INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

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BOOKS

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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- 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.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

UNPUBLISHED DISSERTATIONS

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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LIQUIDITY STRUCTURE OF WORKING CAPITAL – TESTING OF THE HYPOTHESIS DEVELOPED BY VAN HORNE

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ABSTRACT

The importance of working capital in any industrial concern need not be over emphasised. Even in a well-established business with a long history of successful operation, careful attention to the management of working capital can result in greater profitability. Investments due to non-effective utilisation yield low returns. Working capital of a firm is also influenced by its size and activities and its attitudes towards risk and return. The effective management of working capital is the primary means of achieving the firms' goal of adequate liquidity. It is the net working capital that helps measure the degree of protection against problems that might cause a shortage of funds. Management of working capital requires number of actions regarding proper liquidity structure of the firm. If a firm employs its working capital in an efficient way, liquidity or solvency is guaranteed. The present paper aims to judge the liquidity structure of working capital by choosing a popular and established company i.e. Tata Steel Ltd. and especially to test the hypothesis developed by Van Horne in this regard. The study shows that both the working capital and liquidity structure of the company, has no significant impact on owners' wealth and does not properly satisfy the proposition of Van Horne.

KEYWORDS

liquidity, profitability, return, risk, working capital.

INTRODUCTION

Effective management of working capital is the primary means of achieving the firms' goal of sufficient liquidity. It is after all the current assets that will be available to meet the current obligations of the firm. Net working capital helps measure the degree of protection against problems that might cause a shortage of funds. Almost every activity of business or everything happening in the business is related to working capital decisions. The reason for working capital not being able to optimise itself is that there are various functional areas influencing it and these primarily take care of their own needs (Firth, Michael, 1976). In fact, management of working capital requires number of actions regarding proper liquidity structure of the firm. Determining the appropriate liquidity structure of assets and liabilities, involves fundamental decisions with respect to the firms' liquidity and the maturity composition of its debts. These decisions are, on the other hand, induced by a trade-off between profitability and risk.

For assets and liabilities of a specific firm or company, lower the proportion of liquid assets to total assets and greater the proportion of short-term debts to total debts – greater the firms' return on investment. This profitability assumption will result in low level or even negative working capital (Van Horne, James, C., 1974). Liquidity is closely connected with management of working capital, i.e. decisions concerning short-term assets and liabilities, while the profitability goal reflects both short-term and long-term decision making (Smith, Keith V., 1975).

The hypothesis drawn from the assumption of Van Horne reads as "Higher the working capital, lower the profitability and vice versa" (Van Horne, James C., 1969). This hypothesis of Van Horne can be tested in either absolute method or relative method. The relative method is more useful for the reason that overall rates of variations in working capital as well as profitability are compared in this case. The present paper is concerned with the examination of liquidity structure of working capital and verification of the hypothesis developed by Van Horne in the case of a giant steel company in India i.e. Tata Steel Ltd.

REVIEW OF LITERATURE

The study of liquidity, an important aspect of working capital behaviour occupies an important place in financial management. Useful theoretical developments have not been uniform across all areas of financial decision-making. Major theoretical developments have been made on long-term financial decisions as compared to short-term. Failure of many enterprises or their unrestricted growth due to the inability of financial managers to plan and control properly the working capital has drawn the attention of the author to the need for developing the appropriate working capital theories. A large number of studies relating to the area of liquidity structure of working capital have been carried out in different times in India and abroad by different authors in different ways. A review or test of these studies is important with a view to developing a study that can be applied in the context of the selected Indian company. A study of liquidity, an important aspect of working capital is of major importance to both the internal and the external analysts. A few remarkable tested studies that have been carried out in the area of liquidity structure of working capital are presented briefly here as under.

Walkar, Ernest W. (1964): Regarding working capital and profitability relationship, Walkar thinks "If working capital is varied relative to sales, the amount of risk that a firm assumes is also varied and the opportunity of gain or loss is increased". The proposition of Walkar, Ernest W. implies a risk-return trade off working capital management. It shows a kind of negative relationship that exists between the level of working capital and the rate of return (Walker, Ernest W., 1964).

Welter Study (1970) is concerned more with the profitability goal of working capital management since it was devoted to the calculation of savings possible through reduction of working capital. The study highlighted the fact that the firm could reduce average delay so as to generate savings possible through the reduction of working capital if it could manage the distribution of average delays favourably. In this connection, to what extent the savings possible through reduction of working capital can affect the liquidity position may perhaps contribute an area of further investigation (Welter, Paul, 1970).

Gupta and Ronald (1972) examined the differences in the average financial ratios between industries. The findings of their study concluded that there were differences in the average activity, liquidity and profitability ratios among industry groups (Gupta and Ronald, 1972).

The study of Chakraborty (1973) opined that working capital as a segment of capital employed enables one to see its management in a broader perspective. Since return on the capital employed is an aggregate measure of the overall efficiency in conducting a business, it pointed out that large or small working capital would affect the capital turnover ratio and also the overall return on capital employed (Chakraborty, 1973).

Smith conducted two studies. Smith in his first study (1974) stated dual goals of profitability and liquidity and suggested that the job of financial managers is to achieve a trade off between the two (Smith, Keith V., 1974). The second study (1974) of Smith relates to profitability versus liquidity tradeoffs in working capital management. The study suggested that parallel monthly forecasts of liquidity and profitability can be useful in evaluating tradeoffs between the two goals. Such forecasts can also be useful in estimating the impact of certain working capital policies on these goals and reflecting the uncertainty of the future (Smith, Keith V., 1974).

Chu, et al. (1991) examined the differences of financial ratio groups between the hospital sectors and industrial firm sectors. They observed significant differences in the financial ratio groups between the two sectors (Chu, et al., 1991).

Soenen (1993) studied the relationship between net trade cycle and return on investment of U.S. firms. The study observed a negative relationship between the length of net trade cycle and return on assets. Further study revealed that the negative relationship was different across industries depending on the type of industries (Soenen, L.A., 1993).

Jose, et al. (1996) studied the relationship between aggressive working capital and profitability of U.S. firms. The study showed a significant negative relationship between the cash conversion cycle i.e. working capital management and profitability (Jose, et al., 1996).
Some of the similar studies were carried out by Ghosh & Maji (2004) (Ghosh & Maji, 2004), and Lazaridis & Tryfonidis (2006) (Lazaridis & Tryfonidis, 2006).
Liquidity being an important aspect of working capital has gained major importance to all because of its close relationship with day-to-day operations of a business (Bhunia, A., 2010).

AN INTRODUCTION TO TATA STEEL LTD.
Tata Steel, the flagship company of the Tata Group, established in 1907 is the first integrated steel plant in Asia and is at present the world's second most geographically diversified steel producer and a Fortune 500 company. Tata Steel is the world's 6th largest steel company with an existing annual crude steel production capacity of 30 Million Tons Per Annum (MTPA). Today Tata steel Ltd. is present in over 50 developed European and fast growing Asian markets with manufacturing units in 26 countries. Tata steel has created a manufacturing and marketing network in Europe, South East Asia and the pacific countries. Tata Steel Thailand is the largest producer of long steel products in Thailand. The iron ore mines and collieries in India give the company a distinct advantage in raw material sourcing. This company has signed an agreement with Steel Authority of India Limited to establish a 50:50 joint venture company for coal mining in India. Tata steel India is the first integrated steel company in the world, outside Japan, to be awarded the Deming Application Prize 2008 for excellence in Total Quality Management. Besides this, Tata Steel Ltd. receives different prestigious awards several times in India and abroad. In view of the above it may be of great interest to the financial statement analysts to know how the flagship company has been managing one of the important aspects of financial management- working capital.

OBJECTIVE OF THE STUDY
The basic objective of the study is to examine the liquidity structure of working capital and especially to test the hypothesis of Van Horne, "Higher the working capital, lower the profitability and vice versa" through Tata Steel Ltd., the selected company in India.

HYPOTHESIS DEVELOPMENT
In conformity with the objectives of the study, the following testable hypotheses have been formulated as under: -
1st Hypothesis
H_0 (1): - There exists no significant relationship between net working capital and profitability.
H_A (1): - There exists significant relationship between net working capital and profitability.
2nd Hypothesis
H_0 (2): - There exists no significant relationship between liquidity and owners' profitability.
H_A (2): - There exists significant relationship between liquidity and owners' profitability.
For testing the hypotheses, 5% level of significance is considered in the study.

RESEARCH METHODOLOGY
The researcher, being an external analyst, has to depend basically on secondary data for the examination of the different aspects of liquidity structure of working capital of the selected company i.e. Tata Steel Ltd. Hence, the data and information required for the study have been collected mostly from the annual reports of the company for the period from 2011-12 to 2015-16. The latest year for which data are available is 2015-16. The analysis, therefore, confines itself to the period from 2011-12 to 2015-16. Though there was found apathy or indifference on the part of executives in supplying information, the researcher could overcome the same through moral persuasion and intensive pestering. It was made clear to them that the information so collected will be exclusively used for academic purpose and proper secrecy will be maintained. Editing, classification and tabulation of the financial data collected from the aforesaid source have been done as per the requirement of the study.
For the purpose of examining the liquidity structure of working capital and testing the hypothesis, statistical technique of simple correlation coefficient formula introduced by Karl Pearson has been applied.
By treating net working capital and profitability as two independent variables, correlation coefficient has been computed by applying Karl Pearson's formula as follows: -

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \times \sqrt{\sum y^2}} \qquad \text{(i)}$$

Where, r = Correlation Coefficient; xy = Product of the deviations from respective means.
Simple correlation implies the interdependence of two sets of variables upon each other in such a way that changes in the one are in sympathy with changes in the other (Asthana, B.N., 1976).
Probable error tells us the limit within which the various values of the coefficient of correlations of the unit taken out of the same group or the entire group will vary. The required unit for the purpose of the present study has been selected on the basis of "Non-Probability Sampling" or "Purpose Sampling Method". This being a subjective method of selecting sample and the unit selected in a sample is chosen purposely either to serve a particular object or because it is felt that it possesses all the characteristics of the parent population (Asthana, B.N., 1976). Coefficient of correlation less than the probable error indicates that 'r' is insignificant. Probable error of 'r' is computed in the following manner (Asthana, B.N., 1976): -

$$\text{Probable error of 'r'} = 0.6745 \times \frac{1-r^2}{\sqrt{n}} \qquad \text{(ii)}$$

The significance of the correlation coefficient is tested by "t" – test which is as follows: -

$$t = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2} \qquad \text{(iii)}$$

Where, r = Correlation Coefficient; n-2 = Degrees of freedom.

TABLE 1: MEASURES OF WORKING CAPITAL, PROFITABILITY, LIQUIDITY AND OWNERS' PROFITABILITY

Performance Indicators		Performance Drivers	Performance Measures
I)	Working capital	Net Working Capital	Total Current Assets - Total Current Liabilities
II)	Profitability	Return on Capital Employed (ROCE)	Earning Before Interest and Tax (EBIT) ÷ Capital Employed
III)	Liquidity Ratio	Liquid Assets and Liquid Liabilities	Liquid Assets ÷ Liquid Liabilities
IV)	Owners' Profitability	Return on Equity (ROE)	Profit After Tax (PAT) ÷ Shareholders' Equity

ANALYSIS AND MAJOR FINDINGS
Liquidity is an attribute signifying the capacity to meet current financial obligations as and when required. According to the *Oxford Advanced Learner's Dictionary*, liquidity is "the state of owning things of value that can easily be exchanged for cash". This meaning of liquidity focuses on the holding of current assets to be exchanged for cash to meet immediate financial obligations or dues. The liquidity structure of working capital of Tata Steel Ltd. has been studied with the help of statistical technique of Karl Pearson's simple correlation coefficient and with a view to testing the hypothesis developed by Van Horne in this regard, the same formula or technique has been applied. The significance of correlation coefficient is tested by 't' test at 5% level.
Correlation coefficients between working capital i.e. net working capital represented by excess of current assets over current liabilities and profitability represented by return on capital employed i.e. earning before interest and tax by capital employed has been shown in Table – 2.

TABLE 2: CORRELATION COEFFICIENT BETWEEN WORKING CAPITAL AND PROFITABILITY OF TATA STEEL LTD.

Year	X (Net Working Capital i.e. NWC Rs. in crore)	Y (Return on Capital Employed i.e. ROCE in %)
2012	-4018.92	14.77
2013	-4983.80	12.80
2014	-7317.18	13.37
2015	-4774.62	9.25
2016	-6666.50	9.03
	$\bar{X} = -5552.20$	$\bar{Y} = 11.84$

Correlation Coefficient, $r_1 = 0.28$; 't'= 0.50; Probable Error = ±0.62

Source: Computed by the Researcher based on Annual Reports and Accounts.

Table–2 evidences that in Tata Steel Ltd., working capital and profitability had been observed to be positively correlated indicating association of large value of one variable with large value of another variable and vice-versa. In other words, it can be said that working capital and profitability had not been always found to be varying in similar direction i.e. increase in working capital was not always corroborated with increase in profitability. Probable error was ±0.62. To study the significance of the computed value of such a correlation coefficient, the 't'-test has been applied here. The computed value of 't' i.e. 0.50 was less than the critical value of 't' (i.e. 3.18) at 5% level of significance. Hence, H_0 (1) i.e. the 1st null hypothesis may be accepted which signifies that there were no very significant relationship between the working capital and the profitability of the company under study. In a nutshell it can be inferred that variations in the working capital and profitability were not always in same directions or they are mildly related to each other having little impact of working capital on profitability.

LIQUIDITY AND PROFITABILITY

Liquidity may be defined as the ability to realise value in money. The most liquid assets have two dimensions viz. the time required to convert an asset into cash and degree of certainty associated with the conversion ratio or price, realised from the assets. In other words, liquidity is the firm's ability to meet its maturing obligations. Such type of liquidity of a firm or a company can be ascertained by assessing firm's ability to hold necessary cash at the time of meeting obligation. Liquidity of a firm or a company has been measured by liquidity ratio i.e. liquid assets by liquid liabilities.

This section is concerned with the relationship of firm's or company's liquidity and owners wealth i.e. profitability measured by profit after tax by shareholders' equity. Van Horne accepts that, the liquidity of individual firm or company would not be a factor of enhancing shareholders' wealth (Van Horne, J.C., 1974). If a company maintains high liquidity, it would not necessarily increase the profitability of the company.

With a view to establishing definite relationships between liquidity and profitability, Karl Pearson's correlation coefficient can be applied. Correlation coefficients explain relationship subsisting between two or more sets of variables. If there exists some relationship between two sets of variables, they are said to be correlated to each other. It implies the interdependence of the sets of variables upon each other in such a way that changes in the one are in sympathy with changes in the other. If the sets of variables constantly vary in same direction, it is a case of positive correlation and vice-versa (Asthana, B.N., 1976).

TABLE 3: CORRELATION COEFFICIENT BETWEEN LIQUIDITY AND OWNERS' PROFITABILITY OF TATA STEEL LTD.

Year	X (Liquidity Ratio or Quick Ratio i.e. LR or QR in %)	Y (Return on Equity i.e. ROE in %)
2012	69	12.72
2013	61	9.17
2014	32	10.48
2015	27	9.66
2016	32	6.95
	$\bar{X} = 44.20$	$\bar{Y} = 9.80$

Correlation Coefficient, $r_2 = 0.56$; 't'= 1.17; Probable Error = ±0.46

Source: Computed by the Researcher based on Annual Reports and Accounts.

Table-3 shows correlation coefficients of the selected company under study in between liquidity and profitability in terms of investment or owners' profitability. It is observed from the Table-3 that liquidity and profitability were positively correlated. Correlation coefficient between liquidity and profitability was 0.56. Probable error was ±0.46. To study the significance of the computed value of such a correlation coefficient, the 't'- test has further been applied here. The computed values of 't' i.e. 1.17 were less than the critical value of 't' (i.e. 3.18) at 5% level of significance. Hence, H_0 (2), the 2nd null hypothesis may be accepted which signifies that there were no significant relationship between the liquidity and profitability. They were mildly related to each other. Thus, the company under study did not entirely satisfy the propositions of Van Horne of "Higher the liquidity, lower the profitability".

CONCLUDING COMMENTS

The hypothesis of Van Horne "Higher the working capital, lower the profitability and vice versa" has been tested while judging liquidity structure of working capital of Tata Steel Ltd., the giant Indian Steel Company of Indian Steel Industry. Decision with regard to the company's liquidity and the maturing composition of its debts are influenced largely by a trade-off between profitability and risk. It has been observed by applying Karl Pearson's simple correlation coefficient technique followed by significance of correlation coefficient with the help of 't' test. It reveals that though liquidity and working capital were positively correlated but as computed 't' values were less than the critical value, they were not very significantly related. Thus, it can be concluded that both the working capital and liquidity structure of Tata Steel Ltd., the company under study had little positive impact with each other. In maximum cases, there were no significant relationships between liquidity and profitability and the impact with each other was found to be negligible. Thus, the study did not properly satisfy the proposition of Van Horne of "Higher the liquidity, lower the profitability".

LIMITATIONS OF THE STUDY

Limitations are always a part of any kind of research work, as the annual report is mainly based on secondary data; proper care must be taken in knowing the limitations of the required study.

1. The study of the selected company is shown just for the last five years, ending 2015-2016. Hence, any uneven trend before or beyond the said period will be the limitations of the study.
2. The major limitation of the present study is that the analysis is restricted to one particular unit.
3. This study is based on only monetary information, study of the non-monetary factors are ignored.
4. The inherent limitation is secondary data. The published data is not uniform and not properly disclosed by the banks. Hence, this may be taken as another limitation.
5. As per the requirement of the study, some data have been grouped and sub-grouped.
6. There is non-availability of sufficient literature and information from the company.

SCOPE FOR FURTHER RESEARCH

The research paper covers one giant steel company of Indian Steel Industry only. For further research more units of the same industry group and other units also of different industry groups may be taken for further research study. Moreover, conclusion drawn from the single unit cannot be generalised; hence, more units and more industry groups may be taken into consideration for drawing concluding comment and observation. Further research work is welcome to fulfil this gap.

ACKNOWLEDGEMENT

I am thankful to Almighty God for the spirit and inspiration He has given me. I am loss of words to give vent to my feelings of joy and gratefulness for all kindness He has shown in the present work. I humbly dedicate this paper to Him.

REFERENCES

1. Asthana, B.N., (1976), "*Elements of Statistics*", Chaitanya Publishing House, Allahabad, p. 225.
2. Asthana, B.N., op. cit., p. 382.
3. Asthana, B.N., op. cit., pp. 234-236.
4. Asthana, B.N., op. cit., p.225.
5. Bhunia, A., (2010), "A Trend Analysis of Liquidity Management Efficiency in Selected Private Sector Indian Steel Industry", *International Journal of Research in Commerce and Management*, Vol. 1, Issue 5, September.
6. Chakraborty, S.K., (1973) "Use of Operating Cycle Concept for Better Management of Working Capital", *The Economic and Political Weekly*, August, pp. M69-M76.
7. Chu, et al., (1991), "An Empirical Analysis of Cash Flow, Working Capital, and the Stability of Financial Ratio Groups in the Hospital Industry", *Journal of Accounting and Public Policy*, Vol. 10, No.1.
8. Firth, Michael, (1976), "*Management of Working Capital*", London, The MacMillan Press Limited, p. 17.
9. Ghosh, S.K. and Maji, S.G., (2004), "Working Capital Management Efficiency – A Study on the Indian Cement Industry", *The Management Accountant*, Vol. 39, No. 5.
10. Gupta, M.C. and Ronald, J.H., (1972), "A Cluster Analysis of Financial Ratios and Industry Characteristics", *Journal of Accounting Research*, Vol. 10, No. 1.
11. Jose, et al., (1996), "Corporate Returns and Cash Conversion Cycle", *Journal of Economics and Finance*, Vol. 20, No. 1.
12. Lazaridis, I. and Tryfonidis, D., (2006), "Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange", *Journal of Financial Management and Analysis*, Vol. 19, No. 1.
13. Smith, Keith V., (1975), "An Overview of Working Capital Management", in *Management of Working Capital: A Reader*, ed. by Smith, Keith V., New York, West Publishing Company, p.12.
14. Smith, Keith V., (1974), "An Overview of Working Capital Management", in *Management of Working Capital: A Reader*, ed. by Smith, Keith V., New York, West Publishing Company, pp. 3-20.
15. Smith, Keith V., (1974), "Profitability Versus Liquidity Trade Offs in Working Capital Management", in *Working Capital Management: A Reader*, ed. by Smith, Keith V., New York, West Publishing Company, pp. 409-422.
16. Soenen, L.A., (1993), "Cash Conversion Cycle and Corporate Profitability", *Journal of Cash management*.
17. Van Horne, James, C., (1974), "*Financial Management and Policy*", Prentice Hall of India Pvt. Ltd., New Delhi, p. 401.
18. Van Horne, James, C., (1969), "A Risk-Return Analysis of a Firm's Working Capital Position", *The Engineering Economist*, Winter, pp. 71-78.
19. Van Horne, James, C., op. cit., p. 400.
20. Walkar, Ernest W., (1964), "Towards a Theory of Working Capital", *The Engineering Economist*, Winter, pp. 21-35.
21. Welter, Paul, (1970), "How to Calculate Savings Possible Through Reduction of Working Capital", *Financial Executives*, October, pp. 50-58.

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