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An In-depth Analysis of the Relationship between Liquidity and Profitability, Vis-à-vis, Tata Pigment Limited

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ABSTRACT

The present study aims to acknowledge the pre-eminent relationship between the liquidity and profitability which performs a key role in corporate finance. The liquidity management performs an indispensable role as deficient liquidity and surplus liquidity both affects the functioning, profitability, and growth of any organization. The present study analysis is on Tata Pigments Ltd for a period from 2013-14 to 2018-19. The empirical and analytical study applies descriptive statistics, correlation, and regression to test the hypothesis of the study. The findings suggest that there is no significant relationship between the liquidity and profitability. The liquidity indicators do not affect the profitability ratios.

Keywords: Liquidity, Management Policy, Profitability and Tata Pigments.

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I. Introduction

The concept of managing working capital is not new for the management and for the company's financial health [8]. Working capital decision influences liquidity and profitability of any organization. Any manager needs to consider liquidity and profitability as an eminent component in all financial decision making. Liquidity deals with the organization's ability to pay off its current obligations. Liquidity management in any organization is a prominent concept as it affects profitability, solvency, and firm's value [9]. The liquidity affects the day-to-day functioning of the business which is of great concern to the stakeholders. The mismanagement of liquidity can affect the firm's growth and profitability and can lead to financial instability and bankruptcy [7]. The outcome of liquidity management is shown in the profit of the organization and the shareholder's value [1].

Profitability of any organization shows the revenue earned during any financial year after deducting expenses. The profitability of an organization shows the performance of the management, and it also helps in attracting the potential investors to invest in the organization. The profitability ratios show the return on assets, return on equity, return on investment, and return on capital employed. A potential investor will invest by analyzing these ratios, so the management strives to improve the operating performance [10].

The most predicament situation for any organization is to achieve a trade-off between the liquidity and profitability. The principle of finance states that we will not take on additional risk unless we expect it to be compensated with additional return (the risk-return trade off). This indicates that an organization with high liquidity has low risk and will fetch low return (profitability). An inadequate amount of investment in working capital may increase profitability but may interrupt the smooth functioning of the organization.

II. Review of Literature

Extensive research and analysis works have been done on liquidity and profitability trade off and different views have been given. Liquidity ensures the survival of the organization and profitability ensures survival in the long run and growth of the organization. Therefore, a balance between both of them is important.

Reference [6] endeavored to investigate the relationship between working capital management and operating profits of SME's listed at Karachi Stock Exchange. The analysis was done to show the relevance between the various variables like Inventory Conversion Period, Receivable Collection Period, payable deferral period, cash conversion cycle and operating profit to sales. The study showed a negative relationship between inventory conversion period and receivable collection period with operating profits, but no relationship was seen between payable deferral period, cash conversion cycle, current ratio, and profitability. The results also showed no significant relationship between working capital and

liquidity and return on assets.

Reference [7] collected a panel of 230 private sector steel company from India covering the period of 2002-2010. They tested the relationship between the liquidity and profitability indicators are modeled as a linear regression system in multiple correlation and regression analysis. The study showed liquidity management has relative effect and liquidity position has no effect on profitability. Liquidity management is a contributor in the wealth creation.

Reference [1] states that liquidity management involve dealing with current assets and current liabilities to reduce risk of solvency and excessive investment in short-term assets. The research was done on joint stock companies of Saudi Arabia using correlation and regression analysis. The results showed a negative relationship between liquidity and profitability. It also showed that at industry level, cash conversion cycle is a better option to measure liquidity than current ratio.

Reference [3] examined 94 Pakistani firms listed on Karachi Stock Exchange from 1999-2004 to understand the relationship between the variables of working capital management and profitability. The research methodology used involve Pearson's correlation and regression analysis. The research showed that with increase in Cash Conversion Cycle period the profitability of the firm decreases and vice-versa. The results also showed a negative relationship between debt used and profitability but a positive relationship between the size of the firm and profitability.

Reference [5] investigated the impact of liquidity management on profitability before and after the financial crisis had hit the market. He tries to acknowledge the use and extent of liquidity practice pre and post the crisis and also estimate the impact of the changing liquidity strategies on return on asset. The findings revealed that there was no significant relationship between change in liquidity strategies and ROA. The ROA is more affected by liquidity forecasting and short-term financing during the financial crisis. It also depicted the importance of liquidity management and working capital management in the economic crisis times.

III. Objectives

The objectives of the research paper are as follows:

- To inquire the existence of relationship between the liquidity and profitability.
- To examine the type and extend of relationship between the liquidity and profitability.
- To provide appropriate management policy recommendations.

IV. Hypothesis of the Study

The present study on 'An in-depth analysis of the relationship between liquidity and profitability, vis-à-vis tata pigment ltd.' will test the following hypothesis:

H1: Profitability of the firm affects the liquidity of the company.

H0: There is no effect of profitability on liquidity.

V. Research Methodology of the Study

A. Research Design

The present study is an empirical research involving quantitative approach. The study is a case study with opportunity sampling which is a model of non-probability sampling. The data is extracted from the annual financial statements of Tata Pigment Ltd. for a period of 5 years from 2014-2019. The research paper embraces the longitudinal time dimension, specifically the panel study type which involve study of the sample over different time periods.

B. Analysis of Data

The liquidity and profitability ratios are used as variables for data analysis. The liquidity ratios include current ratio and liquidity ratio (acid test ratio). The profitability ratios include gross profit margin ratio, net profit margin ratio, return on assets and return on capital employed. The study uses descriptive statistics, correlation analysis and regression analysis to comprehend the relationship between liquidity and profitability.

C. Data Source

The present study uses secondary data for the analysis. The data is built on the annual financial statements extracted from Tata Pigment Ltd. The financial data used in, has been extracted from the website of Ministry of Corporate Affairs (MCA). Various scholarly articles and books have also been referred for this research paper.

D. Selection of Variable

Dependent Variable (profitability ratios):

1. GROSS PROFIT MARGIN RATIO(GPMR)= gross profit/ revenue from operations×100.
2. NET PROFIT MARGIN RATIO(NPMR)= net profit/ revenue from operations ×100.
3. RETURN ON ASSETS(ROA)= net profit after tax/ average total assets.
4. RETURN ON CAPITAL EMPLOYED(ROCE)= profit before interest and taxes/ capital employed.

Independent Variable (liquidity ratios):

1. CURRENT RATI(CR)= current assets/ current liability.
2. LIQUID RATIO(LR)= current assets – inventories/ current liability.

VI. Data Analysis

A. Descriptive Statistics Analysis

The descriptive statistics presented in the table-I shows the mean, minimum, maximum, standard deviation, and variance of the variables taken into consideration. The given table shows that the average of the profitability indicators of gross profit margin to be 8.93, net profit margin to be 4.69, return on assets (ROA) to be 7.51 and return on capital employed (ROCE) to be 15.30. The mean of current ratio (CR) and the liquid ratio (LR) of tata pigment ltd. are 2.37 and 1.87 respectively which is equivalent with the standard conventional rule of 2:1 for CR and 1:1 for LR. The statistics also shows that the coefficient of variance value of liquidity indicators is less than the profitability indicators. This shows that the profitability indicators used are more volatile.

TABLE I: ANALYSIS OF THE DESCRIPTIVE STATISTICS

Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Current Ratio	6	0.71	2.03	2.74	14.2	2.3667	0.12714	0.31143	0.097	0.048	0.845	-2.727	1.741
Liquid Ratio	6	0.8	1.53	2.33	11.22	1.87	0.13518	0.33112	0.11	0.455	0.845	-1.794	1.741
Gross Profit Margin Ratio	6	4.06	7.08	11.14	53.6	8.9333	0.7657	1.87557	3.518	0.122	0.845	-2.892	1.741
Net Profit Margin Ratio	6	2.09	3.61	5.7	28.13	4.6883	0.36256	0.88809	0.789	-0.056	0.845	-2.602	1.741
Return on Asset	6	4.56	5.39	9.95	45.08	7.5131	0.7631	1.8692	3.494	0.094	0.845	-2.181	1.741
Return on Capital Employed	6	8.82	10.99	19.81	91.81	15.3017	1.54562	3.78598	14.334	0.02	0.845	-2.561	1.741
Valid N (listwise)	6												

B. Correlation Analysis

The correlation analysis is done to check the relationship between the liquidity variable and profitability variables. The profitability variables are the dependent and the liquidity variables are independent. As observed in the table, there exist an inverse relationship between the dependent and independent variable. This is consistent with the liquidity-profitability trade off theory which posits that liquidity and profitability moves in opposite direction. This is however in consistent with the findings of [1]. The R values are found negative between current ratio and gross profit margin ratio, net profit margin ratio, return on asset and return on capital employed with the correlation values of -0.509, -0.399, -0.584 and -0.534, respectively. The inverse relationship is also seen between liquid ratio and gross profit margin ratio, net profit margin ratio, return on asset and return on capital employed with the correlation values of -0.562, -0.475, -0.653 and -0.629, respectively. It can also be seen from the table, the Pearson's correlation values are found to be statistically insignificant between the current ratio & liquid ratio and gross profit margin ratio, net profit margin ratio, return on asset and return on capital employed, i.e., the dependent and the independent variable.

TABLE II: ANALYSIS OF THE CORRELATION

		Current Ratio	Liquid Ratio	Gross Profit Margin Ratio	Net Profit Margin Ratio	Return on Asset	Return on Capital Employed
Current Ratio	Pearson Correlation	1	.965**	-0.509	-0.399	-.584**	-0.534
	Sig. (2-tailed)		0.002	0.303	0.434	0.224	0.275
	Sum of Squares and Cross-products	0.485	0.498	-1.486	-0.551	-1.699	-3.15
	Covariance	0.097	0.1	-0.297	-0.11	-0.34	-0.63
	N	6	6	6	6	6	6
Liquid Ratio	Pearson Correlation	.965**	1	-0.562	-.475**	-0.653	-0.629
	Sig. (2-tailed)	0.002		0.246	0.341	0.16	0.181
	Sum of Squares and Cross-products	0.498	0.548	-1.745	-0.699	-2.021	-3.944
	Covariance	0.1	0.11	-0.349	-0.14	-0.404	-0.789
	N	6	6	6	6	6	6
Gross Profit Margin Ratio	Pearson Correlation	-0.509	-0.562	1	0.943	0.943	0.937
	Sig. (2-tailed)	0.303	0.246		0.005	0.005	0.006
	Sum of Squares and Cross-products	-1.486	-1.745	17.589	7.854	16.525	33.273
	Covariance	-0.297	-0.349	3.518	1.571	3.305	6.655
	N	6	6	6	6	6	6
Net Profit Margin Ratio	Pearson Correlation	-0.399	-0.475	.943**	1	0.971	.956**
	Sig. (2-tailed)	0.434	0.341	0.005		0.001	0.003
	Sum of Squares and Cross-products	-0.551	-0.699	7.854	3.943	8.06	16.065
	Covariance	-0.11	-0.14	1.571	0.789	1.612	3.213
	N	6	6	6	6	6	6
Return on Assets	Pearson Correlation	-0.584	-0.653	.943**	0.971	1	.987**
	Sig. (2-tailed)	0.224	0.16	0.005	0.001		0
	Sum of Squares and Cross-products	-1.699	-2.021	16.525	8.06	17.47	34.939
	Covariance	-0.34	-0.404	3.305	1.612	3.494	6.988
	N	6	6	6	6	6	6
Return on Capital Employed	Pearson Correlation	-0.534	-0.629	.937**	0.956	0.987	1**
	Sig. (2-tailed)	0.275	0.181	0.006	0.003	0	
	Sum of Squares and Cross-products	-3.15	-3.944**	33.273	16.065	34.939**	71.668
	Covariance	-0.63	-0.789	6.655	3.213	6.988	14.334
	N	6	6	6	6	6	6

C. Regression Analysis

To further interrogate the relationship of liquidity on profitability, we further use multiple regression analysis model. The regression model for the given analysis is:

$$ROA = \cdots\alpha + \beta\ \mathrm{LR} + \gamma\ \mathrm{CR}$$

The regression analysis results are shown in the tables below. The Table III shows the model summary. The value of R is 0.677 or 67.7%, which specifies that the relationship between the predictors and ROA. This shows a strong correlation exists between current ratio (CR), liquid ratio (LR) and Return on Assets (ROA). The adjusted R square

value of 0.098 or 9.8% indicates that about only 9.8% of variation in ROA is explained by the independent variables used in the present study. The standard error of the model is estimated to be 1.78%.

TABLE III: MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.677[a]	0.459	0.098	1.77553

a. Predictors: (Constant), LIQUIDITY RATIO, CURRENT RATIO.

The overall magnitude of this regression analysis is assessed by the value of ANOVA table shown in Table IV. The table reveals that our model is statistically insignificant as demonstrated in the F value of 1.271 and P-value is 0.398. The accepted P-value should be less than 0.05. In the given table, the P-value > 0.05 which signifies that the data analyzed has no significant implications.

TABLE IV: ANOVA TABLE

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.012	2	4.006	1.271	.398[b]
	Residual	9.458	3	3.153		
	Total	17.470	5			

a. Dependent Variable: RETURN ON ASSETS.
b. Predictors: (Constant), LIQUIDITY RATIO, CURRENT RATIO.

VII. CONCLUSION

The present study was done on Tata Pigments to acknowledge the relationship of liquidity and profitability. There has been a diversified yet controversial literature existing on the profitability/ liquidity trade off. So, an attempt was made to reconnoiter this arguable liquidity/ profitability theory. The liquidity management suggests that too much weightage cannot be given to liquidity in any organization. The data analyzed reveals that the profitability indicators are inversely correlated to the liquidity indicators, but they are found to be insignificant at 0.01 level. This implies that the liquidity is less influential on the profitability of the Tata Pigment ltd.

Thus, we can conclude that the liquidity has no direct and remarkable effect on the profitability. There is only one limitation to the study, it is a case study of tata pigments ltd. for a period of 5 year.

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