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   REVIEW OF LITERATURE

   NEED/IMPORTANCE OF THE STUDY

   STATEMENT OF THE PROBLEM

   OBJECTIVES

   HYPOTHESES

   RESEARCH METHODOLOGY

   RESULTS & DISCUSSION

   FINDINGS

   RECOMMENDATIONS/SUGGESTIONS

   CONCLUSIONS

   SCOPE FOR FURTHER RESEARCH

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   REFERENCES

   APPENDIX/ANNEXURE

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

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- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY AND LIQUIDITY

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ABSTRACT

Working Capital Management has its effect on liquidity as well on profitability of the firm. This paper scrutinizes the impact of working capital and liquidity on profitability of Tata Motors during 2002- 2010. In this paper we have studied the impact of different components of working capital on profitability (ROI) of Tata Motors. Karl Pearson's correlation, T-test, Regression, Rank correlation, Average, Standard Deviation have been used for analyze the variables. The results show that there is no significant relation between liquidity and profitability. Out of 7 components of working capital only two factors have negative impact on profitability namely working capital turnover ratio and cash turnover ratio. It implies that there is a positive correlation between working capital components and profitability (ROI) of Tata Motors during 2002-2010. If ATR increased by one unit, the ROI decreased by 5.47 units that was statistically significant at 5% level. However, for one unit increase in WCTR, CTR, the profitability decreased by 0.57 and 0.49 respectively.

KEYWORDS

Working Capital, Profitability, Liquidity, ROI.

INTRODUCTION

Working Capital is the life blood and nerve centre of a business. Just as circulation of blood is essential in the human body for maintaining life, working capital is very essential to maintain the smooth running of a business. No business can run successfully without an adequate amount of working capital. Working Capital management is an important aspect of financial management. Every business needs funds for two purposes- for its establishment and to carry out its day to day operations. Long term funds are required to create production facilities through purchase of fixed assets such as plant & machinery, land & building, furniture etc. Investments in these assets represent that part of firm's capital which is blocked on a permanent or fixed basis and is called fixed capital. Funds are also needed for short term or current assets such as cash, marketable securities, debtors and inventories. Funds, thus, invested in current assets keep revolving fast and are being constantly converted into cash and this cash flow out again in exchange for other current assets. Hence it is also known as revolving or circulating capital or short term capital.

Net working Capital is the excess of current assets over current liabilities. It may be positive or negative. Every business concern should have adequate working capital to run its business operations. It should have neither redundant or excess working capital nor inadequate nor shortage of working capital. Excessive working capital means idle funds which earn no profits for the business and hence the business cannot earn a proper rate of return on its investment and it may lead to unnecessary purchasing and accumulation of inventories causing more chances of theft, waste and losses. It may result into overall inefficiency in the organization.

A concern which has inadequate working capital cannot pay its short term liabilities in time. Thus it will lose its reputation and shall not be able to get good credit facilities. It cannot buy its requirement in bulk and cannot avail of discounts and it becomes difficult to utilize efficiently the fixed assets due to non availability of liquid funds.

Therefore, the management of working capital is a crucial task for every manager in an organisation. Because, working capital directly affects the liquidity and profitability of an organization. Ineffective management of working capital management is one of the important factors causing industrial sickness. Therefore, optimal level of working capital is necessary to an organization for survival in market in effective manners.

REVIEW OF THE LITERATURE

Many researches have been conducted from time to time on this topic till now. Prominent amongst them are:

P. C. Narware This study focuses on the working capital management and profitability. It also examines the interrelationship between profitability and working capital, with the assistance of ratio analysis. The findings of the study are Working capital management and profitability of the company disclosed both negative and positive association. Out of the nine ratios selected for the study three ratios, namely CTSR, WTR and DTR registered negative correlation with the selected profitability ratio, ROI. The slopes of the ROI equation depicted that positive and negative influence of variations in the independent variables on the profitability of the company. Out of the five regression coefficients of the ROI Line, only one coefficient which was associated with DTR revealed negative influence on the profitability .The coefficient of multiple determination (R2) makes it obvious that 68.50 percent of the total variation in the profitability of the company. WCL of the company concluded, the increase in the profitability of the company was less than the proportion to decrease in Working capital.

Raheman and Nasr (2007), In this research, Authors have selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 – 2004, Authors have studied the effect of different variables of working capital management including the Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle and Current ratio on the Net operating profitability of Pakistani firms. Debt ratio, size of the firm (measured in terms of natural logarithm of sales) and financial assets to total assets ratio have been used as control variables. Pearson's correlation, and regression analysis (Pooled least square and general least square with cross section weight models) are used for analysis. The results show that there is a strong negative relationship between variables of the working capital management and profitability of the firm. It means that as the cash conversion cycle increases it will lead to decreasing profitability of the firm, and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level. Authors find that there is a significant negative relationship between liquidity and profitability. We also find that there is a positive relationship between size of the firm and its profitability. There is also a significant negative relationship between debt used by the firm and its profitability.

Gill, Biger and Mathur (2010), The paper seeks to extend Lazaridis and Tryfonidis's findings regarding the relationship between working capital management and profitability. A sample of 88 American firms listed on New York Stock Exchange for a period of 3 years from 2005 to 2007 was selected. Authors found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. It follows that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level. The study contributes to the literature on the relationship between the working capital management and the firm's profitability.

OBJECTIVES OF THE STUDY

The present study is envisaged with the following objectives:

1. Critically examine the relationship that is found between working capital management and profitability of Tata Motors
2. Critically examine the impact of different components of working capital on profitability of Tata Motors.
3. Critically examine the relationship that is found between liquidity and profitability of Tata motors.

HYPOTHESIS OF THE STUDY

H_o = There is no significance relation between liquidity and profitability of Tata Motors during 2002-10

HA = There is significance relation between liquidity and profitability of Tata Motors during 2002-10

SAMPLE SELECTION AND METHODOLOGY

The present study is analytical in nature and it is based on secondary data. The data of Tata Motors Ltd., for the years 2002 to 2010 used in this study have been collected from the financial statements published in Annual Reports of Tata Motors Ltd. Editing, classification and tabulation of financial data collection from the above mentioned source have been done as per the requirement of the study. For analyzing the data simple statistical tools such as ratio, mean, standard deviation, correlation. Regression, t-test and rank correlation have been used. All statistical calculation has been done through SPSS.

The ratios relating to working capital management which have been selected and have been used for analysis are as follows:

I: Current Ratio (CR); II: Acid Test Ratio (ATR); III: Current Assets to Total Assets Ratio (CTTR); IV: Working Capital Turnover Ratio (WCTR); V: Inventory Turnover Ratio (ITR); VI: Debtors Turnover Ratio (DTR); VII: Cash Turnover Ratio (CTR); and VIII Return on Investments (ROI)

FINDING OF THE STUDY

TABLE-1: DESCRIPTIVE STATISTICS

VARIABLE	MEAN	STD. DEVIATION
ROI	20.1111	9.70109
CR	.9967	.24187
ATR	.7311	.21595
CATA	.4011	.12414
WCTR	1.2473E2	328.37370
ITR	9.9167	1.75780
DTR	24.7811	9.83385
CTR	19.3889	5.90712

The descriptive statistics of the variables of the study are presented in the table 1. The Mean value of WCTR is 124.73 and S.D. is 328.37 which indicate higher volatility in the value of WCTR. But the mean value of CATA is 0.40 and S.D. is .12 which point out lesser volatility in the value of CATA.

TABLE-2: CORRELATION MATRIX

Variables	ROI	CR	ATR	CATA	WCTR	ITR	DTR	CTR
ROI	1							
CR	0.438	1						
ATR	0.498	0.97	1					
CATA	0.705	0.889	0.854	1				
WCTR	-0.587	0.002	0.178	-0.125	1			
ITR	0.328	-0.036	0.192	-0.073	-0.658	1		
DTR	0.575	0.692	0.816	0.571	-0.515	0.624	1	
CTR	-0.108	-0.324	0.444	-0.267	0.077	-0.332	-0.274	1

In table-2 an attempt has been made to examine the impact of working capital on profitability by computing Karl Pearson's coefficient of correlation between ROI and other components of working capital. It can be noticed from table-2 that correlation between ROI and CATA is 0.705 a moderate degree of positive correlation .and which is found to be significant at 5 percent level .It implies that there is a positive correlation between the profitability of the firm and the ratio of current assets to total assets Secondly, It can be detected from table-2 that correlation coefficient between ROI and CR is 0.438 a moderate degree of correlation. Thirdly, Correlation between ROI and ATR is 0.498 a moderate degree of positive correlation, which is found to be significant at 5 percent level. The quick ratio is very useful in measuring the liquidity position of the firm. It measures the firm's capacity to pay off current obligations immediately. It is evident from these two ratios that the amount of current and liquid assets increases risk as well as profitability. Fourthly, correlation between WCTR and ROI is -0.587i.e, a moderate degree of negative correlation. It implies there is a negative association between ROI and WCTR. It is an accepted principal that the faster the working capital turnover, the lower is the relative investment and greater is the profitability. But the computed value of correlation coefficient between ROI and WCTR do not obey the rules to the accepted principal. Correlation between ROI and ITR is 0.328 i.e. a very low degree of positive correlation. It implies that the faster the inventory turnover ratio, greater is the profitability. Correlation between ROI and DTR is 0.575 and lastly Correlation between ROI and CTR is -0.108 which is not significant. Hence, the study of the impact of working capital ratios on profitability viewed both negative and positive impacts. The study of the relationship between the profitability and these ratios conforms to generally accepted rule that smaller the liquidity increases the profitability of the firm.

MULTIPLE REGRESSION MODEL

Multiple regressions represent a logical extension of more than two variables regression analysis. Instead, more than one independent and one dependent variable is used to estimate the values of a dependent variables. The multiple regression equation describes the averages relationship among more than two variables and this relationship is used to predict or control the dependent variables. The general form of the regression equation is:

$Y = a_0 + a_1X_1 + a_2X_2 + \dots a_nX_n + \varepsilon$ ……………………… (1)

Where X_1, X_2 etc are repressors variables, a_1, a_2 and so on are the parameters to be estimated from the data and ε is the error term following classical OLS assumptions i.e., The deviations ε is assumed to be independent and normally distributed with mean 0 and standard deviation (σ). In this paper, we have framed one regression equations. The regression measure the degree of relation between profitability (ROI) and working capital management.

THUS, THE EMPIRICAL MODELS OF THE STUDY IS

Y (ROI) = bo + b1 (CR) + b2 (ATR) + b3 (CTTR) + b4 (CTSR) + b5 (WTR) + b6 (ITR) + b7 (DTR) + b8 (CTR) + e…………………………………………… (2)

All variables are used in natural logarithm form for economic estimitation. Because Ehrlich (1977) and Layson (1983) argue on theoretical and empirical grounds that the log linear form is superior to the linear form. Both Cameron (1994) and Ehrlich (1996) suggest that a long-linear form is more likely to find evidence of a restraints effect than a linear form.

THUS, THE FINAL EMPIRICAL MODELS OF THE STUDY IS

Y IN (ROI) = b_0 + b_1 IN (CR) + b_2 IN (ATR) + b_3 IN (CATA) + b_4 IN (WCTR) + b_5 IN (ITR) + b_6 IN (DTR) + b_7 IN (CTR) + e……………………………………………(3)

TABLE-3: MULTIPLE REGRESSION ANALYSIS

R=0.966, R SQUARE=0.933, ADJUSTED R SQUARE= 0.470, S.E. OF THE ESTIMATE= 7.06, F VALUE=2.01392

Variable	B	Std. Error	Beta	T	Sig.
(Constant)	-24.2387993	79.44058564		-0.30512	0.811468
CR	152.9429121	273.9462751	3.813176	0.558295	0.67584
ATR	-245.8109493	319.3802366	-5.47195	-0.76965	0.582404
CATA	100.3916948	59.63522901	1.284678	1.683429	0.341238
WCTR	-0.016914273	0.021900746	-0.57253	-0.77231	0.58134
ITR	2.672873999	5.888844207	0.484316	0.453888	0.728748
DTR	0.919647611	1.233770744	0.932233	0.745396	0.592215
CTR	-0.81605586	1.277199733	-0.49691	-0.63894	0.638042

Table -3 depicts the multiple correlation and the regression coefficient of ROI on ATR, CR, CATA,WCTR, ITR,DTR and CTR showing the strength of the relationship between the dependent variable-ROI and all the independent variables taken together and the impact of these independent variables on the profitability of the firm. It can be detected from table-3 that ATR, WCTR and CTR are negatively associated with ROI. If ATR increased by one unit, the ROI decreased by 5.47 units that was statistically significant at 5% level. However, for one unit increase in WCTR, CTR, the profitability decreased by 0.57 and 0.49 respectively. It can be monitored from the table that CR, CATA, ITR and DTR are positively associated with the profitability of the concern. If CR increased by one unit, the profitability (ROI) of the concern increased by 3.81. However, for one unit increase in CATA, ITR and DTR, the profitability (ROI) increased by 1.28, 0.48, 0.93 respectively. The multiple correlation coefficient of ROI on ATR, CR, CATA, WCTR, ITR, DTR and CTR is 0.96. It signifies that the profitability of the firm was highly influenced by CR, ATR, WCTR, ITR, DTR and CTR contributed 0.93 percent variations in the profitability of the firm.

GRAPHICAL PRESENTATION OF TRENDS OF CATA AND ROI

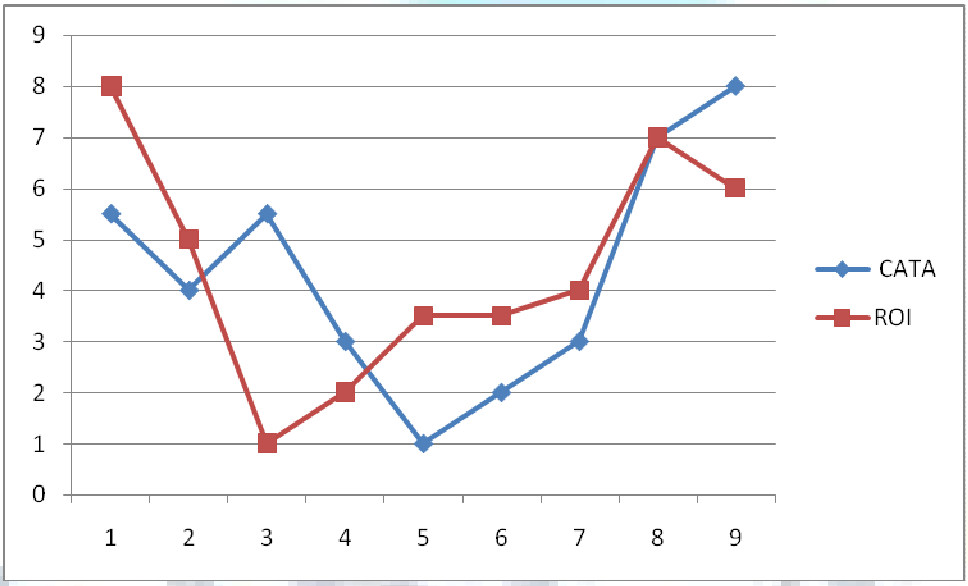

TABLE-4: RELATIONSHIP BETWEEN LIQUIDITY AND PROFITABILITY

Year	CATA	INDEX	RANK	ROI	INDEX	rank
2002	0.36	100	5.5	5	100	8
2003	0.39	108.3333	4	18	360	5
2004	0.36	100	5.5	31	620	1
2005	0.51	141.6667	3	29	580	2
2006	0.59	163.8889	1	28	560	3.5
2007	0.53	147.2222	2	28	560	3.5
2008	0.4	111.1111	3	21	420	4
2009	0.25	69.44444	7	8	160	7
2010	0.22	61.11111	8	13	260	6

Table 4 reveals the current assets to total assets ratio (CATA) as well as return on investments (in per cent) along with their growth index (base year: 2001-02). The CATA ratio was 0.36 times in 2001-02 and it was marginal increased 0.39 times in 2002-03 and further remaining period of the study it has been show up and down trends. But, in nutshell it has been increased and stood 0.59 times in 2005-06. The coefficient of variance in the ratio has been observed 18.90 per cent. ROI has been increased from 5 to 18 and from 18 to 31 per cent from 2002 to 2004 further, it has been decreased from 2 per cent in 2004 to 2005 and in 2009 it has again decreased and stood 9 per cent. The maximum ROI has been 31 per cent in 2004 and minimum 5 per cent in 2001-02; while, average ROI has been 20.11 per cent during the period under consideration. The value of R^2 is 0.705 i.e., moderate degree of correlation. It means 70.5 per cent variation is arisen in profitability due to liquidity in Tata Motors. The rank correlation has been used to prove the null hypothesis. The calculated value of rank correlation is 0.563 while, tabulated value of 't' test at 7 d.f (n-2) is 2.365. The tabulated value of student't' test is more than calculated value. Therefore, H_{01} is accepted and we conclude that there is no significantly relation between the liquidity and profitability in general and Tata Motors in particular.

CONCLUSION

In this paper we analyzed the impact of different components of working capital on profitability of Tata Motors during 2002-2010. Working capital management and profitability of the company disclosed both negative and positive association. It can be monitored from Table-2 that out of 7 components of working capital only two factors have negative impact on profitability namely working capital turnover ratio and cash turnover ratio. It implies that there is a positive correlation between working capital components and profitability (ROI) of Tata Motors during 2002-2010. It can be discovered from table-3 that out of 7components of working capital the value of b (regression coefficient) only there namely ATR, WCTR and CTR are negatively associated with ROI. If ATR increased by one unit, the ROI decreased by 5.47 units that was statistically significant at 5% level. The coefficient of multiple correlation (R^2) makes it obvious that 93.30 percent of the total variation in the profitability of the company is due to working capital management. We have also analyzed the impact of liquidity on profitability. From table-4 it can be discovered that value of R^2 is 0.705 i.e., moderate degree of correlation. It means 70.5 per cent variation is arisen in profitability due to liquidity in Tata Motors. But value of rank correlation is less than the table value at 5% level, so there is no significant relation between liquidity and profitability.

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APPENDIX

TABLE-5: WORKING CAPITAL RATIOS OF TATA MOTORS

Year	ROI	CR	ATR	CATA	WCTR	ITR	DTR	CTR
2002	5	1	0.63	0.36	1000.17	6.85	11.35	20.7
2003	18	0.85	0.54	0.39	18.35	7.41	12.57	27.81
2004	31	0.79	0.54	0.36	11.82	9.83	19.92	22.32
2005	29	1.08	0.84	0.51	25.96	11.09	28.95	10.99
2006	28	1.37	1.08	0.59	7.1	10	31.69	11.53
2007	28	1.36	1.04	0.53	8.7	10.73	42.55	24.89
2008	21	0.97	0.74	0.4	23.21	10.48	30.04	20.53
2009	8	0.89	0.68	0.25	21.78	10.41	24.64	14.03
2010	13	0.66	0.49	0.22	5.51	12.45	21.32	21.7

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With sincere regards

Thanking you profoundly

Academically yours

Sd/-

Co-ordinator

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