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A STUDY ON PROFITABILITY AND OPERATIONAL EFFICIENCY OF STEEL INDUSTRY

M. Gokila¹ and Dr. M. Jayaprakasam²

¹PhD Research Scholar, Department of Commerce, Thavathiru Santhalinga Adigalar Arts, Science and Tamil College, Perur, Coimbatore.

² Associate Professor & Head, PG - Department of Commerce, Thavathiru Santhalinga Adigalar Arts, Science and Tamil College, Perur, Coimbatore.

ABSTRACT:

The research paper aims to study the financial performance of selected units in the steel industry in India in terms of financial ratios such as Liquidity, Solvency, Profitability and Efficiency position. The basic rationale of doing the study is that in the recent economic scenario of the

country, iron and steel industry is going through severe downturn and Government is trying to keep no stones unturned for putting the industry back on growth track to achieve the second largest producer of steel in the world. For the study following companies listed in the stock exchanges in India viz. Tata Steel Ltd., Jindal Steel & Power Ltd., J S W Steel Ltd. and Steel Authority of India Ltd. are selected. ANOVA-Test analysis is employed to evaluate the impact of selected variables on the financial performance of identified units in the steel industry. The analysis will not only help to identify whether there exists any difference in the financial performance of the selected companies in the industry.

KEYWORDS: Financial Performance, Steel Industry, Financial Ratio.

INTRODUCTION :

Iron and steel sector is the backbone of an economy. It is one of the primary vehicles of economic development of a country. The per capita production and consumption of steel is the index of the depth of a country's economic infrastructure.¹ Increase in the use of iron and steel leads to infrastructural development and rapid industrialization of the country. According to Pandit Jawaharlal Nehru, "Steel is a symbol of strength of the

economy and a portent of the glory of India of the future". Iron and steel are basic requirements for all types of construction and manufacturing activities. It is used as a basic material of manufacturing all types of machinery, electrical and metal products, transport equipment, agricultural equipment, capital goods, house building etc. So all industries have to depend on iron and steel. If we want to trace the story of steel, we are to traverse the history of our civilization. The course of our present civilization comes across the landmark gained in the process of development of iron and steel. In fact, in the Indian

scene, the history of iron and steel is the history of our civilization.

During Pre-independence Period Steel industry, a core of the core industries of Indian economy, started its journey since ancient times. We find romance when we look at the historical record that around 1750 Alexander the Great was said to receive three tons of crucible steel from an Indian king. We have also record of a Persian king who bought crucible steel from India. Thus India has a long heritage of steel making. Although steel production process started in India thousand years ago, the modern steel production technology started

functioning only at the beginning of the 19th century. In fact the growth of steel industry in India has been spectacular only after independence.

The first successful attempt was made in 1875 in setting up an iron and steel works at Barakar by Bengal Iron and Steel Company. This was taken over by Bengal Iron Company in 1889. This was the first attempt to produce pig iron in India through modern methods. But the iron and steel industry in India had a real beginning in the year 1907 after the establishment of Tata Iron and Steel Company (TISCO) at Sakchi in Bihar. It was the dream of late Jamshetji Tata, the father of Indian steel industry, whose career was a true example of industrial romance. His dream came into reality in the form of establishment of TISCO, the first large scale industrial unit in producing iron and steel by using latest scientific methods in India.

Setting up of Indian Iron and Steel Company Ltd. in the year 1918 at Burnpur in West Bengal was another landmark in the history of iron and steel industry in India. The Steel Corporation of Bengal Ltd. was set up in 1937 in association with Indian Iron and Steel Company for manufacturing steel.

In 1923 the State Government of Mysore set up an iron works at Bhadrabati known as Mysore Iron and Steel Works, thereafter named as Visvesvaraya Iron and Steel Ltd.

So before independence iron and steel industry in India consisted of four units viz. the Tata Iron and Steel Company, the Indian Iron and Steel Company, the Steel Corporation of Bengal and the Mysore Iron and Steel Works. Out of these four units, only one unit namely Mysore Iron and Steel Works was a state-owned unit, the remaining three were in the private sector.

AFTER INDEPENDENCE

After independence special attention was given for the development of iron and steel industry in India and a series of plans and proposals were made for the setting up of new steel plants. During the second plan period, it was decided by the Government to set up three steel plants in the public sector with an ingot capacity of ten lakh tons each per year at Rourkela, Bhilai and Durgapur. Plants at Rourkela and Bhilai started functioning at the end of second plan and the Durgapur plant was completed within the beginning of the third plan period. At the same time major expansion programme was undertaken in two private sector plants namely Tata Iron and Steel Company and Indian Iron and Steel Company to increase their productive capacity. During the third plan period emphasis was given for the expansion of all the existing plants and the setting up of new steel works at Bokaro which was commissioned in 1978. During the fourth plan period, steel development programme has been initiated with a top priority of utilization of maximum capacity and formulation of plan to establish three new steel plants at Salem in Tamil Nadu, Vijaynagar in Karnataka and Visakhapatnam in Andhra Pradesh. All these plants came into operation within the year 1982. In 1972 Government took over the management of Indian Iron and Steel Co. and acquired its ownership in 1976 with a view to improving its working.

Prior to the year 1973, out of four steel plants in the public sector, the three plants viz. plants at Bhilai, Rourkela and Durgapur were owned and managed by the Hindusthan Steel Ltd. and the remaining one i.e. the Bokaro Steel Plant by Bokaro Steel Ltd. In 1973 the Government set up the Steel Authority of India Ltd. (SAIL) as a holding company for steel. Hindusthan Steel Ltd. and Bokaro Steel Ltd. became the wholly owned subsidiaries of the Steel Authority of India Ltd. The management of Indian Iron and Steel Co. (IISCO) was handed over to SAIL and IISCO became a subsidiary of the SAIL. SAIL took over the Visvesvaraya Iron and Steel Ltd. in 1989. Thus SAIL is now the main integrated largest steel company in India. Rashtriya Ispat Nigam Limited, the Vishakhapatnam Steel Plant, a public sector unit commissioned in 1992 is the second largest steel company in the country. In the private sector TISCO is the first integrated steel plant. Other important players joined in the private sector are Jindal Iron and Steel Co. Ltd., Lloyds Steel Industries Ltd., Essar Steel Ltd., Mukund Ltd., Nippon Denro Ispat Ltd., Mahindra Ugin Steel Co. Ltd., Mardia Steel Ltd. etc.

OBJECTIVES OF THE STUDY

1. To study the profitability position of selected steel industries in India.
2. To analyze the liquidity position of selected steel industries in India.

RESEARCH GAP:

While going through the related literatures, it has been observed that financial performance appraisal of various industries like Food Products, Banking Industry, Tea Industry, Cement Industry, Steel Industry, Pharmaceutical Industry, Automobile Industry and many more have been performed by different researchers while there are few studies analysing the performance of the Indian paper industry. So, the present study has tried to highlight this untouched area.

SCOPE OF THE STUDY

The study has great significance and provides benefits to various parties whom directly or indirectly interacted with the companies. It is beneficial to management of the companies by providing clear picture regarding important aspects like liquidity and profitability. The study is also beneficial to employees and offers motivation by showing how actively they are contributing for companies' growth. The investors who are interested in investing in the companies' shares will also benefited by going through the study and can easily take a decision whether to invest or not.

STATEMENT OF THE PROBLEM

The efficiency of the business is measured by the amount of profit earned. The greater the profit, the more efficient is the business considered to be. The profit of a business may be measured by studying the profitability of investment in it. Profitability may be defined as the ability of a given investment to earn a return from its use. This ability is referred to as lending power or operating performance of the concerned investment. Profitability is a relative term and its relation with the other factors by which the profit is affected. It is the test of efficiency, powerful motivational factor and the measure of control in any business. Hence, an attempt has been made to study the profitability of steel industry in India after liberalization.

PROFILE OF THE SELECTED STEEL INDUSTRIES

1. Steel Authority of India Limited (SAIL):

Steel Authority of India Limited is an Indian state-owned steel making company based in New Delhi, India. It is a public sector undertaking, owned and operated by the Government of India with an annual turnover of INR 44,452 Crore for fiscal year 2016-17. Incorporated on 24 January 1973, SAIL has 74,719 employees.

SAIL is a public sector company, owned and operated by the Government of India. According to a recent survey, SAIL is one of India's fastest growing Public Sector Units. Besides, it has R&D centre for Iron & Steel (RDCIS), Centre for Engineering and Technology (CET), Management Training Institute (MTI) and SAIL Safety Organisation (SSO) located at Ranchi capital of Jharkhand.

2. Tata Steel Ltd.,

Tata Steel Limited, formerly Tata Iron and Steel Company Limited (TISCO), is an Indian multinational steel-making company headquartered in Mumbai, Maharashtra, India, and a subsidiary of the Tata Group.

It is one of the top steel producing companies globally with annual crude steel deliveries of 27.5 million tonnes (in FY17), and the second largest steel company in India (measured by domestic production) with an annual capacity of 13 million tonnes after SAIL.

Tata Steel operates in 26 countries with key operations in India, Netherlands and United Kingdom, and employs around 80,500 people. Its largest plant (10 MTPA capacity) is located in Jamshedpur, Jharkhand. In 2007, Tata Steel acquired the UK-based steel maker Corus. It was ranked 486th in the 2014 Fortune Global 500 ranking of the world's biggest corporations. It was the seventh most valuable Indian brand of 2013 as per Brand Finance.

3. JSW Steel Ltd.,:

JSW Steel Ltd. (BSE: 500228, NSE: JSWSTEEL) is an Indian steel making company based in Mumbai, Maharashtra. It is a subsidiary of JSW Group. It is one of the fastest growing companies in India with a footprint in over 140 countries. JSW Steel is an Indian steel company owned by the JSW Group based in Mumbai, Maharashtra, India. JSW Steel, after merger of ISPAT steel, has become India's second largest private sector steel company. The current installed capacity is 18 MTPA. A \$13 billion conglomerate, with presence across India, USA, South America & Africa, the JSW Group is a part of the O.P. Jindal Group with strong footprints across core economic sectors, namely, Steel, Energy, Infrastructure, Cement, Ventures and Sports.^[4] JSW's history can be traced back to 1982, when the Jindal Group acquired Piramal Steel Limited, which operated a mini steel mill at Tarapur in Maharashtra and renamed it as Jindal Iron and Steel Company (JISCO).

4. Jindal Steel and Power Ltd.,:

Jindal Steel and Power Limited (JSPL) is an Indian steel and energy company based in New Delhi, India. With turnover of approx. US\$ 3.3 billion, JSPL is a part of about US\$18 billion diversified Jindal Group conglomerate. JSPL is a leading player in steel, power, mining, oil and gas and infrastructure in India. The company produces steel and power through backward integration from its own captive coal and iron-ore mines.

In terms of tonnage, it is the third largest steel producer in India. The company manufactures and sells sponge iron, mild steel slabs, ferro chrome, iron ore, mild steel, structural, hot rolled plates and coils and coal-based sponge iron plant.

RESEARCH METHODOLOGY

Source of Data:

The study is mainly based on the secondary data collected from the Annual reports of steel companies and articles from the journals and websites. The period of study is 5 years, starting from 2014-15 to 2018-19.

Sampling:

For the study of financial performance of steel industry of India, following large sector steel entities listed in BSE are selected: Steel Authority of India Ltd, Tata Steel, JSW Steel and Jindal Steel are chosen.

Data Analysis:

Analysis is conducted on financial ratios (variables) selected from the aforementioned segments like liquidity & solvency, Debt coverage and profitability term, such as net profit ratio, current ratio, quick ratio, absolute cash ratio, debt-equity ratio, total debt to owners fund.

HYPOTHESIS OF STUDY:

The following hypotheses are framed for the study:

H0.1. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to liquidity position.

H0.2. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to solvency position.

H0.3. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to profitability position.

H0.4. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to efficiency position.

LIMITATIONS OF THE STUDY:

The reliability of the study depends on the accuracy of data collected. The present study is based on the published secondary data, hence the limitations of the published financial statement limitations may be applicable to this study as well. Moreover Bhushan Steel, Electrosteel Steels Ltd is ignored in the study even though it is a listed company as it is under resolution process under Insolvency and Bankruptcy Code, 2016 (IBC 2016).

DATA ANALYSIS & INTERPRETATION

Table No. 1.1
Production of Finished Steel (alloy/stainless +non-alloy) and Crude Steel(in million tones)

Item	2012-13	2013-14	2014-15	2015-16	2016-17	2017-2018
Finished Steel						
Production	89.621	95.577	100.681	102.904	115.91	86.699 (1.4)
Imports	7.925	5.45	9.32	11.712	7.227	6.097 (11.0)
Export	5.368	5.985	5.596	4.079	8.243	7.606 (52.9)
Consumption	73.483	74.096	76.992	81.525	84.042	64.868(5.2)
Crude Steel						
Production	78.415	81.694	88.98	89.791	97.936	75.642(4.8)

Source: JPC; * Provisional; Figures in bracket () indicate % change over same period of last year

The steel industry showed a stellar performance between 2003-04 and 2007-08. During this period the production and consumption grew at a compounded annual growth rate (CAGR) of 8.3 per cent and 12 per cent respectively. The phenomenal growth story of the Indian steel industry from 2003-07 is overshadowed by the recent doldrums in the steel sector which is witnessed by the spike in the amount of stressed assets in the iron and steel industry in the last couple of years. During the period of boom in the economy many steel companies went for expansion projects heavily backed by borrowed capital from banks. The highly leveraged capital structure made it difficult for the steel companies to meet their debt service obligations due to falling profits coupled with rising interest rates by RBI to combat inflation. The profit after tax (PAT) of all leading steel players have declined in nominal terms from 2014-15 onwards which is witnessed from the Table:2 given below:

Table No. 1.2
PAT of leading players (Rs crores)

Company	Profit/Loss after tax		
	2014-15	2015-16	2016-17
SAIL	2093	(4021)	(2833)
TATA STEEL	(3925.52)	(3049.32)	(4168.57)
JSW STEEL	(1719.70)	(850.76)	(3454.05)
JSPL	(1454.59)	(1998.63)	(2540.22)

Source: PAT figures are taken from Consolidated financial results from Bombay Stock Exchange (BSE)

The declining profit margin of the corporate and the rising bad assets in the book of banks also nosedived the credit growth rate of the banks to the iron and steel industry as banks are being overcautious while lending to this sector. Steel sector is the largest defaulter both in terms of corporate and amount outstanding as evident from the recent report released by Insolvency and Bankruptcy Board of India (IBBI) as on 6th January, 2018.

Table No. 1.3
ANOVA Test of Liquidity ratios

Variables	Sum of Squares	df	Mean Square	F	Sig.
Current ratio	.283	3	.094	2.749	.077
	.549	16	.034		
	.832	19			
Quick ratio	.946	3	.315	9.212	.001
	.547	16	.034		
	1.493	19			
Cash Earnings Retention ratio	2464.161	3	821.387	2.007	.154
	6549.197	16	409.325		
	9013.358	19			

Sources: Computed

The important liquid ratios are: (i) Current Ratio, (ii) Quick Ratio and (iii) Cash Retention Ratio. H0.1. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to liquidity position.

Table 1.3 shows the result of One-way ANOVA test of liquidity ratio analysis:

The significance level of one-way ANOVA test for Current ratio is less than 0.10, hence there exists significant difference in the performance in the financial performance of the companies as regards to current ratio.

As the significance level of one-way ANOVA test for Quick ratio is less than 0.05, hence there exists significant difference in the performance in the financial performance of the companies as regards to quick ratio. In case of Cash Retention Earnings Ratio, there also exists difference in the financial performance of the company.

Therefore the Null Hypothesis that there exists no significant difference in the financial performance of the identified units in the steel industry in India with respect to liquidity position is rejected and accepting the Alternative Hypothesis that there exists significant difference in the financial performance of the identified units in the steel industry in India with respect to liquidity position.

Table No. 1.4
ANOVA Test of Solvency ratios

Variables	Sum of Squares	df	Mean Square	F	Sig.
Debt Equity ratio	5.540	3	1.847	11.748	.000
	2.515	16	.157		
	8.056	19			
Proprietary ratio	.125	3	.042	27.076	.000
	.025	16	.002		
	.150	19			
Interest Coverage ratio	.565	3	.188	.063	.979
	47.958	16	2.997		
	48.523	19			

Sources: Computed

The important ratios for analyzing solvency position of identified units are : (i) Debt Equity Ratio, (ii) Interest Coverage Ratio and (iii) Proprietary Ratio. H0.2. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to solvency position.

Table 1.4 shows the result of One-way ANOVA test of solvency ratio analysis:

The significance level of one-way ANOVA test for Debt Equity ratio and Proprietary ratio is less than 0.05, hence there exists significant difference in the performance in the financial performance of the companies as regards to debt equity ratio and proprietary ratio.

However as regards to interest coverage ratio there exists no difference in the financial performance of the companies as $F_{cal} = 0.063$ at level of significance of 0.979.

Therefore the Null Hypothesis that there is no significant difference in the financial performance of the identified units in the steel industry in India with respect to solvency position is rejected and accepting the Alternative Hypothesis that there exists significant difference in the financial performance of the identified units in the steel industry in India with respect to solvency position except Interest Coverage Ratio.

Table No. 1.5
ANOVA Test of Profitability ratios

Variables	Sum of Squares	df	Mean Square	F	Sig.
Gross Profit margin	466.371	3	155.457	3.894	.029
	638.777	16	39.924		
	1105.147	19			
Operating Profit margin	1075.953	3	358.651	14.900	.000
	385.118	16	24.070		
	1461.072	19			
Net Profit margin	59.658	3	19.886	4.79	.701
	664.344	16	41.521		
	724.002	19			
Return on Capital Employed	75.788	3	25.263	1.377	.286
	293.459	16	18.341		
	369.246	19			
Earnings Per Share	9413.804	3	3137.935	4.590	.017
	10939.428	16	683.714		
	20353.232	19			

Sources: Computed

Following ratios are looked upon to measure the aspect of profitability, which are: (i) Gross Profit Ratio, (ii) Net Profit Ratio, (iii) Return on Capital Employed and (iv) Return on Assets.

H0.3. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to profitability position.

Table 1.5 shows the result of One-way ANOVA test of profitability ratio analysis:

As the significance level of one-way ANOVA test for Gross Profit margin, Operating Profit margin and Earning per share is less than 0.05, hence there exists significant difference in the performance in the financial performance of the companies as regards to the above stated ratio.

In case of Net profit margin, there exists no difference in the financial performance of the company as $F_{0.479}$ at the level of significance is 0.701. In case of Return on Capital Employed, there exists difference in the financial performance of the company as $F_{cal} = 1.377$ at the level of significance is 0.286.

Therefore the Null Hypothesis that there is no significant difference in the financial performance of the identified units in the steel industry in India with respect to profitability position is rejected and accepting the Alternative Hypothesis that there exists significant difference in the financial performance

of the identified units in the steel industry in India with respect to profitability position except Net Profit margin.

Table No. 1.6
ANOVA Test of Efficiency ratios

Variables	Sum of Squares	df	Mean Square	F	Sig.
Inventory Turnover ratio	31.535	3	10.512	10.251	.001
	16.407	16	1.025		
	47.942	19			
Debtors Turnover ratio	299.872	3	99.957	15.783	.000
	101.333	16	6.333		
	401.204	19			
Asset Turnover ratio	2.065	3	.688	29.499	.000
	.373	16	.023		
	2.438	19			

Sources: Computed

Hence it reflects the effectiveness of the management in relation to sales. The turnover ratios focused upon: (i) Inventory Turnover Ratio, (ii) Debtors Turnover Ratio and (iii) Asset Turnover Ratio. H0.4. There is no significant difference in the financial performance of identified units in the steel industry in India with respect to efficiency position.

Table 1.6 shows the result of One-way ANOVA test of efficiency ratio analysis:

As the significance level of one-way ANOVA test for Inventory Turnover ratio, Debtors Turnover ratio and Asset Turnover ratio is less than 0.05, hence there exists significant difference in the performance in the financial performance of the companies as regards to such ratios.

Therefore the Null Hypothesis that there is no significant difference in the financial performance of the identified units in the steel industry in India with respect to efficiency position is rejected and accepting the Alternative Hypothesis that there exists significant difference in the financial performance of the identified units in the steel industry in India with respect to efficiency position.

SUGGESTION:

Liquidity Ratio:

Liquidity refers to the short term solvency position of the firm. In other words it is the ability of the firm to meet its short term obligations having a maturity period of maximum one year. Liquidity is the lifeline of the business as it is necessary for the survival of the business. Any liquidity crunch severely affects the firm as it has adverse effect on the credit worthiness of the business and ultimately puts question mark on the going concern aspect of the firm. This results in loss of creditor's confidence in the firm. However too much liquidity is not good for the firm as it indicates idle assets in the hands of the firm which are not providing any return to the firm. Hence a proper balance of liquidity is required to positively influence the profitability of the company.

Solvency Ratios:

The term solvency refers to the ability of the firm to honor its long term obligations. Long term obligations refers to the ability of the company to meet the contractual obligations related to the debenture holders, financial institutions and other long term creditors. The contractual obligations arise in form of the regular interest payments and principal repayments on maturity against the funds provided by long term creditors. Hence any failure in interest payments or principal repayments dilutes the security of the loan provided by this creditors. In recent times the solvency position of several steel

companies like Bhusan Steel, Essar Steel, Electrosteel Pvt Ltd and several others are experiencing a topsy-turvy situation.

Profitability Ratios:

Profitability refers to the firm's ability to generate earnings for the growth and survival of the business. Profit is an essential yardstick for measuring financial discipline and profitability. Moreover every stakeholder of the company is interested in the profit of the company as it ensures meeting up of the expectations in the form of reasonable returns expected from the company. For management, profitability is the measure of operational efficiency of the business. Hence close monitoring of the profitability aspect of the business is required to meet both the short term and long term targets in the form of earnings and growth set by the firm.

Efficiency Ratios:

The word 'Efficiency' or 'Activity' refers to how well the assets of the company are managed. Thus it is also called asset utilization ratios. Higher the turnover, higher will be the efficiency in asset utilization, so it is also called turnover ratios. Moreover turnover ratios reveal the intensity of the use of assets reflected through the volume of sales (or cost of sales).

CONCLUSION

The present study of the financial performance of the identified steel companies reveal there exists significant difference in the financial performance of the companies. However a close look will show that each of the company is going through a tough time as liquidity and profitability of the companies has declined over the years. This resulted in several steel companies going bankrupt and referring to National Company Law Tribunal (NCLT) for their sale of assets or restructuring the company with the approval of Committee of Creditors. The imposition of tariff barriers on cheap Chinese imports barriers to the hot rolled and cold rolled flat product dumped in the Indian market and focus of the Government on speedy completion of the large infrastructural projects is expected to put the steel industry on the growth trajectory. Moreover the approval of the resolution plans by Committee of Creditors of the ailing steel companies under IBC 2016 is expected to provide fillip to the steel sector and also help the financial companies to get rid of the distressed assets from their balance sheet. Lastly the policies adopted by Government of India under National Steel Policy (2017) and Policy on Preference to Domestically Manufactured Iron and Steel Products is expected to provide the much necessary impetus to the iron and steel sector of the country.

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