A COMPARATIVE FINANCIAL ANALYSIS BETWEEN PUBLIC AND PRIVATE SECTOR STEEL COMPANIES IN INDIA– A CASE STUDY APPROACH

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ABSTRACT

Steel is crucial for development of modern economy. Indian steel industry is one of the fastest growing industries in the whole world. India is the fifth largest steel producer in the world after China, Japan, USA and Russia. Indian steel industry is contributing around 2 percent to Gross Domestic Product (GDP) and its weight in the Index of Industrial Production (IIP) is 6.2 percent. India now contributes 4% to the world's crude steel production and is capable of holding and retaining its position in future. If per capita consumption is taken into account then it can be seen that India's per capita consumption of steel (47 kg) is less compares to the whole world (190 kg). Therefore, there is an immense scope for the Indian steel industry to grow further in future. This paper is an attempt to examine the financial performance of selected Indian steel companies and the impact of liquidity and activity factors on the profitability of the steel industry on the basis of the sample units.

Keywords: Steel, Indian steel industry; Factor analysis; Multiple regression technique; Profitability of steel

Introduction:

Indian steel industry is one of the fastest growing industries in the whole world. Steel is the backbone of any modern human civilization or it can be said steel is essential for the development of any economy. Consumption of volume of steel is the barometer for measuring the economic growth and progress of the country. Indian steel industry is one of the fastest growing industries not only in Asia- Pacific region but also in the whole world. India has ranked as fifth largest steel producer in the world after China, Japan, USA and Russia. (www.steel.gov.in, viewed on December 2, 2009). Boost in automobile industry, consumer durables and increase in infrastructural investment help to pull-up the demand for steel. India is enjoying the advantages of easily availability of iron ore, abundant number of cheap labour and major cost advantages. During the worldwide financial turmoil, Indian steel industry also faced certain problems but unexpectedly domestic steel demand was unaffected due to growth in semi-urban and rural areas. The exorbitant rise of Indian steel industry across all verticals has facilitated the growth of Indian economy. The scope of Indian steel industry is huge and continues to grow reasonably in the near future.

Literature Review:

Indian Steel Industry has been facing various challenges against the background of globalization since 1991. All industrially advanced economies have a strong domestic steel industry. In recent times India has been trying to strengthen its foot in this sector. In course of the structural adjustment and liberalization process since the 1990s, it witnessed the entry of private players, large-scale domestic capacity creation, reduction of import duties and global economic recession. In this scenario, some important strides have been made by the Indian steel industry in the wake of a host of international and domestic developments leading to increased production, consumption and export of steel from India. (Kannan N, 2005).The worldwide demand for steel dropped drastically during the second half of 2007-08. The price of steel was very low and the steel makers sacrificed the production to keep prices alive and kicking. (Firoz A S, 2008) But the steel industry in India is showing signs of improvement since Government of India have provided a package of aids to this industry like reduction of custom duty, duty free import of raw materials for export, hike in iron ore export duty et cetera. Above all, strong domestic demand in the automobile sector as well as infrastructure and power sector has helped to revive the steel demand. It has induced big steel

Data Analysis

Table: 1.1: Net Profit Margin Ratio (NPM in percent) of Indian Steel Companies

Companies	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D	Min	Max
SAIL	-5.18	-12.55	-1.81	11.80	23.90	14.40	18.28	19.08	14.29	16.66	9.89	12.05	-12.6	23.9
TSL	8.26	2.35	11.61	16.32	23.96	23.16	24.06	23.08	21.39	20.17	17.44	7.61	2.35	24.06
RINL	N.A	N.A	11.66	28.32	24.54	14.76	14.89	18.62	12.83	7.49	13.31	9.282	7.49	28.32
JSPL	20.00	18.00	15.00	24.00	23.00	22.00	20.00	23.00	20.00	20.00	20.5	2.677	15	24

Fig 1.1 Net Profit Margin Ratio of Indian Steel Companies Under The Study
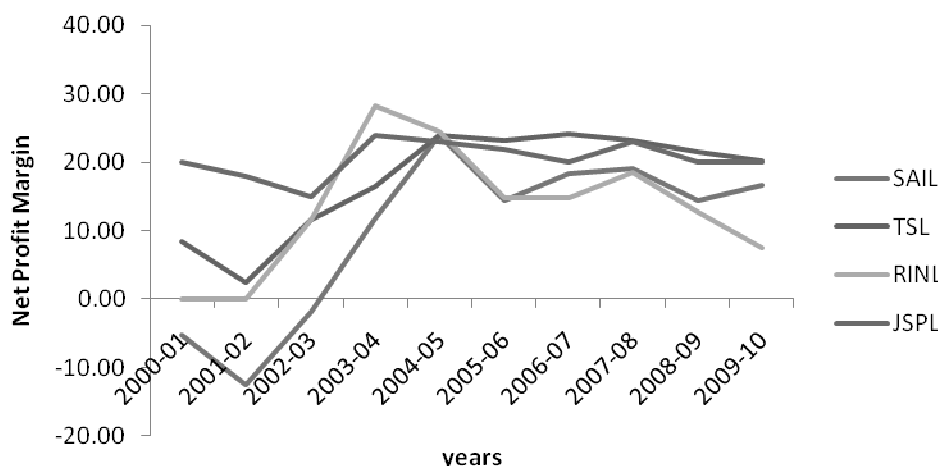
producers from other countries to seek out investments in the fragmented local industries. (Bharti Bala. Y, Sanjay De, Nov 2009).

A study has been conducted to test the short term liquidity trend of the private sector Indian steel companies. It shows that the inventory management and receivable management requires special attention by implementing proper inventory control system like EOQ, ABC analysis, JIT etc and the investment in loans and advances should be minimized to the extent possible. A balanced and proper amount of working capital should sustain in the business for smooth running of the same as well as payment policy also to be handled carefully. At the same time maximization of assets and minimization of liabilities should be preserved and help Indian steel companies to grow further because a proper working capital management system ensures the hazard free business operations. (Bhunia. Amalendu, 2010). The ratio analysis helps to detect the actual financial condition of the company. The term 'ratio' refers to the numerical or quantitative relationship between to variables. Ratios help to reveal the relationship in a more meaningful way so as to enable stakeholders like equity investors, management, Government, creditors and analysts to make proper evaluation for better investment and credit steel industrious. The appraisal of ratios will make proper analysis of steel industry about the strengths and weaknesses of the firm's operation. (*Financial Management; M.Y.Khan , P.K.Jain ; Tata McGraw Hill; fifth edition; pg 6.2).*

Objectives of The Study:

The basic objective of the study is to evaluate the financial performance of Indian steel companies operating in public and private sector both. The detail of objectives is as below;

1. Study of financial soundness of the sample units in respect of profitability.
2. Study of profitability trend over the time period for the sample units.
3. Study the impact of liquidity and activity on the profitability of the sample units.

Data and Methodology:

The present study is envisaged to be predominantly empirical in nature. This study is basically based on secondary data which are collected from the published annual reports from the sample companies' website. The other relevant data have been collected from economy survey, different journals and from internet also. The study

Table: 1.2: Return On Capital Employed (Roce In Percent) of Indian Steel Companies

Companies	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D	Min	Max
SAIL	-13.8	-32.1	-5.8	49.9	66.1	31.8	35.8	32.7	22.1	20.3	20.7	9.482	-32.1	66.1
TSL	11.22	6.35	16.29	28.02	49.43	40.81	32.37	20.53	16.12	14.25	23.54	13.81	6.35	49.43
RINL	0	0	11.5	31.3	28.07	14.13	14.5	19.6	16.9	14.5	18.81	7.157	11.5	31.3
JSPL	22	18	27	24	28	22	21	25	24	16	22.7	3.743	16	28

Fig 1.2 Return On Capital Employed of Indian Steel Companies Under Study
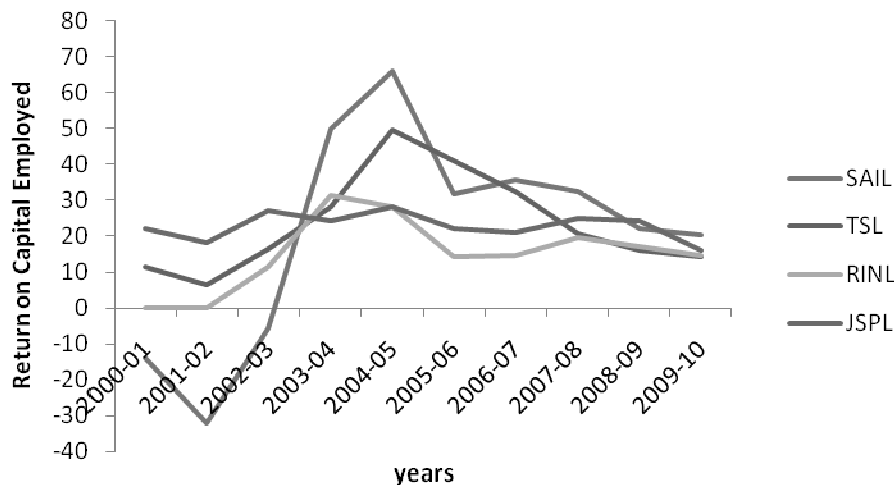
has been taken for a decade ranging from 2000-01 to 2009-10.

Methodology:

1. Ratio analysis is used to explore the profitability of the Indian steel companies under the present study and here we tested three profitability ratios namely Net Profit Margin (NPM) [Net Profit/Net Sale*100], Return on Capital Employed (ROCE) [Earnings before Interest and Tax/Total Assets*100] and Return on Assets (ROA) [Profit after Tax/ Total assets*100].
2. Descriptive statistics like Mean, Standard deviation, Maximum, Minimum are used to statistically interpret the profitability data of the sample units under the study.
3. Line graphs are being used to facilitate the present study and to show the highs and lows of the profitability of the sample units during the study period.
4. Factor Analysis has been conducted for data reduction and summarization of the independent variables and to ensure the most effective and influential independent variables which could influence the profitability of the sample units.

Multiple regression analysis is used to show the relationship between liquidity factors (predictor variables) the profitability (criterion variable) of the sample units

under the study.

The table(1.1) and above graph are showing the net profit margin of two steel giants SAIL (Steel Authority of India) ,TSL (Tata Steel Ltd), RINL (Rastriya Ispat Nigam Limited) and JSPL (Jindal Steel and Power Limited) of India from 2000-01 to 2009-10.The NPM of the companies is showing the fluctuating trend. The NPM of SAIL is showing the upward rising trend during the study period. In 2000-01 the NPM of SAIL was -5.18 per cent which rose to 23.90 percent in 2004-05. In 2008-09 the NPM was 14.29 percent due to global economic meltdown. The highest value of NPM of SAIL is 23.09 and lowest value is -12.6 percent with standard deviation 12.05 per cent which showed the slightly changes. The NPM is showing fluctuating trend with an average of 9.89 per cent. The NPM of TSL shows a steady trend during the study period with a range of 2.35 per cent to 24.06 per cent and mean value 17.44 per cent. In 2000-01 NPM of TSL was 8.26 per cent but it went down to 2.35 per cent in the immediately next year. In 2006-07 it earned the highest NPM of 24.06 per cent. The standard deviation of TSL is 7.61 per cent which indicates the slight changes of net profit over the period. The NPM of RINL is showing also the fluctuating trend. In 2002-03 it was 11.66 percent and immediately next year it rose to 28.32 percent. But in 2009-10 it showed the lowest NPM of 7.49 percent. But in case of JSPL the NPM is showing the constant during the

Table: 1.3: Return On Assets (Roa In Percent) of Indian Steel Companies Under Study

Companies	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Mean	S.D	Min	Max
SAIL	-4.36	-0.68	4.99	17.41	39.48	22.64	30.94	30.92	18.82	16.36	17.65	14.29	-4.36	39.48
TSL	10.07	4.49	14.34	19.73	35.09	24.49	20.86	14.8	12.62	11.91	16.84	8.609	4.49	35.09
RINL	N.A	N.A	9.09	24.51	26.36	17.98	17.31	19.61	11.43	6.74	16.63	7.067	6.74	26.36
JSPL	19.94	25.05	0.71	0.72	25.32	17.93	18.85	22.22	18.07	13.01	16.18	8.913	0.71	25.32

Fig 1.3 Return On Assets (Roa) of Indian Steel Companies Under Study
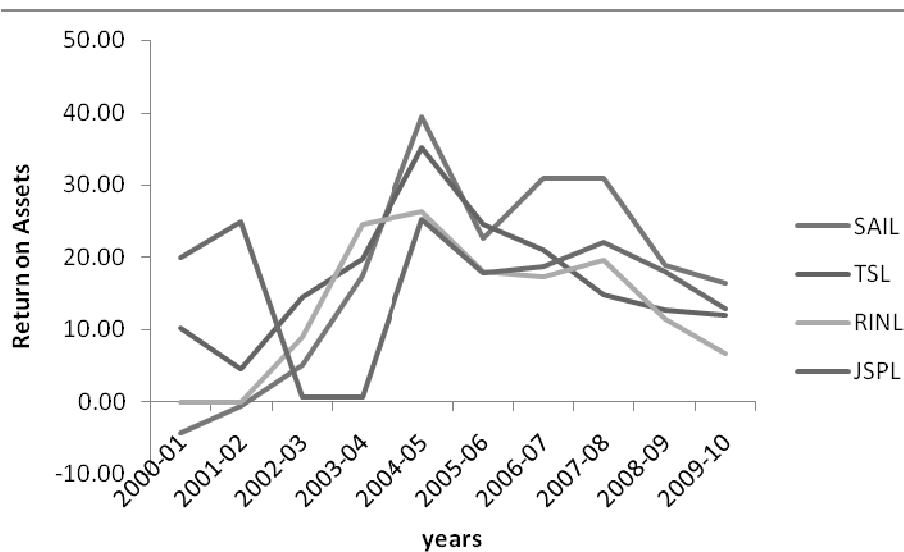
study period. The highest and lowest value of NPM of JSPL is 15 percent and 24 percent respectively with a standard deviation of 2.677 percent which indicates the small change throughout the study period. In 2008-09 both the companies registered the low NPM due to global financial turmoil. But it recovered in 2009-10 and it is expected that it will do better in the near future.

The above table (2.1) and line graph (2.2) are showing the fluctuating trend of return on capital employed for sample units during the study period. ROCE of SAIL is 20.3 per cent in 2009-10 compared to -13.8 percent in 2000-01.The highest ROCE of SAIL was 66.1 percent in 2004-05. The average ROCE of SAIL is 20.7 percent with standard deviation 9.482 per cent which indicates small change in ROCE over the study period. The minimum value of ROCE is -32.1 per cent and maximum value is 66.1 per cent. On the other hand the ROCE of TSL ranges from 6.35 per cent to 49.43 per cent and showing a steady trend. The ROCE of TSL was 11.22 percent in 2000-01 but it went down to 6.35 per cent in 2001-02. In 2004-05 the ROCE rose to highest value of 49.43 percent. The standard deviation was 13.81 per cent indicating certain changes throughout the study period. The mean value of ROCE of TSL is highest with 23.54 percent during the study period followed by JSPL (22.7), SAIL (20.7) and RINL (18.81).

The ROCE of RINL is showing the uprising trend up to 2004-05 compared to ROCE in 2002-03. Afterwards ROCE went down to 14.5 percent in 2006-07 and further increased to 19.6 percent in 2007-08. The range of ROCE from 11.5 percent to 31.3 percent with a standard deviation of 7.157 percent steel industry signifies a very little change in ROCE during the study period of that company. On the other hand ROCE of JSPL is showing constant trend throughout the study period with highest and lowest value of 28 percent and 16 percent respectively. In 2000-01 the ROCE was 22 percent compared to 28 percent in 2004-05. In 2009-10 the ROCE goes down to 16 percent due to worldwide severe financial disturbance.

The above table and line graph are showing upward rising trend for the return on assets for SAIL from 2000 to 2010. This ratio of SAIL fluctuated from minus 4.36 percent in 2000-01 to 39.48 per cent in 2004-05. The mean value of ROA of SAIL was 17.65 per cent during the study period. The above table showed the ROA of TSL with the fluctuated trend during the research period. The highest ROA value found 35.09 per cent in 2004-05 and lowest value 4.49 per cent with average of 16.84 per cent. The above table and graph also showed the ROA of TSL with an increasing trend. The mean value of ROA was 16.84 per cent and ranges from 4.49 per cent to 35.09 per cent. The standard deviation for both the companies was 14.29

Table 1.4: One-Way ANOVA Testing on Net Profit Margin

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1864.665	9	207.185	4.278	0.001	2.210
Within Groups	1452.762	30	48.42539			
Total	3317.426	39				

Table 1.5: One-Way ANOVA Testing on Return on Capital Employed

Sources of Variation	SS	df	MS	F	P-value	F crit
Between Groups	6360.857	9	706.7619	4.295	0.00117	2.2107
Within Groups	4936.515	30	164.5505			
Total	11297.372	39				

Table 1.6: One-Way ANOVA Testing on Return on Assets

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2388.87	9	265.43	4.601	0.001	2.211
Within Groups	1730.70	30	57.69			
Total	4119.57	39				

Table 1.7 Factors Influencing The Profitability of The Indian Steel Companies Under The Study

Variables	Component-1
Current Ratio	.848
Acid Test Ratio	.869
Absolute Quick Ratio	.900
Inventory Turnover Ratio	.950
Debtors Turnover Ratio	.888
Interest Coverage Ratio	.922
Creditors Turnover Ratio	.919
Proprietary Fund Ratio	.768
Eigen Values	6.260
Percentage of Variance	78.246
Cumulative Percentage	78.246

[Extraction Method: *Principal Component Analysis*. Rotation Method: *Varimax with Kaise Normalization*. Rotation converged in 1 iteration. Component 1= Management Efficiency.]

Table 1.8 Multiple Regression Analysis of Indian Steel Companies Under The Study

Variables	Beta	Std.Error	t-value	Sig
Current Ratio (CR)	-1.458	9.907	-3.172	.194
Acid Test Ratio (ATR)	.645	10.216	1.378	.400
Absolute Quick Ratio (AQR)	-.729	5.896	-3.311	.187
Inventory Turnover Ratio (ITR)	2.501	4.655	5.066	.124
Debtors Turnover Ratio (DTR)	.727	.390	-1.748	.331
Interest Coverage Ratio (ICR)	-2.644	.561	-3.031	.203
Creditors Turnover Ratio (CTR)	2.619	6.187	4.175	.150
Proprietary Fund Ratio (PFR)	-1.138	38.706	-3.070	.200
R	0.998			
R^2	0.997			

per cent and 8.609 per cent respectively. The ROA of RINL is showing the fluctuating trend and ranges from 6.74 percent to 26.36 percent. It rises to 26.36 percent in 2004-05 compared to 9.09 percent in 2002-03. In 2005-06 it decreases to 17.98 percent but recovers in 2007-08 and reaches to 19.61 percent. In 2009-10 it declines to value of 6.74 percent. Above table also shows the ROA of JSPL is 19.94 percent in 2000-01 and 25.05 percent in 2001-02. It decreases to 0.71 percent and 0.72 percent in 2002-03 and 2003-04 respectively. However, afterwards it shows the upward rising trend throughout the study period and reaches to 25.32 percent in 2004-05. The standard

deviation of ROA of the concern company is 8.913 percent indicating the small changes of the same during the study period. Above analysis explains that SAIL has the highest mean value of ROA (17.65) followed by TSL (16.84), RINL (16.63) and JSPL (16.18). The sample companies need to maintain the ratio in the near future.

Hypothesis Testing:

Here the one-way ANOVA is used to test the hypothesis using Excel, 2007.
  a) H_0: There is no difference in the net profit margin among the sample units.
     H_1: There is difference in the net profit margin among the sample units.

From the above ANNOVA table the calculated value of F is 4.278 and critical value is 2.210. Therefore, the calculated value of F is greater than the critical value of F and p-value (0.001) is less than the significant level (0.05), so the null hypothesis is rejected and it can be said that the net profit margin is different among the sample units.
  b) H_0: There is no difference in return on capital employed among the sample units.
     H_1: There is difference in return on capital employed among the sample units.

From the above table it is cleared that the p-value (0.00117) is less than the steel industry significance level (0.05) and the F calculated value (4.295) is greater than the F calculated (2.2107). Thus, the alternative hypothesis is accepted that the profit after tax to capital employed is different among the sample units.
  c) H_0: There is no difference in return on assets among the sample units during the study period.
     H_1: There is difference in return on assets among the sample units during the study period.

From the above table the calculated value of F (4.601) is greater than the critical value of F (2.211) with p-value (0.001) which is less than the steel industry significance level (0.05). Thus, the null hypothesis is rejected and alternative hypothesis is accepted that there is difference in return on assets among the sample units.

Impact of Liquidity Factors on the Profitability of the Indian steel companies under the study

The factor analysis was carried out to detect the most influential factors on the profitability. It produced only one factor out of large number of variables (8) which are capable of explaining the observed variance.

To justify the validity of the independent variables reliability test was conducted and it showed the satisfactory result of Cronbach's alpha value of 0 .634. The Principal Component Analysis was adapted to conduct the factor analysis. Kaise-Mayer-Olkin (KMO) test along with Bartlett's test of Sphericity were performed to justify the factor analysis. The KMO value showed 0 .573 which validate the factor analysis and Bartlett's test of Sphericity was steel industry significant (Chi-square 92.465, df-28, sig .000) (Hair, Anderson, Tatham, Black, Babin, 2010).

The Eigen value method suggests the number of variables to be retained. The components that are having Eigen value more than 1 they will retain and the others are insignificant. The present study indicates that only one component has the Eigen value more than 1 and it is explaining 78.246 percent of the total variance. The component matrix also helps to explain the components of the study. The co-efficient with large value indicates the close relation between the component and variable. The above table is showing that all the variables contain the high correlation with the component. In this study all the variables are correlated and combine with component 1 as they are sharing common features. The component 1 has been renamed with' management efficiency'.

Profitability and liquidity both are sharing negative relationship but there may be exception in some cases. Sometimes the liquidity factors may offer positive impact on the profitability. To test the linear relationship between dependent variable (ROCE) and the independent variables like CR, ATR, AQR, ITR, DTR, ICR, CTR and PFR, multiple regression test has been conducted. From the above test it reveals that if CR increases by 1 unit ROCE will decline by -1.458 units. It means CR gives the negative impact on the profitability of the firm. On the other hand ATR provides the positive impact on the ROCE but the test result is insignificant. The ICR, PFR and AQR also offer the negative impact on the ROCE. The increase in the ICR, PFR and AQR by 1 unit decreases the ROCE by 2.644, 1.138 and .729 respectively. The other three important variables CTR, ITR and DTR provide the positive impact on the ROCE that is statistically significant at 0.1 and 0.3 levels. The value of multiple regression coefficients (R) is 0.998 indicating the high correlation among the variables or it can be said the liquidity factors has the high influence on the respondent variable. The value of R^2 is 0.997 reveals that 99.7 percent variation in ROCE can be explained by the independent variables CR, ATR, AQR, ITR, DTR, ICR, CTR and PFR.

Conclusion:

The present study reveals that the profitability of the Indian steel companies is quite impressive up to 2007 as it follows the increasing trend. But the world wide recession started from second half of 2007 and continued up to 2009 affect the steel industries most. The price of the steel declines and the producers of Indian steel reduced the production to keep the price of the steel kicking. Overall the profitability of the Indian steel companies is now showing the sign of improvement which is the ray of hope for all the Indian steel producers and in near future it is expected to grow further.

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