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IMPACT OF LIQUIDITY ON THE PROFITABILITY OF STEEL COMPANIES IN INDIA: AN EXPLORATORY STUDY

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Abstract:

The study is carried out mainly to know the impact of liquidity on the profitability of selected ten steel companies in India with particular reference to JSW Steel, TATA Steel, Hindalco and Jindal Steel based on the market capitalization for a period of ten years from 2013-14 to 2022-23 using liquidity ratios viz., current ratio, quick ratio and leverage ratio and return on assets for the purpose of profitability. The study assessed the relationship among these variables. The study observed that the liquidity ratios have insignificant impact on profitability of these companies and the liquidity position was very poor. The study recommended to adopt strategies to improve liquid position and find opportunities to improve profitability of these concerns.

Key words: Liquidity ratios, Profitability ratios, market capitalisation

I. INTRODUCTION

In any organization, maintenance of liquidity and Liquidity management is very important to ensure availability of funds to pay current obligations of business to carry out the business activities without any interruption and for its survival. Liquidity is the ability to meet expected and unexpected demands for cash. An important component of business survival is efficient management of current assets and current liabilities. It ensures maximum utilization of firm's resources, which enhances the overall performance of an organization. Profitability is one of the major goals of any business. Without being profitable, it is not possible for a business to survive and the business growth is difficult. To generate profit, a business need short-term funds to fulfill its day to day needs in operations and other requirements. Business will be more profitable when this short- term need of funds is generated by business operation not through external debts. Firms' financial performance is linked with firm's effective and efficient management of its available funds and this avoids a situation of inability to meet short term obligation. It has a vital impact on the overall smooth functioning of a company. Understanding the concept of liquidity is crucial to both external and

internal analysts in demonstrating a firm's potential to conduct its day-to-day operations (Al-homaidi et al., 2020; Elangkumaran and Karthika, 2013). The concept of liquidity is important for a business as it signifies its capacity to fulfill its short-term financial obligations.

Effective liquidity management downgrades and removes the risk of inability to meet short-term financial obligations as they mature and prevents undue investment in properties (Priya and Nimalathasan, 2013). Profitability information is an important tool for evaluating decision making to the stakeholders. Profitability and its corresponding concept of liquidity constitute critical issues that all commercial entities should continue to research and consider as one of their primary responsibilities. Nassirzadeh and Rostami (2010) consider liquidity to be very important and stated that companies without liquidity cannot serve the economy. Liquidity management and operational profitability are substantial areas for the growth and long-term survival of a company that require management to strike-a-balance between them (Priya and Nimalathasan, 2013).

Review of Literature

1.Eljelly (2004), in the study on "Liquidity – profitability tradeoff: An empirical investigation in an emerging market", empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia. The study found significant negative correlation between the firm's profitability and its liquidity levels, as measured by current ratio; **2.Sandhar et. al (2013)** examined the relationship between liquidity and profitability of selected Indian cement companies using regression analysis and revealed that current ratio, liquid ratio and cash turnover ratio are negatively associated with return on assets (ROA) and return on investment (ROI); **3.Ashok Kumar (2018)** studied the liquidity position of five leading companies over a period of 10 years from 2000-2010 and found that the liquidity position of small companies is better as compared to large ones. It was concluded that companies should maintain an ideal current and liquid ratio; **4.Mohmad and Dr. Syed (2016)** analysed the liquidity and profitability of selected companies and more specifically sought to compare liquidity and profitability performance of selected companies and discovered a significant difference between the performances of pharmaceutical companies on the basis of Quick Ratio. The performance of Cipla is better than that of Dr. Reddy's Labs in terms of profitability; Liquidity and Profitability Trade-off: A Study of Indian Pharmaceutical Companies. **5.Ashok Kumar Panigrahi, Namitha Raul and Chaitrali Gijare(2017)** made an attempt to study the association between liquidity and profitability for a period of five years from 2011-12 to 2015-16 for five selected pharmaceutical companies with the objective to know whether companies earn profit while maintaining the necessary liquidity or are they ready to sacrifice liquidity for the sake of earning higher profit. The results indicated that among the five selected pharmaceutical companies, i.e. Ajanta Pharma, Biocon Ltd, Torrent Pharma, Ipca Labs and Lyka Labs., the liquidity position of Biocon is best when it comes to liquidity analysis as per Motaal's test of liquidity; **6.Harsheen Gill(2022)** Harsheen Gill in his study tried to determine if organizations can make a profit while retaining essential liquidity, or whether they are willing to compromise liquidity to make a bigger profit using Motaal's Liquidity Assessment Test and Spearman's Rank Coefficient of Correlation. This study also made an attempt to examine the link between the sample businesses' liquidity and profitability, as well as the possibility of bankruptcy and found that three companies among ten companies viz., India Cement, UltraTech and Shree Cement, according to Motaal's liquidity test, has the best liquidity status; **7.RJacek Jaworski & Leszek Czerwonka(2022)** in their article aimed to determine the relationship between profitability and financial liquidity of a company using meta-analysis. The results of the study showed that it is not possible to identify a common effect describing the relationship between the profitability of enterprises and their financial liquidity measured by the current liquidity ratio. There are

moderators of the strength and direction of this dependence associated with macroeconomic and institutional conditions and these moderators are private sector crediting and capital market development; **8.Kartik Chandra Nandi(2012)**Trends in Liquidity Management and their Impact on Profitability:A Case Study made an attempt to assess the trend in liquidity management and their impact on profitability of Bharat Heavy Electrical Ltd. for period of 11 years along with the correlation between liquidity and profitability. It found that company always tries to maintain adequate amount of net working capital in relation to current liabilities so as to keep a good relation to current liabilities to keep current liabilities to ensure liquidity through out the study period.

9.Anjali Patel and Jaydeep Ramanuj tried to to understand the relationship between the liquidity ratio and profitability ratio for two selected Indian IT companies: TCS (Tata Consultancy Services) and Infosys. And found that he liquidity ratio showed that TCS outperformed Infosys, as does the profitability ratio. Regression analysis results showed that there is no connection between the liquidity ratio and the profitability ratio; **10. HASSAN, A. M. (2021)** aimed to examine the trade-off between liquidity and profitability of Indian manufacturing firms and the findings revealed that current liabilities ratio have a positive and significant impact on earnings per share and profit after tax. On the contrary, the current ratio and quick ratio have an insignificant impact on earnings per share, return on capital employed, return on assets and profit after tax. The study suggested to incorporate liquidity into evaluation decisions in order to boost the financial return of their businesses.

Problem Statement

Adequate funds are required and essential to ensure smooth working of an organisation and to meet its obligations whenever it arises. It is necessary to keep close watch on liquidity position of the company for the survival of the company. It ensures keeping liquid funds to meet the obligations but at the cost of funds which is to be kept idle without income and this affects the profitability of the concern. So every firm tries to strike a balance between liquidity and profitability. It is understood that the manner of administration of current assets and current liabilities determines the success or failure of any business. The efficient and effective management of these two items is of crucial importance for the success of a business. The business concern has to optimise the use of available resources through efficient and effective management of current assets and current liabilities. This helps increase the profitability of the concern ensuring availability of funds to meeting its current obligations at the time of its occurrence. Liquidity is just as important as profitability, sometimes even more important in the short term especially in case of manufacturing organizations as it needs to meet the daily commitments like manufacturing and selling costs, payment of salaries to employees and payments to creditors, tax authorities and interest on borrowed funds. Without successfully meeting the liabilities and expenses, companies cannot carry out the business activities to earn profit. Thus, it is important to be vigilant regarding cash flow situation and manage the trade-off between liquidity and profitability effectively. On the other hand, insufficient liquidity might damage the firm's goodwill, deteriorate firm's credit standings and that might lead to forced liquidation of firm's assets. So every organization strives to strike a balance between liquidity and profitability. In this background, it is understood that profitability Vs liquidity is simply availability of profits versus availability of cash. Profit earning is the principal aim to ensure the stability of a company and is of priority interest to shareholders. But importance of profit does not necessarily mean that the business operations are sustainable because sometimes a profitable company may not have sufficient liquidity as most of the funds have been invested in the company; on the other hand, a company which has a lot of cash or liquidity may not be profitable because it has not utilized excess funds effectively. Thus, the success depends on better management of both profitability and liquidity. Hence, the present study tries to know to what extent liquidity affects profitability of the organization. Hence, the present study was taken up with the following objectives.

Objectives of the Study

The main objective of this work is to examine the impact of liquidity management on financial performance of selected steel companies in India. Specifically, the study seeks to achieve the following objectives:

- (i) To examine the status of liquidity position of the selected steel companies in India;
- (ii) To assess the profitability position of the selected steel companies in India;
- (iii) To investigate the impact of liquidity ratios on return on assets of the selected steel companies in India;

Scope of the Study

This study covers a period of 10 years from 2013-14 to 2022-23. The investigation has been carried out using secondary information acquired from the website named trendlyne.com and annual reports of the selected firms. Moreover, journals and magazines were referred to get required information for the completion of the present study by achieving its objectives and prepare report. The study altered, grouped and arranged the information gathered to meet the needs of the study.

Research methodology

Research design: The study used quantitative and explorative research approach to arrive at the findings for the study. Under quantitative approach, descriptive statistics and inferential statistics were used. The major purpose of descriptive research is description of state of affairs of the selected companies in the steel sector as it exists at present. Descriptive statistics show the characteristics of the selected companies in terms of liquidity ratios and profitability ratio through the mean, standard deviation, maximum and the minimum values for the chosen variables. Inferential statistics helps to draw conclusions about the reliability and generalizability of the findings. The present study used correlation analysis as a tool to identify the nature and extent of the relationship between the variables under inferential statistics, multiple regression analysis has been used to identify to what extent the liquidity variables impacted profitability of the selected concerns.

In this analysis, four variables at period t are taken for the empirical investigation in which return on assets is the dependent variable (Y_t), while current ratio(X_{1t}), quick ratio(X_{2t}) and leverage ratio(X_{3t}) are the independent variables. The multiple regression equation at period t is expressed as:

$$Y_t = a + b_1X_{1t} + b_2X_{2t} + b_3X_{3t} + \epsilon_t$$

Where regression constant and regression coefficients are denoted as a and (b_1, b_2, b_3) . The term ϵ_t is representing as an error at period t in the equation.

For validity of the analysis, a hypothesis test is performed to determine whether there is a significant relationship among the dependent variable Y and the independent variables X_1, X_2, X_3 and X_4 . The F test that is stated to determine whether there is a significant relationship between the dependent and independent variables which does not specify which variable is significant. While it performs that at least one of the regression coefficients is not equal to zero, it does not indicate which coefficient is statistically significant. Business analysts are usually interested in knowing whether the individual regression coefficients are significant. In that case, the t test allows us to perform a test of significance on each individual regression coefficient.

Tools applied: To achieve the objectives of the study ratio analysis has been used to ensure meaningful analysis and interpretation.

Nature of data: The present study depended on secondary sources. The required information were taken from annual reports, journals and trendlyne.com. The liquidity determinants are considered as independent variables included current ratio, quick ratio and leverage ratio while the financial performance indicator viz., return on assets is considered as dependent variables.

Population and Sampling design

The research population in a social research, also known as the target population, is the entire group or set of individuals, objects, or events that possess specific characteristics and are of interest to the researcher. It represents the larger number from which a sample is drawn. The population for the present research is firms coming under Steel industry in India.

Sampling is the statistical process and plan of selecting a subset—called a 'sample'—from the population of interest for the purpose of making observations and statistical inferences about pattern of behavior of that population. The sample for the current study consisted the top 4 steel companies, based on market capitalisation, listed in the Bombay Stock Exchange in India.

<https://www.moneycontrol.com/stocks/marketinfo/marketcap/bse/iron-steel.html>

Limitations of the Study

Understand the reliability of the study can be based on the limitations underwhich the study has been completed. The present stud is subject to the following limitations:

- The study used secondary data collected for some other purposes. It represented financial information on a particular date and the change that have been taken place after its preparation or collection was not considered.
- It consisted only quantitative information
- It covered a period of 10 years.

Research findings

Table 1 Descriptive Statistics

JSW							TATA					
	Mean	SD	Min	Max	Kur	Skew	Mean	SD	Min	Max	Kur	Skew
ROA	0.822	0.130	0.6	.189	0.082	1	0.874	0.629	0.1	1.9	-0.884	0.255
CR	0.477	0.120	0	1.099	0.573	0.6	0.382	0.261	0	0.8	-0.804	0.171
QR	0.665	0.032	0.61	0.498	0.361	0.71	0.456	0.043	0.4	0.53		0.230
LR	4.352	4.15	-4.8	2.947	-1.181	10.25	-0.52	22.506	-62.28	14.87	6.860	-2.478
HINDALCO							JINDAL					
	Mean	SD	Min	Max	Kur	Skew	Mean	SD	Min	Max	Kur	Skew
ROA	1.655	0.181	1.4	2	0.407	0.534	0.98	0.252	0.6	1.4	0.363	0.280
CR	0.922	0.222	0.6	1.3	0.139	-0.094	0.5	0.254	0.3	1	0.322	1.163
QR	0.438	0.038	0.4	0.51	-0.138	0.730	0.577	0.102	0.39	0.73	0.340	-0.662
LR	1.972	1.568	0.68	5.55	3.128	1.822	3.233	4.420	-3.11	12.13	1.295	0.938

Source: Annual reports and Trendlyne.com

The **mean value** of profitability measures ROA is found to be more than those of liquidity measures viz., in case of all the selected companies. The mean value of current ratio and quick ratio is less than standard value that indicate low liquidity is not good for the companies because it affect solvency position of the companies.

Skewness indicates how flat the data is. The values of data in consideration should lie between the range of +3 and -3. It can be positive or negative. In this research study all the data is positively skewed except for leverage ratio in case of TATA and quick ratio in case of Hindalco and Jindal Power & supply. Also the data is within the range.

Table 2 Correlation analysis

	JSW				TATA			
	ROA	CR	QR	LR	ROA	CR	QR	LR
ROA	1				1			
CR	0.61085	1			0.355161	1		
QR	0.557214	0.841575	1		0.676148	-0.03959	1	
LR	-0.5835	-0.8194	-	0.67423	1	-0.34385	-0.83636	-0.17798
	HINDALCO				JINDAL			
	ROA	CR	QR	LR	ROA	CR	QR	LR
ROA	1				1			
CR	-0.53178	1			0.204034	1		
QR	0.349546	-0.7922	1		-0.07599	0.780922	1	
LR	-0.15153	0.301428	-	0.63901	1	-0.78668	-0.43029	0.035343

Source: Calculated by the author

The above mentioned table indicates the relationship between the various independent and dependent variables used in the study. As it is observed in the table, the correlation values were found to be mixed (both positive and negative) between the independent and dependent variables. The correlation values were found to be positive between Return on assets and current ratio and quick ratio in case of JSW Steels and TATA Steels (JSW-0.61 and 0.557; TATA-0.355 and 0.676) and Leverage ratio was found to be negative in both the cases(JSW- -0.583 and TATA- -0.346).

The correlation values of Quick ratio(0.349) in case of Hindalco Steel Company and Current ratio(0.204) in case of Jindal Power and Steels were found to be positive with Return on assets. Regarding Current ratio (-0.531) and Leverage ratio (-0.151) of Hindalco Steels and Quick ratio(-0.075) and Leverage ratio (-0.786) of Jindal Power and Supply were found to be negative.

Regression Analysis

Table 3 Model Summary

Model 1	Name of company	R	R2	Adjusted R2	SE
	JSW	0.633786	0.401685	0.102527	3.799096
	TATA	0.801039	0.641663	0.462495	15.60257
	Hindalco	0.553487	0.306348	-0.04048	1.58969
	Jindal Power and Supply	0.81999	0.67239	0.50859	3.96347

Source: Calculated by the author

Model summary indicates that the coefficient of determination (R square value) explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (ROA) that is explained by three independent variables (current ratio, quick ratio, leverage ratio). The independent variables (liquidity factors) that were studied, explain only 63.37, 80.10%, 55.34 and 81.99 of the selected companies viz., JSW, TATA, Hindalco and Jindal Power and Supply respectively, of the return on assets as represented by the value of R- square. However the remaining 36.63%, 19.90%, 44.66% and 18.01% of the values are unexplained in this research. Model summary also indicates the standard error of estimate of 3.52, 15.84, 1.49 and 5.16 shows the more variability of the observation.

Table 4 ANOVA Result

	df	SS	MS	F	Sig
JSW					
Regression	3	57.5284	19.1761	1,34272	0.34606
Residual	6	85.68939	14.28157		
Total	9	143.218			
TATA					
Regression	3	2615.531	871.8436	3.581344	0.085977
Residual	6	1460.642	243.4403		
Total	9	4076.173			
HINDALCO					
Regression	3	6.033719	2.01124	0.88329	0.501047
Residual	6	13.66192	2.276987		
Total	9	19.69564			
JINDAL					
Regression	3	193.4507	64.48356	4.104846	0.066744
Residual	6	94.25477	15.70913		
Total	9	287.7055			

Source: Calculated by the author

The result of significant value 0.000 indicate that the model is good predictor of the relationship between the dependent and independent variables. The ANOVA test in the above table shows that significance value of the selected companies, represent vi., JSW, TATA, Hindalco and Jindal, is 0.34, 0.085, 0.501 and 0.066 respectively which is more than alpha value 0.05 thus the model is not statistically significance in predicting how current ratio, quick ratio and leverage ratio influenced profitability of steel companies in India.

Table 5 Coefficient Analysis result

	Coefficient	Std Error	T-stat	P-value
JSW				
Intercept	17.1581	59.26446	0.289518	0.781929
CR	8.116474	23.38119	0.347137	0.74034
QR	5.557935	20.13832	0.275988	0.791817
LR	-33.4829	71.01432	-0.4715	0.653943
TATA				
Intercept	-140.732	127.5279	-1.10354	0.312074
CR	25.07922	16.81235	1.491714	0.186373
QR	66.39092	22.75871	2.917166	0.02673
LR	195.2626	243.5443	0.801754	0.453269
Hindalco				
Intercept	17.28161	18.48205	0.935048	0.385851
CR	-6.58853	5.348276	-1.2319	0.264072
QR	-2.31408	5.13532	-0.45062	0.668089
LR	-5.15948	17.77153	-0.29032	0.781342
Jindal				
Intercept	42.45568	17.51926	2.423372	0.051626
CR	-12.5847	12.99669	-0.9683	0.370289
QR	8.782357	11.59417	0.757481	0.477446
LR	-54.7314	18.29206	-2.99209	0.024255

Source: Calculated by the author

In case of JSW, the P-values of all the independent variables selected for the study viz., Current ratio, Quick ratio and leverage ratios i.e., 0.740, 0.791 and 0.653 are more than 0.05 and these variables do not have a significant effect on return on assets of the firms. In case of Tata also, the P-values of current ratio and leverage ratio as independent variables selected for the study viz., Current ratio, and leverage ratios (0.186 and 0.453) are more than 0.05 and these variables do not have a significant effect on return on assets of the firms. But the quick ratio whose p-value (0.02) is less than 0.05 and hence it is having significant effect on the dependent variable return on assets.

In case of Hindalco, the P-values of all the independent variables selected for the study viz., Current ratio, Quick ratio and leverage ratios i.e., 0.264, 0.668 and 0.781 are more than 0.05 and these variables do not have a significant effect on return on assets of the firms. In case of Jindal Power and Supply, the P-values of current ratio and leverage ratio as independent variables selected for the study viz., Current ratio, and quick ratios (0.370 and 0.477) are more than 0.05 and these variables do not have a significant effect on return on assets of the firms. But the leverage ratio whose p-value (0.02) is less than 0.05 and hence it is having significant effect on the dependent variable return on assets.

Findings and Discussion

The mean value of profitability measures ROA is found to be more than those of liquidity measures viz., in case of all the selected companies and the mean value of current ratio and quick ratio is less than standard value indicating low liquidity which is not good for the companies because it affect solvency position of the companies.

In this research study all the data is positively skewed except for leverage ratio in case of TATA and quick ratio in case of Hindalco and Jindal Power & supply. Also the data is within the range. The correlation values were found to be positive between Return on assets and current ratio and quick ratio in case of JSW Steels and TATA Steels (JSW-0.61 and 0.557; TATA-0.355 and 0.676) and Leverage ratio was found to be negative in both the cases(JSW- -0.583 and TATA- -0.346).

The correlation values of Quick ratio(0.349) in case of Hindalco Steel Company and Current ratio(0.204) in case of Jindal Power and Steels were found to be positive with Return on assets. Regarding Current ratio (-0.531) and Leverage ratio (-0.151) of Hindalco Steels and Quick ratio(-0.075) and Leverage ratio (-0.786) of Jindal Power and Supply were found to be negative.

Model summary indicated the extent to which changes in the dependent variable(ROA) through coefficient of determination (R square value) in terms of the selected independent ratios of current ratio, quick ratio and leverage ratio are that the extent to which changes in the dependent variable(ROA) are 63.37, 80.10%, 55.34 and 81.99 of the selected companies viz., JSW, TATA, Hindalco and Jindal Power and Supply respectively. However, it means that impact on ROA to the extent of remaining 36.63%, 19.90%, 44.66% and 18.01% of the values are due to other factors prevailing may be internal or external. Model summary also indicates the standard error of estimate of 3.52, 15.84, 1.49 and 5.16 shows the more variability of the observation.

As per the result of ANOVA results, the alpha values of selected ratios of all the selected companies are more than 0.05 and thus the model is not statistically significance in predicting how current ratio, quick ratio and leverage ratio influenced profitability of steel companies in India.

1.All the three selected ratios viz., current ratio, quick ratio and leverage ratio of JSW and Hindalco, current ratio and leverage ratio in case of TATA and current ratio and quick ratio in case of Jindal Power & supply are more than 0.05 and hence these variables do not have a significant effect on return on assets of the firms. But quick ratio of TATA and leverage ratio of Jindal power & Supply are less than 0.05 and these ratios are having significant effect on return on assets of the firms.

Recommendations and Conclusion

Based on the empirical study conducted, we put forward that liquidity is a very important concept in any organization including manufacturing sector like steel companies. The liquidity ratios selected for the study showed that it was less than the standard ratios. In other words the sample companies have insufficient resources to meet the current obligations. The present study showed that liquidity ratios do not have imoact on profitability except in cases. Hence, the companies should devise strategies to maintain liquid resources as needed and fond out avenues to invest such resources without affecting the availability of funds by analyzing the reason for such low liquidity. The companies should also identify and address other factors that may be affecting their profitability other than liquidity. Moreover, the companies should ensure Efficient utilisation of resources which will positively impact profitability.

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