

BEHAVIOUR OF FINANCIAL METRICS OF INDIAN STEEL INDUSTRY DURING PRE AND POST FINANCIAL CRISIS PERIOD

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ABSTRACT

This is an attempt in the present research to find the behavior of the key financial ratios during pre and post financial crisis period. Indian steel industry suffers from many ups and downs and faced a problem of gradual decrease in demand in global market during the financial turmoil in 2008. Growth in infrastructural development also showed negative figure during this course of time. Because of those problems health of Indian steel industry also suffered. An endeavor is made to conduct a comparative study between pre and post financial crisis period. Several key financial ratios are adopted to facilitate the present research. Factor analysis and correlation analysis are applied to extract the factor from sample profit ratios and show the relationship between extracted factor and other financial ratios selected from different segment like liquidity, solvency and efficiency. Paired t-test is also applied to explain the condition of steel sector before and after financial crisis which showed a minimum difference in the sample ratios between pre and post crisis period except in certain cases.

JEL CLASSIFICATION: C12, M10, M41, G30

KEYWORDS: Correlation, Factor Analysis, Financial Ratios, Paired T-Test, Pre and Post Financial Crisis

1. INTRODUCTION

Industry is one of the important elements of macro economy under globalized period. Indian economy is basically agricultural driven but at present time it shifts its importance from agro to industrial activities. Importance of capitalistic firms is increasing gradually day by day and it provides an immense effect on Indian economy. Worldwide financial turmoil in 2008 hits Indian industrial activity with a big effect. Indian steel industry faces a lot of problems in post crisis period. Indian steel industry also felt the price of this financial crisis. Financial performance of this industry gets affected in a negative way. Previously this industry got boost in 2005-06. Steel industry of India touched a golden history during this period. Some big mergers (Tata-Corus) took place during that period. At that point of time steel industry was showing spectacular result in regard to financial performance. But recession along with high inflation pulls down the demand of steel in the market and due to supply demand mismatch the financial condition took the downward turn. A slight recovery was showed during 2010-11. But still steel industry of India faces some tough hurdles during this period. The present paper aims to examine the financial performance of the sample industry before and after crisis period. To have the actual scenario big steel companies considered as sample in this study. Paired t-test is applied to examine the financial performance under pre-crisis and post-crisis period. Correlation analysis also used in the present study to show the relationship between the ratios under the study.

2. REVIEW OF LITERATURE

Economic development of any country largely depends on its steel industry. India is considered to be pioneer of iron and steel making and application which started as early as three thousand years back. During pre liberalization period steel industry was governed by public sector companies after liberalization private players enter into competition. Indian steel industry recovered from the distressing situation in the wake of price recovery following turnaround of the Asian economies and demand resurgence in United States (Banerjee, 2005; pg: 243). Industrial recovery in India really began to be noted in 2002-03; was consolidated during 2003-24; gathered momentum during 2004-05; and scaled new heights during 2005-07. Steel companies of India faced a tough time after worldwide financial turmoil during 2008. But the main challenge of high material prices continues to plague Indian steel producers and may affect the profit margin severely. Price of steel rose in 2011 mainly because of cost push inflation and robust domestic demand. Global woes, sluggish market demand, abnormal price hike of raw material affect the health of Indian steel sector in a negative way. Financial crisis also led to bankruptcy. Dichev (1998) applied z-score model and Ohlson used conditional logit model to examine relation between financial (bankruptcy) risks and systematic and found that financial risk is not associated with higher return. Charitou et.al (2004) also found that financial distress lead a company to a poor financial condition and develop a reliable business failure prediction model.

3. OBJECTIVES

- To find out the relationship between different financial ratios during the study period.
- To study the pre crisis and post crisis financial condition of Indian steel industry with the help of statistical methods.

4. SCOPE OF RESEARCH

Steel industry is one of the core industries of twenty first century. Steel has become the integral part of daily life. India is the world's third largest producer of crude steel and expected to become the second largest producer by the end of 2016. The growth in Indian steel sector has been driven by domestic availability of raw materials such as iron ore, cost effective labor, etc. Consequently, the steel sector has been a major contributor to India's manufacturing output. The steel sector in India contributes nearly 2 percent (India Business, 2016) to GDP. Steel plays a pivotal role in developing the infrastructure of the country. It is an index of quality in our daily life as it becomes inevitable and fulfills unique place in our life. Demand for steel increases not only in the modern industry but also in traditional one like infrastructure, power generation, etc. During 2007-08 worldwide financial turmoil affect the world economy in a negative way. Indian steel industry also the felt the pinch of that. It suffered from slack of demand in the world economy, high price rise for key inputs, substantial reduction in steel prices and sharp decline in the trade in steel. Due to sluggish demand in world market export of finished goods contracted sharply while growing demand for steel using sectors in domestic front increases the steel consumption. Hence, to understand the financial position of Indian steel industry before and after recession period different key ratios are adopted and study their behavior during that time. In the present paper attempt is made to identify the influence of financial turmoil on the selected key ratios and their behavior during the changing phase of global and Indian economy.

5. VARIABLE SELECTION

For the purpose of this study total 15 conventional financial ratios were selected from five different categories like liquidity, solvency, efficiency and profitability. From liquidity two ratios namely current ratio (CR) and quick ratio (QR) were selected followed by debt equity ratio (DER) from solvency, inventory turnover ratio (ITR), debtor turnover ratio (DTR), fixed assets turnover ratio (FATR), total assets turnover ratio (TATR) from asset management/ efficiency and operating profit margin (OPM), net profit margin (NPM), cash profit margin (CPM), return on net worth (RONW), return on capital employed (ROCE), earning per share (EPS), earnings before interest and tax (EBIT) from profitability.

6. SAMPLE SELECTION

The study is conducted on the selected companies of Indian iron and steel industry. Steel producing companies selected for the present study which are listed or permitted either Bombay Stock Exchange (BSE) or National Stock Exchange (NSE) of India or both. Convenience sampling has been employed to select the sample companies for the present study. 10 companies were selected for the study randomly for a period of 15 years from 2000-2001 to 2014-15.

7. METHODOLOGY

- Correlation analysis is applied in the present study to show the relationship between different financial ratios under the study.
- Factor analysis is carried on the profitability variables in the study (OPM, NPM, CPM, ROCE, EPS, EBIT, and RONW) with Principal Component Extraction method. Here, VARIMAX rotation method is used for the better result to derive rotated component matrix. The cut-off value for factor loading is set above 0.50.
- For the testing of hypothesis paired t-test is applied to compare difference in mean of the financial ratios under the study of two different period i.e. pre and post financial crisis regime. By using the paired sample t-test is to determine whether there is statistical evidence that the mean difference between paired observations on a particular outcome is significantly different from zero. Paired sample t-test is a statistical technique that is used to compare two population means in the case of two samples that are correlated. Paired sample t-test is used in 'before-after' studies, or when the samples are the matched pairs, or when it is a case-control study.

8. HYPOTHESIS

- H_a : There is difference in mean operating profit between pre or post crisis period.
- H_a : There is difference in mean net profit margin between pre or post crisis period
- H_a : There is difference in mean earnings before interest and tax between pre or post crisis period.
- H_a : There is difference in mean cash profit margin between pre or post crisis period.
- H_a : There is difference in mean return on capital employed between pre or post crisis period.
- H_a : There is difference in mean return on net worth between pre or post crisis period

- **H_a:** There is difference in mean current ratio between pre or post crisis period.
- **H_a:** There is difference in mean quick ratio between pre or post crisis period
- **H_a:** There is difference in mean debt-equity ratio between pre or post crisis period
- **H_a:** There is difference in mean inventory turnover ratio between pre or post crisis period
- **H_a:** There is difference in mean debtors turnover ratio between pre or post crisis period
- **H_a:** There is difference in mean fixed assets turnover ratio between pre or post crisis period
- **H_a:** There is difference in mean total assets turnover ratio between pre or post crisis period
- **H_a:** There is difference in mean dividend payout ratio between pre or post crisis period
- **H_a:** There is difference in mean earnings per share between pre or post crisis period

9. DATA ANALYSIS

9.1 Explanation of Factor Analysis

Factor analysis is conducted on profitability ratios (OPM, EBIT, NPM, CPM, RONW, ROCE and EPS) and KMO value for the sample adequacy has come for 0.757. On the other hand Bartlett's test of Sphere city shows significant result with high chi-square value (199.634) and corresponding low p-value (0.000) (Table 1) signifying that the factors are independent to each other and both the tests justify the factor analysis for the present study. The next output for the factor analysis is 'communality' (Table 2). It shows that all variables contain high communality that means common factors can explain a substantial portion of variation in the variables considered under the study. The variable CPM contains highest communality of 0.977 indicating 97.7 percent variation in the variable can be explained by the common factors followed by EBIT (0.972), OPM (0.968), RONW (0.931), NPM (0.913) and ROCE (0.912). There is one factor resulting from the analysis as the extracted factor contains Eigen value more than 1 able to explain 94.592 percent variation in the entire data set (Table 3). The factor includes OPM, EBIT, NPM, CPM, RONW, and ROCE thus can be named as 'Return and Profit Margin' (Table 2).

9.2 Explanation of Correlation Analysis

Table 4 reports on the Pearson's Correlation indices for all the test variables. The Pearson correlation coefficient takes values between -1 and +1, as the positive value indicate direct correlation, where negative ones are indicating the inverse relation. The level of significance is determined less than 0.05. The table shows the relationship between Return and Profit Margin factor and individual variables. A positive high ($r=0.868$) and statistically significant ($p=0.000$) relation has been found between quick ratio and Return and Profit Margin factor implying that more of investing liquid assets in the business in an efficient way add more profit to the business. A significant high positive relation has been found between FATR (0.846), CR (0.820), ITR (0.755) and TATR (0.663). A significant negative relation has been found between DER (-0.579) and Return and Profit Margin factor implying that more of using debt can create additional financial burden on the company and hence affect the profit in a negative way. Another two variables DTR (0.507, $p=0.054$) and DPR (0.480, $p=0.070$) sharing the statistically insignificant positive relation with the profit factor.

9.3 Testing of Hypothesis

Here, Paired t-test is applied by using SPSS 17.0 to prove the hypothesis given below:

- **H₀**: There is no difference in mean operating profit between pre or post crisis period.

H_a: There is difference in mean operating profit between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.722$ (Table-5), which means $p > 0.05$. Hence, the null hypothesis cannot be rejected. Operating profit ratio before and after financial turmoil is proved to be indifferent of recession.

- **H₀**: There is no difference in mean net profit margin between pre or post crisis period.

H_a: There is difference in mean net profit margin between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.180$ (Table- 6), which means $p > 0.05$. Hence we cannot reject the null hypothesis. NPM, before and after financial turmoil is proved to be indifferent of recession.

- **H₀**: There is no difference in mean earnings before interest and tax between pre or post crisis period.

H_a: There is difference in mean earnings before interest and tax between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.698$ (Table-7), which means $p > 0.05$. Hence we cannot reject the null hypothesis. EBIT, before and after financial turmoil is proved to be indifferent of recession.

- **H₀**: There is no difference in mean cash profit margin between pre or post crisis period.

H_a: There is difference in mean cash profit margin between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.754$ (Table- 8), which means $p > 0.05$. Hence we cannot reject the null hypothesis. CPM, before and after financial turmoil is proved to be indifferent of recession.

- **H₀**: There is no difference in mean return on capital employed between pre or post crisis period.

H_a: There is difference in mean return on capital employed between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.129$ (Table- 9), which means $p > 0.05$. Hence we cannot reject the null hypothesis. Return on capital employed before and after financial turmoil is proved to be indifferent of recession.

- **H₀**: There is no difference in mean return on net worth between pre or post crisis period.

H_a: There is difference in mean return on net worth between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.065$ (Table-10), which means $p > 0.05$. Hence we cannot reject the null hypothesis. Return on net worth for pre and post crisis period is proved to be indifferent of recession.

- **H₀:** There is no difference in mean current ratio between pre or post crisis period.

H_a: There is difference in mean current ratio between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.183$ (Table-11), which means $p > 0.05$. Hence we cannot reject the null hypothesis. Current ratio for pre and post crisis period is proved to be indifferent of recession.

- **H₀:** There is difference in mean quick ratio between pre or post crisis period.

H_a: There is difference in mean quick ratio between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.002$ (Table-12), which means $p < 0.05$. Hence we reject the null hypothesis. Hence it can be said that quick ratio for pre and post crisis period is proved to be different due to recession.

- **H₀:** There is no difference in mean debt-equity ratio between pre or post crisis period

H_a: There is difference in mean debt-equity ratio between pre or post crisis period

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.001$ (Table 13), which means $p < 0.05$. Hence we reject the null hypothesis. Hence it can be said that debt equity ratio for pre and post crisis period is proved to be different due to recession.

- **H₀:** There is no difference in mean inventory turnover ratio between pre or post crisis period.

H_a: There is difference in mean inventory turnover ratio between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.559$ (Table 14), which means $p > 0.05$. Hence we cannot reject the null hypothesis. Inventory turnover ratio for pre and post crisis period is proved to be indifferent of recession.

- **H₀:** There is difference in mean debtors turnover ratio between pre or post crisis period.

H_a: There is no difference in mean debtors turnover ratio between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.022$ (Table-15), which means $p < 0.05$. Hence we reject the null hypothesis. Debtors turnover ratio for pre and post crisis period is proved to be different of recession.

- **H₀:** There is no difference in mean fixed assets turnover ratio between pre or post crisis period.

H_a: There is difference in mean fixed assets turnover ratio between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.755$ (Table-16), which means $p > 0.05$. Hence we cannot reject the null hypothesis. Fixed assets turnover ratio for pre and post crisis period is proved to be indifferent of recession.

- **H₀:** There is no difference in mean total assets turnover ratio between pre or post crisis period.

H_a: There is difference in mean total assets turnover ratio between pre or post crisis period.

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.153$ (Table-17), which means $p > 0.05$. Hence we cannot reject the null hypothesis. Total assets turnover ratio for pre and post crisis period is proved to be indifferent of recession.

- **H₀:** There is no difference in mean dividend payout ratio between pre or post crisis period.

H_a: There is difference in mean dividend payout ratio between pre or post crisis period

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.059$ (Table-18), which means $p > 0.05$. Hence we cannot reject the null hypothesis. Dividend payout ratio for pre and post crisis period is proved to be indifferent of recession.

- **H₀:** There is no difference in mean earnings per share between pre or post crisis period.

H_a: There is difference in mean earnings per share between pre or post crisis period

In this case both the set of variables are scale variables. At the level of significance of 0.05 it has been found that $p = 0.003$ (Table-19), which means $p < 0.05$. Hence we reject the null hypothesis. Earnings per share for pre and post crisis period are proved to be different of recession.

10. MANAGERIAL INFERENCE

10.1 Inference of Correlation Analysis

It has been found that liquidity (CR, QR) is sharing significant positive relation with profitability factor during the study period of 15 years. Hirigoyen (1985) argued that on medium to long term liquidity is depending on the profitability and vice-versa. The profit would guarantee the resources for the liquidity, stability and a safe margin of working capital avoid increasing financial costs leading to a stable profitable performance. Hence, significant positive relation between profitability and liquidity ensures the good financial health of the sample companies during the study period. Significant positive relation between ITR and Return and Profit margin factor indicates that more of inventory turnover signifies high profitability. Significant positive relation with assets turnover signifies that efficient use of fixed assets facilitates to increase the profitability. In contrast, DTR is sharing insignificant positive relation with the profitability.

10.2 Inference of Paired t-Test

Paired t-test for difference of mean suggests that OPM, EBIT, NPM, CPM, ITR, ROCE, RONW, CR, FATR, TATR, DPR are independent of effect of financial turmoil in 2008-09. There is very insignificant difference in mean has been found in sample ratios between pre and post financial downturn period. Prior to 2008 India showed an impressive growth rate. However, with onset of the global economic downturn the same pace could not be maintained in the year 2008-09. Like any other manufacturing industries steel making also highly market driven and therefore was affected directly by the adverse global market condition. The sector able to contain the rate of deceleration due to timely policy intervention and counter-cyclical stimulus of fiscal and monetary packages announced by the Government and more importantly by the inherent stability of the Indian economy itself. As a result the sector showed a sign of improvement during the third quarter of 2008-09 and started to recover its pace after the primary set-back of global financial turmoil.

Increase in QR and DTR indicates accumulation of too much of cash in the hands of the companies because of increase in collection from debtors. Sample companies revised their credit policies after recession to expedite the collection from debtors. But due to financial crisis global steel demand showed a sharp decline and the steel makers were compelled to cut down their steel production to keep the steel price alive. In addition to that infrastructural development was also not shown an impressive growth during that period. All together steel industry was in a worst condition. Less demand from ancillary industries like automobile, real estate, infrastructure, etc pull down the steel production. As no viable project was happening at that point of time companies were not very keen to borrow money which helps to decrease the debt equity ratio significantly during post recession period. However, EPS was increasing during the post financial crisis period without significant increase in net profit. It happened due to buying back of shares by the sample companies.

11. CONCLUSIONS

The present study is envisaged into two period; pre-crisis period and post crisis period. The total study period consists of 15 years out of which 7years belong to pre-crisis period and 8 years to post crisis period. Here, factor analysis is applied on the profitability ratios and one factor extracted from the test named as 'Return and Profit Margin'. Correlation analysis is used to reveal the relation between factor and rest of the ratios. After that, paired t-test is applied to test the hypothesis whether the financial ratios are independent of recession or not. All the ratios except quick ratio, debt equity ratio and earnings per share showed that the ratios during pre and post crisis period are independent of global financial turmoil. The significance of correlation is tested at 0.05 levels. It showed that most of the variables share a statistical significant relation with the profitability factor.

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APPENDICES

Appendix: A: Tables

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.757
Bartlett's Test of Sphericity	Approx. Chi-Square	199.634
	df	15
	Sig.	.000

Table 2: Communalities

	Initial	Extraction	Component1
OPM	1.000	.968	.984
EBITB	1.000	.972	.986
CPMB	1.000	.977	.988
NPMB	1.000	.915	.957
RONWB	1.000	.931	.965
ROCEB	1.000	.912	.955
Extraction Method: Principal Component Analysis.			
a. 1 Components Extracted.			

Table 3: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.676	94.592	94.592	5.676	94.592	94.592
2	.170	2.835	97.426			
3	.128	2.139	99.565			
4	.021	.342	99.907			
5	.004	.064	99.970			
6	.002	.030	100.000			
Extraction Method: Principal Component Analysis						

Table 4: Correlations

		Return and Profit Margin	CRB	QRB	DER	ITRB	DTRB	FATR	TATR	DPR
Return and Profit Margin	Correlation	1	.820**	.868**	-.579*	.755**	.507	.846**	.663**	.480
	Sig.		.000	.000	.024	.001	.054	.000	.007	.070
CRB	Correlation	.820**	1	.906**	-.269	.453	.748**	.579*	.239	.587*
	Sig.	.000		.000	.333	.090	.001	.024	.391	.021
QRB	Correlation	.868**	.906**	1	-.313	.653**	.719**	.749**	.425	.597*
	Sig.	.000	.000		.256	.008	.003	.001	.114	.019
DER	Correlation	-.579*	-.269	-.313	1	-.299	.097	-.505	-.465	-.036
	Sig.	.024	.333	.256		.279	.732	.055	.081	.899
ITR	Correlation	.755**	.453	.653**	-.299	1	.199	.906**	.791**	.191
	Sig.	.001	.090	.008	.279		.476	.000	.000	.494
DTR	Correlation	.507	.748**	.719**	.097	.199	1	.359	-.013	.695**
	Sig.	.054	.001	.003	.732	.476		.189	.965	.004
FATR	Correlation	.846**	.579*	.749**	-.505	.906**	.359	1	.692**	.357
	Sig.	.000	.024	.001	.055	.000	.189		.004	.191
TATR	Correlation	.663**	.239	.425	-.465	.791**	-.013	.692**	1	-.194
	Sig.	.007	.391	.114	.081	.000	.965	.004		.489
DPR	Correlation	.480	.587*	.597*	-.036	.191	.695**	.357	-.194	1
	Sig.	.070	.021	.019	.899	.494	.004	.191	.489	

** . Correlation is significant at the 0.01 level (2-tailed)

* . Correlation is significant at the 0.05 level (2-tailed)

Table 5: Paired t-Test of Operating Profit Margin (OPM)

Ratios	Mean	N	Std. Deviation	Std. Error		
OPMB	18.104	7	5.486	2.073		
OPMA	19.34	7	4.045	1.529		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
OPMB - OPMA	-.690	.086	-1.24	-.373	6	0.722

Table 6: Paired t-Test of Net Profit Margin (NPM)

Ratios	Mean	N	Std. Deviation	Std. Error		
NPMB	1.0422	4	.03042	.01521		
NPMA	4.70425	4	4.178080	2.089040		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
NPMB & NPMA	-.760	.240	-3.662036	-1.743	3	.180

Table 7: Paired t-Test of Earnings before Interest and Tax (EBIT)

Ratios	Mean	N	Std. Deviation	Std. Error		
EBITB	13.044	7	5.684	2.148		
EBITA	14.495	7	4.544	1.718		
Paired t-Test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
EBITB - EBITA	-.697	.082	-1.451	-.407	6	.698

Table 8: Paired t-test of Cash Profit Margin (CPM)

Ratios	Mean	N	Std. Deviation	Std. Error		
CPMB	10.708	7	5.910	2.234		
CPMA	11.869	7	4.207	1.590		
Paired t-Test						
Ratios	Correlation	Sig	Mean Difference	t- value	df	Sig
CPMB - CPMA	-.701	.079	-1.161	-.328	6	.754

Table 9: Paired t-test of Return on Capital Employed

Ratios	Mean	N	Std. Deviation	Std. Error		
ROCEB	13.396	7	10.131571	3.829		
ROCEA	12.703	7	5.198839	1.965		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
ROCEB - ROCEA	-.680	.093	.693	.129	6	.901

Table 10: Paired t-Test of Return on Net Worth (RONW)

Ratios	Mean	N	Std. Deviation	Std. Error		
RONWB	1.394	4	.0629	.0314		
RONWA	8.077	4	4.713	2.357		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
RONWB & RONWA	.433	.567	-6.683	-2.852	3	.065

Table 11: Paired t-test of Current Ratio (CR)

Ratios	Mean	N	Std. Deviation	Std. Error		
CRB	2.025	7	4.088	1.545		
CRA	5.259	7	2.676	1.011		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
CRB & CRA	-.388	.390	-3.233	-1.504	6	.183

Table 12: Paired t-test of Quick Ratio (QR)

Ratios	Mean	N	Std. Deviation	Std. Error		
QRB	-.091	4	.0459	.023		
QRA	.546	4	.0877	.044		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
QRB & QRA	-.830	.170	-.637	-9.920	3	.002

Table 13: Paired t-test of Debt Equity Ratio (DER)

Ratios	Mean	N	Std. Deviation	Std. Error		
DERB	1.526	7	.425	.160		
DERA	.345	7	.239	.090		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
DERB & DERA	-.148	.751	1.180	6.043	6	.001

Table 14: Paired t-test of Inventory Turnover Ratio (ITR)

Ratios	Mean	N	Std. Deviation	Std. Error		
ITRB	5.730	7	.743	.281		
ITRA	5.421	7	.678	.256		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
ITRB & ITRA	-.741	.057	.309	.618	6	.559

Table 15: Paired t-test of Debtors Turnover Ratio (DTR)

Ratios	Mean	N	Std. Deviation	Std. Error		
DTRB	9.769	7	5.148	1.946		
DTRA	17.733	7	2.518	.952		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
DTRB & DTRA	-.555	.196	-7.964	-3.066	6	.022

Table 16: Paired t-test of Fixed Assets Turnover Ratio (FATR)

Ratios	Mean	N	Std. Deviation	Std. Error		
FATRB	1.988	7	.883	.334		
FATRA	1.795	7	.726	.274		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
FATRB & FATRA	-.879	.009	.193	.327	6	.755

Table 17: Paired t-test of Total Assets Turnover Ratio (TATR)

Ratios	Mean	N	Std. Deviation	Std. Error		
TATRB	1.113	7	.279	.106		
TATRA	.893	7	.0891	.034		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
TATRB & TATRA	-.819	.024	.220	1.635	6	.153

Table 18: Paired t-test of Dividend Payout Ratio (DPR)

Ratios	Mean	N	Std. Deviation	Std. Error		
DPRB	7.672	7	2.709	1.024		
DPRA	11.829	7	2.178	.823		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
DPRB & DPRA	-.879	.009	-4.157	-2.321	6	.059

Table 19: Paired t-test of Earnings per Share

Ratios	Mean	N	Std. Deviation	Std. Error		
EPSB	1.581	7	.816	.308		
EPSA	26.466	7	13.568	5.128		
Paired t-test						
Ratios	Correlation	Sig	Mean Difference	t-value	df	Sig
EPSB & EPSA	.249	.591	-24.885	-4.918	6	.003