February 1968, and the 1.6 MT stage of Durgapur Steel Plant was completed in August 1969 after commissioning of the Furnace in SMS. Thus, with the completion of the 2.5 MT stage at Bhilai, 1.8 MT at Rourkela and 1.6 MT at Durgapur, the total crude steel production capacity of HSL was raised to 3.7 MT in 1968-69 and subsequently to 4MT in 1972-73.

Organization Structure and Functional areas

The Steel Authority of India Limited (SAIL) is a company registered under the Indian Companies Act, 1956 and is an enterprise of the Government of India. It has five integrated steel plants at Bhilai (Chhattisgarh), Rourkela (Orissa), Durgapur (West Bengal), Bokaro (Jharkhand) and

Burnpur (West Bengal). SAIL has three special and alloy steels plants viz., Alloy Steels Plant at Durgapur (West Bengal), Salem Steel Plant at Salem (Tamil Nadu) and Visveswaraya Iron and Steel Plant at Bhadravati (Karnataka). In addition to these, a Ferro Alloy producing plant at Chandrapur is owned by Maharashtra Elektrosmet Limited which is a subsidiary of SAIL. SAIL has eleven units viz. Research and Development Centre for Iron and Steel (RDCIS), Centre for Engineering and Technology (CET) and Management Training Institute (MTI), all are located at Ranchi, Central Coal Supply Organization (CCSO) located at Dhanbad, and Raw Materials Division (RMD), Environment Management Division (EMD), Growth Division (GD) and SAIL Safety Organization (SSO) allocated are located at Kolkata.

SAIL's wide ranges of long and flat steel products are having much demand in the domestic as well as in the international market. This vital responsibility is carried out by SAIL's own Central Marketing Organization (CMO) that transacts business through its network of 37 Branch Sales Offices spread across the four regions, 25 Departmental Warehouses, 42 Consignment Agents and 27 Customer Contact Offices. CMO's domestic marketing effort is supplemented by its ever widening network of rural dealers, who meet the demands of the smallest customers in the remote corners of the country. With the total number of dealers over 2000, SAIL's wide market spread ensures availability of quality steel in virtually all the districts of the country. SAIL's International Trade Division (ITD), in New Delhi- an ISO 9001:2000 accredited unit of CMO, undertakes exports of Mild Steel products and Pig Iron from SAIL's five integrated steel plants. With technical and managerial expertise and know-how in steel making gained over four decades, SAIL's Consultancy Division (SAILCON) at New Delhi offers services and consultancy to clients world-wide.

SAIL has a well-equipped Research and Development Centre for Iron and Steel (RDCIS) at Ranchi which helps to produce quality steel and develop new technologies for the steel industry. Besides, SAIL has its own in-house Centre for Engineering and Technology (CET), Management Training Institute (MTI) and Safety Organization at Ranchi. Our captive mines are under the control of the Raw Materials Division in Kolkata. The Environment Management Division and Growth Division of SAIL operate from their headquarters in Kolkata. Almost all our plants and major units are ISO Certified.

Vision, Cred and Policies

- (i) **Vision:** To be a respected world Class Corporation and the leader in Indian steel business in quality, productivity, profitability and customer satisfaction.
- (ii) **Cred:** We build lasting relationships with customers based on trust and mutual benefit. We uphold highest ethical standards in conduct of our business. We create and nurture a culture that supports flexibility, learning and is proactive to change. We chart a challenging career for employees with opportunities for advancement and rewards. We value the opportunity and responsibility to make a meaningful difference in people's lives.
- (iii) **Policies of SAIL:**
- (a) HR Policy of SAIL:** SAIL personnel directorate shall ensure competent and committed team engaged in building a culture of learning to achieve excellence in performance and employee satisfaction through innovation and continual improvement.
- (b) Corporate Environmental Policy:** SAIL reaffirms its commitment to contributing towards a clean and sustainable environment and continually enhancing its environmental performance as an integral part of its business philosophy and values. Towards this commitment, we shall:
- Integrate sound environmental management practices in all our activities.
 - Conduct our operations in an environmentally responsible manner to comply with applicable legal and other requirements related to its environmental aspects and strive to go beyond.
 - Progressively adopt cleaner and energy efficient technologies.
 - Minimize waste generation and promote recovery, recycle and reuse.
 - Increase greenery in and around our plants and mines.
 - Strive for continual improvement in our environmental performance by setting challenging targets, measuring progress, taking corrective action and communicating environmental information to all concerned.
 - Enhance environmental awareness amongst employees working for and on behalf of us and the general populace around plants and mines.
 - Encourage our business associates to adopt similar approach for environmental protection.

SAIL Major units and Producers are as given under:

Integrated Steel Plants

- Bhilai Steel Plant (BSP) in Chhattisgarh
- Durgapur Steel Plant (DSP) in West Bengal
- Rourkela Steel Plant (RSP) in Orissa
- Bokaro Steel Plant (BSL) in Jharkhand

Corporate Plan-2012

To ensure long term growth, with cost and quality competitiveness, SAIL has drawn a Corporate Plan with perspective up to 2012. The plan envisages maintaining the market leadership of SAIL and growing in identified growth segment. SAIL shall achieve a growth in production to about 20 MT of hot metal with commensurate enhancement in the production of crude steel and saleable steel and increase the percentage of finished steel in its product-mix, by de bottlenecking and selective investments. Further, to improve competitiveness the focus would be on Cost competitiveness and Quality enhancement. Further, the functional strategies in the areas of Marketing, Operations, Human Resources, Finance and Information Technology have been evolved to support the key strategy of growth with cost and quality competitiveness.

Special Steel Plants

- Alloy Steels Plants (ASP) in West Bengal
- Salem Steel Plant (SSP) in Tamil Nadu
- Visvesvaraya Iron and Steel Plant (VISL) in Karnataka

Subsidiaries

- Indian Iron and Steel Company (IISCO) in West Bengal
- Maharashtra Elektro smelt Limited (MEL) in Maharashtra
- Bhilai Oxygen Limited (BOL) in New Delhi

Awards

The performance of SAIL has been widely recognized by all its stakeholders including Government of India, financial institutions, leading rating agencies and several industry bodies who have conferred several awards & accolades in various fields. Some of them are:

- Maharatna SAIL has received the prestigious Golden Peacock Environment Management Award for the year 2011. The award, in recognition of SAIL's initiatives and achievements in the field of environment management, was presented by Union

Minister for Home Affairs Shri P. Chidambaram on 24th June, 2011.

- SAIL was awarded SCOPE Meritorious Award for Environment Excellence & Sustainable Development for FY 2010.
- SAIL bagged Randstad Award for HR Practices & Employer Branding for 2011 under 'Manufacturing Industries' category.
- SAIL received the maiden Wockhardt Shining Star CSR Award in the Iron & Steel Sector category in 2011.
- SAIL was conferred award for financial and operational strength by Indian Institute of Industrial Engineering (IIIE) for the year 2009-10.
- BSP the HR Excellence Award by the Greentech Foundation in September, 2010.
- National Safety Award for 2008 to BSP announced by the Ministry of Labour & Employment, Government of India.
- Quality Summit New York Gold Trophy 2007 (International Award for Excellence & Business).
- For the 7th consecutive year RSP bagged the Greentech Environment Excellence Gold Award.
- SSP received the prestigious Greentech Gold Award 2010 in Metal and Mining Sector for the year 2008-09.

Review of Literature

Review of literature is necessary since it familiarizes the researcher with concepts and conclusions already evolved by earlier analysis. It also enable the present researcher to find out the scope for further study and frame appropriate objectives for the proposed evaluation. Since the proposal of the study is to measure the capital structure and financial performance of Steel Authority of India Limited, the previous studies made in this area of research are briefly reviewed. It also includes the opinions expressed by various authors in leading articles, journals and books.

Modigliani and Miller (1958) have proposed that the capital structure doesn't have influence on the market value of the company, which will be settled by the composition of its assets. This is a model with several presuppositions unreal for the current context-in which perfect markets are those without brokerage costs, and individual taxes and where it is possible to investors to obtain financing at the same rates practiced to

companies. There is not an information asymmetry, and the company's debt is free from risk. This field of investigation is called static trade-off theory. It is characterized by the idea that firms set a target for a leverage ratio and move toward it. Optimum capital structure for the company can be determined only through taking into account the advantages and disadvantages of funds provided to the company by debt and equity capital. However, an attempt is made in this chapter to review some of the research studies done on the related topics to reflect on their findings and these are presented here under which they were very interesting and useful for our research. This was theoretically very sound but it was based on the assumptions of perfect capital market and no tax world, which were not valid in reality. The origin of the debate can be traced back to Modigliani and Miller's 1958 irrelevance proposition, which serves as the focal point of the major theories and the studies conducted afterwards. During the 1960s and 1970s, these studies presented criticism of Modigliani and Miller's proposition by proposing imperfections that might make the capital structure of a firm relevant. So, this was corrected in 1963. In correction, they incorporated the effect of tax on value and cost of the capital of the firm- Modigliani and Miller 1963.

Jensen and Meckling (1976), were the first to present a formal framework, which incorporates the significance of agency costs for capital structure. They argue that an optimal capital structure can be achieved by offsetting the agency costs of debt against the benefits of debt. Two main types of conflicts can arise: conflicts between the management and the shareholders and conflicts between the bondholders and the shareholders. The former agency problem can arise because management has a smaller stake in the residual claims compared to equity holders. This may lead to behavior, which is less than optimal for maximizing the firm's value. In this study, the capital structure theory based on the agency costs. Firm incurs two types of agency costs-cost associated with the outside equity holders and cost associated with the presence of debt in capital structure. Total agency cost first decreases and after certain level of outside equity capital in Capital structure, it increases. Thus, this theory pleads the concept of optimal capital structure.

Chakraborty (1977) in his study found that age, retained earnings and profitability were negatively correlated with the debit equity ratio, while total assets and capital

intensity were directly related to it. He felt that a high cost of capital for all the consumer industries was due to their low debt component. Here, author strongly suggested that high debt capital structure is favorable.

Titman and Wessels (1988) pointed out that the tendency of managers to pursue personal interests at the expense of shareholders might produce a negative relation between tangible assets and debt levels. Who use the ratio of tax credits over total assets and the ratio of depreciation over total assets as measures of non-debt taxshield.

Deesomsak, Paudyal and Pescetto (2004), found that firm risk, growth opportunity and profitability do not have a significant impact on financial leverage of firms. What puzzles us about this study are the findings of the insignificant effects that profitability, growth and firm risk have on the capital structure differences among the firms. The twit study, on the other hand, does not offer evidence on the role of risk. In previous studies which do examine the effects of risk, most of them take accounting measurements of risk, usually volatilities or coefficient of variations in profit, ROA, ROE, or sales revenue. We argue that these measures of risk may not be the primary concerns of corporations in making the long-term financing decisions about capital structures. As shareholders have the liberty to diversify their investments, they are likely to be concerned only about the systematic risk of equity of the firms. As risk, growth and profitability are factors predicted to affect debt ratios by various theories, we decide to reinvestigate their roles using a two dimension data set to carry out both cross-sectional and longitudinal studies.

Voulgaries, F and Asteriou, D. (2004) in their study "size and profitability are the determinants of capital structure. In the Greek manufacturing sector "revealed the capital structure decisions of small and medium - sized enterprises (SMEs) and large sized enterprises (LSEs). The findings show that profitability is a major determinant of capital structure for both size groups. However, efficient assets management and assets growth were found to be essential for the debt structure of LSEs, as opposed to efficiency of current assets, size sales growth and high fixed assets, which were found to substantially affect the credibility of SMEs.

Harrington (2005), in this study, supported the theories of capital structure, which indicates that profitability, is an important determinant of leverage. The results suggest that manufacturing firms in concentrated industries have a slower rate of mean reversion in profitability when compared to firms operating in a more competitive environment. A slower rate of mean reversion in profitability leads to a greater response of leverage to profitability.

Mohammed Omran evaluates the financial and operating performance of newly privatized Egyptian state-owned enterprises and determines whether such performance differs across firms according to their new ownership structure. The Egyptian privatization program provides unique post-privatization data on different ownership structures. Since most studies do not distinguish between the types of ownership, this paper provides new insight into the impact that postprivatization ownership structure has on firm performance. The study covers 69 firms, which were privatized between 1994 and 1998. For these newly privatized firms, these study documents significant increases in profitability, operating efficiency, capital expenditures, and dividends. Conversely, significant decreases in employment, leverage, and risk are found, although output shows an insignificant decrease following privatization. The empirical results also show that Egyptian state owned enterprises, which were sold to anchor-investors and employee shareholder associations, seem to outperform other types of privatization, such as minority and majority initial public offerings.

B.Nimalathan & Valeriu Brabete (2010), they pointed out capital structure and its impact on profitability: a study of listed manufacturing companies in Sri Lanka. The analysis of listed manufacturing companies shows that Debt equity ratio is positively and strongly associated to all profitability ratios (Gross Profit, Operating Profit & Net Profit Ratios) Nimalathan, B., Valeriu B., 2010 Capital structure and Its Impact on Profitability.

Table 1: Capital Structure Leverage of Steel Authority of India Limited

Year	Debt Rs. in '00 Lakhs	Total Funds Rs. in '00 Lakhs	Capital Structure Leverage
2002-03	12970	21318	60.84
2003-04	8690	21243	40.9
2004-05	5770	26672	21.63
2005-06	4298	29549	14.54
2006-07	4181	31977	13.07
2007-08	3045	37889	8.03
2008-09	7563	46981	16.09
2009-10	16511	52769	31.29
2010-11	20166	51603	39.07
2011-12	16332	45558	35.85
Mean	9952.6	36555.9	28.131
SD	6100	12088.6	16.41
Skew	0.516	0.079	0.716
Range	1721	31526	52.81

Source: Compiled from Annual Reports of SAIL from 2002-03 to 2011-12.

Table 1 indicates the capital structure leverage of the SAIL. Average of this ratio was 28.13 percent and its standard deviation 16.41 percent. It represents low level of leverage has been maintaining by the company. Its range

is only 0.53 and positively skewed. It is clear from the analysis that the ratio is fluctuating though the study period.

Table 2: Gross Profit Ratio of Steel Authority of India Limited

Year	Gross Profit Rs. in '00 Lakhs	Sales Rs. in '00 Lakhs	GPR
2002-03	2165	19207	11.27
2003-04	4657	24178	19.26
2004-05	11097	31805	34.89
2005-06	7381	32280	22.86
2006-07	10966	39189	27.98
2007-08	12955	45555	28.44
2008-09	10946	48738	22.46
2009-10	11871	43935	27
2010-11	9030	47041	19.19
2011-12	7658	50348	15.21
Mean	8872.6	38227.6	22.856
SD	3428,21	10842.49	6.98
Skew	-0.888	-.645	0.010
Range	10790	31141	23.62

Source: Compiled from Annual Reports of SAIL from 2002-03 to 2011-12.

From the Table No.2 revealed that the GP Ratio of SAIL. This ratio indicates that how much a company is able to earn after accounting for cost of goods sold to every rupee of revenue. It was found that GPR of SAIL is a fluctuating during the study period. Average and standard deviation

of this ratio is 22.86 percent and 6.98 percent respectively. It is positively skewed and range of this is only 23.62 percent. It is one of the profitability performance indicators of the company.

Table 3: Net Profit Ratio of Steel Authority of India Limited

Year	Net Profit Rs. in '00 Lakhs	Sales Rs. in '00 Lakhs	NPR
2002-03	-316	19207	1.89
2003-04	2628	24178	12.34
2004-05	9365	31805	32.83
2005-06	5706	32280	20.48
2006-07	9423	39189	27.78
2007-08	11469	45555	29.03
2008-09	9399	48738	21.75
2009-10	10132	43935	24.99
2010-11	7194	47041	16.84
2011-12	5151	50348	10.23
Mean	7015.1	38227.6	19.816
SD	3723.3	10842.49	9.58
Skew	-0.883	-0.645	-0.544
Range	11785	31141	30.94

Source: Compiled from Annual Reports of SAIL from 2002-03 to 2011-12.

From the Table No.3 Net profit ratio indicates how much a company is able to earn after accounting for all the direct and indirect expenses to every rupee of revenue. It is found that Net Profit Ratio of SAIL was in fluctuating during the study period. Average and standard deviation

of this ratio is 19.82 percent and 9.58 percent respectively. It is negatively skewed and range of this is only 30.94 percent. It is one of the profitability performance indicator of the company.

Table 4: Return on Capital Employed of Steel Authority of India Limited

Year	PBIT Rs. in '00 Lakhs	Capital Employed Rs. in '00 Lakhs	ROCE
2002-03	-1018	16541	-6.15
2003-04	3529	15218	23.19
2004-05	9970	20064	49.69
2005-06	6174	21438	28.8
2006-07	9755	25476	38.29
2007-08	11720	28450	41.2
2008-09	9658	34704	28.83
2009-10	10534	41696	25.26
2010-11	7669	39431	19.45
2011-12	6091	33333	18.27
Mean	7408.2	27635.1	26.683
SD	3871.11	9413.95	15.27
Skew	-1.219	0.166	-0.764
Range	12738	26478	55.84

Source: Compiled from Annual Reports of SAIL from 2002-03 to 2011-12.

From the Table No.4, Return on Capital Employed, it is a measure explains how well the firm is able to generate a return on the capital employed. This ratio indicates that the firm has well the utilized the resources of owners to generate return on the funds of owners. It is observed that ROCE was in fluctuating trend for the company

during the study period. SAIL has attained highest ROCE at 49.69 percent in the year 2004-05 and lowest ROCE for SAIL was (6.15) percent in the year 2002-03. The computed values of Mean, Range and standard deviation are 26.68 percent, 55.84 percent and 15.27 percent respectively. And also observed it is negative skewness.

Table 5: Return on Equity of Steel Authority of India Limited

Year	PAT Rs. in '00 Lakhs	Equity Rs. in '00 Lakhs	ROE Ratio
2002-03	-314	1989	-15.78
2003-04	2512	4659	53.91
2004-05	6817	10011	68.09
2005-06	4013	12386	32.4
2006-07	6202	17184	36.09
2007-08	7537	23004	32.76
2008-09	6170	28148	21.92
2009-10	6754	33317	20.27
2010-11	4905	37069	13.23
2011-12	3543	39811	8.9
Mean	4813.9	20758	27.17
SD	2422.49	13565.74	23.51
Skew	-0.064	0.055	0.000
Range	7851	37822	83.87

Source: Compiled from Annual Reports of SAIL from 2002-03 to 2011-12.

From the Table 4 It can be seen that Return on equity reveals, how well a company used reinvested earnings to generate additional earnings. It is observed, SAIL was made highest ROE at 68.09 percent in the year 2004-05 and also indicated that lowest ROE was (15.78) percent in

the year 2002-03. The computed values of Mean, Range and standard deviation are 27.17 percent, 83.87 percent and 23.51 percent respectively. It is one of the finance indicators to evaluate the performance of the company.

Table 6: PAT to Total Assets of Steel Authority of India Limited

Year	PAT Rs. in '00 Lakhs	Total Assets Rs. in '00 Lakhs	PAT TO TA
2002-03	-314	21318	-1.47
2003-04	2512	21243	11.82
2004-05	6817	26672	25.56
2005-06	4013	29549	13.58
2006-07	6202	31977	19.4
2007-08	7537	37889	19.89
2008-09	6170	46981	13.13
2009-10	6754	52769	12.8
2010-11	4905	51603	9.5

2011-12	3543	45558	7.77
Mean	4813.9	36555.9	13.198
SD	2422.5	12988.6	7.4
Skew	-1.064	0.079	-0.319
Range	7851	31526	27.03

Source: Compiled from Annual Reports of SAIL from 2002-03 to 2011-12.

From the Table No 6 reveals the performance of Return on Total Assets ratio, which measures the overall efficiency of capital invested in business. It indicates what the yield is for every rupee invested in assets. It is observed that ROTA was in fluctuating trend for the company during the study period. SAIL was made highest ROTA of 25.56

percent in the year 2004-05 and lowest value of this ratio was (1.47) percent in the year 2002-03. The computed values of Mean, Range and standard deviation are 13.2 percent, 27.03 percent and 7.4 percent respectively. And also observed it is negative skewness.

Table 7: PAT to Fixed Assets Ratio of Steel Authority of India Limited

Year	PAT Rs. in '00 Lakhs	Fixed Assets Rs. in '00 Lakhs	ROFA
2002-03	-314	14036	-2.24
2003-04	2512	13168	19.07
2004-05	6817	12485	54.6
2005-06	4013	12162	32.4
2006-07	6202	11598	53.47
2007-08	7537	11571	65.14
2008-09	6170	12305	50.14
2009-10	6754	13615	49.6
2010-11	4905	15083	32.52
2011-12	3543	17127	20.68
Mean	4813.9	13315	37.538
SD	2422.5	1742.17	20.73
Skew	-1.064	1.25	-0.631
Range	7851	5556	67.38

Source: Compiled from Annual Reports of SAIL from 2002-03 to 2011-12.

From the Table No.7, reveals the performance of Return on Fixed Assets, it measures the efficiency of capital invested for fixed assets in business. It indicates what the yield is for every rupee invested in fixed assets. It is observed that ROFA was in fluctuating trend for both the companies during the study period. It is observed that SAIL was made highest ROFA of 65.47 percent in the year 2009-09 and lowest of this ratio was (2.24) percent resulted in the year 2002-03. The computed values of Mean, Range and standard deviation are 37.54 percent, 67.38 percent and 20.73 percent respectively. And also it is observed negative skewness.

Testing of Hypotheses

Correlation Analysis

Correlation is concern describing the strength of relationship between two variables. In this study the correlation co-efficient analysis is undertaken to find out the relationship between capital structure and financial performance of SAIL. The measure of correlation is called the co-efficient of correlation. It is denoted by 'r' and the simplest formula for computing the appropriate t value to test significance of a correlation coefficient employs the t distribution.

$$t = r \sqrt{\frac{n-2}{1-r^2}}$$

The degrees of freedom for entering the t-distribution is N-2. Table value of (10-2) i.e. 8 degrees of freedom at 5% level of significance is 2.306 for two tailed test.

NULL HYPOTHESIS (Ho)

Ho (1): There is no significant relationship between Capital Structure and Gross Profit.

Ho (2): There is no significant relationship between Capital Structure and Net Profit.

Ho (3): There is no significant relationship between Capital Structure and Return on Capital Employed.

Ho (4): There is no significant relationship between Capital Structure and Return on Equity.

Ho (5): There is no significant relationship between Capital Structure and Return on Total Assets.

Ho (6): There is no significant relationship different between Capital Structure and Return on Fixed Assets.

Table 8: Steel Authority of India Limited - Summary of "T" - Distribution Inferences

Relationship	'r' value	Correlation result	't' value	Remark
Correlation between Capital Structure and Gross Profit	-0.754	Highly Negative	//3.21//	Significant
Correlation between Capital Structure and Net Profit	-0.84	Highly Negative	//4.34//	Significant
Correlation between Capital Structure and Capital Employed	-0.86	Highly Negative	//4.73//	Significant
Correlation between Capital Structure and Equity	-0.55	Negative	//1.85//	Not Significant
Correlation between Capital Structure and Total Assets	-0.81	Highly Negative	//3.97//	Significant
Correlation between Capital Structure and Fixed Assets	-0.87	Highly Negative	//5.08//	Significant

Source: Computed

It can be seen from the Table 8. The correlation between capital structure financial performance of the SAIL. The parameters i.e. Gross Profit ratio, Net Profit Ratio, Return on Capital Employed Return on Total Assets and Return on Fixed Assets are significant. But Return on Equity is not significant; it indicates that performance is required to be other factors.

Regression Analysis

Regression analysis is used to test the impact of financial performance on capital structure of the Steel Authority of India Limited. Capital structure is dependent variable and financial performance parameters i.e. Gross Profit ratio, Net Profit Ratio, Return on Capital Employed, Return on Equity, Return on Total Assets and Return on Fixed Assets are independent variables.

Table 9.1: Capital structure and Gross Profit**Model Summary**

Model	R	R Square	Adjusted R Square	Standard error of the Estimate
1	-.75	.563	.508	11.51

Source: Computed

The above table shows that the high negative correlation was seen in between the capital structure and gross profit.

Table 9.2: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	68.453	13.077		5.234	.001
GP	-1.764	.550	-.750	-3.210	.012

Source: Computed

The above table indicates the coefficient of correlation between the capital structure and gross profit. Multiple r² is 0.5625. That is 56.25% of variance of net profit is accurate by the capital structure. But remaining 43.75 %

of variance with net profit is attributed to other factors. T value is supported that these result is significant at 5% level.

Table 10.1: Capital structure and Net Profit**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-0.843	.711	.675	9.35488

Source: Computed

The above table shows that the high negative correlation was seen in between the capital structure and net profit.

Table 10.2: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	56.756	7.094		8.001	.000
	NP	-1.445	.325	-.843	-4.440	.002

Source: Computed

The above table indicates the coefficient of correlation between the capital structure and net profit. Multiple r² is 71.06%. That is 71.06% of variance of net profit is accurate by the capital structure. But, remaining 28.94% of variance with net profit is attributed to other factors. T

value is supported that these result is significant at 5% level.

Capital structure and Return on Capital Employed

Table 11.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-0.859	.738	.705	8.91627

Source: Computed

The above table shows that the high negative correlation was seen in between the capital structure and Return on capital employed.

Table 11.2: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	52.764	5.909		8.930	.000
	CE	-.923	.195	-.859	-4.744	.001

Source: Computed

The above table indicates the coefficient of correlation between the capital structure and ROCE. Multiple r² is 0.7379. That is 73.79% of variance of Return on Capital Employed is accurate by the capital structure. But, remaining 26.21% of variance with ROCE is attributed to

other factors. T value is supported that these result is significant at 5% level.

Capital structure and Return on Equity

Table 12.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-0.547	.299	.211	14.57731

Source: Computed

The above table shows that the high negative correlation was seen in between the capital structure and Return on equity (performance).

Table 12.2: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	38.506	7.266		5.299	.001
	NW	-.382	.207	-.547	-1.847	.102

Source: Computed

The above table indicates the coefficient of correlation between the capital structure and ROE. Multiple r^2 is 0.2992. That is 29.92% of variance of ROE is accurate by the capital structure. But, remaining 70.08 % of variance

with ROE is attributed to other factors. T value is supported that these result is significant at 5% level.

Capital structure and Return on Total Assets

Table 13.1: Model Summary

Model	R	R Square	Adjusted R Square	Standard error of the Estimate
1	-0.814	.854	.836	5.88

Source: Computed

The above table shows that the high negative correlation was seen in between the capital structure and Return on total assets.

Table 13.2: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	51.883	6.784		7.648	.000
	TA	-1.800	.453	-.814	-3.969	.004

Source: Computed

The above table indicates the coefficient of correlation between the capital structure and gross profit. Multiple r^2 is 0.6626. That is 66.26% of variance of ROTA is accurate by the capital structure. But, remaining 33.74% of

variance with ROTA is attributed to other factors. T value is supported that these result is significant at 5% level.

Capital structure and Return on Fixed Assets (Gross Block)

Table 14.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-0.872	.760	.730	8.52225

Source: Computed

The above table shows that the high negative correlation was seen in between the capital structure and Return on fixed assets.

Table 14.2: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	54.042	5.806		9.308	.000
	FA	-.690	.137	-0.872	-5.039	.001

Source: Computed

The above table indicates the coefficient of correlation between the capital structure and ROFA. Multiple r^2 is 0.7604. That is 76.04 of variance of return on fixed assets is accurate by the capital structure. But, remaining 23.94

% of variance with ROFA is attributed to other factors. T value is supported that these result is significant at 5% level.

Table 15: Anova Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2187.981	6	364.664	4.616	.119 ^a
	Residual	237.017	3	79.006		
	Total	2424.998	9			

a. Predictors: (Constant) GP, NP, ROCE, ROE, TA, FA

b. Dependent Variable: CP

An examination with ANOVA (F-value) indicates that explains the most possible combination of predictor variables that could contribute to the relationship with the dependent variables. For model1- F value is 4.61. We see that all of the corresponding F_{α} i.e. 9.78 is greater than the computed value of F. Therefore we concluded that there is significant relation between capital structure and financial performance. It is reflect that the capital structure of the Steel Authority of India Limited could not depend on the debt capital.

Concluding Remarks

Correlation Analysis explains regarding this study, there is strong negative relationship between capital structure and financial performance of independent variables GP, NP, ROCE, ROE, ROTA and ROFA correlated with capital structure. It is focused on the overall point of view of the

relationship between the capital structure and financial performance. The combined coefficient determinant 0.95 and r^2 coefficient is 0.902.

t- Values of financial performance of key parameters are GP at -3.21, NP at -4.34, ROE at -1.85 ROCE at -4.73 ROTA at -3.97 and ROFA at -5.08 respectively. It is reflected that the variables GP, NP, ROCE, ROTA are insignificant relationship and variable ROE is significant relationship with capital structure.

It is focused on the overall point of the view of the relationship between the capital structure and financial performance (ROE). There is negative association at -0.547. The co-efficient determination of is 0.299. F and t values are 3.41 and 5.299. It reflects the insignificant relationship between the capital structure and financial performance. It implies that SAIL is not depending on the

debt capital. Therefore, they have not pay interest expenses much.

Suggestions and Recommendations

- An optimal capital structure depends upon the proper mix of debt and equity. The trade off theory suggests that a more profitable company can prefer external source for increasing their capital, which reduces the tax liability, increases high gearing and increases shareholders' value. It is found that both steel companies are using more equity finance. Hence, it is suggested that SAIL can raise their funds through external sources also.
- It has been found that, issue share capital never been a major source of long-term finance for the company. The dependence on debt capital i.e. secured loans and debentures are better as compared to equity. It is advisable source for public sector steel companies like SAIL.
- Identifying weaknesses of long term or short term investment may be best one to improve the firm's financial performance of SAIL, because it indicates the area which decision should be taken.
- The other main area where SAIL has tremendous scope for improvement in optimized capital structure, manufacturing of value added products and concentrating on the Exports. This will result in better sales realization, higher profit and Economic value added.
- A high leverage firm gives better returns to equity shareholders than a low levered firm. It is suggested that to maintain high leverage.

Bibliography

Books

- C.F.Lee, Financial Analysis and Planning: theory and application, Addison-Wesley, 1985.
- Chandra.P, "Financial Management-Theory and Practice", New Delhi: Tata McGraw Hill Publishing Company Ltd. 2002.
- Contemporary Financial Management – R.Charles Mayer, James R. Mc. Guia, William J. Kretlow; west publishing company.
- Financial Management and policy; J.C Ven Horne; prentice Hall of India Pvt. Ltd. New Delhi.
- Financial Management- Theory and practice - Prasanna Chandra; Tata Mc Graw Hill Company limited, New Delhi.
- Introduction to financial management; O. Maurice joy; Jack Clark Frances, Management of Investment.
- Khan M.Y. and P.K.Jain., Financial Management - Text and Problems, Tata Mc Graw Hill publications, New Delhi.
- P.Chandra, Valuation of Equity Shares in India, Sultan Chand & Company, 1978.
- Pandey, Financial Management, Vikas publishing House, New Delhi, 1997.
- Prasanna Chandra, Financial Management- Theory and practice, publications, Tata Mc Graw Hill publications, New Delhi.
- S.K. Chakrabarty, 1977. Corporate Capital structure and Cost of Capital, ICWAI, Calcutta.
- Solo man, E, "The Theory of Financial Management" New York: Colombia University Press, 1963.
- Walker, E.W. 'Essentials of Financial Management', New Delhi: Prentice Hall of India Pvt. Ltd. 1978, p.81.

References

- Angales, L., (1995) *what do we know about Capital Structure? Some evidence from international data. Journal of Finance* 50, pp.1421-1460.
- Arnold (2002) *Corporate Financial Management, 2nd ed. prentice hall of India Pvt. Ltd. corporate capital. The Free Press, New York.*
- B.Nimalathasam & Valeriu Brabete (2010) *A Study of Listed Manufacturing Companies in Sri Lanka, Revista Tinerilor Economist and The Young Economists Journal* 13, pp.55-61.
- Bhaduri and N. saumitra (2000) *Determinants of Capital Structure choice: a study of the Indian corporate sector, applied financial economic, 12 (9) pp.655-665.*
- Chua, J.H. and Woodward, R.S. (1993) "The Pecking Order Hypothesis and Capital Structure of Private Companies", *Financial Management, Vol. 22, pp. 18.*
- Chung, Kee H. (1993) *Asset Characteristics and Corporate Debt Policy: An Empirical Test.*
- David Durand (1952) "The cost of debt and equity funds for business", *Management of corporate capital. The Free Press, New York.*
- DeAngelo, Harry, Linda DeAngelo, and Toni M. Whited (2010). *Capital Structure dynamics and*

- transitory debt, forthcoming *Journal of Financial Economics*.
- Eckert and Engelhard (1999), towards a Capital Structure theory for the multinational company. *Management of International Review*, pp 105-135.
 - Fama. E. F.; French, K.R. (1998). *Taxes, Financing Decisions, and Firm Value. The Journal of Finance*. V. LIII, No. 3, Jun 1998.
 - Frank and Goyal (2007). *Testing the pecking order theory of Capital Structure, Journal of Financial Economics* 67, pp.217-248.
 - Friend, Irwin and J. Hasbrouck. (1989) *Determinants of Capital Structure. In Research in Finance*, ed. Andy Chens, 1-19. Greenwich: JAI Press Inc.
 - Green, C.J.V. Murinde and J. Suppakitjarak. (2002) *Corporate Financial Structure in India*.
 - Gupta, P.K. (2004) *an empirical investigation into the determinants of Capital Structure- A case study of Indian companies. Journal of Accounting and Finance*.18 (1): 58-84.
 - Harrington, C. (2005) 'The Effect of Competitive Structure on the Relationship between Leverage and Profitability.' Working Paper, Central Connecticut State University, New Britain.
 - Harris and Ravil (1990) *The Theory of Capital Structure, Journal Finance* 46, 297-356.
 - I.M. Pandey (1984) *Capital Structure and Cost of Capital* 1 edition, 1984.
 - Jensen (1986) *The Agency Costs of Free cash flow: Corporate Finance and Takeovers, American Economic Review*, 76, 323-329.
 - Jenses M. Meckling W. (1976). *Theory of the firm: Managerial Behavior, Agency cost, and Ownership Structure. Journal Financial Economics*, 3: 305-360.
 - Kaur, R., and Rao, N.K. (2009) "Determinants of Capital Structure: n Experience of Indian Cotton Textiles Industry," *Vilakshan*, Volume 4, Number 2, pp.97-112.
 - Leland, H. E. and Tuft, K. B, 1996. *Optimal Capital Structure, endogenous bankruptcy, and the term structure of credit spreads. Journal of Finance* 51, 987-1019.
 - Leland and Pyle (1977) *Information Asymmetries, Financial Structure and Financial Intermediation, Journal of Finance* XXXII: 371-387.
 - Miller, M. H. (1977). 'Debt and Taxes.' *Journal of Finance* 32 (2). 261.
 - Modigliani, F. Miller M. H. (1958) *The Cost of Capital, Corporation Finance and the Theory of Investment. The American Economic Review*, v. XLVIII, n. 3, Jun 1958.
 - Modigliani, F. Miller M. H. (1963) *Corporate Income Taxes and the Cost of capital: A Correction. The American Economic Review*, v. LIII, n. 3, Jun 1963.
 - Pandey M. *Capital Structure and the firm characteristics: Evidence from an emerging market. Workingpaper, 2001*.
 - Peterson (1994) *Financial Management and Analysis*, McGraw-Hill, 1994, 592.
 - Raheman, A., Talat, Afza, Qayyum and Abdul, Mahmood, A. B., (2010) "Working Capital Management and Corporate Performance of Manufacturing Sector in Pakistan". *International*
 - Rao and Ramesh K.S (1989) *Fundamentals of Financial Management, Prentice Hall College Div, 427*)
 - Ross, S. (1977). 'The Determination of Financial Structure: The Incentive-Signaling Approach'. *Bell Journal of Economics* 8: 23- 40.
 - Solomon, Ezra. (1963) *The Theory of Financial Management*. New York: Columbia University Press.
 - Stieglitz (1969) *A Re-examination of the Modigliani-Miller Theorem. The American Economic Review*, 59: 784-793.
 - Titman, S. and Wessels, R. (1988) *The Determinants of Capital Structure choice, The Journal of Finance* 43, 1-19.
 - Van Horn (1992) *Financial Management and policy, New Delhi, prentice Hall of India Pvt. Ltd.*
 - Warner (1977) "Bankruptcy costs, some evidence" *Journal of Finance*, 32, 337-347.
 - Whited, T., (1992) *Debt, liquidity constraints, and corporate investment: evidence from panel data. Journal of Finance* 47, pp.1425-1460.

Websites

1. *Annual Reports of SAIL 2002-2012.*
2. *M I S r e p o r t s o f S A I L a n d T S L*
<http://www.steelonthenet.com/production.html>
World Steel Production from ISSB 2010 – 2011.
3. *Government of India. Ministry of Steel, National Steel Policy, 2005. (www.steel.nic.in, 2008)*
4. *Steel Authority of India Ltd., 1996: Statistics for Iron & Steel Industry in India, New Delhi, India.*
5. *Economic and Political Weekly, Editorial (2004). Steel Handling Upswing, May 15, 2004.*

6. <http://www.steelonthenet.com/production.html>
World Steel Production Reports from ISSB 2005 – 2007.
7. <http://www.ita.doc.gov/media/steelreport726.html> (Chapter 6)*New Players in the Global Steel Market.*
8. <http://www.issb.co.uk/> ISSB - Iron and Steel Statistics Bureau.
9. <http://steel.nic.in/nspolicy2005.pdf> Ministry of Steel Released the National Steel Policy.
10. <http://www.oecd.org/dataoecd/53/41/38678896.pdf> Recent Steel Market Developments and Industry outlook in India.
11. <http://www.worldsteel.org/pictures/storyfiles/WSIF07web%20v6.pdf> World Steel in Figures contains essential facts about the world steel industry including steel production, consumption, trade, and basic statistics on scrap, iron ore, pig iron and crude steel production.
12. [http://steel.nic.in/oecd/DSTI_SU_SC\(2006\)4_ENG.pdf](http://steel.nic.in/oecd/DSTI_SU_SC(2006)4_ENG.pdf) Organisation de Coopération et de Développement Economiques Organisation for Economic Co-operation and Development directorate for science, technology and industry steel committee report on
13. <http://steel.nic.in/dev.htm> development of Indian steel sector since 1991.
14. http://www.iim-india.net/iimn/iimn_02_06/07raakdabl_02_06.pdf Indian Steel: Status & Prospective.
15. <http://pib.nic.in/feature/feyr2000/fjan2000/f200120001.html> Steel Industry in Indi, Ashok Basu Secretary, Ministry of Steel.
16. <http://www.steelrx.com/news/news.cfm> Industry News.