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RESULTS & DISCUSSION

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IMPACT OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF LISTED CEMENT COMPANIES IN TANZANIA

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ABSTRACT

This study analyses the impact of working capital management efficiency on profitability of cement companies listed in Dar Ea Salaam Stock exchange of Tanzania. The study is carried out on the basis of 8 years (from 2006 to 2013) data of two DSE listed companies viz; Tanga Cement Company Ltd(TCCL) and Portland Cement Company Ltd(PLCCL). The measures of working capital efficiency and their expected relationships with profitability are ascertained by review of literature. The measures include the Receivables Turnover Ratio (RTR), Inventory Turnover Ratio (ITR), and Payments Turnover Ratio (PTR). One additional variable, Cash Conversion efficiency (CCE) is also included in this study as it affects operational performance and also profitability. All these measures are taken as independent variables. Current Ratio (CR), size of the firm [measured in terms of natural logarithm of sales(CSLn)] have been used as control variables. Log Gross operating income is taken as dependent variable (GOPLn). Descriptive statistics of variables chosen are calculated and their Pearson's correlations are analyzed. Further OLS regression applied for analyzing the relationship between measures of working capital efficiency and operating profitability. As per the descriptive analysis, the performance of TPCCL is comparatively better in the case of RTR, PTR, CR and CCE when compared to industry and also TCCL. The performance of TCCL is comparatively better in the case of ITR. The correlation analysis showed mixed results. Though most of the relationships between independent variables and dependent variable are as expected but not significant. Industry correlations between RTR CSLn, CCE, PTR and GOP are in required direction. The relationship between ITR and GOP is negative which is against to expectation. The OLS regression analysis results showed that RTR, CCE caused expected positive impact on GOP but significant only in the case of RTR.. In the case of the impact of PTR and ITR on GOP the results are against expectation but not significant.

KEYWORDS

Receivables Turnover Ratio, Payables Turnover Ratio, Inventory Turnover Ratio, Cash Conversion Efficiency, OLS regression.

JEL CODE

G 3 Corporate Finance and Governance G30 general.

1. INTRODUCTION

The investment in any business especially corporate sector broadly can be classified as investment for creating capacities in the form of noncurrent assets/fixed capital and investment for making use of such created capacities efficiently in the form of current assets/working capital. Both aim at maximizing profitability. In this endeavor working capital plays a pivotal role in making use of the created capacities for getting output and channelizing the same for consumers to generate profitability. Business viability, profitability, growth and prosperity are closely associated with ability to efficiently manage the working capital/short-term financing requirements of a firm. The objective of WCM is to maintain the optimum balance of each of components of working capital viz; receivables, inventory and payables – and using the cash efficiently for day-to-day operations. Optimization of working capital balance means minimizing the working capital requirements and realizing maximum possible revenues. Efficient WCM increases firms' free cash flow, which in turn increases the firms' growth opportunities and return to shareholders.

Working capital is the difference between resources in cash or readily convertible into cash and organizational commitments for which cash will soon be required. It includes all current assets like inventories, receivables, short securities and current liabilities like trade payables and short term commitments. Considerable managerial time and efficiency is required in managing components of working capital because of the very nature of convertibility of Current assets into different forms continuously over a period of operating cycle. They need to be converted from cash to all inputs like material, work in process, finished goods, and receivables and finally cash. Similarly current liabilities are to be honored on time for which efforts are required maintain sufficient liquidity. This necessitates continuous involvement of management not only making decisions but also effective execution. Taking the conversion efficiencies of all the working capital components and managerial philosophy industry nature into consideration, the management has to plan the amount of investment in WC. Over investment in working capital create idle capital without any benefit and under investment may keep the firms credit worthiness at stake.

The relationship between ability of efficient WCM and profitability varies across different industries due to their nature, economic and business environments of countries and approaches followed by the managements in WCM. Firms in an industry that has less competition would focus on minimizing the receivable to increase the cash flow and for firms where there are large numbers of suppliers of materials, the focus would be on maximizing the payable consequently it will have a different impact on the profitability as compared to competitive and restricted input supply economic environments.

The most important components of working capital are the Account receivables, inventory and accounts payable. Efficient management of receivables is closely associated with credit terms, average collection period of receivables and total amount employed in receivables and their turnover. It facilitates to increase the size of the activity by increasing total sales consequently increase in velocity of recycling of funds and generating higher profitability. As against this, if management fails in efficient management of accounts receivables, it results into higher average collection period, reduced velocity in recycling of funds, blocking of funds with debtors without any additional benefits and ultimately effecting profitability and liquidity of the enterprises. A large number of business failures have been attributed to inability of financial managers to plan and control properly the account receivables of their respective firms. The relationship between accounts receivable turnover/average collection period and profits of SMEs indicate the efficiency of management in managing accounts receivable. Similarly efficient management of Inventory is closely associated with terms of purchase, purchase quantity decisions taking into account the nature of inputs and terms of purchase, ability of converting inventory into finally sales and cash and deciding optimum investment in inventories. Over investment may lead to out dated inventory and cause losses and under inventory may lead to shortage and breakdowns in continuous activity. The relationship between inventory turnover or inventory conversion period in days and profits indicate the efficiency of management in managing inventories. Accounts payable or the short term liabilities which have to be paid on time to maintain credit worthiness and at the same time make use of them as an aid to working capital to minimize

investment. Hence, the relationship between payables turnover ratio or average payment period and profits indicate the efficiency of management in managing payables. Adequate liquidity is also essential not only to meet required cash purchases, payment to various factors of production on time but also for meeting short term obligations. Hence the relationship between cash conversion efficiency with profits indicate the managerial efficiency in managing liquidity.

2. AN OVER VIEW OF TANZANIA AND CEMENT INDUSTRY

2.1. AN OVERVIEW OF TANZANIA

Tanzania is located in eastern Africa bordering the Indian Ocean, between Kenya and Mozambique. Other neighboring countries include: Burundi, Democratic Republic of the Congo, Malawi, Rwanda, Uganda and Zambia. The country encloses an area of 947,300 square kilometers with a coastline of 1424 kilometers and is a home of some of the world's greatest landmarks The Kilimanjaro – which is the highest mountain in Africa standing at 5895 meters above sea level, Lake Victoria – the world's second largest freshwater lake and Lake TCCLnyika – the world's second deepest lake. Tanzania is also known for a variety of wildlife with over fifteen national parks and game reserves around the country. In addition to all this, the country has abundant supplies of natural resources which include gold, diamonds, coal, natural gas and a wide variety of gemstones. Population wise Tanzania is home to around 41.05 million among which 21.23 million (2009 est.) are considered to be labor force. All this makes Tanzania one of the world's wealthiest nations from a biological point of view. (CIA World fact book). Despite all this wealth, Tanzania is ranked as one of the world's poorest countries as its population below poverty line was at a record high of 36% (2002 est.),the estimated GDP per capita in 2009 was USD 1400, which is absolutely trivial compared to that of the other member country South Africa which was USD 10,100 in the same year. (Source: CIA Fact book).

2.2. CEMENT INDUSTRY IN TANZANIA

Tanzanian, as a developing country, committed for undertaking planned activities for its economic development relying on the philosophy of LPG. As a part of this program it has included in priority for infrastructure development such as roads, bridges, factories, projects, housing, universities etc which necessities basic inputs like iron and steel, cement etc. Cement makers operating in the country include Tanzania Portland Cement, which is 69.3 per cent owned by a subsidiary of Germany's Heidelberg Cement AG ; TCCL, 62.5 per cent owned by Afrisam Mauritius Investment Holdings Limited; and Mbeya Cement, 62.76 per cent owned by France's Lafarge SA. Lake Cement and Lee Cement Factory are two newest entrants in Tanzania's cement manufacturing and marketing sector with their core products under brand names of Nyati cement and Kilwa cement respectively. Nigeria's billionaire and Africa's richest man, Alhaj Aliko Dangote, is constructing a 3-million tonne capacity cement plant in Mtwara Region. Tanzania expects to double its cement output over the next few years according to a report by the Daily News. The news agency reported that Tanzanian Deputy Minister for Industry and Trade, Janet Mbene expects the country's annual cement production to rise to 6 million tonnes with the future opening of seven new factories. According to the article cement consumption is viewed as a barometer for construction activity, which is one of the main drivers of economic growth in the country. Tanzania's cement output rose 18.9% last year, to slightly above 3 million tonnes on the back of higher demand. Mbene said the rise in output would mean Tanzania would produce a surplus to be exported. {Source : INFRASTRUCTURE NEWS} Out of all the companies existing today only two companies are public companies registered in Dar Es Salaam stock exchange and remaining are private companies. Further from those private companies two companies started their activity in the last year. Hence, this study is confined to two listed companies only.

The paper deals with presentation of an overview of Tanzania and cement companies, motivations and Objectives of study, review of the empirical literature, Methodology in terms of sample size, data source, and variables used, measurement of variables and estimation techniques. It also presents analysis and results of the study, conclusion and suggestion for improvement and scope for future research**.**

3. MOTIVATIONS AND OBJECTIVES OF THE STUDY

3.1. MOTIVATIONS FOR THE STUDY

The following are the motivations for the present study.

- The trend in share of working capital in total assets is fluctuating. The minimum and maximum of CAs to TAs of TCCL and PLCCL are 26.18 - 47.18% and 25.97-57.28% with means of 34.12 and 39.01 and standard deviations of 6.83 and 9.85 respectively.(over 8 years from 2006 to 2013)
- Sales of TCCL ranged between TShs.77626 and TShs.195603 million. In the case of PLCCL it was TShs.80203 and TShs. 249111 million respectively. Except in year 2013 there was continuous increase. Thus in spite continuous increase in sales the currents share in total assets was fluctuating sometimes decreasing which necessitates to examine the efficiency of working capital management
- ROA of TCCL and PLCCL varied between 0.244-0.39 and 0.38 - 0.44 respectively. Fluctuations are frequent. It is normally expected that there should be positive link between change in sales, change in share current assets in total assets and return on assets. In this case it appears that the positive link is missing, may be due to problem of managerial efficiency in working capital management.
- The interaction with residents revealed that the prices of cement are not affordable and if they are reduced internal demand may increase enormously. Whereas the concerned ministry opined that the capacity of cement production will be reaching surplus stage.
- Company reports revealed that they have some inventory problems.

3.2. OBJECTIVES OF THE STUDY

The discussions of the importance of working capital management, the effect of different components on profitability and motivations outlined above, necessitates a study on the managerial efficiency in working capital management and its impact on profitability of under researched corporate sector specially cement industry in Tanzania. The objectives of study include the following:

- To find out the effects of efficiency in different components of working capital management on Profitability
- To find out the impact of size of the Cement companies of Tanzania on profitability.

4. REVIEW OF LITERATURE

The reviewed literature along with findings on the relationship between measures of working capital efficiency and profitability is presented below:

Deloof (2003), in his paper, "Does Working Capital Management Affects Profitability of Belgian Firms?" using correlation and regression tests found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable. On the basis of these results he suggested that managers could create value for their shareholders by reducing the number of days' accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

IoannisLlazaridis, and DbvntriosTtryfonidis,(2006) in their research work "Relationship Between Working Capital Management and Profitability of Listed Companies in the Athens stock Exchange" investigate the relationship of corporate profitability and working capital management using a sample of 131 companies listed in the Athens Stock Exchange (ASE) for the period of 2001-2004 to establish a relationship that is statistically significant between profitability, the cash conversion cycle and its components. The results of the research showed that there is statistical significance between profitability, measured through gross operating profit, and the cash conversion cycle. Moreover managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level.

Kesseven Padachi in his paper(2006) "Trends in Working Capital Management and its Impact on Firms' Performance: An Analysis of Mauritian Small Manufacturing Firms" examined the trends in working capital management and its impact on firms' performance. The trend in working capital needs and profitability of firms are examined to identify the causes for any significant differences between the industries. The dependent variable, return on total assets is used as a measure of profitability and the relation between working capital management and corporate profitability is investigated for a sample of 58 small manufacturing firms, using panel data analysis for the period 1998 –2003. The regression results show that high investment in inventories and receivables is

associated with lower profitability. The key variables used in the analysis are inventories days, accounts receivables days, accounts payable days and cash conversion cycle. A strong significant relationship between working capital management and profitability has been found in previous empirical work. An analysis of the liquidity, profitability and operational efficiency of the five industries shows significant changes and how best practices in the paper industry have contributed to performance. The findings also reveal an increasing trend in the short-term component of working capital financing.

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

Venkata Ramana.N; Ramakrishnaiah.K; Chengalrayulu.P (2013) in their study "Impact of Receivables Management on Working Capital and Profitability: A Study of Select Cement Companies in India" collected information from 4 cement companies for the period from 2001 -2010 calculated efficiency of receivables ratios like management Receivables to Current Assets Ratio, Receivables to Total Assets Ratio, Receivables to Sales Ratio, Receivables Turnover Ratio, Average Collection Period, Working Capital Ratio and Profitability Ratio, applied ANOVA to know the impact on working capital and profitability. Working capital and profitability were considered as dependent variables. The investigation reveals that the receivable management across cement industry is efficient and showing significant impact on working capital and profitability.

Vedavinayagam Ganesan,(2007) in his study "An Analysis of Working Capital Management Efficiency in Telecommunication Equipment Industry" analyzed the relationship between working capital management efficiency and profitability using correlation and regression analyses. ANOVA analysis is done to study the impact of working capital management on profitability. Using a sample of 443 annual financial statements of 349 telecommunication equipment companies covering the period 2001-2007, this study found evidence that even though "days working capital" is negatively related to the profitability, it is not significantly impacting the profitability of firms in telecommunication equipment industry

Ghosh and Maji,(2003) in their paper made an attempt to examine the efficiency of working capital management of the Indian cement companies during 1992 – 1993 to 2001 – 2002. For measuring the efficiency of working capital management, performance, utilization, and overall efficiency indices were calculated instead of using some common working capital management ratios. Setting industry norms as target-efficiency levels of the individual firms, this paper also tested the speed of achieving that target level of efficiency by an individual firm during the period of study. Findings of the study indicated that the Indian Cement Industry as a whole did not perform remarkably well during this period.

Smith and Begemann(1997) emphasized that those who promoted working capital theory shared that profitability and liquidity comprised the salient goals of working capital management. The problem arose because the maximization of the firm's returns could seriously threaten its liquidity, and the pursuit of liquidity had a tendency to dilute returns. This article evaluated the association between traditional and alternative working capital measures and return on investment (ROI), specifically in industrial firms listed on the Johannesburg Stock Exchange (JSE). The problem under investigation was to establish whether the more recently developed alternative working capital concepts showed improved association with return on investment to that of traditional working capital ratios or not. Results indicated that there were no significant differences amongst the years with respect to the independent variables. The results of their stepwise regression corroborated that total current liabilities divided by funds flow accounted for most of the variability in Return on Investment (ROI). The statistical test results showed that a traditional working capital leverage ratio, current liabilities divided by funds flow, displayed the greatest associations with return on investment. Well-known liquidity concepts such as the current and quick ratios registered insignificant associations whilst only one of the newer working capital concepts, the comprehensive liquidity index, indicated significant associations with return on investment.

Sushma Vishnani and Bhupesh Kr. Shah(2007) made a pragmatic analysis of Indian Consumer Electronics Industry to determine the impact of working capital policies & practices on profitability for the period 1994–95 to 2004–05. They found a negative relationship between the determinants of WCM and profitability for most of the companies in their sample. The same results were also confirmed in their industry-wide analyses.

Pedro Juan García-Teruel and Pedro Martínez-Solano(2007) were probably the first to make an experimental analysis about the effects of WCM on the Profitability of Small and Medium Enterprises. In their article, "Effects of Working Capital Management on SME Profitability", they took a sample of 8,872 small and medium-sized Spanish firms for the period 1996-2002 for the purpose of constructing an empirical relationship between WCM and profitability. Their correlation analyses displayed a very significant negative relationship between the Return on Assets and the number of days accounts receivable, number of days inventory and the number of days accounts payable. Also, the correlation between the cash conversion cycle and the profitability variable was negative as well as statistically significant. The authors, thus, held that shortening the (CCC) would lead to an increase in profitability.

Azhagaiah Ramachandran and Muralidharan Janakiraman(2009) attempted to devise a significant relationship between the Working Capital Management Efficiency and EBIT. The results of their Regression analysis showed a significant negative relationship of EBIT with Cash Conversion Cycle.

Malaysian authors Zariyawati (et al) also endeavored to investigate the relationship between corporate profitability and working capital management of firms in six different Economic Sectors of the Malaysian Industry. The justification they had to conduct the study was that most of the previous studies, in their opinion, focused on large and/or developed markets. Thus reinvestigating the issue in the emerging markets of Malaysia could provide further insight on the impact of working capital management on profitability. Their results also were indicative of a strong and significant negative association between the two variables of study.

An attempt to explore the relationship between the variables of Working Capital Management and Profitability was made by Haitham Nobanee and Maryam AlHajjar(2009). Their analysis was based on a sample containing 2123 Japanese non-financial firms listed in the Tokyo Stock Exchange for 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 the over lengthening of the Payable Deferral Period to be equally risky as it could harm the firm's credibility and credit reputation in the long run.

D. Govind Rao and P. M. Rao (1999) researched the relationship of WCM and profitability in Indian cement industry and found a mix of positive and negative connections between the working capital related variables and that of profitability.

J. P. Singh and Shishir Pandey Jr. (2008), in their article "Impact of Working Capital Management in the Profitability of Hindalco Industries Limited" observed a significant effect of the management of working capital on the profitability of Hindalco Industries.

The impact of working capital management on profitability was also observed by Cote and Latham (1999) who discovered that management of inventory, receivables and payables had a direct influence on a company's Cash Flows which could ultimately affect its profitability.

The foregoing review reveals that Deloof (2003),Ioannis Lazaridis et.al (2006),Kessavan Padach(2006),Abdul Rahaman & Mohamed nasr(2007), Veda Vinayagam Ganeshan(1997), Shushuma Vishani et.al(2007), Garacia P.J et.al(2007), Azahagaiah Ramchander et.al(2009),Zariyavati et.al(2009),Hatham Nobanee et.al(2009), Govindarao and PM.rao(1999), Cote and Latham(1999) found the relationship between working capital efficiency ratios in terms of days performance and profitability and came out with mixed results. In all these studies ACP, INTID,CCC,APP are taken as measures of working capital efficiency. With regard to dependent variable (profitability) different proxies like ROA, ROE, EBIT, GOP are used. Some studies used control or intervening variables like CR, Debt ratio, company sales.

Hardly any study is observed to find the impact of working capital efficiency ratios like RTR, PTR, ITR,WCTR and CCE on profitability without expressing them in terms of days performance. Hence, this study is devoted to examine the impact of working capital efficiency ratios on profitability. The independent variables are taken as RTR, PTR, ITR and CCE. Log GOP is taken as dependent variable because the efficiency of Working capital reflects primarily in gross operating profit and it is excludes the effects of overhead costs.

5.0 METHODOLOGY

The research primarily aims at identifying the relation between efficiency in working capital management of cement companies registered in DSE of Tanzania and its relation with Gross operating profit. For the purpose, in this section, the data set and sample, variables used and their measurement, expected relationship of independent variables with dependent variable, hypotheses, model specification and data analysis tools are discussed.

5.1 DATA SET & SAMPLE

The data used in this study was acquired from annual reports of two cement companies listed in DSE of Tanzania browsing the websites of the concerned companies. The period covered by the study extends to most recent 8 years from 1996 to 2013. The confinement to this period is due to limitation of availability of annual reports and other related information. Out of five cement companies existing in Tanzania only two companies are listed in DSE and remaining are in private sector. Among three companies in private sector two companies started their operation in the last year only. Availability of data of private companies is another limitation which necessitated confining to listed companies.

Finally, from annual reports, collected the data relating to required variables of this study and computed the relevant ratios.

5.2 VARIABLES

The choice of variables used in this study is influenced by the gaps in previous studies on working capital management and its effect on profitability. The variables used in this study are given below. In this study RTR, PTR, ITR,WCTR and CCE are taken as independent variables. Log of Gross operating profit is taken as dependent variable because it will not have the effect of overheads and also the impact of managerial efficiency in working capital will be on gross profit and subsequently on other aspects. WCTR is applied for only descriptive and correlation analysis but not for regression, since it bears high correlation with other working capital components efficiency measures.

Receivables Turnover Ratio (RTR): RTR is used as proxy for the efficiency of management in utilizing amount invested on collectables and it is used as an independent variable. RTR is calculated dividing sales with average accounts receivables.

Inventory Turnover Ratio (ITR): ITR is used as proxy for the efficiency of the management in utilizing amount invested on inventories and it is considered as an independent variable. ITR is calculated dividing cost of goods sold with average inventory.

Payables Turnover Ratio (PTR): PTR is used as proxy for the efficiency of the management in trade creditor's repayment policy and it is considered as an independent variable. PTR is calculated dividing purchases with average trade creditors.

Current Ratio (CR): CR which is a traditional measure of liquidity is calculated by dividing current assets by current liabilities. It is used as control variable because the GOP is affected by this proportion.

Natural logarithm of company Sales (CSLn): CSLn is used as proxy for size of the company. It is taken as control variable because the profitability of the company is also affected by this variable apart from the efficiency of working capital management. Many studies have also applied Debt ratio as control variable. Since the companies used in the study do not have any long term debt it is applied.

Cash Conversion Efficiency (CCE): CCE is used as proxy for liquidity of the company which is calculated dividing operating cash flows with sales.

Log of Company sales (CSLn): Company sales is used as proxy for size of the companies in this relationship which is calculated as log of sales of every company.

Gross operating profit (GOPLn): Gross operating profit in terms of their natural logarithms is taken as dependent variable in this study.

Gross Working capital turnover Ratio (WCTR): WCTR is used as independent variable which is calculated dividing sales by gross working capital

5.3. KEY VARIABLES AND THEIR EXPECTED IMPACT ON GOP

The variables used in this study along with their expected impact on gross operating profit are presented in the following table:

TABLE 5.1: SUMARY OF KEY VARIABLES AND THE EXPECTED IMPACT ON GROSS OPERATING PROFIT

Variable	Variable type	Expected coefficient sign	Rationale
Receivables Turnover ratio(RTR)	Independent variable	positive	RTR↑ ⇨ GOP↑
Payables Turnover Ratio(PTR)	Independent variable	Negative	PTR↑ ⇨ GOP↓
Inventory Turnover Ratio(ITR)	Independent variable	positive	ITR↑ ⇨ GOP↑
Working capital turnover ratio(WCTR)	Independent variable	Positive	WCTR↑ ⇨ GOP↑
Cash Conversion Efficiency(CCE)	Independent variable	positive	CCE↑ ⇨ GOP↑
Company Size (CS)	Control variable	Positive	CS↑ ⇨ GOP↑
Current ratio	Control variable	Positive	CR↑ ⇨ GOP↑

Source: Researchers' conceptualization on the basis of review of literature

5.4 HYPOTHESES TESTING

Since the objective of this study is to examine the relationship between profitability and working capital management, the study makes a set of testable hypothesis {the Null Hypotheses H0 versus the Alternative ones H1}.

HYPOTHESIS 1

H01 : There is no relationship between efficiency in components working capital management and profitability of Listed Cement Companies in DSE of Tanzania.

H11: There is a possible positive relationship between efficiency in components of working capital management and profitability of listed cement companies of Tanzania. Firms more efficient in managing their working capital are expected to pose high level of profitability and vice versa

HYPOTHESIS 2

H03: There is no relationship between size of listed cement companies of Tanzania and profitability.

H13: There may exist a positive relationship between the firm size and its profitability. This may be due to the ability of large firms to reduce liquidity levels and cash gaps.

5.5 MODEL SPECIFICATIONS:

The following OLS multiple regression model is applied in this study.

Model to test the relationship between working capital components efficiency (turnover ratios) and gross operating profitability

$GOPLn\ it = \beta 0 + \beta 1$ (RTR it) + 2 β (ITR it) + 3 β (PTR it) + 4 β (CR it) + 5 β (CCE it) + 6 β (COSLn it) + ε

Where:

GOPLn : Log of Gross Operating Profit
RTR : Receivables Turnover ratio
ITR : Inventory Turnover Ratio
PTR : payables Turnover ratio
CR : Current Ratio
CCE : Cash Conversion Efficiency
COSLn : Natural logarithm of company Sales

E : The error term.

5.6 ANALYSIS USED IN STUDY

Two types of data analysis viz; descriptive and quantitative is applied in this study.

5.6.1 DESCRIPTIVE ANALYSIS

Range, minimum and maximum, average and standard deviations of all the variables applied in this study are calculated using SPSS and analyzed in this study as first step to understand the nature of the variables.

5.6.2 QUANTITATIVE ANALYSIS

In this analysis Pearson correlation applied to measure the degree of association between different Variables under consideration followed by Regression analysis to estimate the causal relationships between profitability variable and other chosen working capital managment efficiency variables.

6. DATA ANALYSIS AND FINDINGS

The calculated data for descriptive analysis, correlation analysis and regression analysis is presented in the following sections along with findings.

6.1 DESCRIPTIVE ANALYSIS

TABLE 6.1: DESCRIPTIVE STATISTICS OF DSE REGISTERED CEMENT COMPANIES VARIABLES (2006-2013)

Variabl	Company	N	Range	Minimum	Maximum	Mean	Std.deviation
CSLn	TCCL	8	0.9200	25.0800	26.0000	25.6050	0.3229
	PLCCL	8	1.1300	25.1100	26.2400	25.8387	0.3744
	INDUSTRY	16	1.1600	25.0800	26.2400	25.7219	0.3587
GPLn	TCCL	8	0.7297	24.1788	24.9085	24.6686	0.2387
	PLCCL	8	1.0459	24.4847	25.5306	25.0927	0.3465
	INDUSTRY	16	1.3518	24.1788	25.5306	24.8806	0.3587
CR	TCCL	8	2.5969	1.4049	4.0018	2.6350	0.8756
	PLCCL	8	4.9527	0.9052	5.8579	2.9976	1.4816
	INDUSTRY	16	4.9527	0.9052	5.8579	2.8163	1.1905
WCTR	TCCL	8	1.5375	2.5699	4.1074	3.3889	0.4954
	PLCCL	8	1.7551	1.8283	3.5834	2.5230	0.6273
	INDUSTRY	16	2.2791	1.8283	4.1074	2.9559	0.7058
RTR	TCCL	8	13.7775	17.2583	31.0358	24.1457	4.8309
	PLCCL	8	41.0145	18.4376	59.4521	39.8029	13.0369
	INDUSTRY	16	42.1937	17.2583	59.4521	31.9743	12.4731
PTR	TCCL	8	11.2027	4.7798	15.9825	7.72848	3.5352
	PLCCL	8	2.6082	3.7142	6.3224	4.8972	0.8676
	INDUSTRY	16	12.2683	3.7142	15.9825	6.3128	2.8846
ITR	TCCL	8	1.6218	3.3317	4.9535	4.09407	0.5823
	PLCCL	8	1.2131	2.7009	3.9140	3.3819	0.5061
	INDUSTRY	16	2.2526	2.7009	4.9535	3.7380	0.6426
CCE	TCCL	8	0.2026	0.1366	0.3392	0.2324	0.0635
	PLCCL	8	0.3498	0.0782	0.4280	0.2681	0.1055
	INDUSTRY	16	0.3498	0.0782	0.4280	0.25023	0.8615

Source: compiled on the basis of annual reports of the companies from 2006 to 2013

The following observations can be made from the table:

- The GOPLn of TCCL, PLCCL ranges between 25.08 and 26.0;25.11 and 26.24 with mean of 25.6, 25.838 and standard deviation of 0.3229 and 0.334 respectively. (in absolute valuesTZs.77627 and TZs.195604; Tzs.80203 and Tzs.249111 million with mean of TZs.137708; 175928 and standard deviation of TZs.41751and 56220) respectively) The mean and standard deviation of PLCCL is comparatively higher than industry where as TCCL is lower than the industry.
- The RTR of TCCL and PLCCL ranges between 17.26-31.04 and 18.44 -59.45 with mean of 24.15 and 39.80 and standard deviation of 4.83 and 13.04 respectively. The mean and standard deviation of PLCCL is more than the industry and also TCCL. As against this the mean and standard deviation of TCCL is comparatively lower than both PLCCL and industry
- The PTR of TCCL ranges between 4.78 and 15.98 with average of 7.73 and standard deviation of 3.54. As against this the PTR of PLCCL ranges between 3.71 and 6.32 with average of 4.89 and standard deviation of 0.88. Comparatively PLCCL is utilizing payables effectively as its minimum and maximum range of APP is less than TCCL as well as industry. TCCL minimum and maximum PTR, its average is higher than PLCCL. It shows that comparatively their performance in utilization of payables is lower with more certainty.
- The ITR of TCCL ranges between 3.33 and 4.95 with average of4.09 and standard deviation of 0.58. As against this the ITR of PLCCL ranges between 2.70 and 3.91 with average of 3.38 and standard deviation of 0.51. Comparatively TCCL is utilizing inventory effectively as its minimum and maximum range, average and standard deviation are more than PLCCL and industry.
- The average CR of PLCCL (2.997) is comparatively higher than TCCL (2.64) and industry (2.816)average. Its standard deviation is lowest compared to TCCL and industry.
- The average WCTR of TCCL(3.39) is higher when compared to PLCCL.(2.52) and also industry(2.96). Its standard deviation is lower compared to others, signifying that comparatively working capital is used effectively.
- The average CCE of PLCCL (.268) which is higher than TCCL.(.232) and also industry(.250). The standard deviations of TCCL and PLCCL are comparatively lower than industry. It shows comparatively the CCE of PLCCL is better than TCCL..

On the basis of above analysis it can be concluded that PLCCL performance is comparatively effective in the case of RTR, PTR, CR AND CCE. TCCL performance is comparatively better in the case of ITR and WCTR.

6.2. CORRELATION ANALYSIS

TABLE 6.2: CORRELATION BETWEEN VARIABLES

RATIO	COMPANY		CSLN	GPLN	CR	WCTR	RTR	PTR	ITR	CCE
CSLN	TCCL	COR	1	.910	.581	-.507	.057	-.486	.106	.130
		SIG		.002	.131	.200	.894	.222	.803	.759
	PLCCL	COR	1	.896	-.378	-.118	-.335	-.637	-.207	.251
		SIG		.003	.356	.781	.417	.089	.623	.550
	INDUSTRY	COR	1	.893	.004	-.414	.038	-.514	.232	.262
		SIG		.000	.990	.111	.888	.042	.388	.327
GOPLn	TCCL	COR	.910	1	.450	-.219	.315	-.726	-.151	.373
		SIG	.002		.264	.602	.448	.042	.721	.362
	PLCCL	COR	.937	1	-.301	.018	-.175	-.554	-.101	.232
		SIG	.001		.468	.966	.678	.154	.813	.580
	INDUSTRY	COR	.893	1	.032	-.427	.352	-.659	-.427	.342
		SIG	.000		.905	.099	.181	.005	.099	.194
CR	TCCL	COR	.581	.450	1	-.764	-.560	-.003	.585	.169
		SIG	.131	.264		.027	.149	.994	.128	.690
	PLCCL	COR	-.378	-.301	1	-.673	-.581	.703	-.521	-.774
		SIG	.356	.468		.067	.131	.052	.178	.024
	INDUSTRY	COR	.004	.032	1	-.631	-.325	.042	-.150	-.474
		SIG	.990	.905		.009	.219	.878	.579	.064
WCTR	TCCL	COR	-.507	-.219	-.764	1	.736	-.143	-.597	.414
		SIG	.200	.602	.027		.037	.736	.118	.307
	PLCCL	COR	-.118	.018	-.673	1	.886	-.483	.568	.498
		SIG	.781	.966	.067		.005	.226	.142	.209
	INDUSTRY	COR	-.414	-.427	-.631	1	.058	.204	.371	.217
		SIG	.111	.099	.009		.830	.449	.157	.419
RTR	TCCL	COR	-.057	.315	-.560	.736.037	1	-.661	-.786	.436
		SIG	.894	.448	.149			.074	.021	.281
	PLCCL	COR	-.335	-.175	-.581	.866	1	-.131	.826	.487
		SIG	.417	.673	.131	.005		.756	.011	.221
	INDUSTRY	COR	.038	.352	-.325	.058	1	-.494	-.182	.488
		SIG	.888	.181	.219	.830		.052	.499	.055
PTR	TCCL	COR	-.486	-.726	.003	-.143	-.661	1	.623	-.174
		SIG	.222	.042	.994	.736	.074		.099	.681
	PLCCL	COR	-.637	.554	.703	-.483	-.131	1	.076	.564
		SIG	.089	.154	.052	.226	.756		.857	.127
	INDUSTRY	COR	-.514	-.659	.042	.204	-.494	1	.621	-.223
		SIG	.042	.005	.878	.449	.052		.010	.405
ITR	TCCL	COR	.106	-.151	.585	-.597	-.786	.623	1	-.226
		SIG	.803	.721	.128	.118	.021	.099		.590
	PLCCL	COR	-.207	-.101	-.529	,562	.826	.760	1	.585
		SIG	.623	.813	.178	.142	.011	.857		.127
	INDUSTRY	COR	-.232	-.427	-.150	.371	-.182	.621	1	.070
		SIG	.388	.099	.579	.151	.499	.010		.796
CCE	TCCL	COR	.130	.373	.169	.414	.436	-.174	-.226	1
		SIG	.759	.362	.690	.307	.281	.681	.590	
	PLCCL	COR	.251	.232	-.774	.498	.487	-.242	.585	1
		SIG	.550	.580	.024	.209	.221	.564	.127	
	INDUSTRY	COR	.262	.342	-.474	.217	.488	-.223	.070	1
		SIG	.327	.194	.064	.419	.055	.405	.796	

Source: calculated on the basis of annual reports of companies

Pearson's Correlation analysis is applied for data to identify the relationship between variables of working capital management and profitability. Pearson's correlation between RTR,, ITR,WCTR,CCE and GOP is expected to be positive because as the turnover increases it indicates receivables, inventory and current assets are employed more effectively in generating higher sales and consequently higher profitability. As against this the expected relationship between PTR and GOP is negative because if the speed in repayment of debts increases the time lag in repayment of current liabilities comes down leading to decrease in funds available for working capital consequently effecting sales and profits negatively. The following observations can be made from the analysis of the information contained in the table.

- The relationship between RTR and GOP of TCCL is positive as expected (.315) but not significant at ά. = 1% (*p value*.448), where as in the case of PLCCL it is negative at (-.175) and not significant at ά. = 1% (*p value*.678). The relationship of both the companies put together (being represented as industry hereafter) is negative as against expectation (-.352) but not significant at ά. = 1% (*p value*.181). With these inferences it can be concluded that TCCL receivables are in the proper direction contributing to profitability though not significant like industry where as PLCC yet to manage them effectively building appropriate relationship between these variables.
- The correlation between PTR and GOP of TCCL, PLCCL and industry are negative as expected showing- .726, - .554 and -.659 respectively. This relationship is significant in the case of TCCL and Industry ά. = 1%(.043 and .005) where as in the case of PLCCL it is not significant (.154). With these results it can be concluded that though both companies are in the direction of usin PTR in required direction similar to that of industry but yet PLCCL has to invest efforts to reach significant level.
- The correlation between ITR and GOP of TCCL, PLCCL and industry are negative as against the expectation showing- .151, - .101 and -.427 respectively, however not significant at ά. = 1%(.721; .813 and .099). These results indicate that the relationship of both companies and the industry is not as expected and they have to concentrate in this area to improve the performance.
- The correlation between CCE and GOP of TCCL, PLCCL and industry are also positive as expected showing .373, .232 and .342 respectively. However the relationships were not significant in all cases at ά. = 1%(.362; 580 and.194).
- The correlation between WCTR and GOP of TCCL and Industry are showing negative coefficients as against expectation (-.219 and -.427 respectively), however they not significant at ά. = 1% (*p value*..602 and.099). In the case of PLCCL the relationship is positive (.018) marking in tune with the expectation,

however not significant (.966). With these results it can be concluded that though both companies performance differ, they have to invest efforts to improve the situation.

- The correlation between CR and GOP of TCCL and Industry are showing positive coefficients as expected (.450;.032 respectively)but not significant(.264;.905). The correlation of PLCCL is negative showing against expectation(.468)
- The correlation between CSLn and GOP is positive in both companies and also industry (.910;.937 and.893) the relationships are significant in all the three at ά. = 1%(.002;.001 and .000)

The above analysis showed mixed results. TCCL correlations with GOP in the case of RTR, PTR, CCE are in required direction but not significant. Similarly its ITR and WCTR are in undesired direction though not significant. PLCCL correlations with GOP in the case of PTR, CCE and WCTR are in desired direction but significant only in the case of WCTR. Its correlations with GOP are not desired directions in the case of RTR and ITR. In the case of industry ITR and WCTR are not in desired direction only PTR is in desired direction significantly.

6.3 REGRESSION ANALYSIS

OLS regression analysis was done for GOPLn with CR, CSLn, RTR,PTR, ITR and CCE to investigate further, the association between the working capital measures and the profitability measures. In this model GOPLn is taken as dependent variable and RTR, PTR, ITR,CCE, WCTR are taken as independent variables and CSLn and CR are taken as intervening variables. The adjusted *R*2 , also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables and is 90.5%. The F statistic is used to test the significance of R. Overall; the model is significant as F-statistics is 24.718 and the significance of F change is .000. Further the Durbin Watson test is 1.347 which is within the limits. The VIF of all other variables are below 10. Hence this model is significant. The following tables give the results of the regression analysis that shows model summary, ANOVA, regression coefficients and the corresponding P-values.

TABLE 6.3

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.971[a]	.943	.905	.1107793	.943	24.718	6	9	.000	1.347

a. Predictors: (Constant), CASH CONV.EFFI., INVENT.TURN,RATIO, COMPANY SALESLN, CUR.RATIO, RECEIVABLES TURN.RATIO, PAY.TURN.RATIO

b. Dependent Variable: GROSS OP.PROFIT LN

TABLE 6.4

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.820	6	.303	24.718	.000[b]
	Residual	.110	9	.012		
	Total	1.931	15			

a. Dependent Variable: GROSS OP.PROFIT LN

b. Predictors: (Constant), CASH CONV.EFFI., INVENT.TURN,RATIO, COMPANY SALESLN, CUR.RATIO, RECEIVABLES TURN.RATIO, PAY.TURN.RATIO

TABLE 6.5

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.475	2.748		.901	.391		
	CUR.RATIO	.038	.028	.128	1.372	.203	.735	1.360
	RECEIVABLES TURN. RATIO	.010	.003	.347	3.033	.014	.486	2.058
	PAY.TURN.RATIO	.011	.018	.085	.596	.566	.315	3.170
	INVENT.TURN,RATIO	-.111	.060	-.199	-1.850	.097	.549	1.821
	COMPANY SALESLN	.866	.105	.866	8.242	.000	.575	1.738
	CASH CONV.EFFI.	.165	.443	.040	.372	.718	.562	1.779

a. Dependent Variable: GROSS OP.PROFIT LN

The C is the constant, where the regression line intercepts the y axis, representing the amount the dependent y will be when all the independent variables are 0. Here C is 2.475. The following observations can be made from the analysis of regression coefficients table:

- The unstandardized coefficient of RTR is positive as in expected direction (0.010) and is highly significant at ά. = 0.05%(0.014). It implies that the increase in RTR resulted into increase in GOP and vice versa.
- The coefficient of PTR is positive (.011) with the GOP indicating increase in PTR increases GOP but not significant at ά. = 0.05%(.764). This result is against to expectation.
- The coefficient of ITR is negative (-.111) which is not in the expected direction indicating that increase in this ratio decreases GOP and vice versa. However it is not significant (.097).

- The coefficient of current ratio is positive (.038) with GOP indicating increase in this ratio increases GOP and vice versa. It is as expected but not significant at (.203).
- The coefficient of CCE is positive with GOP(.165) indicating increase in ratio of CCE increases GOP but not significantly at ά. = 0.05%(.718)
- The company sales coefficient positively significantly vary with GOP(.866) indicating increase in sales increases GOP at ά. = 0.05%(.000)

7.0 CONCLUSIONS AND SUGGESTIONS

On the basis of descriptive analysis it can be concluded that PLCCL performance is comparatively effective in the case of RTR, PTR, CR AND CCE. TCCL performance is comparatively better in the case of ITR and WCTR. The correlation analysis showed mixed results. TCCL correlations with GOP in the case of RTR, PTR, CCE are in required direction but not significant. Similarly its ITR and WCTR are in undesired direction though not significant. PLCCL correlations with GOP in the case of PTR, CCE and WCTR are in desired direction but significant only in the case of PTR. Its correlations with GOP are not desired directions in the case of RTR and ITR. In the case of industry ITR and WCTR are not in desired direction, only PTR is in desired direction and significant. CS is in positive relationship with GOPLn and also significant at 5% level of significance in both companies and also industry.

The regression analysis results show that the impact of RTR, CCE on GOP is positive as expected and the relationship is significant only in the case of RTR. The impact of PTR and ITR on GOP are not as expected and the relationships are not significant. The control variables CR and CSLn have positive impact on GOP as expected but the relationship is significant in the case of CS only.

Thus it can be concluded that the industry as well as both the companies have efficiency in RTR so as to have significant impact on profitability. Further, company sales also have significant effect on profitability. However the efficiency with regard to ITR and PTR are not in desired direction.

The first alternative hypothesis that there is a possible positive relationship between efficiency in working capital management and profitability of listed cement companies of Tanzania though proved in the case of RTR and CCE, it was significant in the case of RTR only. This is so because there is positive significant relationship between RTR and GOP. This result endorses that firms more efficient in managing their working capital is expected to pose high level of profitability and vice versa. With regard to second hypothesis, the study results endorsed that there existed a positive relationship between the firm size and its profitability as the increase in sales resulted significant increase in GOP. This may be due to the ability of firms to reduce liquidity levels and cash gaps.

Since, except in the case of ACP, the impact of most of the efficiency measures on GOP are not significant as per regression analysis, it can be suggested that there is ample scope for both the companies to invest efforts for investigating causes for bearing negative impact of ITR and positive impact of PTR on GOP. Further there is also scope for investigating the causes for not having significant impact of CCE on GOP. Based on the causes there is need to initiate measures to improve the relations ships so as to have significant impact on profitability.

8. SCOPE FOR FURTHER RESEARCH

Based on the findings of this study there is scope for further research on cement companies in Tanzania in the following areas:

- Causes for the impact of PTR and profitability
- Causes for the impact of negative relationship between ITR and profitability
- The impact of every component working capital on profitability separately using some control variables
- The impact of internal and external factors on profitability

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