A STUDY ONOPERATING PERFORMANCE OF SELECT BATTERY COMPANIES IN INDIA

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ABSTRACT

This paper examines the operating performance of select battery companies in India. The ten-year data was collected from 2005-06 to 2014-15. To analyze the operating performance by using operating performance ratios, debt equity ratio and current ratio, correlation and regression analysis. Found that from the study operating performance of Bosch and Exide is good. Long Term solvency position of select battery companies is maintain at standard level and liquidity position of Nippon is good. The negative correlation between operating performance and debt equity ratio and no correlation between current ratio and operating performance. There is significant impact of operating performance on solvency and no significant impact on liquidity.

Key Words: Current Ratio, Debt Equity Ratio Operating Performance Ratios, Correlation and Regression Analysis.

INTRODUCTION

The performance of the firm can be measured by its financial results, i.e., by its size of earnings. Riskiness and profitability are two major factors which jointly determine the value of the concern. Financial decisions which increase risks will decrease the value of the firm and on the other hand, financial decisions which increase the profitability will increase value of the firm. Risk and profitability are two essential ingredients of a business concern. There has been a considerable debate about the ultimate objective of firm performance, whether it is profit maximization or wealth maximization. It is observed that while considering the firm performance, the profit and wealth maximization are linked and are effected by one-another.

Finance always being disregarded in financial decision making since it involves investment and financing in short-term period. Further, also act as a restrain in financial performance, since it does not contribute to return on equity. A well designed and implemented financial management is expected to contribute positively to the creation of a firm's value. Dilemma in Financial management is to achieve desired tradeoff between liquidity, solvency and profitability. Management of working capital in terms of liquidity and profitability management are essential for sound financial recital as it has a direct impact on profitability of the company.

Literature Review

Jayant Sathaye (2005) the study exposed that, the Indian Cement Industry has grown speedily over the past few decades and there have been significant investments in new cement kilns and associated production equipment. This has led to a situation where India's cement industry in made up of both some of the world's most energy-inefficient plants as well as some of the world's best practice facilities. The challenge for the Indian cement industry is to modernize or phase out the older, inefficient plants while acquiring the best possible cement production technology as production inevitably expands in the coming decades.

Chakraborty (2010) employed two performance measures, including ratio of profit before interest, tax and depreciation to total assets and ratio of cash flows to total assets and two leverage measures, including ratio of total borrowing to assets and ratio of liability and equity, and reported a negative relation between these ones.

Mistry Dharmendra S (2011) found that Liquidity is closely associated with the profitability of the Indian Cement Industry as compared to the Total Assets, Inventory Turnover Ratio, Debt-Equity Ratio and Operating Expenses Ratio.

Hajihassani (2012) presented A Comparison of Financial Performance in Cement Sector in Iran. This study presents comparison of financial performance for the period 2006–2009 by using financial ratios and measures of cement companies working in Iran. Financial ratios are divided into three main categories and measures including two indicators. This work concludes that the performance of cement companies on the basis of profitability ratio is different than on the basis of liquidity ratio, leverage financial.

Research Methodology

OBJECTIVES

➢ To analyze the operating performance of select battery companies in India.

HYPOTHESES

H01. There is no significant impact of operating performance on solvency.

H02. There is no significant impact of operating performance on liquidity.

SAMPLE SIZE

Selected 5 companies out of 20 companies in India on the basis of convenience sampling method.

PERIOD OF THE STUDY

The period for this study covered 10 years from 2005-2006 to 2014-2015 and the essential data for study have been collected from the annual reports of select battery companies in India.

Table No 1 Material Cost Ratio (in Ratio)

YEAR	AMARA RAJA	EXIDE	BOSCH	LUMAX	NIPPON	JMT	AVG
2005-06	0.58	0.53	0.57	0.75	0.65	0.54	0.60
2006-07	0.67	0.60	0.56	0.76	0.71	0.56	0.64
2007-08	0.72	0.63	0.56	0.73	0.66	0.69	0.66
2008-09	0.66	0.60	0.57	0.71	0.69	0.60	0.64
2009-10	0.64	0.54	0.56	0.73	0.69	0.56	0.62
2010-11	0.69	0.68	0.59	0.75	0.68	0.52	0.65
2011-12	0.68	0.69	0.59	0.77	0.70	0.52	0.66
2012-13	0.70	0.70	0.57	0.73	0.70	0.49	0.65
2013-14	0.69	0.68	0.58	0.73	0.71	0.52	0.65
2014-15	0.68	0.71	0.57	0.72	0.71	0.61	0.67
Average	0.67	0.64	0.57	0.74	0.69	0.56	0.64
SD	0.04	0.06	0.01	0.02	0.02	0.06	0.02
CV	5.87	10.22	2.16	2.41	3.16	10.63	3.08

Source: Annual reports of select battery companies from 2006-07 to 2014-15.

Table No 1 shows that the Material cost Ratio of selected battery companies in India. The average material cost ratio of industry is 0.64. Bosch (0.57) and JMT (0.56) have leaa material cost ratio than the industry average, the rest of the select companies have more material cost ratio than the industry average. Bosch and JMT companies have maintain material performance is good and the rest of the companies not maintain at good performance. The co efficient of variance of Bosch company is less which means that more consistency in the data.

Table No 2Manpower Cost Ratio   (in Ratio)

YEAR	AMARA RAJA	EXIDE	BOSCH	LUMAX	NIPPON	JMT	AVG
2005-06	0.06	0.06	0.12	0.08	0.08	0.04	0.08
2006-07	0.05	0.06	0.10	0.08	0.08	0.04	0.07
2007-08	0.05	0.05	0.11	0.09	0.11	0.04	0.07
2008-09	0.05	0.05	0.11	0.10	0.11	0.05	0.08
2009-10	0.06	0.05	0.13	0.09	0.10	0.05	0.08
2010-11	0.05	0.06	0.12	0.08	0.10	0.04	0.07
2011-12	0.04	0.06	0.11	0.08	0.10	0.03	0.07
2012-13	0.04	0.06	0.12	0.09	0.10	0.05	0.08
2013-14	0.05	0.06	0.14	0.10	0.11	0.05	0.08
2014-15	0.05	0.06	0.14	0.11	0.11	0.04	0.08
Average	0.05	0.06	0.12	0.09	0.10	0.04	0.08
SD	0.01	0.01	0.02	0.02	0.02	0.01	0.01
CV	12.68	10.85	9.13	12.50	11.09	15.06	6.58

Source: Annual reports of select battery companies from 2006-07 to 2014-15.

Table No 2 refers that the manpower cost ratio of selected battery companies in India. The industry average ratio of manpower cost is 0.08. the manpower cost ratio of JMT, Amara Raja, Exide is less than the industry average ratio of manpower cost. The rest of the select companies have more manpower cost ratio than the industry average. The co efficient of variance of Bosch is less than the other select companies, it means that more consistency in the data.

Table No 3 Net Profit per Employee Ratio   (in Ratio)

YEAR	AMARA RAJA	EXIDE	BOSCH	LUMAX	NIPPON	JMT	AVG
2005-06	0.01	0.04	0.14	0.02	0.04	0.04	0.04
2006-07	0.02	0.06	0.23	0.03	0.03	0.02	0.06
2007-08	0.04	0.10	0.25	0.03	0.01	0.06	0.07
2008-09	0.03	0.12	0.26	0.02	0.03	0.04	0.07
2009-10	0.07	0.22	0.25	0.03	0.02	0.03	0.09
2010-11	0.06	0.03	0.36	0.03	0.01	0.01	0.08
2011-12	0.09	0.19	0.47	0.01	0.04	0.02	0.13
2012-13	0.12	0.22	0.40	0.03	0.02	0.04	0.13
2013-14	0.15	0.20	0.37	0.02	0.03	0.03	0.12
2014-15	0.17	0.23	0.56	0.01	0.01	0.02	0.16
Average	0.08	0.14	0.33	0.02	0.02	0.03	0.10
SD	0.06	0.08	0.13	0.01	0.01	0.01	0.04
CV	75.00	57.14	39.39	50.00	50.00	33.33	250.00

Source: Annual reports of select battery companies from 2006-07 to 2014-15.

Table No 3depicts that the Net Profit Per Employee Ratio of selected battery companies in India. The industry average ratio of net profit per employee is 0.10. the net profit per employee of Exide and Bosch is more than the industry average net profit per employee, it means that the companies generate more revenue by using employees efficiently than the other select compnies. The co efficient of variance of JMT is less than the others, so it is more consistency in the data.

Table No 4 Gross Profit per Employee Ratio   (in Ratio)

YEAR	AMARA RAJA	EXIDE	BOSCH	LUMAX	NIPPON	JMT	AVG
2005-06	0.07	0.26	0.49	0.03	0.02	0.01	0.15
2006-07	0.08	0.30	0.64	0.04	0.02	0.02	0.18
2007-08	0.12	0.43	0.72	0.04	0.02	0.01	0.22
2008-09	0.17	0.57	0.77	0.05	0.02	0.02	0.27
2009-10	0.20	0.74	0.82	0.06	0.02	0.02	0.31
2010-11	0.20	0.55	1.02	0.08	0.03	0.04	0.32
2011-12	0.29	0.59	1.35	0.08	0.08	0.05	0.41
2012-13	0.33	0.26	1.51	0.10	0.03	0.00	0.37
2013-14	0.41	0.70	1.48	0.11	0.03	0.04	0.46
2014-15	0.50	0.74	2.14	0.12	0.03	0.05	0.60
Average	0.24	0.51	1.09	0.07	0.03	0.03	0.33
SD	0.14	0.19	0.51	0.03	0.02	0.02	0.14
CV	60.80	37.31	47.12	41.38	66.32	61.06	41.51

Source: Annual reports of select battery companies from 2006-07 to 2014-15.

Table No 4 indicates that Gross Profit Per Employee Ratio of selected battery companies in India. Gross profit per employee of Exide and Bosch company is more than the industry average of gross profit per employee which means that the employees contribute more efforts to improve the gross profit. The rest of the select companie's gross profit per employee is less than the industry average. It means that the employees are not put more efforts to generate the gross profit. The co efficient of variance of Exide is less, so it is indicates that more consistency in the data.

Table No 5 Net Sales per Employee Ratio   (in Ratio)

YEAR	AMARA RAJA	EXIDE	BOSCH	LUMAX	NIPPON	JMT	AVG
2005-06	0.17	0.64	1.25	0.17	0.06	0.05	0.39
2006-07	0.25	0.87	1.59	0.22	0.06	0.07	0.51
2007-08	0.46	1.31	1.79	0.21	0.05	0.09	0.65
2008-09	0.56	1.57	1.93	0.22	0.05	0.08	0.74
2009-10	0.61	1.76	2.01	0.26	0.07	0.08	0.80
2010-11	0.73	1.89	2.80	0.36	0.10	0.12	1.00
2011-12	0.99	2.13	3.40	0.41	0.11	0.15	1.20
2012-13	1.23	2.53	3.61	0.45	0.11	0.13	1.34
2013-14	1.43	2.49	3.68	0.47	0.11	0.12	1.38
2014-15	1.75	2.86	5.04	0.48	0.14	0.18	1.74
Average	0.82	1.81	2.71	0.32	0.09	0.11	0.98
SD	0.52	0.73	1.20	0.12	0.03	0.04	0.43
CV	63.72	40.25	44.30	36.57	34.69	37.90	44.42

Source: Annual reports of select battery companies from 2006-07 to 2014-15.

Table No 5 illustrations that the Net Sales Per Employee Ratio of select battery companies in India. The battery industry average ratio of net sales per employee is 0.98. The average ratio of net sales per employee of Exide and Bosch is more than the industry avergae. So it indicates that the companies are using employees more efficiently to produce production and sales than the other select battery companies. The remaining select battery companies performance is poor in point of view to generate sales. The CV of Nippon is less, so more consistency in the data.

Table No 6 Debt Equity Ratio   (in Ratio)

YEAR	AMARA RAJA	EXIDE	BOSCH	LUMAX	NIPPON	JMT	AVG
2005-06	1.19	1.57	1.11	2.15	1.03	1.53	1.43
2006-07	1.58	1.52	1.10	2.33	1.03	1.95	1.58
2007-08	1.95	1.35	1.11	1.61	1.01	2.44	1.58
2008-09	1.70	1.26	1.09	1.98	1.00	2.54	1.60
2009-10	1.17	1.04	1.08	1.74	1.00	2.51	1.42
2010-11	1.14	1.00	1.07	1.50	1.00	2.06	1.29
2011-12	1.10	1.00	1.05	1.94	1.00	2.15	1.38
2012-13	1.08	1.00	1.03	1.79	1.00	1.93	1.31
2013-14	1.06	1.00	1.02	1.68	1.00	2.04	1.30
2014-15	1.04	1.00	1.01	1.67	1.00	2.07	1.30
Average	1.30	1.18	1.07	1.84	1.01	2.12	1.42
SD	0.32	0.23	0.04	0.26	0.01	0.31	0.13
CV	24.66	19.77	3.44	14.01	1.27	14.54	8.86

Source: Annual reports of select battery companies from 2006-07 to 2014-15.

Table No 6 indicates that Debt Equity Ratio of selected battery companies in India. The battery industry average ratio of debt equity ratio is 1.42. Lumax and JMT companies have more debt equity ratio than the industry debt equity ratio, the remaining select battery companies have less debt equity ratio than the industry average. The overall all select battery companies have satisfied standard norm of debt equity ratio i.e 1:1. So, the solvency position is good, it means the ability to pay long term liabilities in time.   The CV of Nippon is very less than the others which means that more consistency in the data.

Table No 7 Current Ratio(in Ratio)

YEAR	AMARA RAJA	EXIDE	BOSCH	LUMAX	NIPPON	JMT	AVG
2005-06	1.76	1.48	1.19	0.75	1.76	1.36	1.38
2006-07	2.79	1.44	1.35	1.01	2.03	1.51	1.69
2007-08	3.76	1.58	1.51	0.90	1.86	1.85	1.91
2008-09	3.05	1.58	1.79	0.75	2.99	2.10	2.04
2009-10	2.70	1.54	1.37	0.63	1.48	2.09	1.64
2010-11	1.00	1.70	1.17	0.70	2.57	1.38	1.42
2011-12	1.00	1.64	1.91	0.64	2.76	1.46	1.57
2012-13	1.00	1.89	2.54	0.58	2.84	1.46	1.72
2013-14	1.00	1.80	2.10	0.52	2.07	0.86	1.39
2014-15	1.00	2.00	2.55	0.61	1.88	1.56	1.60
Average	1.91	1.66	1.75	0.71	2.22	1.57	1.64
SD	1.07	0.18	0.52	0.15	0.52	0.37	0.22
CV	56.05	11.01	29.67	21.34	23.38	23.68	13.27

Source: Annual reports of select battery companies from 2006-07 to 2014-15.

Table No 7 portrays that the Current Ratio of selected battery companies in India. The average current ratio of battery industry is 1.64. Amara Raja, Exide, Bosch and Nippon have more current ratio than the industry current ratio. the remaining select battery companies have less current ratio than the industry. Nippon and Amara Raja satisfied the standard norm of current ratio. So, the short term liquidity position is good. The CV of Exide is less than the others which means that more consistency in the data.

Table No 8 Correlation

		DER	MATR	MAN	GPE	NPE	SPE
DER	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	60					
MATR	Pearson Correlation	-.052	1				
	Sig. (2-tailed)	.694					
	N	60	60				
MAN	Pearson Correlation	-.426[**]	.098	1			
	Sig. (2-tailed)	.001	.455				
	N	60	60	60			
GPE	Pearson Correlation	-.462[**]	-.334[**]	.448[**]	1		
	Sig. (2-tailed)	.000	.009	.000			
	N	60	60	60	60		
NPE	Pearson Correlation	-.458[**]	-.335[**]	.435[**]	.959[**]	1	
	Sig. (2-tailed)	.000	.009	.001	.000		
	N	60	60	60	60	60	
SPE	Pearson Correlation	-.498[**]	-.232	.355[**]	.962[**]	.949[**]	1
	Sig. (2-tailed)	.000	.074	.005	.000	.000	
	N	60	60	60	60	60	60

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

Table No 8 implies that correlation between operating performance and debt equity ratio. there is a negative correlation between debt equity ratio and operating performance at 1 percent level of significance.

Table No 9 Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.600[a]	.360	.301	.39659

    a.   Predictors: (Constant), SPE, MATR, MAN, NPE, GPE

The above table reveals that the "R" value is 0.600which shows that there is a moderate correlation between dependent variable (DER) and independent variables.

       "R square" value **(Coefficient of Determination or Regression Coefficient)** indicates 36.00 per cent of variation in DER is caused by predictors (independent variables).

       "Adjusted R square" value indicates that 30.10 per cent variation is caused by predictors considering number of observations and the number of predicted variables.

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.775	5	.955	6.071	.000[b]
	Residual	8.494	54	.157		
	Total	13.268	59			

a. Dependent Variable: DER
    b.   Predictors: (Constant), SPE, MATR, MAN, NPE, GPE.

The above table depicts that the calculated value of 'F' is greater than the table value of 'F'. It indicates that there is significant impact of operating performance ratios on debt equity ratio. Therefore, the null hypothesis (Ho) is rejected that there is no significant impact of operating performance ratios on debt equity ratio.

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Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.048	.542		3.782	.000
	MATR	.023	.918	.004	.026	.980
	MAN	-6.208	2.361	-.393	-2.630	.011
	GPE	.710	.592	.666	1.200	.235
	NPE	.858	1.616	.229	.531	.598
	SPE	-.504	.224	-1.215	-2.244	.029

a. Dependent Variable: DER

The above table shows the significant value of Manpower cost ratio (MAN) 0.011 and Sales per employee (SPE) 0.029 is less than 0.05 at 5 per cent level of significance. Hence, the said variables have a significant impact on DER, whereas the remaining variables have no impact on DER because their computed value is more than 0.05 at 5 per cent level of significance.

Table No 10 Correlation

		CR	MATR	MAN	GPE	NPE	SPE
CR	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	60					
MATR	Pearson Correlation	-.104	1				
	Sig. (2-tailed)	.429					
	N	60	60				
MAN	Pearson Correlation	.059	.098	1			
	Sig. (2-tailed)	.656	.455				
	N	60	60	60			
GPE	Pearson Correlation	.148	-.334[**]	.448[**]	1		
	Sig. (2-tailed)	.258	.009	.000			
	N	60	60	60	60		
NPE	Pearson Correlation	.138	-.335[**]	.435[**]	.959[**]	1	
	Sig. (2-tailed)	.294	.009	.001	.000		
	N	60	60	60	60	60	
SPE	Pearson Correlation	.114	-.232	.355[**]	.962[**]	.949[**]	1
	Sig. (2-tailed)	.387	.074	.005	.000	.000	
	N	60	60	60	60	60	60

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

The table no 10 states that correlation between current ratio and operating performance. There is no correlation between current ratio and operating performance at 1 percent level of significant.

Table No 11 regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190[a]	.036	-.053	.73025

a. Dependent Variable: CR

 a. Predictors: (Constant), SPE, MATR, MAN, NPE, GPE

The above table reveals that the "R" value is 0.190which shows that there is a less correlation between dependent variable (CR) and independent variables.

"R square" value **(Coefficient of Determination or Regression Coefficient)** indicates 3.60 per cent of variation in CR is caused by predictors (independent variables).

"Adjusted R square" value indicates that -5.30 per cent variation is caused by predictors considering number of observations and the number of predicted variables.

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.077	5	.215	.404	.844[b]
	Residual	28.797	54	.533		
	Total	29.873	59			

 a. Dependent Variable: CR

 b. Predictors: (Constant), SPE, MATR, MAN, NPE, GPE

The above table depicts that the calculated value of 'F' is less than the table value of 'F'. It indicates that there is no significant impact of operating performance ratios on currentratio. Therefore, the null hypothesis (Ho) is accepted that there is no significant impact of operating performance ratios on current ratio.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.644	.997		1.649	.105
	MATR	.079	1.690	.008	.047	.963
	MAN	-1.454	4.347	-.061	-.335	.739
	GPE	.889	1.089	.555	.816	.418
	NPE	.634	2.976	.113	.213	.832
	SPE	-.313	.413	-.504	-.758	.451

a. Dependent Variable: CR

The above table shows the significant value of operating performance ratios on current ratio. All independent variables not showing any impact on current ratio because their calculated value is more than 0.05 at 5 per cent level of significance.

Conclusion

The present study is to analyze the operating performance of select battery companies in India from 2005-06 to 2014-15. The researcher used operating performance ratios and statistical ratios in order to measure the operating performance of select battery companies. From the analysis to clear that the solvency position of all select battery companies is good and Nippon and Amara Raja satisfy the standard norm of current ratio so they maintain short term liquidity position. Bosch and Exide companies have maintained operating performance by using employees efficiently in order to improve sales, gross profit and net profit and reduce the manpower and material cost. Nippon company operating performance is worst it means that the company not utilize its employees efficiently in order to improve the sales and profit. Negative correlation between debt equity ratio and operating performance ratios and no correlation between CR and operating performance. Operating performance ratios is significant impact on debt equity ratio and not impact on current ratio.

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