

LIQUIDITY ANALYSIS AND WORKING CAPITAL STRUCTURE: AN EMPIRICAL RESEARCH ON TVS COMPANY LTD

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ABSTRACT

Working Capital may be regarded as the blood circulatory system of any business unit. Every organization whether public or private, Profit oriented or not, irrespective of its size and nature of business, needs adequate amount of working capital.

The efficient working capital management is most crucial factor in maintaining survival, liquidity, solvency and profitability of the business organization. Effectiveness of working capital and liquidity management has got a direct bearing on shareholder's wealth maximization and effective management of working capital forms an absolute part of cost of reduction.

Many organizations suffer losses due to ineffective management of working capital. Which is embarked for meeting routine obligations like, payments of wages, raw material etc., the word 'Working Capital', however, may be understood in different ways by different people to suit their convenience.

The research Conduct by khandelwalv(1985) revealed that a significant percentage of respondents included only inventories in the definition of working capital, whereas the rest of the respondents included all current Assets

Keywords: *WC,CA,CL,QA,(Working Capital, Current Asset, Current Liability, Quik Asset, Liquidity, Profitability, Risk, ROCE, Risk-Return Trade Off.*

RESEARCH DESIGN AND METHODOLOGY

In this Study the sample company named TVS has been taken for analysis of working capital position, and liquidity position. Present study is based on secondary data i.e. published annual reports of the company. These financial data's are edited, classified and tabulated as per the requirements of the study. This study has covered 10 years data's from 2004 to 2013 for analyzing the working capital position and liquidity position of the TVS Ltd.,

The collected data were analysed by using statistical tools and techniques namely correlation and regression analysis. In order to get the results, statistical software such as MS-Excel and SPSS has been used. Charts and figures had been prepared for presenting and simplifying the process of analysis.

OBJECTIVE OF THE STUDY

This study has the following objective,

1. To analyze the financial structure.
2. To analyze the working capital position of the firm.
3. To analyze the effect of liquidity on profitability
4. To analyze the effect of risk on profitability.
5. To give suggestions on the basis of findings of the study.

Hypotheses

This study is based on the following Null hypotheses (H0)

1. There is no significant difference between liquidity and profitability of TVS during the period of study.
2. There is no significant difference between risk and profitability of TVS during the study period.

COMPANY PROFILE

The company was born in 1911, thanks to the ambitious dreams of the founding father, T V Sundaram Iyengar, who refused to settle managing smaller businesses like bus fleet operations or vehicle servicing. He wanted to build a business that would create a family of like-minded individuals pursuing only the best in quality and standards. And he made his dreams a reality.

The success of the TVS group is rooted in their founder's personal belief system - commitment to the values of trust and customer service. In fact, although the company is named after the founder, the letters TVS have always stood for Trust, Value, and Service within the company.

This remains the guiding, overarching philosophy by which the group functions. It was only natural that success and market leadership followed. Today, the TVS group is one of India's leading suppliers of automotive components, with a work force of 40,000 people across 30 companies with an annual turnover of USD 7.29 billion. The first four companies in India to have won the coveted Deming Prize are from the TVS group.

REVIEW LITERATURE

Khandelwal (1985) carried out a half-complete empirical research initiated by the late N.M. Agarwal, among 40 small-scale industries in Jodhpur industrial estate. The study attempted to probe into working capital management processes and practices among the selected units between the years 1975-76 and 1979-80. The study revealed that the sample firms held more investments in inventories than required and management of receivables was found to be highly disorderly. It was found that bills receivable constituted as much as 50 percent of total current assets. Highlighting the sickness in Jodhpur Industrial Estate, the study attributed the main reason to inefficient management of working capital. Based on the findings, the study suggested that the entrepreneurs needed to be educated about the basic concepts and efficient ways of working capital management.

The study by A.N. Agarwal (1982) estimated total inventory investment equation for individual firms in automobile manufacturing industry, which was divided into two sectors-car-sector and non-car sector. His study was based on the data for 1959-60 through 1978-79. Official Dictionary of Mumbai Stock Exchange has been the basic source of data. Analysis of two sector revealed that sales and stock - sales ratio were important explanatory variables. Cost of capital and trend were important in only car sector while fixed investment and flows of external funds were significant in non-car sector. Existing stock of inventories was statistically significant in both the sector but contrary to expectations, it possessed negative coefficient. Several other variables as dividends, capacity utilization and liquidity ratio were found to be of no importance in explaining inventory investment behavior.

Jain (1993) conducted a study among seven paper companies in India to analyze the basic components of working capital. The study revealed that the current ratio in public sector undertakings during the period of study was found to be highly erratic, while the same in private sector undertakings registered continuous decrease. As far as the inventory was concerned, the study revealed that it was highly unplanned in public sector undertakings units as compared to private sector units. The study contributed much in terms of realizing the importance of effective management of working capital.

Rakesh Kumar Manjhi and S.R. Kulkarni (2012) conducted a study among 'Working Capital Structure and liquidity analysis: An Empirical Research on Gujarat Textiles manufacturing Industry'. To analyze the structure of working capital was analyzed through the construction of tables highlighting the percentage of composition of individual current assets and current liabilities during the user from 1999-2000 to 2009-2010. The study also indicated that the variation between current assets turnover and working capital turnover was quite high across the industry.

Jisha Joseph (2014) conducted a study among "Impact of working capital management on firm's profitability & liquidity: An empirical study of Ashok Leyland Ltd., While analyzing the company's performance it is clear that,

the firm give little importance to the issues related with working capital. The company must keep an optimum balance between liquidity and profitability for efficient use of its working capital. At the same time it should not stop formulating certain policies to keep a well-monitored working capital for better profitability, stability, reliability, growth and consistency.

LIMITATION OF THE STUDY

The following are the limitation of the study

1. The study covered only 10 years period i.e. 2003-2004 to 2012-2013 for the Working Capital analysis of TVS Ltd.,
2. The Secondary data's used in this study have been taken from published annual reports only.

ANALYSIS OF WORKING CAPITAL MANAGEMENT OF T.V.SUNSARAM LTD

Working Capital Position

The two concept of working capital are Gross Working Capital and Net Working Capital. The former means the firm's investment in current assets and later the excess of current assets over the current liabilities. The excess of current assets over the current liabilities provides measures of safety margin available against uncertainty in realization of current assets and flow of funds.

Table I: Statement Showing Net Working Capital Position (Rs. in Crores)

Year	Current Assets	Current Liabilities	Net Working Capital
2004-2005	521.43	519.67	1.76
2005-2006	783.75	609.88	173.87
2006-2007	860.62	618.85	241.77
2007-2008	780.54	604.5	176.04
2008-2009	934.38	664.14	270.24
2009-2010	1042.14	792.71	249.43
2010-2011	1249.49	1048.99	200.5
2011-2012	1311.49	1605.39	-293.9
2012-2013	1348.23	1471.34	-123.11
2013-2014	1583.45	1757.09	-173.64
A.M (x)	9894.09	9172.89	721.20
Mean	1.0993	1.0192	80.1333
Std. Deviation	2.85605	4.70450	2.14770
Range	802.91	1152.59	564.14
Minimum	521.43	519.67	-293.90
Maximum	1583.45	1757.09	270.24

Source: Annual Reports of T.V.Sundaram Ltd.,(2004-2005 to 2013-2014)

Interpretation

Table I: Shows the working capital position of the concern. During the period of study working capital showed a fluctuating tendency. The highest value of working capital Rs.270.24 Crores was in 2008-2009 and the least of Rs.-293.90 Crores in 2011-2012. The net working capital had an average value of Rs.721.20 Crores. The Gross Working Capital of the firm had a mean value of Rs.9894.09 Crores. The Gross Working capital was highest in Rs.1583.45 Crores in 2013-2014 and the least value is Rs.521.43 Crores in 2004-2005 respectively. The Current

Liabilities of the firm was highest in Rs.1757.09 Crores in 2013-2014 and the least value is Rs. 519.67 Crores in 2004-2005. The Net Working Capital of the firm had a negative annual growth rate and a standard deviation of 2.147770.

CURRENT RATIO

The current ratio measures the short-term solvency of the firm. It establishes the relationship between current assets and current liabilities. It is calculated by dividing current assets by current liabilities.

$$\text{Current Ratio} = \frac{\text{Current Asset}}{\text{Current Liabilities}}$$

Current Liabilities

Assets include cash and bank balances, marketable securities, inventory, and debtors, excluding provisions for bad debts and doubtful debtors, bills receivables and prepaid expenses. Current liabilities includes sundry creditors, bills payable, short- term loans, income-tax liability, accrued expenses and dividends payable.

Table: II Statement Showing Current Ration (Rs. In Crores)

Year	Current Assets	Current Liabilities	Current Ratio
2004-2005	521.43	519.67	1.00
2005-2006	783.75	609.88	1.29
2006-2007	860.62	618.85	1.39
2007-2008	780.54	604.5	1.29
2008-2009	934.38	664.14	1.41
2009-2010	1042.14	792.71	1.31
2010-2011	1249.49	1048.99	1.19
2011-2012	1311.49	1605.39	0.82
2012-2013	1348.23	1471.34	0.92
2013-2014	1583.45	1757.09	0.90
A.M(x)	10415.62	9692.56	11.51
Mean	1.0416	9.6926	1.1513
Std. Deviation	3.25431	4.70835	.22147
Range	1062.02	1237.42	.59
Minimum	521.43	519.67	.82
Maximum	1583.45	1757.09	1.41

Source: Annual Reports of T.V.Sundaram Ltd.,(2004-2005 to 2013-2014)

Interpretation

Table II: Shows the current ratio as a measure of liquidity position of the concern. During the period of study current ratio showed a fluctuating tendency. The highest value of Current Ratio was Rs.1.41 crores in 2008-2009 and the least of Rs.0.82 crores in 2011-2012. The Current ratio of the firm had a decreased annual growth rate and a standard deviation of the ratio was low with a value of .22147.

QUICK RATIO / LIQUID RATIO:

It has been an important indicator of the firm's liquidity position and is used as a complementary ratio to the current ratio. It establishes the relationship between quick assets and current liabilities. It is calculated by dividing quick assets by the current liabilities.

$$= \frac{\text{Liquid Ratio}}{\text{Current Liabilities}}$$

Quick assets are those current assets, which can be converted into cash immediately or within reasonable short time without a loss of value. These include cash and bank balances, sundry debtors, bill's receivables and short-term marketable securities.

Table III: Statement Showing Liquidity Ratio (Rs.In Crores)

Year	Liquid Assets	Current Liabilities	Liquid Ratio
2004-2005	119.11	519.67	0.23
2005-2006	207.1	609.88	0.34
2006-2007	219.49	618.85	0.35
2007-2008	99.78	604.5	0.17
2008-2009	262.54	664.14	0.40
2009-2010	353.36	792.71	0.45
2010-2011	330.99	1048.99	0.32
2011-2012	803.14	1605.39	0.50
2012-2013	474.02	1471.34	0.32
2013-2014	567.13	1757.09	0.32
A.M(x)	3436.66	9692.56	3.39
Mean	3.4367	9.6926	.3390
Std. Deviation	2.18290	4.70835	.09674
Range	703.36	1237.42	.34
Minimum	99.78	519.67	.17
Maximum	803.14	1757.09	.50

Source: Annual Reports of T.V.Sundaram Ltd.,(2004-2005 to 2013-2014)

Interpretation

Table III: Shows the Liquidity ratio as a measure of liquidity position of the concern. During the period of study liquidity ratio showed a fluctuating tendency. The highest value of Liquidity Ratio was .50 times in 2011-2012 and the least of 0.17 times in 2007-2008. The liquidity ratio of the firm had ups and downs in annual growth rate and a standard deviation of the ratio was low with a value of .09674.

CASH POSITION RATIO

It shows how much of total assets kept in the form of cash is revealed through this ratio. How much per rupee of total assets is kept in the form of cash. Higher the ratio shows less risk, but lower rate of return as cash by itself does not earn profit. The ratio can be denoted as given below:

$$= \frac{\text{Cash} + \text{Cash Equivalents}}{\text{Total Asset}}$$

Table IV: Statement Showing Cash Position Ratio (Rs.In Crores)

Year	Cash & Equalent	Total Asset	Cash Position Ratio
2004-2005	74.66	1462.99	0.05
2005-2006	134.64	1810.3	0.07
2006-2007	138.15	2183.48	0.06
2007-2008	14.72	2214.91	0.01
2008-2009	67.43	2415.52	0.03

2009-2010	124.95	2626.59	0.05
2010-2011	43.21	2821.69	0.02
2011-2012	137.48	3316.56	0.04
2012-2013	79.6	3364.6	0.02
2013-2014	98.47	3631.58	0.03
A.M(x)	913.31	2.58	.38
Mean	91.3310	2.5848	.0378
Std. Deviation	4.28826	7.05692	.02150
Range	123.43	2168.59	.07
Minimum	14.72	1462.99	.01
Maximum	138.15	3631.58	.07

Source: Annual Reports of T.V.Sundaram Ltd., (2004-2005 to 2013-2014)

Interpretation

Table IV: Shows the cash generating capacity of the total assets of the firm. During the period of study Cash Position Ratio showed a fluctuating tendency. The highest value of Cash Position Ratio was .07 times in 2005-2006 and the least of 0.01 times in 2007-2008. The Cash Position Ratio of the firm had decrease in annual growth rate and a standard deviation of the ratio was low with a value of .02150.

WORKING CAPITAL TURNOVER RATIO

A higher ratio is an indicator of better utilization of current assets and working capital and vice-versa (a lower ratio is an indicator of poor utilization of current assets and working capital). It is calculated by dividing sales by working capital.

$$\text{Net working capital turnover ratio} = \frac{\text{Total sales}}{\text{Working Capital}}$$

Working capital is represented by the difference between current assets and current liabilities.

Table V: Statement Showing Working Capital Turnover Ratio (Rs.In Crores)

Year	Total Sales	Working Capital	Working Capital Turnover Ratio
2004-2005	2912.97	1.76	1655.1
2005-2006	3266.85	173.87	18.79
2006-2007	3918.08	241.77	16.21
2007-2008	3270.55	176.04	18.58
2008-2009	3746.72	270.24	13.86
2009-2010	4543.64	249.43	18.22
2010-2011	6433.27	200.5	32.09
2011-2012	7435.16	-293.9	-25.3
2012-2013	7406.22	-123.11	-60.16
2013-2014	8379.01	-173.64	-48.26
A.M(x)	5.13	722.96	1639.12
Mean	5.1312	72.2960	1.6391
Std. Deviation	2.06343	2.03999	5.24910
Range	5466.04	564.14	1715.26
Minimum	2912.97	-293.90	-60.16
Maximum	8379.01	270.24	1655.10

Source: Annual Reports of T.V.Sundaram Ltd.,(2004-2005 to 2013-2014)

Interpretation

Table V: Shows the sales generated per amount of working capital of the firm. During the period of study showed working capital turnover ratio was fluctuating tendency. The highest value of working capital turnover Ratio was 1655.10 times in 2004-2005 and the least of -60.16 times in 2012-2013. The working capital turnover Ratio of the firm had decrease in annual growth rate and a standard deviation of 5.24910.

Analysis of Liquidity, Profitability and Risk Using Spearman’s Rank Correlation and Student T-Test

The Spearman’s rank correlation is the relationship between different rankings of the same set of the same set of items. A rank correlation coefficient measures the degree of similarity between two rankings, and can be used to assess its significance.

$$r = 1 - \frac{6 \sum D^2}{n(n^2 - 1)}$$

where D= R1-R2 , is the difference between ranks. Student t-Distribution is a small test used for testing of hypotheses of sample size less than 30. If the calculated value of t is less than the table value. The null hypotheses will be accepted and vice-verse; for a given significance level. It can be calculated as follow:

$$t = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2}$$

Where r= Spearman’s Rank Coefficient of Correlation; n= No. Observation
Liquidity & Profitability Analysis of CIL using Student t-test

PROFITABILITY

It indicates the percentage of return in the business. A high return on investment shows the company having a higher rate of profit as percentage of capital employed. It is calculated as follows:

$$= \frac{\text{Operating Profit}}{\text{Capital Employed}} \times 100$$

Table VI: Statement Showing Profitability Ratio (Rs.In Crores)

Year	Total Assets	Current Liabilities	Capital Employed(TA-CL)	Operating Profit	ROCE%
2004-2005	1462.99	519.67	943.32	136.61	0.14
2005-2006	1810.3	609.88	1200.42	110.47	0.09
2006-2007	2183.48	618.85	1564.63	98.31	0.06
2007-2008	2214.91	604.5	1610.41	-29.93	-0.02
2008-2009	2415.52	664.14	1751.38	-63.2	-0.04
2009-2010	2626.59	792.71	1833.88	33.52	0.02
2010-2011	2821.69	1048.99	1772.70	127.94	0.07
2011-2012	3316.56	1605.39	1711.17	132.33	0.08
2012-2013	3364.6	1471.34	1893.26	198.35	0.10
2013-2014	3631.58	1757.09	1874.49	186.30	0.10
A.M(x)	2.58	9692.56	1.62	.62	930.70

Mean	2.5848	9.6926	1.6156	.0617	93.0700
Std.	7.05692	4.70835	3.11087	.05711	8.68296
Range	2168.59	1237.42	949.94	.18	261.55
Minimum	1462.99	519.67	943.32	-.04	-63.20
Maximum	3631.58	1757.09	1893.26	.14	198.35

Source: Annual Reports of T.V.Sundaram Ltd.,(2004-2005 to 2013-2014)

Interpretation

Table VI: During the period of study showed Profitability ratio was fluctuating tendency. The highest value of Profitability Ratio was 198.35 times in 2012-2013 and the least of -63.20 times in 2008-2009. The Profitability Ratio of the firm had decrease in annual growth rate and a standard deviation of 8.68296

RELATIONSHIP BETWEEN THE LIQUIDITY AND PROFITABILITY

TESTING OF 1ST NULL HYPOTHESIS

Table: VII Statement for Calculation of Correlation

Year	Current Ratio	R1	ROCE%	R2	D=(R1-R2)	D2
2004-2005	1	7	0.14	1	6.00	36
2005-2006	1.29	4	0.09	4	0.00	0
2006-2007	1.39	2	0.06	7	-5.00	25
2007-2008	1.29	4	-0.02	9	-5.00	25
2008-2009	1.41	1	-0.04	10	-9.00	81
2009-2010	1.31	3	0.02	8	-5.00	25
2010-2011	1.19	6	0.07	6	0.00	0
2011-2012	0.82	10	0.08	5	5.00	25
2012-2013	0.92	8	0.1	2	6.00	36
2013-2014	0.9	9	0.1	2	7.00	49
						302

Interpretation

Table VII: The current ratio is used as an indicator of liquidity and ROCE as for measuring profitability. The Spearman’s rank coefficient of correlation(r) between current ratio and ROCE has been shown for which the relevant formula has been used. The test used for determining significance of r is “t” test. The Spearman’s rank coefficient of correlation (r) between ROCE & liquidity has been calculated.The“t” test is applied for determining significance of r. Then computed value of ‘t’ has been compared with the tabulated value of ‘t’.

In the above table r=-0.8303 and the value of t =-7.56. The table value of ‘t’ at 5% level of significance for 8 degrees of freedom (where n=10) is equal to 2.305. Since the computed value of t is less than the table value the null hypothesis (Ho) is accepted.

PROFITABILITY & RISK ANALYSIS OF CIL

The risk associated with the concern can be calculated by the following method:

$$Rk = \frac{(E+LTL)-FA}{CA}$$

Where: Rk = Risk; E = Equity +Reserve % Surplus; L = Long term loan; FA = Fixed Assets; CA = Current Assets.In the aggressive approach the current assets are financed by short term sources and in case of

conservative approach the current assets are financed by both long term and short term sources. The risk faced by the firm can be measured with the above formula.

Table: VIII Statement Showing Risk (Rs. In Crores)

Year	Equity & Reserve and Surplus	Long Term Loans	Fixed Assets	Current Assets	Risk
2004-2005	664.99	192.5	941.56	521.43	-6.20
2005-2006	750.1	396.79	1026.55	783.75	6.51
2006-2007	806.89	663.92	1322.86	860.62	5.82
2007-2008	751.89	807.61	1434.37	780.54	6.24
2008-2009	640.18	1119.99	1481.14	934.38	3.35
2009-2010	620.1	1183.42	1584.45	1042.14	4.76
2010-2011	682.69	1056.73	1572.2	1249.49	7.47
2011-2012	722.24	927.91	2005.07	1311.49	-3.70
2012-2013	898.28	906.29	2016.37	1348.23	-6.37
2013-2014	1160.83	713.66	2048.13	1583.45	-9.12
A.M(x)	7698.19	7968.82	1.54	1.04	8.76
Mean	7.6982	7.9688	1.5433	1.0416	.8760
Std. Deviation	1.60396	3.16323	3.92691	3.25431	6.43841
Range	540.73	990.92	1106.57	1062.02	16.59
Minimum	620.10	192.50	941.56	521.43	-9.12
Maximum	1160.83	1183.42	2048.13	1583.45	7.47

Source: Annual Reports of T.V.Sundaram Ltd.,(2004-2005 to 2013-2014)

Interpretation

Table VI: During the period of study showed the highest risk of 7.47 times in 2010-2011 and the least of -9.12 times in 2013-2014. The risk taken by the company showed a variation in its value with deviation of 6.43841.

Testing of H_0 Null Hypothesis

Table: IX Statement for Calculation of Correlation

Year	Risk	R3	ROCE	R4	D=(R3-R4)	D2
2004-2005	-6.2	8	0.14	1	7.00	49
2005-2006	6.51	2	0.09	4	-2.00	4
2006-2007	5.82	4	0.06	7	-3.00	9
2007-2008	6.24	3	-0.02	9	-6.00	36
2008-2009	3.35	6	-0.04	10	-4.00	16
2009-2010	4.76	5	0.02	8	-3.00	9
2010-2011	7.47	1	0.07	6	-5.00	25
2011-2012	-3.7	7	0.08	5	2.00	4
2012-2013	-6.37	9	0.1	2	7.00	49
2013-2014	-9.12	10	0.1	2	8.00	64
						265

Interpretation

Table IX: The Spearman's rank correlation (r) between ROCE & risk factor has been calculated. The "t" test is applied for determining significance of r. Then computed value of 't' has been compared with the tabulated

value of 't'. In the above table $r = -0.60606$ and the value of $t = -2.15$. The table value of 't' at 5% level of significance for 8 degrees of freedom (where $n=10$) is equal to 2.305. Since the computed value of t is less than the table value the null hypothesis (H_0) is accepted.

FINDINGS AND SUGGESTIONS

1. The net working capital of TVS Company Ltd., during the period of study was not satisfactory as it showed a decreasing trend in its values. The company must try to improve this position in future. TVS Company must try to keep regular check, whether its current liabilities are exceeding the gross working capital of the firm.
2. Liquidity position of the firm was not adequate because the maximum value of the current ratio is not near to the ideal ratio of 2:1 times. This indicates that, it is not a position to meet its short term obligation with the existing current assets. So the firm must stabilize the position of its current assets to maintain a current ratio of at least the ideal value.
3. The cash position ratio of the firm was also satisfactory as it was able to generate adequate amount of cash from its assets. The maximum value of the ratio was only 0.07 times. The firm must try to keep regular check on its assets to identify whether they are staying idle or obsolete. Only the liquid cash will help the firm to face any uncertainties at the times of depressions.
4. The Spearman's rank coefficient of correlation (r) between current ratio and ROCE & liquidity has been calculated. The "t" test is applied for determining significance of r . Then computed value of 't' has been compared with the tabulated value of 't'. Since the computed value of t is less than the table value the null hypothesis (H_0) is accepted.
5. The Spearman's rank coefficient of correlation (r) between current ratio and ROCE & Risk factor has been calculated. The "t" test is applied for determining significance of r . Then computed value of 't' has been compared with the tabulated value of 't'. Since the computed value of t is less than the table value the null hypothesis (H_0) is accepted.

CONCLUSION

While analyzing the company's performance it is clear that, the firm give little importance to the issues related with working capital. It may be of the reason that the amount of risk involved in capital management policies irrespective of the economic slowdown. The company must improve its present liquidity position to remain stable at the time of discrepancies or recession. It should also try to generate higher returns from its assets. The company must keep an optimum balance between liquidity and profitability for efficient use of its working capital. At the same time it should not stop formulating certain policies to keep a well-monitored working capital for better profitability, stability, reliability, growth and consistency.

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