Journal of Management and Science,
ISSN 2250-1819 / EISSN 2249-1260

DOI:10.26524/jms.2012.25

A study on liquidity performance of top performing indian manufacturing companies

DR.S.POORNIMA[1] AND THEIVANAYAKI M[2]

[1]*Associate Professor,PSGR Krishnammal College for Women, Coimbatore-45, India*
[2]*Assistant Professor, PSGR Krishnammal College for Women, Coimbatore-45, India*

ABSTRACT: *The term liquidity probably brings to mind the relationship of current assets to current liabilities. However, the concept of liquidity should encompass much more than simply these two balance sheet accounts. This study is based on previous ten years Annual Reports of the top performing manufacturing companies in India. In this study, liquidity is taken to mean the short term liquidity which refers to the ability of the firms to pay off the current liabilities. This study relates to the management of short term assets and liabilities and finding the relationship between liquidity, profitability and leverage measures of a firm. Short term liquidity has been considered crucial to the very existence of an enterprise. This will further lead to financial distress and finally corporate can go bankrupt. The conflict arises because the maximization of firm's returns could seriously threaten the liquidity and on the other hand, the pursuit of liquidity has a tendency to dilute returns. The result can determine the risk postulate to that future customer. Additionally, this result can be utilized as a yearly appraisal of financial situation in making decisions to invest in the corporate. The result can contribute in advance an indication of the financial situation to aid the investor's selection of companies.*

Keywords: *liquidity, profitability, leverages, financial distress, manufacturing companies*

1. INTRODUCTION:

Liquidity means the debt repaying capacity of the firm. It refers to the firm's ability to meet the claims of suppliers of goods, services and capital. According to Archer and D'Amboise, liquidity means cash and cash availability, and it is from current operations and previous accumulations that cash is available, to take care of the claims of both the short term suppliers of capital and the long term ones. It has two dimensions: The short term and the long term liquidity.

Analysis of the firm's long term position has for its rationale the delineation of he ability of a firm to meet its long term financial obligations such as interest and dividend payment and repayment of principal. Long term liquidity refers to the ability of the firm to retire long term debt and interest and other long run obligations. When relationships are established along these lines, it is assumed that in the long run assets could be liquidated to meet the financial claims of the firm. Quite often the expression liquidity is used to mean short term liquidity of the companies.

Liquidity of a firm can be studied in two ways, namely, Technical liquidity and Operational liquidity. The difference between the two methods of liquidity management depends up on whether one assumes the liquidation concept of business as in case of the technical liquidity or the going concern concept of the business as in case of the operational liquidity

Technical liquidity is normally evaluated on the basis of the following ratios in a manufacturing firm.

- Current Ratio
- Quick or Acid Test Ratio
- Absolute Liquidity Ratio
- Operational Liquidity

The measurement of liquidity was accomplished by comparing current assets with the current liabilities. But focus has not been thrown on the factors that determine the liquidity.

2. OBJECTIVES OF THE STUDY:

1. To make the sector wise analysis of liquidity.
2. To determine the relationship between Liquidity and Profitability.
3. To determine the relationship between Liquidity and Leverages.

3. REVIEW OF LITERTURE

Sagan (1955) the first theoretical Paper on the theory of working capital management emphasized the need for management of working capital accounts and warned that it could vitally affect the liquidity of the company. He realized the need to build up a theory of working capital management. He discussed mainly the role and functions of money managers operations were primarily in the area of cash flows generated in the course of business transactions. Money manager must be familiar with what is being done with the control of inventories, receivables and payables because all these accounts affect cash position. Thus, Sagan concentrated mainly on cash component of working capital.

Warren and Shelton (1971) applied financial stimulation to stimulate future financial statements of a firm, based on set of simultaneous equations. Financial simulation approach makes possible to incorporate both the uncertainty of the future and many interrelationships between current assets, current liabilities and other Balance sheet accounts. Warren and Shelton presented the model in which twenty simultaneous equations were used to forecast the future balance sheet of the firm including the forecasted current assets and current liabilities. They were forecasted in aggregate by directly relating to firm sales.

Sanger (2001) emphasized that working capital has increasingly been looked at as a restraint on financial performance, since these assets do not contribute to Return on Equity.

Reddy Y.V. and Patkar S.B. (2004) stated that sundry debtors and amount due to creditors are the major components of current assets and current liabilities respectively in determining the size of the working capital.

N.Murugan (2010) stated that there was a stable position in regard to liquidity. The liquidity management in SarvodayaSanghams was good. The debt service capacity of the Sanghams was good in terms of interest coverage ratio. Profitability of Sanghams in terms of Return on capital employed, return on capital fund and return on total assets has shown a fluctuating trend in last five years.

4. RESEARCH METHODOLOGY

The research adopted for study is *analytical and descriptive* type of research. The data were collected from the secondary sources through journals, magazines and websites.

The researcher used *strata sampling* for the study. Firstly, the top performing manufacturing companies were selected from the National Stock Exchange (NSE). Then the companies were separated based on the sectors. Hence five sectors were selected and under each sector four companies have been chosen

TABLE: I List of companies selected for the study

Automobiles Industry	Capital Goods Industry	Steel Industry	Oil &Gas Industry	Pharmaceuticals Industry
Hero Honda	ABB Ltd	Hindalco	BPCL	Cipla
Mahindra	BHEL	Jindal	GAIL	Dr.Reddy‘s Lab
Maruthi	L&T	SAIL	Indian oil	Ranbaxy
Tata Motors	Siemens AG	Tata Steel	ONGC	Sun Pharma

Tools used

The following statistical tools were used to analyze and interpret the data.

- Ratio Analysis
- One Way ANOVA
- Two Way ANOVA

- Regression Analysis
- Mean
- Standard Deviation
- Co-efficient of Variation
- Compounded Annual Growth Rate

5. RESULTS AND DISCUSSION:

5.1 Sector wise analysis of the liquidity: To achieve this objective ANOVA has been used within the companies of different sectors with reference to all relevant variables. An attempt has been made to understand the variation of liquidity position of companies within the sector and between the sectors.

Hypothesis: The Ratios do not differ significantly among the companies.

TABLE II ANOVA for Automobile Industry with the reference to Current Ratio

Name of the Company	Current Ratio	
	Mean	S.D
Honda	.46	.16
Mahindra	.87	.28
Maruthi	.91	.32
Tata	.55	.16

	Sum of Squares	df	Mean Square	F	Table Value	Sig.
Between Companies	1.501	3	.500	8.542	4.377	**
Residual	2.108	36	0.05856			
Total	3.609	39				

One way ANOVA was applied to find whether the mean Current Ratios vary significantly among the automobile companies. The ANOVA result shows that the calculated F-ratio value is 8.542 which are higher than the table value of 4.377 at 1% level of significance. Since the calculated value is higher than the table value it is inferred that the mean Current Rati os vary significantly among the automobile companies. Hence the Hypothesis is not accepted. This implies that there is significant variation in current liquidity position among the automobile sector. Similarly, it is found that there is no significant variation in acid test ratio, inventory to net working capital position among the automobile sector. Also, there is significant variation in cash flow position, average collection periods among the automobile sector. In capital Goods sector, it is found that acid test ra tio, current liquidity position, average collection period are significant to the capital goods sector and inventory to net working capital position, cash flow ratio are not significant. In steel industries, it is found that, that there is no significant variation in acid test ratio, inventory to net working capital ratio, average collection period among the steel sector. There is significant variation in current liquidity position, cash flow ratio among the steel sector. In oil and gas sector, there is significant variation in current liquidity position, acid test ratio, cash flow position, average collection period among the oil and gas sector. And there is no significant variation in inventory net working capital position among the oil and gas sector. In pharmaceutical sector, it is found that, there is significant variation in current liquidity position, acid test ratio among the pharmaceutical sector. And inventory to net working capital position, cash flow position, average collection period are not significant to the pharmaceutical sector.

TABLE III Two way ANOVA with reference to Current ratio

Years	Current Ratio									
	Industry									
	Automobiles		Capital Goods		Steel		Oil & gas		Pharma	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
2001	.83	.58	1.43	.48	1.72	.95	1.14	.14	3.21	1.17
2002	.96	.42	1.22	.33	.94	.23	.86	.41	2.65	.40
2003	.74	.22	1.22	.36	.96	.26	.83	.22	2.27	.53
2004	.59	.29	1.16	.31	.79	.28	.69	.23	1.95	.41
2005	.66	.35	1.19	.21	.80	.27	.66	.31	1.91	.28
2006	.69	.34	1.13	.26	1.08	.40	.73	.41	2.05	.37

2007	.68	.18	1.17	.11	1.01	.43	.65	.37	2.28	.68
2008	.66	.24	1.14	.08	1.04	.44	.64	.32	1.75	.86
2009	.56	.18	1.15	.08	1.00	.56	.55	.24	1.83	.78
2010	.62	.14	1.04	.23	1.23	1.10	.79	.34	2.01	.93

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Between Industries	58.149	4	14.537	72.706	**
Between Years	6.901	9	.767	3.835	**
Residual	37.190	186	.200		
Total	379.452	200			

Two way ANOVA was conducted to examine whether the Current Ratio varies significantly across industries and also between years. The ANOVA results given above show that the F-ratio for _Between industries' is 72.706 which is found to be significant at 1% level. This shows that the Current Ratios vary significantly between industries during the study period. The F-ratio testing for significant difference between years was found to be 3.835 which is found to be significant at 1% level and hence it can be inferred that the Current Ratios vary significantly between years. It implies that Current Ratios vary significantly between industries and between years.

Similarly, Two-way ANOVA with reference to other ratios shows that Acid-test ratios vary significantly between industries and do not vary within the years. Inventory to Net Working Capital do not vary significantly between industries and within the years. Cash Flow Ratios do not vary significantly between industries and within years. Average Collection Period varies significantly between industries and do not vary within years.

5.2 To find the relationship between the Liquidity and Profitability:

The ratios namely Return on Equity, Return on Fixed Assets and Net Profit Margin are used as a dependent variables. The independent variables are Current Ratio (CR), Acid Test Ratio (ATR) and Inventory to Net Working Capital (NWC), Cash Flow Ratio (CFR) and Average Collection Period (ACP). In this study various regression models have been specified as follows:

Return on Equity = $\alpha + \beta 1$ CR + $\beta 2$ ATR + $\beta 3$ NWC + $\beta 4$ CFR + $\beta 5$ ACP

Return on Fixed Assets = $\alpha + \beta 1$ CR + $\beta 2$ ATR + $\beta 3$ NWC + $\beta 4$ CFR + $\beta 5$ ACP

Net Profit Margin = $\alpha + \beta 1$ CR + $\beta 2$ ATR + $\beta 3$ NWC + $\beta 4$ CFR + $\beta 5$ ACP

TABLE IV Regression Analysis between Liquidity and Return On Equity (Profitability)

	Regression Coefficients	Std. Error	t	Sig.
(Constant)	.246	.020		
Cash Flow Ratio	.000001	.000003	.310	Ns
Current Ratio	-.051	.017	-3.015	**
Net Working Capital	.00003	.00023	.116	Ns
Acid Test Ratio	.048	.017	2.767	**
Average collection period	-.00001	.000004	-1.641	Ns

R	R Square	F	Sig.
.249	.062	2.566	*

Multiple Linear Regression was applied to find whether various Liquidity Ratios significantly affect the Profitability Ratios namely Return On Equity. The Regression results show that the Liquidity Ratios - Current Ratio and Acid Test Ratio significantly affect the Return On Equity at 1% level. The other ratios namely Cash Flow Ratio, Net Working capital and Average Collection Period do not significantly affect the Return On Equity. Further it is seen from the Regression Coefficients that Current Ratio has negative effect on Profitability whereas Acid Test Ratio has positive effect on Profitability i.e. for a percent increase in Current Ratio reduces the Profitability by .051%, whereas a percent increase in Acid Test Ratio increase Profitability by 0.48% when Return On Equity is taken as Profitability measure.

Overall the Multiple Correlation Coefficient is .249 which is found to be significant at 5% level. The R^2 value shows that Return on Equity is influenced by all the five Liquidity Ratios taken together by 6.2% only. Regression analysis between liquidity and Return on Fixed Assets shows that the Multiple Correlation Coefficient is .196 which do not significantly affect the Return On Fixed Assets. The R^2 value shows that Return On Fixed Assets is influenced by all the five Liquidity Ratios taken together by 3.8% only. Regression analysis between liquidity and Net Profit Margin shows that the Multiple Correlation Coefficient is .754 which is found to be significant at 1% level. The R^2 value shows that Net Profit Margin is influenced by all the five Liquidity Ratios taken together by 56.8% only.

From the above Regression results, it is seen that the contribution of Liquidity Ratios to various Profitability measures varies between 6.2% to 56.8%. So in all three Profitability measures Net Profit Margin is better predicted by all the five Liquidity Ratios since R^2 value is higher (0.568).

5.3 To find the relationship between the Liquidity and leverage:

The ratios namely Fixed Assets to Net Worth, Current Debt to Net Worth, Total Debt to total Assets and Total Debt to Total Net Worth are used as dependent variables. Current Ratio (CR), Acid Test Ratio (ATR), Inventory to Net Working Capital (NWC), Cash Flow Ratio (CFR) and Average Collection Period (ACP) are used as independent variables. In this study various regression models have been specified as follows:

Fixed Assets to Net Worth = $\alpha + \beta 1$ CR + $\beta 2$ ATR + $\beta 3$ NWC + $\beta 4$ CFR + $\beta 5$ ACP

Current Debt to Net Worth = $\alpha + \beta 1$ CR + $\beta 2$ ATR + $\beta 3$ NWC + $\beta 4$ CFR + $\beta 5$ ACP

Total Debt to Total Assets = $\alpha + \beta 1$ CR + $\beta 2$ ATR + $\beta 3$ NWC + $\beta 4$ CFR + $\beta 5$ ACP

Total Debt to Net Worth = $\alpha + \beta 1$ CR + $\beta 2$ ATR + $\beta 3$ NWC + $\beta 4$ CFR + $\beta 5$ ACP

TABLE VI Regression Analysis between Liquidity and Fixed Assets to Net worth (Leverage)

	Regression Coefficients	Std. Error	T	Sig.
(Constant)	.727	.095		
Cash Flow Ratio	-.00001	.000015	-.591	Ns
Current Ratio	.003	.081	.038	Ns
Net Working Capital	.001	.001	.848	Ns
Acid Test Ratio	-.174	.081	-2.137	*
Average Collection Period	.00001	.00002	.346	Ns

R	R Square	F	Sig.
.192	.037	1.486	Ns

Multiple Linear Regression was applied to find whether various Liquidity Ratios significantly affect the Leverage Ratios namely Fixed Assets to Net worth. The Regression results show that the Liquidity Ratio i.e. Acid Test Ratio significantly affect the Fixed Assets to Net worth at 5% level. The other ratios namely Cash Flow Ratio, Current Ratio, Net Working capital and Average Collection Period do not significantly affect the Fixed Assets to Net worth. Further it is seen from the Regression Coefficients that Acid Test Ratio has negative effect on Leverage i.e. for a percent increase in Acid Test Ratio reduces the Leverage by .174%, when Fixed Assets to net worth is taken as Leverage measure.

Overall the Multiple Correlation Coefficient is .192 which do not significantly affect the Fixed Assets to Net worth. The R^2 value shows that Fixed Assets to Net worth is influenced by all the five Liquidity Ratios taken together by 3.7% only. Regression analysis between Liquidity and Current Debt to Net worth shows that the Multiple Correlation Coefficient is .300 which significantly affect at 5% level. The R^2 value shows that Current Debt to Net worth is influenced by all the five Liquidity Ratios taken together by 9% only. Regression analysis between Liquidity and Total Debt to Total Assets shows that the Multiple Correlation Coefficient is .809 which is found to be significant at 1% level. The R^2 value shows that Total Debt to Total Assets is influenced by all the five Liquidity Ratios taken together by 65.5% only. Regression analysis between Liquidity and Total Debt to Net worth shows that the Multiple Correlation Coefficient is .319 which is found to be significant at 1% level. The R^2 value shows that Total Debt to Net worth is influenced by all the five Liquidity Ratios taken together by 10.2% only.

From the above Regression results it is seen that the contribution of Liquidity Ratios to various Leverage measures varies between 3.7% to 65.5%. So in all four Leverage measures Total Debt to Total Assets is better predicted by all the five Liquidity Ratios since R^2 value is higher (.655).

6. CONCLUSION:

The result can determine the risk postulate to that future customer. Additionally, this result can be utilized as a yearly appraisal of financial situation in making decisions to invest in the corporate. The result can contribute in advance an indication of the financial situation to aid the investor's selection of companies. Text books of finance stress negative relationship between liquidity and profitability that low proportion of current assets results in high rate of return but many researchers have explored opposite to that statement in their studies. High liquidity reduces the risk of unavailability of funds to repay short term obligations, contributing positively to the firm profitability. Liquid firm are more profitable because they are in better position to capture growth opportunities and cope with unpredictable market changes. The efficient liquidity management refers to handling currents assets and current liabilities in such a way that it reduces the risk of default. The greater level of liquidity leads to decreased profitability because of the fact that high investment in current assets is not utilized efficiently, suggesting managers not to increase the liquidity to increase the profitability of the firm.

REFERENCES

BOOKS:

[1]. Sharma, R.K and Shashi K. Gupta, –Management Accounting Principles and Practices‖, Kalyani Publishers, 7th Edition, New Delhi.

[2]. Dr. Manmohan and Dr. S.N.Goyal, –Principles of Management Accounting‖, Sathya Bhavan, 6th Editon, Agra..

[3]. Pandey.I.M., –Financial Management‖ Seventh Edition, Vikas Publishing House(P) Ltd.,New Delhi, India.

[4]. Kothari C.R., –Research Methodology-Methods and Techniques‖, New age International (P) Ltd., New Delhi.

JOURNALS:

[1]. Sanger (2001), –Late Payment and Credit Management in small firm sector: Some Empirical Evidence‖, International Small Business Journal 18 (2) PP: 52-68

[2]. N.Murugan (2010), –A study of financial Performance of the select SarvodayaSanghams in Tamilnadu‖, Finance India Vol. XXIV No. 3, September 2010

WEBSITES:

[1]. www.moneycontrol.com

[2]. www.investopedia.com

*****