

Working Capital Management: A study on some selected Proprietary Tea Estates in Jorhat District of Assam

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Abstract

The study of the paper is an attempt to examine the present state of affairs of working capital and the efficiency of working capital management of the selected proprietary tea estates registered under Tea Board of India, operating in Jorhat district of Assam during the years 2011-12 to 2015-16. The data are presented through simple classification and with the help of percentage, average dispersion, and the hypotheses are tested at 5p.c level of significance by employing Kruskal Wallis One way analysis of variance Test. For measuring the overall efficiency of working capital management (WCM), the model suggested by Bhattacharya (2007) has been applied. This paper also tests the speed of achieving target level of efficiency by an individual tea estate during study period using arithmetic mean indices as target level of efficiency. In order to measure the tea estate's efficiency in achieving the targeted level of efficiency during the study period following Ordinary Least Square (OLS) model has been used. Findings of the study reveal that average performance efficiency level of selected tea estates was satisfactory during the study period. Both the hypotheses tested in this study accept the alternative hypotheses and rejects the null hypotheses. The selected tea estates should follow the required actions to increase the sales and follow working capital policies to maintain this level regularly.

Keywords: Working capital, Working Capital Management, Proprietary, Tea Estates, Efficiency, Performance Index, Utilization Index, Efficiency Index, Efficiency.

Introduction

Working capital management of an industry deals with the problems of decision making for investment in current assets with an objective of maintaining the liquidity of funds of the firm to meet its day to day administration. It also refers to all managerial decisions and actions that ordinarily influence the size and effectiveness of the working capital of tea estates including proprietary and small units. Efficient management of working capital is one of the pre-conditions for the success of a business enterprise of any type. It requires continuous monitoring of working capital to maintain proper level of its various components that is cash, receivables, inventory and payables etc. However, working capital management policies of a tea estate have a great effect on its profitability, liquidity and structural health.

Tea Industry of Assam occupies a place of pride in the state as well as national economy of the country. The state of Assam produces 50.54¹ p.c of India's total production in 2016 sharing 12.90 p.c of world's production². It is not beyond doubt that due to improper management of working capital many of the indigenous tea

¹ Economic Survey, Assam, 2015-16, p.145

² Tea Board of India (Computed)

gardens including proprietary tea estates have been facing difficulties in running their activities. It is expected that, the present study will reveal the position of working capital in different proprietary tea estates. It is also hoped that, the study will provide information to the management of tea estates in decision making process in relation to working capital management, particularly with regard to maintaining liquidity for better profitability and future survival which is not exception are proprietary units.

Objectives of the Study

The following is the specific objectives of this study:

1. To study the present state of affairs of working capital of proprietary tea estates operating in the district of Jorhat, Assam.
2. To examine the efficiency of working capital management of the selected proprietary tea estates
3. To test the speed of achieving targeted level (average among the tea estates) of efficiency in working capital management by an individual tea estate during the study period.

The rest of the paper is organized as follows: Section-II some literature on working capital management has been reviewed. Section -III of the paper covers the population, database and methodology adopted in the study. Empirical analysis of the data presented in section-IV and conclusions are included in section-V.

Literature Review

Ample research studies have been conducted in the field of working capital management by various scholars in India as well as in abroad on different sectors, but very few researches touched on the aspect of working capital management in tea estates especially on proprietary tea estates in Assam. Therefore, to fill this gap in the literatures a study on working capital management of proprietary tea estates has been undertaken with special reference to Jorhat district of Assam. Some of the relevant studies so far carried out internationally are as reviewed for entering into the depth of finding out research gaps and its justification for selecting the topic for the study was undertaken.

Shin and Soenen (1998)³ in their article “Efficiency of Working Capital Management and Corporate Profitability”, analyzed whether the Cash Conversion Cycle (they used the Net Trade Cycle variable in which number of days inventory, receivables, and payables were all divided by the Sales figure and then multiplied by 365) has revealed some potential impact on the profitability of sample firms listed in the US Stock Exchange during the period 1974 to 1994. The study observed that a reasonable reduction in the Cash Conversion Cycle could lead to an increase in the firms’ Profitability.

Alam and Hossain (2004)⁴ made an attempt to examine the strengths and weaknesses of working capital management with special emphasis on liquidity management of Khulna Shipyard Limited (KSL) during the year 1987 to 1997. The data were collected from the published annual reports and MIS reports of KSL. The analysis of financial ratios of the company depicts that the short-term solvency and liquidity of KSL had been worsening year after year. The study recommend for imposing restriction on diverting of working capital funds towards non-current purposes.

The size of a firm was also known to have a substantial impact on its Cash Conversion Cycle (CCC). “Smaller firms have longer CCC”, as noticed by Ali Uyar⁵ who endeavored to determine the association of CCC with the size and profitability of Turkish firms listed in the Istanbul Stock Exchange. In his work “The Relationship of CCC with Firm Size and Profitability: An Empirical Investigation in Turkey”, he reveals a strong and significant negative linkage of Cash Conversion Cycle with the firm size as well as with its performance.

³ Shin, H. H and Soenen, L. (1998) —“Efficiency of Working Capital Management and Corporate Profitability”. Financial Practice and Education, Vol. 8, No. 2, 37-45.

⁴ Alam, S.M.R. and Hossain, S.Z.(2004): “Management of working Finance: A Study on the Shipbuilding Industry in Bangladesh”, The Management Accountant, February 2004, pp-111-115.

⁵ Uyar, Ali. (2009): “The Relationship of Cash Conversion Cycle with Firm size and Profitability: An Empirical Investigation in Turkey”, International Research Journal of Finance and Economics, Issue 24 (2009), pp- 186-193.

Singh (2004)⁶ carried out a study to highlight working capital management with special reference to liquidity of Lupin Laboratories Ltd. for the period 1995-96 to 2001-2002. The data were collected from the published annual reports of the company. The analysis of few important ratios showed that the company maintained sufficient liquidity throughout the study period. From liquidity ranking, it is noticed that in the year 2002, the company registered the most sound liquidity position. The study strongly recommend for maintaining credit management with utmost care.

Chowdhury and Amin (2007)⁷ assessed the efficiency of working capital management of the selected pharmaceutical firms in Bangladesh for the period 2000 to 2003. The study was mainly based on the selected 8 firms out of 25 firms listed in Dhaka Stock Exchange (DSE). The study reveals that the sample firms efficiently managed all components of the working capital. In addition, the analysis of liquidity position and activity ratios discloses that the efficiency of liquidity management in the selected firms was satisfactory.

Deloof (2003)⁸ investigated the relationship between working capital management and profitability by using cash conversion cycle (CCC) as a measure of working capital management. The study used a sample of 1009 large Belgian non-financial firms for the period 1992 to 1996. Using correlation and regression tests, the study explores that a negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable. The study suggests that manager could create value for their shareholders by reducing the number of day's accounts receivable and inventories to a reasonable minimum.

Sathyamoorthi (2002)⁹ undertook a study to examine the management of working capital in selected Co-operatives in Botswana by analyzing their four years data and information. The financing Pattern of current assets and relative importance of various components of current assets were mainly analyzed in this study. The study shows that the liquid ratios played a pivot role in determination of short term efficiency of Cooperatives' working capital. The study reveals that the sample cooperative firms were not a good pay-master from the viewpoint of their short-term debts paying capability during the study period.

Ganesan (2007)¹⁰ in his paper made an attempt to analyze the efficiency of working capital of 349 US telecommunication equipment companies for the period 2001 to 2007 and also evaluates its impact on profitability and liquidity. The study depicts that there was a significant negative relationship between profitability and liquidity of the selected companies.

Another attempt to explore the relationship between the variables of Working Capital Management and Profitability was made by Haitham Nobanee and Maryam AlHajjar¹¹. Their analysis was based on a sample containing 2123 Japanese non-financial firms listed in the Tokyo Stock Exchange covering the period from 1990 to 2004. The authors, after analyzing the results, suggested that Japanese firms should focus on shortening their Receivable Collection Period, Inventory Conversion Period and Cash Conversion Cycle to enhance profitability. Lengthening the Payable Deferral Period could also add to profitability, they argued. However, they deemed that the over lengthening of Payable Deferral Period to be equally risky as it could harm the firm's credibility and credit reputation in the long run.

Islam (1996)¹² while doing his study on working capital management of selected paper mills in Bangladesh examines the overall liquidity of those mills for the period 1983-84 to 1993-94. The study reveals negative working capital in the selected paper mills. The locking up of a substantial portion of current assets in inventories and loose debt-collection policy was the leading

⁶ Singh, P.K.(2004): " Working Capital Management In Lupin Laboratories Ltd.- A .Case Study ", The Management Accountant, Vol. 39, No. 7, pp- 534-541.

⁷ Chowdhury, A. and Amin, Md. M. (2007): " Working Capital Management Practices in Pharmaceutical Companies Listed in Dhaka Stock Exchange", BARC University Journal, Vol. 4, No.2, pp- 75-86.

⁸ Deloof, M. (2003): "Does Working Capital Management Affect Profitability of Belgian Firms?", Journal of Business Finance and Accounting, Vol.30, Issue-3, pp-573-588.

⁹ Sathyamoorthi, C.R. (2002): "Management of Working Capital in Selected co-operatives in Botswana", Finance India, September 2002, Vol.16, No.3, pp-105-125.

¹⁰ Ganesan, V.(2007): " An Analysis of Working Capital Management Efficiency in Telecommunication Equipment Industry", Rivier Academic Journal, 3(2), retrieved from [http:// www.rivier.edu/ROAJFall-2007/J119-Ganesan.pdf.2007](http://www.rivier.edu/ROAJFall-2007/J119-Ganesan.pdf.2007)

¹¹ Nobanee, Haitham and Al Hajjar, Maryam. (July 13, 2009). —"A Note on Working Capital Management and Corporate Profitability of Japanese Firms". [Online] Available: <http://ssrn.com/abstract=1433243><http://gbr.sagepub.com/cgi/content/abstract/8/2/267>

¹² Islam, Moh'd R. (1996),"Working Capital Management of Paper Mills in Bangladesh—An Overall View", South Asian Journal of Management, Vol.7, No.142, pp-79-90.

causes of their bad working capital management. All these led to highly dissatisfactory position of liquidity in the selected paper mills in Bangladesh.

A survey work conducted by Khoury et al. (1999)¹³ among 57 small firms in Canada, 105 largest firms in US and 39 largest firms in Australia to compare the working capital practices among three nations. The major aspects of the study were working capital policy, cash and cash equivalents, accounts receivable, inventory, accounts and notes payable thus managing working capital itself. The study reveals that, 7 percent of the Canadian firms had formal working capital policy and 28.5percent had a caution working capital policy. Further Canadian firms were learning more on the effect on sales whereas the Australian and the US companies were found to focus more on the impact of the firm's profit while evaluating the credit worthiness of the customers.

Plenty of studies are before us on working capital management in different sectors by Indian scholars. Some of the related literatures are-

Prasad (2001)¹⁴ conducted a research study on the working capital management in paper industry. His sample consisted of 21 paper mills from large, medium and small scale for a period of 10 years. He reported that the chief executives properly recognized the role of efficient use of working capital in liquidity and profitability, but in practice they could not achieve it. The study also revealed that 50 percent of the executives followed budgetary method of planning working capital and working capital management was insufficient due to sub-optimum utilization of working capital.

Azhagaiah and Gejalakshmi (2007)¹⁵ critically examined the performance of working capital management of Indian textiles companies during 1995-96 to 2005-06. The study was conducted on the thirty selected textile companies listed in National Stock Exchange (NSE) and the relevant data were collected from the 'CMIE' database. The study revealed the selected companies utilized their current assets efficiently during the study period and they possessed very strong liquidity position.

Chalam and Babu (1999)¹⁶ undertook a study to analyze the efficiency of working capital in the selected large public limited companies belonging to the private sector in India during the period 1983-84 to 1992-93. The study was based on the data published by the RBI. The mining and quarrying industry was excluded while making this study. The analysis of a group of important ratios of the selected enterprises revealed that the liquidity position of most of the companies was not at all satisfactory.

Rehman and Doley¹⁷ made a study on Working Capital Forecast with a view to making working capital forecasting as scientific as possible. They concluded that, a reasonable degree of accuracy can be achieved in forecasting methods by knowing past mistakes and it can be done by variance analysis showing reasons for changes in each figure between different forecasts.

Khatik and Singh (2004)¹⁸ in their study attempted to assess the working capital management of India Farmers Fertilizer Cooperative Limited (IFFCO) for the period 1990-91 to 2001-02 with special emphasis on the liquidity position of the company. The data were collected from the published annual reports of the company. A notable outcome of the study was that the overall liquidity status of the company was satisfactory during the study period. This study revealed that the company possessed the most sound liquidity position in the year 1991-1992.

¹³ Khoury,N.T.,Smith,K.V.,and Mackay,P.I.(1999). Comparing Working Capital Practices in Canada,the United States, and Australia: A Note. Purdue CIBER Working Papers, Paper132. <http://docs.lib.purdue.edu/ciberwp/132>

¹⁴ Prasad, R.S.(2001): "Working Capital Management in Paper Industry", Finance India, Vol.15, No.1, pp- 185-188.

¹⁵ Azagaiah, R. and Gejalakshmi, S. (2007): "Working Capital Management—Efficiency Analysis", Udyog Pragathi, Vol.31, No.3, pp- 15-20.

¹⁶ Chalam, G.V. and Babu, B.V.Manohar.,(1999):"Working Capital Trends in Large Public Limited Companies in Indian Private Corporate Sector" in P M. Rao & A. K. Pramanik (ed.) "Working Capital Management", Deep & Deep Publication, New Delhi. 1999, pp-107-126.

¹⁷ Encyclopedia of Accounting-Financial Management, Vol.1, Arihant Publishing House, Jaipur, 1993, pp.175-186.

¹⁸ Khatik, S.K. and Singh, P.K.(2003),"Liquidity Management in Eicher Ltd.-A Case study", The Management Accountant,Vol.38, No.3, pp- 217-220.

Kumar¹⁹ published a book in 1991, “Analysis of Financial Statements of Indian Industries”. The study covered the 17 private, 5 state owned and 1 central public sector companies. He studied analysis of activities, assessment of profitability, return on capital investment, analysis of financial structure, analysis of fixed assets and working capital. In this research he revealed various problems of cement industries and suggested remedies for the problems. He also suggested for the improvement of profitability and techniques of cost control.

Bansal (1999)²⁰ has studied the working capital management in Himachal Pradesh Agro Industries Corporation Limited for the period from 1985-86 to 1994-95 with the help of financial tools. The study reveals that the corporation under study has adopted conservative policy of financing current assets which resulted in inadequate working capital. Cash, Inventory, receivable and production capacity have not been managed properly by the Company under study.

Mandal and Goswami (2010)²¹ in their study assessed the impact of working capital management on liquidity, profitability and non-insurable risk of ONGC for the period 1998-99 to 2006-07. The data were taken from the published annual reports of ONGC. The study identified the short-term debts capability of the company was satisfactory during the study period. However, a notable finding of the study was that the company maintained its bank balances at a higher level as compared to other components of current asset. This study revealed that the liquidity position of ONGC in the year 2006-07 was the best and the liquidity position of the enterprise was found to be more or less improving over the period under study. The study reflected that the company possessed a high degree of positive correlation between liquidity and profitability.

Yadav et al. (2001)²² in their paper assessed the effect of working capital management on liquidity of the three blue ship public sector oil companies in India—Bharat Petroleum Corporation Limited (BPCL), Hindustan Petroleum Corporation Limited (HPCL) and Indian Oil Corporation Limited (IOCL) for the period 1987-88 to 1996-97. The data were taken from secondary sources. The study period divided into two distinct phases of five years each, from 1987-88 to 1991-92 as preliberalization and from 1992-93 to 1996-97 as post-liberalization period. The study revealed that the average current ratio and quick ratio of the three selected companies were better in the post-liberalization period as compared to those of, in the pre-liberalization period. The Inventory management of HPCL and BPCL was found effective whereas that of, in IOCL was disappointing. The study also disclosed that HPCL was best performer in receivable management followed by BPCL and IOCL respectively in that order. Better credit management was noticeable in post-liberalization period in all the selected companies. The final finding of the study was that the liquidity position of BPCL was lesser satisfactory in post-liberalization period as compared to the other selected companies.

Senthikumar and Sengottaiyan²³ made a study on “Efficiency of Working Capital Management with Reference to Select Textile Industry in India” to study the growth and development of Indian Textile industry. To analyze the trends and patterns of efficiency of Working capital utilization of selected Textile companies in India they have selected 20 companies in textile sector and analyze with the help of ratio techniques and simple statistical tools. They concluded from the analysis of the data that profitability in terms of profit margin is significantly and affected by the decline in days in accounts receivable, days in accounts payable and Cash conversion cycle in textile firms. They also found that working capital variables have considerable impact on return on assets of textile firms.

¹⁹ Kumar, Dr. P. (1991) “Analysis of Financial Statements of Indian Industries”, Publisher- Kanishka, ISBN-8185475091, 9788185475097

²⁰ Bansal, S.P., Working capital management of profit-making undertakings (A case study of Himachal Pradesh Agro-Industries Corporation Limited), in Working Capital Management, edited by Roa, P.M., and Pramanik, A K, Deep & Deep Publication Pvt. Ltd., New Delhi-India, 1999, pp. 76-84.

²¹ Mandal, N and Goswami, S. (2010): “Impact of Working Capital Management on Liquidity, Profitability and Non-Insurable Risk and Uncertainty Bearing: A Case Study of Oil and Natural Gas Commission (ONGC)”, Great Lakes Herald, Vol.4, No.2, Sep 2010, pp-21-42.

²² Yadav, S., Jain, P.K., and Rastogi, A.K. (2001): “Working Capital Management in Oil Industry in India”, The Management Accountant, Vol.36, No.7, pp-511-527. ----- (2001): “Liquidity Management: A Case Study”, in (Ed.) P.M. Rao & T. K. Jain”

²³ Senthikumar, K and Sengottaiyan, A. “Efficiency of Working Capital Management with Reference to Select Textile Industry in India”, International Journal of Emerging Research in Management & Technology ISSN: 2278-9359 (Volume-4, Issue-7)

Jain (1993)²⁴ undertook a study to analyze the working capital management of seven selected paper companies belonging to both public sector and private sector in India. The study showed that the current ratio of the private sector paper companies registered a declining trend during the study period whereas this ratio was found to be highly fluctuating in the public sector paper companies. The study also revealed that the inventory management in the private sector undertakings was comparatively better as compared to that of, in the public sector undertakings.

Khandelwal (1985)²⁵ conducted a study on small scale industries in Jodhpur industrial estate for the period 1975-76 to 1979-80 to highlight their working capital management practices. In this study, 40 multi group units were selected on the basis of purposive sampling from 162 S.S.I units working in Jodhpur Industrial Estate at the end of 1974. The relevant data were collected from the secondary sources. The study revealed that the immediate liquidity position of the selected units was not at all satisfactory during the period under study. Furthermore, this study showed that the liquidity of inventory and also the quality of the receivables were also not at all satisfactory. The Industry-wise study disclosed that only textile industry was solvent. The study called for better inventory management.

In the year 1988 one book published on “working capital structure of private enterprises--A study of cement industry” by Panda and Satapathy²⁶. It covers a study of 10 private sectors company engaged in production of cement. The study covers the various aspects of working capital period from 1965-1985. They have analyzed working capital position of selected units as a whole and as well as individual analysis. Finally they have made suggestions for the better utilization of various components of working capital.

Mukherjee (1988)²⁷ in his paper examined the working capital management practices of the selected public enterprises in India for the period 1974-75 to 1978-79. The study was based on twenty Central Industrial Undertakings out of 106 central public sector undertakings as on 31.3.1979. The necessary data were collected from the office of the “Comptroller and Auditor General of India”, New Delhi. The study revealed that the sample units failed to maintain satisfactory current ratio throughout the study period whereas the quick ratio was found satisfactory. The study pinpointed that the liquidity in eleven enterprises out of the twenty selected units was adversely related with profitability and in some cases, both working capital and liquidity structure of the selected units made negative impact on owner’s wealth which were meaningful.

Vanitha and Selvam (2007)²⁸ critically evaluated the financial performance of Indian manufacturing companies during pre- and post- merger. The study was carried out by taking 58 manufacturing companies which had undergone mergers and acquisitions during the year 2000-2002. The data were taken from secondary sources. While evaluating their performances, it was found that the liquidity of merged companies during pre- and postmerger periods was more or less uniform.

Prasad and Eresi (1990)²⁹ conducted an empirical study on working capital management of Small Scale Industries in the state of Karnataka during the period 1986-87 to 1988-89. The study was made by using data from primary as well as secondary sources. The study revealed that more than fifty per cent of the total assets of the selected units were in the form of current assets. However, another notable finding of the study was that excessive investment of funds in inventories and debtors which was responsible for the poor performance of liquidity management of SSI units.

“A comparative study on working capital management efficiency of associates of State Bank of India” conducted by Bardhan³⁰ to analyze the efficiency of working capital management of seven associate banks of State

²⁴ Jain, P.K.(1993): “Management of Working Capital” R B S A Publishers, Jaipur, India. 1993.

²⁵ Khandelwal, N.M., (1985):“Working capital Management in Small Scale Industries”, Ashish Publishing House, New Delhi.

²⁶ Panda, J. and Satapathy, A.K., “working capital structure of private enterprises--A study of cement industry”, Discovery Publishing House, New Delhi.

²⁷ Mukherjee, A.K.,(1988): “Management of Working Capital in Public Enterprises” Vohra Publishers & Distributors, Allahabad.

²⁸ Vanitha, S. and Selvam, M.(2007): “ Financial Performance of Indian Manufacturing Companies during Pre and Post Merger”, International Research Journal of Finance and Economics, Issue 12 (2007),pp-7-35.

²⁹ Prasad, B. and Eresi, K. (1990): “Working Capital Management in SSI—An Empirical Study”, Journal of Accounting and Finance, Vol.4, No.3, pp- 31-35.

³⁰ Bardhan, R.K. “A Comparative study on working capital management efficiency of associates of State Bank of India” (Online) <https://www.google.co.in/webhp?ie>

Bank of India during 1990-91 to 2003-04. Instead of common working capital ratios he followed Bhattacharya model to measure the efficiency of working capital management. Considering arithmetic mean of seven banks' indices as targeted level of efficiency,

Ghosh (2007)³¹ in his article attempted to study the impact of working capital ratios on profitability viewed both positive and negative impacts. Out of the nine ratios selected for the study, three ratios namely current assets to sales ratio, working capital turnover ratio and debtors' turnover ratio showed a negative correlation with the ROI. The rest namely working capital ratio, acid test ratio, current assets to total assets, inventory turnover ratio, cash turnover ratio and miscellaneous current assets turnover ratio showed positive correlation. The study of the relationship between the profitability and working capital ratio confirm with accepted rule that larger the turnover, more the profitability of the company

Srivastava and Yadav (1986)³² developed a multiple discriminant model in determining the effectiveness of working capital management using four ratios and a sample test of 40 textile companies of which 20 'not effective' (sick) and 20 'effective' (healthy). They empirically found that their model correctly classified 95 percent of the companies in the sample.

Panda (1986)³³ carried out a study on working capital management of 50 small scale units in the state of Orissa to investigate the pattern of current assets financing with some other related issues relating to working capital management. The study exhibited that the selected firms possessed a low level of current ratio during the study period. The study also revealed that most of the sample units incurred huge losses during the period of study. There was a scarcity of long term funds in the selected units. Thus, they were absolutely dependent on their short term funds to liquidate their claims and to meet their working capital requirements.

Review of existing literatures reveal that a good number of research works on Working Capital Management on different area have been critically undertaken but none is available on proprietary tea estate of Assam. It is, therefore, the most untouched and fertile area for scholar's such selection on proprietary tea estates' working capital management efficiency.

Research Design and Methodology

Jorhat district of Assam is located between the Brahmaputra on the north and Nagaland on the south at 26.46°N and 96.16°E in the central part of Brahmaputra valley. The district covers an area of 2859.3 sq. km. and has a population of 10, 91,295 in 2011³⁴. The area under tea cultivation are about 1.66 thousand hectares. In Assam there are 767³⁵ tea estates registered with the Tea Board of India of which 91 tea estates are in Jorhat district. Table-1 below shows the ownership status and the number of tea estates operating in different districts of Assam.

Table-1: Ownership Status and Number of Tea estates in Assam

Sl.No.	Districts	Ownership Status					Total
		Partnership Firm	Proprietorship	Public Ltd. Co.	Public Sector Undertaking	No Status	
1	Baksa	0	3	1	0	0	4
2	Bongaigaon	0	0	1	0	0	1
3	Cachar	7	24	25	0	0	56
4	Darrang	0	1	3	0	0	4
5	Dhubri	0	1	2	0	0	3

³¹ Arindam Ghosh, "Working Capital Management Practices in some selected industries in India", The Management Accountant, Vol. 42, No. 1, January 2007, pp:60-67.

³² Srivastava, S.S. and Yadav, R.A. "Management and Monitoring of Industrial Sickness." New Delhi, Concept publishing Company, 1986.

³³ Panda, G.S. (1986): "Management of Working Capital in Small Scale Industries", Deep and Deep Publishers, New Delhi, 1986

³⁴ DRDA, Jorhat, Assam, 2011

³⁵ Tea Board of India, Regional Office, Jorhat. (Computed)

6	Dibrugarh	21	71	56	7	2	157
7	Dima Hasao	0	0	1	0	1	2
8	Goalpara	0	1	0	0	0	1
9	Golaghat	8	20	37	4	2	71
10	Hailakandi	5	5	9	0	0	19
11	Jorhat	9	48	29	5	0	91
12	Kamrup	1	0	1	0	0	2
12	Karbi Anglong	1	9	6	0	1	17
13	Karimgang	0	10	10	4	0	24
14	Kokrajhar	0	1	3	0	0	4
15	Lakhimpur	0	2	9	0	0	11
16	Morigaon	0	1	0	0	0	1
17	Nagaon	3	8	7	3	1	22
18	Sivasagar	5	41	41	3	0	90
19	Sonitpur	1	6	55	1	0	63
20	Tinsukia	16	33	51	0	0	100
21	Udalguri	3	3	18	0	0	24
TOTAL		80	288	365	27	7	767

Source: Tea Board of India, Regional Office, Jorhat. (Computed)

Most of the tea estates in Assam including Jorhat district is having their own production factory and they produce different type of made tea. Table-2 shows the number of tea estates having their own production factory in Assam and Jorhat district.

Table-2: Showing the number of tea estates having production factory according to Ownership status

Sl. No.	Ownership Status	Assam			Jorhat District		
		Having Factory	No Factory	Total	Having Factory	No Factory	Total
1	Partnership Firm	35	45	80	03	06	9
2	Proprietorship	134	154	288	11	37	48
3	Public Ltd. Co	279	85	365	17	12	29
4	Public Sector Undertaking	15	12	27	04	01	5
5	No Status	06	01	7	00	00	00
Total		469	298	767	35	56	91

Source: Tea Board of India, Regional Office, Jorhat. (Computed)

As mentioned earlier, in Jorhat District there are 91 Tea Estates registered with Tea Board of India having different ownership as- Partnership Firm 9, Proprietorship 48, Public Ltd. Co. 29 and Public Sector Undertakings 5. After going through the available information and data meticulously we have decided not to include the tea estates operating under public limited group in Jorhat district on the ground that working capital requirement and management of the same and other finance related managerial decisions are taken by their corporate offices. The other two type of ownership, Partnership firms and Public sector undertakings having tea estates in minimum number under their ownership and therefore, we have decided not to bring that category of tea estates under the purview of our study. Hence finally our population for the study is restricted to 48 proprietary tea estates of Jorhat District. Stratification of 48 tea estates has been done on the basis of plantation area occupied by each tea estate. On the basis of purposive sampling method 20p.c sample is taken from each group and Ten (10) tea estates have been selected for the purpose of study. The sample tea estates have been selected considering the factor of availability of financial data. Table-3 shows the number of tea estates according to area occupied and selection of sample Tea Estates.

Table-3: Number of Tea estates according to Area occupied and Selection of Sample Tea estates (in nearest round figure)

Plantation Area (in hectares)	No. of Tea Estates	No. of Sample Tea Estates (20% Sample Size)
0-50	16	3
51-100	10	2
101-150	7	2
151-200	3	1
Above 200	12	2
Total	48	10

Source: Tea Board of India, Regional Office, Jorhat. (Computed)

The selected 10 tea estates for the study are- 1. Borhola tea estate 2.Chapajan tea estate 3.Chetiabari tea estate 4.Greenview tea estate 5.Rajabari tea estate 6.Seleng tea estate 7.Singarijan tea estate 8.Tirual tea estate 9. Udayjyoti (Rongdoi) tea estate and 10. Umabari tea estate. Out of the above selected tea estates 4 tea estates have their own production factory and they produce different made tea and remaining 6 Tea estates having no factory produce only green leaves.

The study is based on both primary and secondary data. Questionnaire have been prepared and supplied to selected Tea estates for collection of data. Primary data have also been collected through garden visits from respective sources and secondary data have been collected from the available sources including Tea Board of India, Statistical Abstract, Directorate of Industries; Assam, Directorate of Economics and Statistics, Assam and many others. The present study is purposively and specifically selected for a period of five years from 2011 -12 to 2015-16. All the collected data are duly edited, classified and analyzed using various statistical tools and techniques. The data are presented through simple classification and with the help of percentage, average dispersion, and the hypotheses are tested at 5p.c level of significance by employing Kruskal Wallis One way analysis of variance Test. In order to test a hypothesis the comparison is made by computing a value of chi-square. If the computed value of chi square is less than the critical value (table value) of chi square at the significance level selected with the appropriate degree of freedom, the null hypothesis is accepted, and otherwise it is rejected. (Critical value of chi square is obtained from the table of the chi square distribution).

For measuring the overall efficiency of working capital management (WCM), the model suggested by Bhattacharya (2007) has been applied. The first part of the analysis is to measure the WCM efficiency for which three indices are used, viz., Performance Index (PI), Utilization Index (UI) and Efficiency Index (EI). For measuring the efficiency of working capital management (WCM), first the Utilization Index of Working Capital Management (UI_{WCM}) has been calculated by applying the following model:

$$UI_{WCM} (it) = \frac{A_{t-1}}{A_t} \dots\dots\dots (i)$$

Where, A = current assets/sales.

Again, to measure the working capital efficiency based on ‘Performance Index of Working Capital Management’ (PI_{WCM}), the following method has been calculated as:

$$PI_{WCM} = \frac{\sum_{i=1}^n \frac{W_{i(t-1)}}{W_{it}}}{N} \dots\dots\dots (ii)$$

Where,

I_s = Sales index defined as: S_t / S_{t-1} ,

W_i = Individual group of current assets,

N = Number of current assets group,

and $i = 1, 2, 3, \dots, n$.

Finally, the Efficiency Index of Working Capital Management (EI_{WCM}) has been calculated by multiplying the overall performance index of working capital management with the working capital utilization index, which stands as under:

The significance of the study thus been taken into consideration.

$$EI_{WCM (it)} = UI_{WCM} \times PI_{WCM} \dots \dots \dots (iii)$$

In order to measure the tea estate’s efficiency in achieving the targeted level of efficiency during the study period following Ordinary Least Square (OLS) model has been used:

$$Y_i = a + \beta X_i + e_i \dots \dots \dots (iv)$$

Where, $Y_i = Z_t - Z_{t-1}$ and $X_i = Z^*_t - Z_{t-1}$

Z_t = Index at time ‘t’ for the individual tea estate and

Z^*_t = Average index of the tea estate at t-1.

The estimated beta value (β) represents the speed of the individual tea estate in improving its efficiency in achieving the tea estate group targeted level. $\beta=1$ indicates the degree of individual tea estate’s efficiency in managing working capital is same as the average efficiency level of tea estate group as a whole. $\beta>1$ indicates efficiency of particular tea estate in managing working capital is better than average of tea estate group and $\beta<1$ indicated the need of further improvements by the particular tea estate in this regard.

Hypotheses used in this study are based on Chi- square test and Kruskal Wallis one way analysis of variance test. The statement of first hypothesis is, “There is no significant difference between working capital turnover ratios of sample tea estates”. It means, the trend of working capital maintenance to turnover for all the Tea estates is almost same. The acceptance of said hypothesis would reveal that the working capital turnover ratios of sample units are approximately equal. The statement of second hypothesis is, “There is no significant difference between the efficiency of working capital management of the sample tea estates.” The acceptance of the said hypothesis would reveal that the efficiency of working capital management of various sample units is approximately equal. The level of significance used in this study is 5 pc.

Empirical Analysis

Net Working Capital Turnover Ratio of sample tea estates

Net working capital turnover ratio can be defined as, “The ratio of sales to net working capital”. It gives the information about the position of sales against the net working capital of the tea estates. Combined tea estates average of net working capital turnover ratio during the study period is worked out at 9.56. It states that for every one rupee of net working capital, there is a sale of ` 9.56 approximately. So, this position is not considered as good as a whole for the Tea estates. If we consider these figures in respect to individual Tea estate, Tirual Tea estate’s average (41.55) and Umabari tea estate’s average (28.80) are higher than the combined tea estates average of net working capital turnover ratio . All the other eight Tea estates individual average is lower

than the Tea estates combined average during the study period. As the success of net working capital maintenance is concerned, it can be pointed out from the net working capital turnover ratio index of selected Tea estates that the progress made in the net working capital based on turnover during the study period is highest at 231.44 for Umabari Tea estate whereas the Borhola Tea estate figures the lowest average at -261.73 when the combined average is 39.67. Moreover, it can also be noted that the average of chi-square value (21.43) of selected Tea estates as a whole is higher than the critical value of 16.919 at 5% level of confidence. The first hypothesis is rejected. It means, "There is significant difference between net working capital turn-over ratios of sample Tea estates".

The first null hypothesis based on Kruskal Wallis' one way analysis of variance test at 5% level of significant is rejected as value of H is 37.9242 which are higher than the critical value of 16.919. So the null hypothesis based on Kruskal Wallis' one way analysis of variance test is also rejected. It means, 'there is a significant difference between the working capital turnover ratios of the sample tea estates'. At this time, it is required to state that the selected Tea estates should follow the required actions to increase the sales and follow working capital policies to maintain this level regularly.

Analysis of Current Ratio of sample units: Current Ratio (CR) is the relationship between current assets and current liabilities. This ratio is also known as working capital ratio. It is a measure of general liquidity and is most widely used to make the analysis of short term financial position or liquidity of a business. It is calculated by dividing the total current assets by total of the current liabilities. A relatively high current ratio is an indication that the firm is liquid and has the ability to pay its current obligations in time as and when they become due. On the other hand, a relatively low current ratio represents that the liquidity position of the firm is not good and the firm shall not be able to pay its current liabilities in time without facing difficulties. An increase in the current ratio represents improvements in the liquidity position of firm. As a convention the minimum of 'two to one ratio' is referred to as a banker's rule of thumb or arbitrary standard of liquidity for a firm. A ratio equal or near to the rule of thumb of 2:1 is considered to be satisfactory. The calculated value of H is 35.027 which are higher than the critical value i.e., 9.488. So here the null hypothesis based on Kruskal Wallis' one way analysis of variance test is rejected. It means, "There is a significant difference between the Current ratios of sample tea estates."

Performance Index of WCM: Performance Index of WCM represents the average performance of various components of current assets. A firm may be said to have managed its working capital efficiently if the proportionate rise in sales is more than the proportionate rise in current assets during a particular period. Numerically, if performance index of a firm is more than 1, it indicates that the firm managed their working capital efficiently. It means the proportionate rise in sales is more than the proportionate rise in current assets.

A year wise comparison reveals that the number of efficient tea estates varied from 4 to 5. In the years 2011-12, 2013-14 and 2015-16, a total of 4 Tea estates out of 10 Tea estates crossed the performance index level. But in the years 2012-13 and 2014-15, 5 Tea estates out of 10 managed their current assets efficiently and crossed the performance level. Individual Tea estate wise analysis reveals that, Chetiabari Tea estate performed working capital management in a better way as for 4 years out of the study period of 5 years, and crossed the performance index limit 1. Udayjyoti (Rongdoi) Tea estate and Umabari Tea estate placed jointly in the second position as they crossed the limit three times during the period. The other 3 Tea estates managed their current assets efficiently for 2 years each during the 5 years study period. The performance of the Tea estates as a whole has been mostly efficient during the period under study.

Utilization Index of WCM: While performance index represents the overall average performance in managing the components of current assets, utilization index indicates the ability of the firm in utilizing its current assets as a whole for the purpose of generating sales. If an increase in total current assets is coupled with more than proportionate increase in sales, the degree of utilization of these assets with respect to sales is said to have improved and vice-versa. This ultimately reflects the operating cycle

of the firm. This can be shortened by means of increasing the degree of utilization. Thus, if the value of utilization index of a firm is more than 1 it is a sign of improvement. Out of 5 year study period the group average of 10 selected Tea estates is less than 1 in 4 years. It reveals that all the Tea estates failed to utilize its current assets as a whole for the purpose of generating income. Analysis of the individual Tea estate shows that, Chetiabari Tea estate, Rajabari Tea estate, Tirual Tea estate, Udayjyoti (Rongdoi) Tea estate and Umabari Tea estate are at the top in utilizing current assets. During the period under study 3 year indices of them show greater than 1. Greenview Tea estate has been utilizing its current assets to sales effectively for 2 year out of the total period under study. Singarijan Tea estate, Chapajan Tea estate and Seleng Tea estate could efficiently handle current assets to increase sales only for 1 year out of 5 years covered. Borhola Tea estate could not cross the efficiency level 1 during the five years period.

Efficiency index of WCM

Efficiency index is a measurement of ultimate efficiency level. It is the product of performance index and utilization index. It is the measure of ultimate efficiency in working capital management. In the years 2012-13, 2013-14 and 2014-15 group efficiency of the Tea estates is the best as 5 tea estates out of 10 Tea estates efficiently managed working capital when indices crossed 1. In the years 2011-12 and 2015-16, 4 tea estates each managed efficiently working capital for 4 years out of the 5 years study period. Individual Tea estate's analysis indicates that Chetiabari Tea estate, Rajabari Tea estate, Umabari Tea estate and Udayjyoti (Rongdoi) Tea estate are the most efficient Tea estates. They crossed efficiency level 3 times each out of the 5 years studied. Singarijan Tea estate, Borhola Tea estate, Chapajan Tea estate and Tirual tea estate crossed the efficiency level just only 2 times during the period of study. Singarijan Tea estate just crossed the efficiency level only one time during the study period. Average value of chi square figuring at 0.658 is less than the critical value, at 5% level of confidence, is 16.919. The second hypothesis based on chi-square test is accepted. It means, "There is no significant difference between the efficiency of working capital management of the sample tea estates." The second hypothesis based on Kruskal Wallis' one way analysis of variance test, at 5% level of significance is accepted as value of H is 5.711 which is lower than the critical value of 16.919. It means, "There is no significant difference between the efficiency of working capital management of the sample tea estates."

Analysis of Regression

Regression analysis is a collective name of techniques for analysis of numerical data consisting of values of a dependent variable and one or more independent variables. The dependent variable in the regression equation is modeled as a function of the independent variables. Researcher has taken 'change in the average index value' ($X_i = Z_t^* - Z_{t-1}$) of Tea estates group as independent variable and 'change in index for individual tea estate' ($Y_i = Z_t - Z_{t-1}$) as dependent variable. Therefore, Regression coefficient Betas are interpreted as the amount of effect (change) in the 'change in index for individual tea estate' (dependent variable) that is associated with a change in one unit of the "change in average index values" (independent variable) and R square or Coefficient of Determination is indicating percentage of total variation of 'change in index for individual tea estate' is explained by the 'change in average index value'. As mentioned earlier, the estimated beta value (β) represents the speed of the individual Tea estate in improving its efficiency in achieving the Tea estate group targeted level, and $\beta=1$ indicates the degree of individual Tea estate's efficiency in managing working capital which is same as the average efficiency level of Tea estate group as a whole when $\beta>1$ and indicates efficiency of particular tea estate in managing working capital is better than average of tea estate group, when $\beta<1$ indicates the need of further improvements by the particular Tea estate in this regard. Out of 10 selected tea estates only 4 Tea estates have crossed the performance efficiency level as compared to the group average of 1.000. Regression results (utilization index) of selected Tea estates show that only three Tea estates have crossed the utilization level as compared to the group average of 1.000. It means only 3 Tea estates utilizing their current assets efficiently as a whole for the purpose of generating sales. Ultimate efficiency level of 10 tea estates shows that only 4 tea estates out of 10 have managed their working capital efficiently. In the year 2011-12, 6 Tea estates out of 10 have managed their current assets efficiently in generating sales. In the years 2010-11,

2011-12 and 2012-13, a total of 5 tea estates have crossed the efficiency index level of 1 and as a result in that years they managed their working capital efficiently. The year 2009-10 is not a favorable year for the Tea estates as only few Tea estates just crossed the limit of performance index, utilization index and efficiency index. Average performance index of 10 Tea estates shows that performance index of sample tea estates is more than 1 in 4 years out of 5 years studied. In 2012-13 average performance index of sample Tea estates shows very good result which is 1.21. On the other hand, the year 2013-14 is the worst year for 10 Tea estates as the average shows 0.96. Based on Beta (β) value, a rank list has been prepared. Tirual Tea estate ranked first followed by Chetiabari Tea estate. In performance index, utilization index and efficiency index Tirual Tea estate is in first ranking position (with $\beta=1.502, 1.558$ and 2.318 respectively) and Chetiabari Tea estate ranked 2 (with $\beta=1.147, 1.363$ and 1.55 respectively). These two units performed efficiently and utilizing their working capital to the best requirement of the managements and the tea estates as a whole. In the year 2013-15 is the best year for all the selected Tea estates since the average performance index, utilization index and efficiency index reveal more than 1. On the other hand the year 2015-16 is the worst year for the Tea estates as all the 3 indices have failed to cross the limit of 1; it means all the selected tea estates have failed to manage their working capital efficiently.

Conclusion

In the present study an attempt has been made to investigate the working capital position in relation to sales and efficiency of working capital management of some selected proprietary tea estates for the study period of five years i.e. 2011-12 to 2015-16 in Jorhat district of Assam. Average net working capital turnover ratio of all the selected tea estates has been worked out at 9.56. It indicates that for every one rupee of net working capital, there is a sales of ` 9.56 approximately. So, this position is not considered as good as a whole for the tea estates. For measuring the efficiency level of working capital management three index values Performance Index, Utilization Index and Efficiency have been used. Taking average indices of ten tea estates a comparison has been made with regard to the efficiency of individual tea estate during the study period. Average performance efficiency level of selected tea estates were satisfactory (more than 1 in four years) during the study period. Both the hypotheses tested in this study accept the alternative hypotheses and rejects the null hypotheses. The selected tea estates should follow the required actions to increase the sales and follow working capital policies to maintain this level regularly.

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