THE EFFECT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF LISTED MANUFACTURING COMPANIES IN DAR ES SALAAM STOCK EXCHANGE (DSE) TANZANIA

By:

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A Research Report for a Dissertation to Be Submitted in Partial Fulfilment of the Award of the Degree of Msc. Accounting and Finance (Msc A & F) of Mzumbe University

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CERTIFICATION

We, the undersigned certify that we have read and here by recommended for acceptance by Mzumbe University, a dissertation titled; ***The Effect Of Working Capital Management On Profitability Of Listed Manufacturing Companies in Dar Es Salaam Stock Exchange (DSE) Tanzania*** in partial fulfilment of the requirements for the degree of Masters of science in Accounting and Finance (MSc A&F) of Mzumbe University.

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I, Kasimu Shekalaghe, hereby declare that this dissertation is my own inventive work and it has not been presented and will not be presented to any other University for a comparable or any other degree award.

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Date_____

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DEDICATION

I dedicate this work to my beloved wife for accepting my request in acquiring college education at his level once again accepting family responsibilities in all over my studies. Thanks for this and my God bless you.

LIST OF KEY ABBREVIATION

ACP	:	Account collection period
ACPLn	:	Account collection period measured in terms of natural logarithms
APP	:	Account payment period
APPLn	:	Account payment period measured in terms of natural logarithms
CCC	:	Cash conversion cycle
CCCLn	:	Cash conversion cycle measured in terms of natural logarithms
CR	:	Current Ratio
DSE	:	Dar es Salaam Stock Exchange
GP	:	Gross Profit
GPLn	:	Gross Profit measured in terms of natural logarithms
INDUSTRY	:	Combination of six (6) listed companies
INVTID	:	Inventory turnover in days
SIMBA	:	Tanga Cement Public Limited Company (SIMBA)
SLn	:	Sale measured in terms of natural logarithms
TATEPA	:	Tanzania Tea Packers (TATEPA)
TBL	:	Tanzania Breweries Limited
TCC	:	Tanzania Cigarette Company Limited (TCC)
TOL GAS	:	Tanzania Oxygen TOL Gases Limited
TWIGA	:	Tanzania Portland Cement Company Limited (TWIGA)
WCM	:	Working Capital Management
WC	:	Working capital

ABSTRACT

Working capital management (WCM) has effects on profitability of firms. The objective of this study is to examine the effect of WCM on the profitability of listed manufacturing companies in Dar es Salaam stock exchange Tanzania.

The quantitative research design was applied on six (6) targeted listed manufacturing companies using panel data analysis for the period of ten (10) years from 2005 to 2014.Descriptive Multiple regression and correlation analysis were applied to examine the relationships between components WCM and the Gross Profit (GP). GP is used as dependent variable, while Inventory turnover in days (INVTID), Average collection period (ACP), Average payment period (APP) and cash conversion cycle (CCC) as independent variables and; Firm size and current ratio (CR) as control variables. For the purpose of understanding the result of this study the combination of all listed manufacturing companies was term as INDUSTRY.

Results reveal that industry correlation between ACP, SLn, CR and GP are in right direction and highly significant, and the correlation between INVTID, CCC, APP and GP are significant but in opposite direction. Regression result showed that there is weak positive relationship between APP, CCC and GP of the industry and strong significant positive relationship between INVTID, SLn, CR and GP further more there is insignificant negative relationship between ACP and GP of the industry.
The study end by concluding that further investigation is to be taken for WCM component with unexpected result. Managers have to take measures for effective and efficiency utilization of WC in order to create shareholder's wealth and firm value. Subsequently the analysis of individual listed manufacturing campaniles was made, the correlation and regression analysis shows mixed results, except for SLn and CR reveals strong significant relationship with GP all most in all companies selected in this study. From this study it is recommended that managers should focus on reducing CCC, INVTID and collect cash from credit customers as soon as possible.

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1.1 Introduction

This chapter deals with background of the study, statement of the problem, objectives, significance, scope, limitations and organisation of the study.

1.2 Background of the problem

Business plays a greater role in the development of economy of any country, capital formation, investment and management is a challenging aspect facing firms in its daily operations (Ramanan 2013). The investment in any business especially corporate sector broadly can be classified as investment for creating capacity 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 (Madishetti & Tundui 2014). The investment strategies and decision on working capital different from one company to another due to their, nature of the operation, economic and business environments of countries and policies followed by the management. (Ponsian, Chrispina, Tago, Mkiibi 2014).

Proper management of invested funds in a business results in effective financial management. (Ebenezer, Asiedu, 2013). Every business unit needs funds for two purposes first for establishment and second, for running its day to day operations. No one can overlook the necessity of funds in a business unit either a retail shop or a large manufacturing concern (Awan & Amin, 2014). Proper management of working capital is essential to a company's fundamental financial health and operational success as a business. The ability to utilize working capital and maintain a solid balance between growth, profitability and liquidity is an indicator of good business management on WC, (Madishetti & Tundui, 2014).

Working Capital mainly represents the current assets of a firm which is the portion of financial resources of business that change from one type to another during the day to day execution of business (Deloof, 2003) and (Madishetti & Tundui, 2014). Current assets comprises of prepaid expenses, outstanding income, cash, short term

investments, trade debtor and inventories. Current liabilities includes, trade creditors bank overdraft, outstanding expenses. The management of working capital can be defined as an accounting approach that emphasize on maintaining proper levels of both current assets and current liabilities (Ponsian et al.. 2014). Working capital management provides enough cash to meet the short-term obligations of a firm, (Raheman, 2007). One of the major issues encountered by fund managers today is not just the procurement of funds but also their meaningful deployment to generate maximum returns, (Ponsian, et al.. 2014). Therefore financial managers have to watch every financial event or aspect without any kind of confident sort out.

1.3 Statement of the problem

The management of working capital is a challenging aspect in any business organization. For manufacturing companies their major function is a production of goods and this function in most firms is largely depending on management of working capital. The WCM is very imperative because it affects the firm's risk, profitability and value (Smith, 1980). Makori, & Jagongo (2013), noted that efficient management of working capital plays an important role in overall corporate strategy in order to create shareholder's value. Lazaridis & Tryfonidis, (2006) noted that many managers spend considerable time on day to day problem involving working capital decision; one reason is that current assets are short-lived investments that are continually converted into other assets types. Weston, & Thomas, (1992) also explained that if the investment in current assets falls from a certain level, it may lead to an inability of paying bills on time and may also result in inventory shortage leading to halting of production activities. It may also lead to loss of sales due to restrictive credit policy by the firm.

There is inconsistence in percentage changes in WC components with gross profit. For example, basing on INDUSTRY data (a combination of all six listed manufacturing firms) it was observed that; during the year 2006 to 2007 WC, Receivable and Payables decreases by 31%, 3% and 21% respectively while GP decreased by 36% however Inventory increased by 17%. The year 2007 to 2008 observations shows that WC, Inventory, Receivable and Payables fall by 123%, 6%,

20% and 14% respectively while GP increased by 4%. In the same way to the year 2013 to 2014 observations shows that; Inventory, Receivables and Payables increased by 7%, 22% and 47% respectively and WC decreased by 4% while GP increased by 83% (Appendix I). This necessitated the finding out of the effects of every component of WC (inventories, account collection and account payables) on profitability, because observed percentage change in WC components does not affect GP percentage change in a proportional way.

In connection to the observed inconsistence, lack of empirical evidence on the working capital management and its impact on the firm profitability in the case of listed manufacturing companies in DSE Tanzania is another motivating force to study the subject in more detail. There are few studies with reference to working capital management in Tanzania like (Ponsian, Chrispina, Tago, & Mkiibi.2014) as well as (Madishetti & Tundui 2014) investigated the effect of WCM on some of the sector wise listed manufacturing companies. Attempt is made here for all listed manufacturing firms in DSE Tanzania.

Padachi (2006), Juan & Solano (2004), Ganesan (2007), Ramana, Ramakrishnaiah, & Chengalrayulu (2013), Afeef (2011), Malik & Bukhari (2014), and Reheman & Anjum (2013) they attempted to find out the influence of WC components on profitability, by applying Return on assets (ROA), Income to total assets (IA), Return on Investment (ROI), the Operating Profit to Sales ratio (OPS), and return on equity (ROE). But the direct influence of WC efficiency is on Gross Profit (GP), Profit before adjusting other expenses. Hence there is a need to study the effect of WC components on Gross Profit. Current Ratio (CR) and Firm Size (Sales) are used in the study as control variables. They have significant impact on profitability, as CR indicates the liquidity of a firm while Firm size reflects the economy of scale of a company.

In view of above an attempt is made to study on ‘The effect of working capital management on profitability of listed manufacturing companies in DSE, Tanzania’.

1.4 General objective

The overall objective of this study is to examine the effect of working capital management on profitability of listed manufacturer firms in Dar es Salaam stock exchange Tanzania

1.4.1 Specific objectives

1. To examine the relationship between inventories turnover in days and profitability of listed manufacturing companies on DSE.
2. To examine the relationship between average collection period and profitability of listed manufacturing companies on DSE.
3. To examine the relationship between cash conversion cycle and profitability of listed manufacturing companies on DSE.
4. To examine the relationship between average payment period and profitability of listed manufacturing companies on DSE.

1.5 Significance of the study

The research have shed light on specific components of working capital management, namely account collection period, inventory turnover in days account payable period and cash conversion cycle and how these components affects the profitability of listed manufacturing firms on DSE. The finding of this study assists managers on the company's working capital management policy because its provide the an important roles of working capital management toward the profitability of firms.

Furthermore, the study brings benefit where the result can contribute to the body of knowledge by identifying current status of the efficiency utilizations of WC and how it enhance on profitability

1.6 Scope of the study

The scope of this research was highly limited on examine the effect of working capital management on profitability of listed manufacturing companies in Dar es Salaam Stock Exchange Tanzania. It was conducted only on six (6) listed companies on DSE namely; Tanga Cement Public Limited Company (SIMBA), Tanzania

Portland Cement company Limited (TWIGA), Tanzania Oxygen Tol Gases Limited (TOLGAS), Tanzania Tea Packers (TATEPA), Tanzania Cigarette Company Limited (TCC) and Tanzania Breweries Limited (TBL). The study covers an examination period of ten (10) years from 2005 to 2014 basing on annual audited financial statements of the named companies. Components of working capital management (account collection period, account payment period, inventory turnover in days and cash conversion cycle) were used to test their effects on profitability of listed firms.

1.7 Limitation of the study

i. Data for analysis was limited to ten (10) years because most of the companies are currently registered on DSE Tanzania
ii. The sample size was limited to six (6) companies due to the reasons that other manufacturing are not listed with DSE hence become difficult brows their financial statements.

1.8 Organisation of the study

This study is divided into six (6) chapters.

Chapter one deals with the background of the problem, statement of the problem, objectives, significance, scope, limitation and organisation of the study.

Chapter two deals with the theoretical and empirical literature review, conceptual framework and research models as well as hypothesis

Chapter three deals with the types of the study, study area, study population, unity of analysis variables and their measurement, sample size, type and source of data, data collection methods and data analysis methods.

Chapter four deals with the presentation of the findings from descriptive, correlation and regression analysis

Chapter five deals with discussion of the findings covers, correlation and regression findings

Chapter six presents the study Conclusion, recommendations and areas for further studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature review covers; theoretical review, empirical studies on WCM, conceptual framework, research models and hypothesis of the study.

2.2 Theoretical review

It consists of two aspects viz; defining key terms and theoretical review

2.2.1 Definition of key terms, concepts working capital management, and profile of Dar es Salaam Stock Exchange (DSE)

Capital

Capital can be articulated as a wealth in the form of assets or money, taken as a sign of the financial strength of an entity, organisation or individual and assumed to be available for investment. In accounting concepts capital can be inferred as money invested in a firm to generate returns while in economics can be inferred as factors of production that are used to create goods or services and are not themselves in the process. (Goodwin 2003)

Working capital (WC)

WC means the amount carried in cash, account receivable, and inventory (in excess of current liabilities) that is available to meet day to day operating need (Garrison, 1991). WC can be viewed statically as the balance between current assets and current liabilities, for example by comparing the balance sheet figures for inventories, trade receivables and cash and trade payables. Alternatively WC can be viewed dynamically as equilibrium between the income generating and resources-purchasing activities of a company (Pass & Pike 1984). Working capital is the Net of current assets minus current liabilities. That is working capital is equal to the value of raw materials, work in progress, finished goods inventories and accounts receivable less accounts payable. (Pandey, 2004)

Net working capital (NWC)

A NWC is the difference between current assets and current liabilities or the aggregate amount of all current assets and current liabilities, (Marcus, Myers, and Brealey, 2006). WC measures the short-term liquidity of a business, and can also be

used to obtain a general impression of the ability of company management to utilize assets in an efficient manner. If the net working capital figure is substantially positive, it indicates that the amount of short-term funds available from current assets is more than adequate to pay for current liabilities as they come due for payment, if the figure is substantially negative, then the business may not have sufficient funds available to pay for its current liabilities, and may be in danger of bankruptcy. The NWC figure is more informative when you track it on a trend line, since this may show a gradual improvement or decline in the net amount of working capital over time. (Marcus & Brealey, 2012)

Working capital cycle

The working capital cycle measures the time between paying for goods supplied to you and the final receipt of cash to you from their sale. It is desirable to keep the cycle as short as possible as it increases the effectiveness of working capital (Marcus & Brealey 2012). Well-organized and managed working capital cycle is associated with the effective management of its components, which includes Inventories, account receivable (trade debtors), cash and account payables (trade creditors) (Goodwin, 2003).

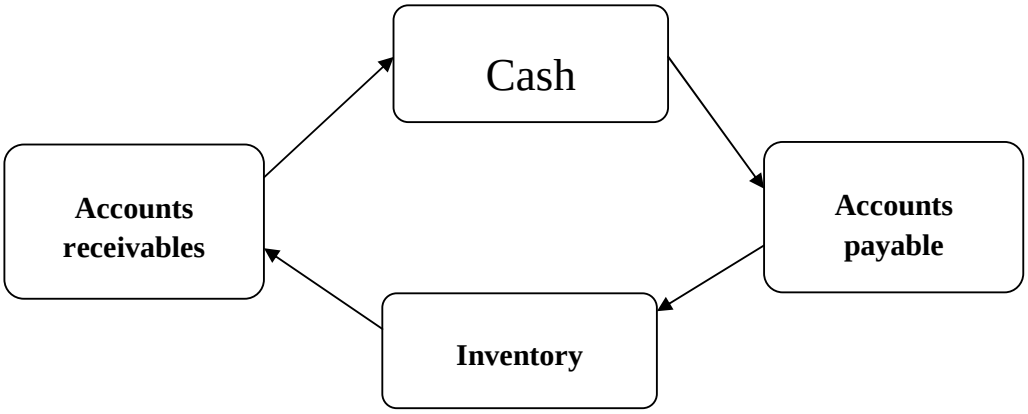
Inventories; These refer to a company's primary asset that it converts into sales revenues. Manufacturing firm’s inventories includes; raw material, work in progress, and stored finished goods. (Marcus, & Brealey, 2012). The rate at which a company sells and replenishes its inventory is an important measure of its success. Inventory that is too low puts the company in danger of losing out on sales, but excessively high inventory levels represent wasteful, inefficient use of working capital. (Singh, 2008). The efficient of inventories is closely associated with terms of purchase, purchase quantity decision taking into account the nature of input and ability of converting inventory into finally sales and cash and deciding optimum investment in inventories.(Madishetti & Tundui, 2014)

Accounts receivables (trade debtors) are revenues due. It reflects the amount which is owed to a company by its customers for goods sold on credit. Timely, efficient collection of accounts receivable is essential to a company's smooth financial operation and Slow payment has a crippling effect on business A common metric analysts use to assess a company's handling of accounts receivable is days sales outstanding, which reveals the average number of days a company takes to collect sales revenues, (Harris, 2005). Madishetti and Tundui (2014) pointed out that, if management fails in efficient management of account receivable it result in to higher average collection period, reduce recycling of fund, blocking of fund with debtors without any additional benefit and ultimately affecting profitability and liquidity of enterprises.

Cash is one of the important components of current assets. It is needed for performing all the activities of a firm, i.e. from acquisition of raw materials to marketing of finished goods. (Ebenezer & Asiedu, 2013) they stated that sound WC is designed to minimize the time between cash expenditure on material and collection of cash from sales. Therefore it is essential for a firm to maintain an adequate cash balance. One of the important functions of a finance manager is to match the inflows and outflows of cash so as to maintain adequate cash.

Accounts payable (trade creditors) refers to money that a company is required to pay out over the short term, commonly results from supplies of raw material made to a company by suppliers. (Sayaduzzaman,2006) commented that Company’s manager maintaining maximum cash flow by delaying payments to suppliers as long as is reasonably possible and at the same time to maintain positive credit ratings and good relationships with suppliers.

Figure 2.1: The Diagram showing how working capital cycle works



Source: School of Distance Education Calicut University P.O., Malappuram, Kerala, India – 673 635

Working capital management (WCM)

Working capital management is the administration of firm's current assets and the financing needed to support current assets (Vanhorne &Wachowicz, 1998). Effective management of working capital ensures that the organisation is maximizing the benefits from net current assets by having an optimum level to meet working capital demands To be effective, working capital management requires a clear specification of the objectives to be achieved. The two main objectives of working capital management are to increase the profitability of a company and to ensure that it has sufficient liquidity to meet short-term obligations as they fall due and so continue in business (Wang, 2002). Working capital management refers to all the actions and decisions of the management which affects the size and effectiveness of working capital. (Sial & Chaudhry, 2012)

Working capital management is the ability to control efficiently and effectively the current assets and current liabilities in a manner that provide the firms with maximum returns on its assets and minimizes payment to its liabilities. Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets. (Eljelly, 2004)

Profitability is the ability of a firm to earn profit. Profit is the difference between sales revenue and cost of generating that revenue (Losses if negative) (Wang'ombe, 2005)

Profile of Dar es Salaam Stock Exchange (DSE)

A Stock exchange is an organized market institution for buying and selling corporate and other securities. Here, securities are purchased and sold out as per certain well defined rules procedures and regulations. Securities traded include shares, debentures and bonds. Shares and debentures are issued by public companies which are duly listed on the stock exchange and bonds and debentures issued by public corporations and municipal, port trust bodies, Government. (Adam, 2003)

The **DSE** is a stock exchange located in Dar es Salaam, a Tanzanian commercial capital, and largest city. DSE was incorporated in September 1996 and trading activities started in April 1998. The activities of the exchange are monitored and supervised by the Capital Markets and Securities Authority (CMSA). The DSE operates in close association with the Nairobi Securities Exchange in Kenya and the Uganda Securities Exchange in Uganda. Plans are underway to integrate the three to form a single East African bourse. DSE allows foreign investors participation in strategic development matters, investor education and public awareness initiatives. Since the begging of its operation twenty (20) companies offering different services have being listed, fourteen (14) are domestic companies and six (6) are cross listed companies (www.dse.co.tz).

The domestic listed manufacturing companies selected for this study includes; Tanga Cement Public Ltd Co.(SIMBA), Tanzania Portland Cement Co. Ltd. (TWIGA), Tanzania Cigarette Company.(TCC), Tanzania Breweries Ltd.(TBL), TOLGases Ltd. (TOL) and Tanzania Tea Packers Company Ltd.(TATEPA). Appendix II

These companies are important for this study because, the economic strength of a country is also judged form the development of manufacturing companies, these companies provides employment and eradicate poverty; hence their going concern, growth, prosperity and profitability are associated with efficiency in WCM.

2.2.2 Theoretical reviews

Padachi (2006) explained that WC meets the short term financial requirements of a business enterprise. It is a trading capital, not retained in the business in a particular form for longer than a year. The money invested in it changes form and substance during the normal course of business operation. Working capital management plays a major role in the growth and expansion of manufacturing companies and enhancement of profitability. WCM is very imperative because it affects the firm's risk, profitability and value (Smith, 1980). Inefficient management of WC will ultimately result to closure of the firm. However WC starvation is generally credited as a major of business failure in many developing and developed countries. (Peel & Wilson 1996) Firms should adopt formal WCM routines in order to reduce the probability of business closure as well as to enhance business performance

Madishetti & Tundui (2014) emphasizes that, business viability, profitability; growth and prosperity are closely associated with efficient managing the WC. (Deloof 2013) argued that proper management of WC has significant impact on profitability of manufacturing companies. Moreover Ebenezer & Asiedu, (2013) and Padachi, (2006) viewed that for production firms whose assets are mostly composed of current assets as it directly affects liquidity and profitability if not constantly controlled and managed the business can find itself in a difficulty condition. However, any of the investment above the optimum level may increase the current assets of the firm without increasing proportionately the profits of the firm. Resultantly the rate of return on investment declines.

Ebenezer & Asiedu (2013) elaborated that account receivable makes up a large portion of current assets; they actually composed of 25.97 percent of a typical firm assets. The author further explained that an increase in account receivable that is additional extension of credit sales not only result to higher sales, also require additional financing to support the increased investment in account receivables. The cost of credit investigation and collection efforts and the chances of bad debt increased. Weston & Thomas, (1992) noted that; an optimal level of holdings of such individual current assets will lead to profit maximization for the firm.

2.3 Empirical literature review

Since literature review is a body of knowledge with substantive findings, this chapter covers the evidences exposed from different authors, who invested much in finding the reality of the concept on working capital management and its impact on profitability of firms. Firms dealing with operating activities which result to work in progress, inventory of raw materials and finished goods, credit purchase and credit sales, Managers in such firms normally involve day to day decisions regarding those components to insure the optimal working capital for running day to day business activities. The core objective of working capital management is to make sure that a firm is able to continue its operations and it has an adequate amount of fund to satisfy both maturing short-term debt and forthcoming operational expenses. The two main objectives of working capital management are to increase the profitability of a company and to ensure that firm has enough liquidity to meet short-term obligations as they fall due and so continue in business (Pass & Pike, 1984).

Ponsian, Chrispina, Tago and Mkiibi, (2014) Conducted a study on "The effect of working capital management on profitability" data for analysis were obtained from annual financial report of 3 manufacturing company listed in Dar es Salaam Stock exchange covering 10 year from 2002 to 2012. Using Gross operating profit as dependent variable while average collection period, average payment period, inventory conversion period and cash conversion cycle as independent variable. Ordinary Least Squares (OLS) regression model is used by researchers through this model they come out with the following result. There is existing positive relationship between cash conversion cycle and profitability of the firm. This means that as the cash conversion cycle increases it will lead to an increase in profitability of the firm, and managers can create a positive value for the shareholders by increasing the cash conversion cycle to a reasonable level; they find that; there is a negative relationship between liquidity and profitability, viewing that as liquidity decreases, the profitability also increases; also there is existing highly significant negative relationship between average collection period and profitability indicating that a decrease in the number of days a firm receives payment from sales affects the profitability of the firm positively; again they find that there is a highly significant

positive relationship between average payment period and profitability. This implies that the longer a firm takes to pay its creditors, the more profitable it is.; and Lastly, there exists a highly significant negative relationship between inventory turnover in days and profitability meaning that firms which maintain sufficiently low inventory levels reduce the cost of storing the inventory which results to higher profitability.

Padachi (2006) His study on Trend in Working Capital Management and its Impact on Firms' Performance: an Analysis of Mauritian Small Manufacturing Firms. Key independent variables used in the analysis are inventory days, accounts receivable days, accounts payable days and cash conversion cycle and return on total assets was used as dependent variable, data for analysis was taken from sample of 58 small manufacturing firms for the period six (6) years from 1998 to 2003. Correlation analysis reveals that ROTA is negatively correlated with the measures of WCM, except for the cash conversion cycle. This positive relation for CCC is consistent with the view that resources are blocked at the different stage of the supply chain, thus prolonging the operating cycle. This might increase profits due to increase sales, especially where the costs of tied up capital is lower than the benefits of holding more inventories and granting more trade credit to customers. Also the small manufacturing firms may be able to obtain trade credit from the suppliers and this is supported by the higher proportion of current liabilities to total assets for all the industries except for the paper products. The regression result shows that high investment in inventory and receivable is associated with lower profitability. A small number of days' sales in inventory indicate that a company is more efficient at selling off its inventory, while a large number indicates that it may have invested too much in inventory, and may even have obsolete inventory on hand. On the other hand a small number of days' in collecting receivables indicate that company is more efficient at collecting cash from credit customers, note that discount allowed to customers should not exceed the benefit.

Gill, Biger, and Mathur (2010) carried a study on the relationship between working capital management and profitability, sample of 88 American listed companies on New York Stock Exchange for a period of three years from 2005 to 2007 was used to

obtain data for analysis. Account receivable days, account payable period, inventory turnover in days and cash conversion cycle were used as explanatory variables measured through Gross profit, while firm size financial debt ratio and fixed financial asset ratio are control variables. Regression analysis was used for testing and signifies that the coefficient of account receivable is negative, that is the increase or decrease in average collection period will significantly affect the profitability while account payable period and inventory turnover in days none of the variable turned to be statistically significant. Based on those finding by (Gill, Biger, & Mathur, (2010); "Firm's manager can reduce credit period granted to customer in order to maximize firms profitability and shareholders wealth".

Uchenna, Mary, and Okelue (2012) Investigated effect on working capital management on profitability from the top five beer brewery firms around the world, they found that the relationship between world leading firms' cash conversion cycle, sales growth rate and profitability is positive therefore cash conversion cycle and sales growth rate are effective determinants of the sector's profitability. The magnitude is that increasing sales and reducing cash conversion cycle influences positively world leading beer brewers' profitability.

Juan and Solano (2004) they investigated the effect of working capital management on small medium entrepreneurs profitability in Spain. Return on assets (ROA) being used as dependent variable to be explained by number of days in inventory, number of days in account payables, number of days account receivable and cash conversion cycle, firm size was used as control variable measured by natural logarithm. Regression result shows that there are significance relations between return on assets and the number of days in accounts receivable, number of day of inventory and number of days in account payables. Return on assets is reduce or increased by lengthening or shortening of account payable days, account receivable days and inventory conversion period. With reference to control variable corporate profitability is positively associated with firm size. On the other hand, *no* significant relationship is found to exist between any of the profitability indicators and the account Payable Period, Cash Conversion Cycle and Current Ratio. They concluding

that working capital management are most important in the case of small and medium size enterprises, because most of these companies' assets are in the structure of current assets and current liabilities are one of their major sources of outdoor finance.

Lazaridis and Tryfonidis, (2006) they researched on the relationship between working capital management and profitability on listed companies in the Athens stock exchange he uses131 companies for the period of 2001 to 2004. The results showed that there is statistical significance relationship between gross operating profit and the cash conversion cycle. Pointed out that 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. The three components of cash conversion cycle (accounts payables, accounts receivables and inventory) can be managed in different ways in order to take full benefit of profitability hence improve company' wealth. The best possible level of inventories will have a direct impact on profitability because it will release working capital resources tied up which in turn will be invested in the business cycle, correspondingly both credit policy from suppliers and credit period granted to customers will have an impact on profitability. Therefore in order to have maximum value, Management of such company has to maintain equilibrium in receivables-payables and inventory to shorten cash conversion cycle. Harris (2005) pointed out that company's financial officers struggling to identify core working capital drivers and the appropriate level of working capital failure to do so companies can be limited in their ability to weather unforeseen or adverse events and ensure that cash is readily available where it is needed, regardless of the circumstances.

Ganesan (2007) conducted a study on An Analysis of Working Capital Management Efficiency in Telecommunication Equipment Industry. They examine the relationship of working capital management efficiency and profitability using correlation regression analysis and ANOVAs, Using a sample of 443 annual financial statements of 349 telecommunication equipment companies covering the period 2001-2007, the regression analysis results indicate that there negatively

associated between Income to total assets (IA) and days working capital (DWC), even though the IA is negatively associated with the DWC, but the association is not significant.. The finding also indicate that; Income Sales (IS) is negatively associated with days working capital (DWC), days sales outstanding (DSO), days inventory outstanding (DIO) and days payables outstanding (DPO). However DSO is not significant to IS or IA the author articulated that DSO cannot predict the outcome of IS and IA due to insignificant. The correlation analysis is consistent with this result. The reason for this could be proportions of account receivables reduced by working capital management activities are much less when compared to the total assets and the sales made. Hence, there is substantiation that in telecommunication industry, either account receivables management is disproportionately large when compared to the current assets or mismanagement of noncurrent assets.

Deloof (2003) in his study on doe's working capital management affects the profitability of Belgian firm? Analyzes a sample of 1,009, large Belgian non financial firms for the year 1992 to 1996, Trade credit policy and inventory policy are measured by number of days accounts receivable, accounts payable and inventories, and the cash conversion cycle is used as a comprehensives measure of working capital management his result indicates that the coefficient of the accounts receivable variable and inventory turnover in days are negative and highly significant related with gross operating profit, and Suggest that managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories also observed the negative relation between accounts payable and gross operating income hence less profitable firm wait longer to pay their bill Belgian firm's manager can improve their profitability by reducing the number of days account receivable and inventory turnover days., the same result was found by Ramachandra & Janakirama (2006) Most firms have a large amount of cash invested in working capital, as well as substantial amounts of short-term payables as a source of financing.

Ramana, Ramakrishnaiah, & Chengalrayulu (2013) they conducted a study on the Impact of receivables management on working capital and profitability: a study on select Cement Companies in India. The ratios which highlight the efficiency of receivables management are., 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, have been computed statistical tools like ANOVA was also used to know the impact on working capital and profitability. Working capital and profitability were considered as dependent variables. The study reveals that the receivable to current assets ratio across industry worst was not satisfactory, receivables to assets ratio position is better. Andhra Cement Ltd and Madras Cement Ltd had better performance in receivables management, whereas India Cement Ltd and Bheema Cement Ltd had poor performance. The average collection period across industry was less than the suggested norms during the study period. The collection period for India Cement Ltd and Bheema Cement Ltd was higher than the industry average whereas the collection period for Andhra Cement Ltd and Madras Cement Ltd was less than the industry average period. Receivables management shows a significant impact on profitability of a firm.

Afeef (2011) studied on analyzing the Impact of working capital management on the Profitability of SME's in Pakistan. This study, aimed to determine the potential effect of working capital management on the profit performance of Small and Medium sized firms in Pakistan To investigate, effect of working capital management was determined on profitability of a sample of 40 Pakistani small and medium enterprises (SME's) listed in Karachi Stock Exchange for a period of six years from 2003 to 2008 which led to a total of 240 firm year observations. Variables used in the Study; dependent variables are measured by two variables separately which are; Return on Assets (ROA), and the Operating Profit to Sales (OPS) ratio. The independent variables includes; Cash Conversion Cycle (CCC), Calculated as Receivable Collection Period plus Inventory Conversion Period minus Payable Deferral Period. CCC serves as the best known measures for representing working capital management. Result observed that both the Correlation and the Regression

analysis for the sample reveals significant negative relationships of the Inventory Conversion Period ‘and the Receivable Collection Period ‘with the Operating Profit to Sales ‘of small firms. Hence, it can be held that an efficient management of working capital does have a substantial impact on the Profitability of Small and Medium-sized corporations listed at Karachi Stock Exchange.

Malik and Bukhari (2014) conducted a study on The Impact of Working Capital Management on Corporate Performance: data for the study were obtained from annual reports of the companies during 2007-2011.38 Firms used in their study were from Cement, Chemical and Engineering Sectors of Pakistan. Key variables were average collection period, average age of inventory, average payment period, operating cycle, and cash conversion cycle, return on equity. Result indicates that average payment period negatively and significantly related with return on equity, whereas cash conversion cycle positively and significantly related with return on equity. While, average collection period and operating cycle positively and insignificantly with return on equity whereas average age of inventory negatively and insignificantly relates to the return on equity. Also result shows that ‘return on equity is positively correlated with average collection period, firm size and cash conversion cycle while negatively correlated with average age of inventory, average payment period and leverage. Firm size (natural logarithm of asset) is having positive correlation with return on equity. Generally working capital management influences the firm’s performance.

Rehman & Anjum (2013) investigated the determination of the impact of working capital management on profitability: An empirical study from the Cement Sector in Pakistan. To accomplish the study objectives, data were collected from Annual Reports and sample consist of 10 Pakistani cement Companies listed at KSE from 2003-2008. Key variables are; In this research current Ratio, quick Ratio, current assets to total assets ratio, current assets to sales ratio, working capital turnover ratio and inventory turnover ratio have been taken as components of independent variable i.e., working capital management variable and Return on assets used as the dependent variable. Regression and correlation results proved that working capital

management has a negative association with the productivity. It means when working capital increases, liquidity increases and profitability decreases. However, firms that invest heavily in inventory and trade credit can suffer reduced profitability. Thus, the greater the investment in current assets, the lower the risk, but also the lower the profitability obtained. On the other hand, trade credit is a spontaneous source of financing that reduces the amount required to finance the sums tied up in the inventory and customer accounts. But we should bear in mind that financing from suppliers can have a very high hidden cost if early payment discounts are available. In fact the opportunity cost may exceed 20 percent, depending on the discount percentage and the discount period granted (Wilner**,** 2000, Smith, 1999).

Madishetti & Tundui (2014) on their study on impact of working capital management on the Profitability of listed cement companies in Tanzania. The study included two listed cement companies and data were drawn from annual audited financial report range for 8 years from 1999 to 2007. Independent variables included were average collection period, average payment period, inventory turnover days; cash conversion cycle and cash conversion efficient, and dependent variable was gross operating profit. |They concluded that; there is a strong negative relationship between account collection period and gross profit and positive relationship between size of the company (company sales) and gross profit. Taking to consideration of those past studies it is important to conduct this study based on listed manufacturing firm in DSE. To understand more the potentiality of working capital components on profitability of firms is vital roles of managers and other heads of departments in business.

Riwo, Kimeli, Nzioki & Nthiwa (2013) studied on Management of working capital and its effect on profitability of manufacturing companies listed on Nairobi securities exchange (NSE) Kenya. Data for the study were taken from nine listed companies but only data six companies were used because of other company were delisted. Independent variables included in the study are average collection period; inventory turnover days, average payment period and cash conversion cycle and dependent variable was gross operating profit while current ratio, financial assets and debts ratio

were control variables. They concluded that profitability of manufacturing firm depends on effective working capital management. Gross profit is positive related with average collection period and average payment period. It is therefore profitable to delay payables and invest the money in different profitable ventures/areas. The investment interest and prompt payment discount (cash discount) my outweigh the decision of managers "if interest rate is profitable than cash discount managers will delay paying payables but if cash discount is more profitable managers will soon pay suppliers/creditors so as to enjoy such benefit On the other and firms should collect receivables as soon as possible because it is better to receive inflows sooner than later. Furthermore researchers concluded that gross operating profit is negative correlated with cash conversion cycle. This means that by shortening cash conversion cycle firms' profitability improves.

Table 2.1 Summary of empirical literature review

Author and year	place, firm and title	Variables		Relationship identified
		Independent	dependent	
Ponsian., Chrispina., Tago., & Mkiibi. (2014).	The effect of working capital management on profitability Tanzania, 3 listed manufacturing firm on DSE	average collection period, average payment period, inventory conversion period and cash conversion cycle	Gross operating profit	positive relationship between CCC and profitability negative relationship between ACP and profitability negative relationship between INVTID and GOP positive relationship between APP and GOP
Padachi (2006).	Working Capital Management and its Impact on Firms' Performance: an Analysis of	Inventory days, accounts receivable days, accounts payable days and cash conversion cycle	return on total assets	ROA in negatively correlated Inventory days, accounts receivable days, accounts payable days while positively

	Mauritian Small Manufacturing Firms. period six (6) years from 1998 to 2003			correlated with cash conversion cycle.
Gill., Biger., & Mathur (2010)	the relationship between working capital management and profitability, sample of 88 American listed companies on New York Stock Exchange for a period of three years from 2005 to 2007	Cash conversion cycle, accounts receivable days, financial debt ratio, ratio of fixed financial, average days of accounts payable and days account receivable is negative	gross operating profit	CC is positive and significant related with gross operating profit accounts receivable days is negative correlated with gross operating profit financial debt ratio is significant negative relationship with gross operating profit Ratio of fixed financial assets to total assets also has negative relation with gross operating profit, average days of accounts payable provided very poor results and days account receivable is negative related with gross operating profit.
Juan. & Solano (2004).	Effect of working capital management on small medium entrepreneur's profitability in	number of days in inventory, number of days in account payables, number of days account receivable and cash conversion	Return on assets (ROA)	Positive significance relations between return on assets and number of days in account payables, and negative significant relationship

	Spain.	cycle, firm size		between return on assets and the number of days in accounts receivable, and number of day of inventory Return on assets is positively associated with firm size. No significant relationship between cash conversion cycle and current ratio.
Lazaridis,(2006)	The relationship between working capital management and profitability on listed companies in the Athens stock exchange he uses131 companies for the period of 2001to 2004.	Cash conversion cycle Fixed financial assets ratio Days account payable Firm size Days inventory turnover Days account receivable	gross operating profit	negative relationship between cash conversion cycle and gross operating profit Fixed financial assets have a positive coefficient with gross operating profit. Negative relationship between Gross operating profit and accounts payables. Highly significant relationship between firm size and gross operating profit negative relationship between gross operating profit and accounts receivables negative relationship between gross profit and inventory
Ganesan (2007)	Analysis of Working Capital Management	inventory outstanding (DIO) days working capital	Income Sales (IS) Income to	Negatively associated between Income to total assets (IA) and days

	Efficiency in Telecommunication Equipment Industry. Using a sample of 443 for the period 2001-2007	(DWC), Days payables outstanding (DPO). days sales outstanding (DSO)	total assets (IA)	working capital (DWC), Income Sales (IS) is negatively associated with days working capital (DWC), days sales outstanding (DSO), days inventory outstanding (DIO) and days payables outstanding (DPO). Income Sales (IS) is negatively associated with days working capital (DWC), days sales outstanding (DSO), days inventory outstanding (DIO) and days payables outstanding (DPO).
Ramana, Ramakrishnaiah, & Chengalrayulu (2013).	Impact of receivables management on working capital and profitability: a study on select Cement Companies In India	Receivables to Current Assets Ratio, Receivables to Total Assets Ratio, Receivables to Sales Ratio, Receivables Turnover Ratio, Average Collection Period, and Working Capital Ratio	Return on Investment (ROI)	receivable to current assets ratio across industry worst was not satisfactory, receivables to assets ratio position is better
Afeef (2011)	Analyzing the Impact of Working Capital Management on the Profitability of SME's in Pakistan. 40 Pakistani small and medium enterprises	Cash Conversion Cycle (CCC), Receivable Collection Period Inventory Conversion Period, Payable Deferral Period	Return on Assets (ROA) and the Operating Profit to Sales (OPS) ratio.	Significant negative relationships of the Inventory Conversion Period 'and the Receivable Collection Period 'with the Operating Profit to Sales

	(SME's) listed in Karachi Stock Exchange for a period of six years from 2003 to 2008			
Malik & Bukhari (2014)	The Impact of Working Capital Management on Corporate Performance. 38 firms from Cement, Chemical and Engineering Sectors of Pakistan period from 2007-2011	average collection period, average age of inventory, average payment period, operating cycle, and cash conversion cycle	return on equity	average payment period negatively related with return on equity cash conversion cycle positively and significantly relate with return on equity average collection period and operating cycle positively and insignificantly related with return on equity average age of inventory negatively and insignificantly relates to the return on equity
Rehman & Anjum (2013).	The determination of the impact of working capital management on profitability: An empirical study from the Cement Sector in Pakistan. 10 Pakistani cement Companies listed at KSE, data taken from 2003-2008	current Ratio, quick Ratio, current assets to total assets ratio, current assets to sales ratio, working capital turnover ratio and inventory turnover ratio	Return on assets	working capital management has a negative association with the productivity Negative relationship between liquidity and profitability. Positive relationship between inventory and profitability. Negative relationship between current assets and profitability

Madishetti & Tundui (2014).	Impact of Working Capital Management on the Profitability of listed cement companies in Tanzania. The study included two listed cement companies Data for analysis range for 8 years from 1999 to 2007	collection period, average payment period, inventory turnover days; cash conversion cycle and cash conversion efficient	gross operating profit	strong negative relationship between account collection period and gross profit positive relationship between firm size (company sales) and gross profit
Riwo., Kimeli., Nzioki.,& Nthiwa (2013).	Management of working capital and its effect on profitability of manufacturing companies listed on Nairobi securities exchange (NSE) Kenya. Six listed companies were included in this study.	average collection period; inventory turnover days, average payment period and cash conversion cycle control variables financial assets and debts ratio	gross operating profit	Gross profit is positive related with average collection period and average payment period gross operating profit is negative correlated with cash conversion cycle

2.4 Conceptual framework and research models

This section tries to highlight the relationship of explanatory variables against explained variables based on theories and various concepts of working capital and profitability of firms. Conceptual frame work is an association of concepts that provides a focus for investigation. It is organized to provide a centre of attention, a basis, and a tool for the integration and interpretation variables held for investigation. Conceptual frameworks also provide a foundation and organization of ideas of the researched problem. (Ravitch, & Riggan 2012).

In this study Gross profit (GP) is used as dependent variable to be explained by independent variables which includes Account Payment Period (APP), Account collection period (ACP), Inventory Turnover in days (INVTID) and Cash Conversion Cycle (CCC). These independent variables will be controlled by Firm size (sales) and Current Ratio (CR) or Liquidity ratio.

Figure 2.2: Interaction of independent, dependent and control variables

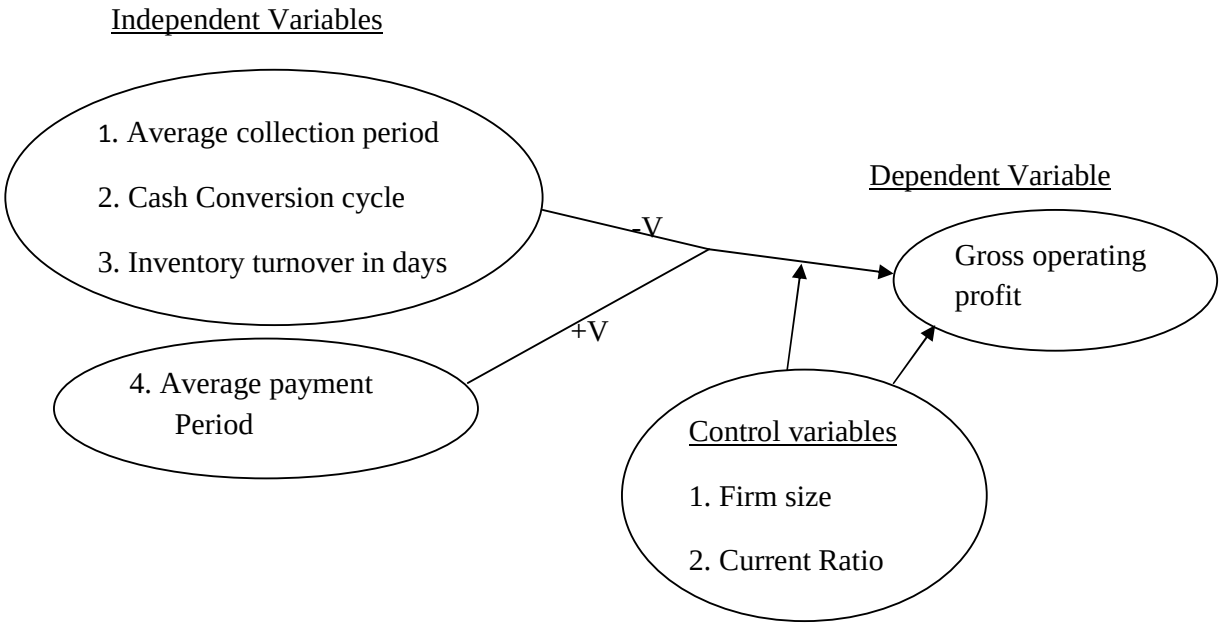


Table 2.2: key variable and the expected effects on Gross profit

Variables	Type of variable	Expectation	justification
Average Payment Period (APP)	Explanatory variable	positive sign	APP↑ → GP↑
Average collection period (ACP),	Explanatory variable	Negative sign	ACP↓ → GP↑
Inventory Turnover in days (INVTID)	Explanatory variable	Negative sign	INVTID↓ → GP↑
Cash Conversion Cycle (CCC).	Explanatory variable	Negative sign	CCC↓ → GP↑
Firm size (sales)	Control variable	positive sign	FS↑ → GP↑
Current Ratio	Control variable	positive sign	CR↑ → GP↑

2.5 Research Models

By using Statistical Package of Social Science (SPSS) programs, the form of regression equation adopted is linear equation to examine the relationship between the variables by using correlations and multiple regression analysis. To test the hypothesis of the study the following four models were developed and used.

First Model: Test the relation between inventory turnover in days and profitability

$$Y_{it} = a+\beta1\ (INVIDLn)it+\beta2(SLn)it+\beta3(CR)it +e$$

Second Model: Test the relation between average collection period and profitability

$$Y_{it} = a+\beta1(ACPLn)it+\beta2(SLn)it+\beta3(CR)it +e$$

Third Model: Test the relation between cash conversion cycle and profitability

$$Y_{it} = a+\beta1\ (CCCLn)it+\beta2(SLn)it+\beta3(CR)it +e$$

Fourth Model: Test the relation between Average payment period and profitability:

$$Y_{it} = a+\beta1\ (APPLn)it+\beta2(SLn)it+\beta3(CR)it+e$$

Where by:

α	=	Constant term for the independent variables
Y	=	Gross o profit Natural logarithm
ACPLn	=	Average collection period Natural logarithm

CR	=	Current ratio
SLn	=	Size of the firm (sales) Natural logarithm
INVTIDLn	=	Inventory turnover in days Natural logarithm
APPLn	=	Average payment period Natural logarithm
CCCLn	=	Cash conversion cycle Natural logarithm
e	=	The error term
β	=	Regression coefficient model

2.6 Hypothesis of the study

Regarding the main objective of this study as to examine the effect of working capital management components on the profitability of listed manufacturer firms on Dar es Salaam stock exchange Tanzania, the study makes a set of testable hypothesis which are Null Hypothesis H_0 and the alternative Hypothesis

2.6.1 First hypothesis

H_0 There is no positive relationship between inventory turnover in days and gross profit

H_1 There is positive relationship between inventory turnover in days and gross profit

2.6.2 Second hypothesis

H_0 There is no positive relationship between Average collection period and gross profit

H_1 There is positive relationship between Average collection period and gross profit

2.6.3 Third hypothesis

H_0 There is no positive relationship between cash conversion cycle and gross profit

H_1 There is positive relationship between cash conversion cycle and gross profit

2.6.4 Fourth hypothesis

H_0 There is no positive relationship between Average payment period and gross profit

H_1 There is positive relationship between Average payment period and gross profit

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a systematic way to solve a problem. It is a science of studying how research is to be carried out. They are essentially planned, scientific and value neutral. They include theoretical procedures, experimental studies, numerical schemes, statistical approaches, (Rajasekar, Philominathan, & Chinnathambi 2006).

This chapter covers; Type of the study, study area, study population, variables and their measurement, sample size and sampling techniques, type and sources of data, data collection, validity and reliability of data, and data analysis methods.

3.2 Type of the study or Research design

The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data, (De Vaus, 2001).

This study is quantitative design, where by secondary data are being deployed, the design is more in practical way on finding the solution to the problem stated. The method was also adopted by various researchers who tried to investigate the relationship of working capital management on profitability, including; (Deloof 2003), (Ebenezer & Asiedu 2013), (Chowdhury & Amin 2007), (Ganesan 2007), (Juan & Solano 2004), (Makori & Jagongo 2013), (Malik & Bukhari 2014), (Padachi 2006), (Ponsian, Chrispina, Tago & Mkiibi 2014), (Raheman & Nasr 2007) and (Madishetti & Tundui 2014).

3.4 Study area

The study was carried out in Dar es Salaam Stock Exchange Tanzania. Researcher was interested on extending knowledge on the effect of working capital management

on listed manufacturing companies in Tanzania. Six companies are selected and focus is extensively on WCM.

3.5 Population of the study

This study focuses completely on six (6) listed manufacturing companies in DSE which are Tanga Cement Public Ltd Co. (SIMBA), Tanzania Portland Cement Co. Ltd. (TWIGA), Tanzania Cigarette Company (TCC), Tanzania Breweries Ltd. (TBL), TOLGases Ltd. (TOL) and Tanzania Tea Packers Company Ltd. (TATEPA). The availability of data from published audited annual financial statements is the main criteria for the selection of these companies from the data base of DSE. Appendix II

3.6 Variables of the study and their measurements

The selection of variables in this study is highly influenced by previous researchers who devoted time and financial resources to investigate the impact of WCM on profitability of various companies across the world, few of them are (Deloof 2003), (Ebenezer, & Asiedu 2013), (Makori & Jagongo 2013), (Padachi 2006), and (Raheman & Nasr 2007). Though applied most related variables but they came out with mixed results.

3.6.1 Independent variables of the study

Independent Variable, the experimenter manipulates that its Changes is assumed to have a direct effect on the dependent variable. The independent variable is the condition that you change in an experiment its value does not depend on and is not affected by the state of any other variable in the experiment. The independent variable causes the effect on the dependent variable.

3.6.1.1 Inventory turnover in Days (IVNTID)

Inventory turnover in days can be stated as the average of time required to convert raw material into finished goods or it shows how many times the inventory of a company is sold. It is calculated by taking average inventory divided by cost of goods sold multiplying by 365 days.

Management of inventory can be explained as coordinating, controlling and planning related to inflow and outflow of inventory of enterprises. Brigham and Houston (2002) stated that “inventory may be classified as Supplies, Raw material, Work in progress and finished goods. On the other hands the amount of inventory to be maintained is highly considered through targeted sales. The higher the amount inventories the high the cost of holding it. Managers are responsible to establish optimal level of inventory so as to avoid stock out or over stocking. Also optimal inventory help to meet customer demand, it reduces the cost of sales and increases profitability thus why inventory management is the key component of working capital management.

3.6.1.2 Average collection period (ACP)

Measures the lengths of time between credit sales were made and cash collection from debtor (credit customers), it is calculated by taking average debtors divided by total credit sales of the year multiplied by 365 days. Firm profitability increases if few days are used to collect cash from customers, by fast cash collection increases liquidity of firm which in turn assists to meet matured short term obligation and to meet day to day business expenditure.

Ponsian et al.. (2014) explained that a longer average collection period requires a higher investment in accounts receivable. A higher investment in accounts receivable means less cash is available to cover cash outflows, such as paying bills. This fact indicates that there is negative relationship between firms’ profitability and average collection period. Deloof (2003), states that managers can increase corporate profitability by reducing the average collection period. The longer the number of day’s accounts receivable outstanding, the greater the chance that the firm may lose its profitability**.**

3.6.1.3 Cash Conversion cycle (CCC)

Refers to the business tool which is used to measure the time in days a company takes to convert inventories and receivable into cash flow subjected by days for supplies and labour cost. This cycle is most important for manufacturing firms

because production process involve work in process, inventory of raw material and finished goods. Some time firms acquire inventories on credit basis which result to account payables also most of firm sales its product on credit basis which result to account receivables, generally firm has to collect cash from trade debtors and pay trade creditors and other short term obligations. The action of doing so will decrease CCC and improve profitability

CCC is calculated by taking ACP + INVTID – APP = CCC

3.6.1.4 Average payment period (APP)

APP is normally used as measures of management's efficient in trade creditors. APP can be described as the length of time between credits purchases labour usage cost and payments. It is calculated by taking average account payable dividing by purchases and multiplying by 365 days.

3.6.2 Dependent variable of the study

The dependent variable is the condition that you measure in an experiment. You are assessing how it responds to a change in the independent variable. The dependent variable is the one affected by a change in the independent variable.

3.6.2.1 Gross profit (GP)

Refers to the company's total revenue minus cost of sale (cost of goods sold). Gross profit measures a company's efficiency at utilizing labour and supplies. In manufacturing concepts are considered as variable costs (costs that fluctuate with the level of output) such as direct materials and labour, commissions for sales staff and other cost which varies with level of output. Thus Gross profit equals to revenue minus cost of goods sold, cost of goods sold includes cost associated with production or sale of goods. We use gross profit as dependent variable in this study to find out how is influenced by explanatory variables.

3.6.3 Control variables of the study

The control variable strongly influences experimental results, and it is held constant during the experiment in order to test the relative relationship of the dependent and independent variables.

3.6.3.1 Firm size/ Sales (SLn)

Refers to the revenue or sales of companies, natural logarithm of sales (SLn) is used as control variable in this study, generally when revenue increases gross profit also increases, this facts indicate positive linear relationship between gross profit and sales. Sales mangers has to employ several strategies for improving sales of their companies, various techniques such sales promotion, advertisement, market research etc assist managers in improving sales hence increase gross profit.

3.6.3.2 Current ratio (CR)

Refers to the ratio which measures the ability of company's current assets against current liabilities, the ratio is calculated by taking current assets divided by current liabilities. current assets also refers to the short term assets which can be converted into cash quickly so as to meet short term obligation, the excess of current assets over current liabilities indicates the health of the company while inability to meet short term obligation is an indicator of insolvency. Based on the objective of this study CR is used as a control variable.

3.7 Sample size and sampling technique

The sample size of the study is all the six (6) listed manufacturing companies on DSE Tanzania, other manufacturing companies are excluded from the study because they are not listed. Sampling Technique was highly influenced by the age of the company on DSE; companies with ten years of operation in DSE are included due to availability of its financial statements in DSE.

3.8 Type and source of data

This study uses panel data from published audited annual financial statements of selected companies browsed from their website and DSE website

3.9 Data collection methods

Data set for this study was retrieved from annual financial reports of years ending 31st December from six (6) manufacturing companies listed on DSE Tanzania by browsing the website of DSE and website of different companies. Data of firms listed on DSE for the most recent ten (10) years from 2005 to 2014 formed the midpoint for our calculation on independent, dependent and control variables selected in this study.

3.10 Data analysis methods

Descriptive, multiple regression, and correlation analysis was used to establish the relationship between dependent variable (gross operating profit) and independent variables of working capital which are; Natural logarithm of Average Payment Period (APPLn), Natural logarithm of Average Collection Period (ACPLn), Natural logarithm of Inventory turnover in Days (IVNTIDLn) and Natural logarithm of Cash Conversion Cycle (CCCLn) while Natural log of sales (SLn) and current ratio (CR) are being used as intervene or control variables. For fulfilment research objectives and testing of hypothesis; four (4) models were used to find out the relationship between variables of working capital management and profitability.

3.11 validity and reliability issues

The use of secondary data enabled a researcher to collect reliable and valid information from the targeted population.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.1 Introduction

The chapter covers three aspects viz; descriptive analysis of variables of study, correlations between independent variables and GP and the impact of independent variables applying regression analyses

4.2 Descriptive analysis

The descriptive analysis covers range, minimum, maximum, mean, standard deviation and range of the variables used in this study for SIMBA, TWIGA, TCC, TBL, TOL GAS TATEPA and IDUSTRY. Those descriptive are calculated and presented in table

Table 4.1 Descriptive analysis of selected variable of listed manufacturing companies in DSE

Variable	Company	N	Range	Minimum	Maximum	Mean	Std. Deviation
GPLn	SIMBA	10	1.356	9.737	11.093	10.761	0.421
	TWIGA	10	1.310	10.410	11.720	11.145	0.420
	TCC	10	1.387	10.756	12.143	11.585	0.533
	TBL	10	1.418	11.591	13.009	12.262	0.499
	TOL GAS	10	6.010	3.366	9.377	6.977	2.039
	TATEPA	10	2.043	7.867	9.910	8.473	0.618
	INDUSTRY	60	9.642	3.366	13.009	10.201	2.085
APP	SIMBA	10	41.979	4.517	46.496	24.843	13.325
	TWIGA	10	105.930	14.560	120.490	35.383	32.229
	TCC	10	47.412	17.432	64.844	34.863	14.526
	TBL	10	46.259	14.429	60.688	28.387	15.571
	TOL GAS	10	40.297	30.494	70.791	47.488	11.087
	TATEPA	10	88.730	7.313	96.043	39.298	26.855
	INDUSTRY	60	115.973	4.517	120.490	35.044	20.927
ACP	SIMBA	10	11.066	5.987	17.053	12.044	3.662
	TWIGA	10	44.800	5.360	50.160	14.374	13.242

	TCC	10	5.968	5.377	11.344	8.346	1.784
	TBL	10	14.014	6.559	20.574	11.211	4.577
	TOL GAS	10	30.121	44.265	74.385	58.790	10.839
	TATEPA	10	97.415	3.714	101.129	26.261	28.546
	INDUSTRY	60	97.432	3.701	101.133	21.838	22.026
INVTID	SIMBA	10	6.746	3.332	10.077	4.757	1.949
	TWIGA	10	5.250	1.210	6.460	3.287	1.345
	TCC	10	2.375	0.984	3.358	1.588	0.664
	TBL	10	2.545	3.295	5.840	4.221	1.016
	TOL GAS	10	81.037	22.485	140.522	52.772	41.830
	TATEPA	10	64.159	81.396	56.555	135.734	76.187
	INDUSTRY	60	93.810	22.485	72.295	134.885	90.978
CCC	SIMBA	10	42.536	55.731	98.267	80.395	13.998
	TWIGA	10	54.660	81.920	36.570	124.346	44.267
	TCC	10	69.431	96.776	66.207	260.868	78.656
	TBL	10	92.218	22.153	114.370	77.691	30.928
	TOL GAS	10	143.209	24.114	67.323	64.075	44.984
	TATEPA	10	83.784	66.861	50.645	122.697	82.289
	INDUSTRY	60	94.055	22.153	66.207	42.679	24.996
SLn	SIMBA	10	1.071	11.113	12.184	11.761	0.385
	TWIGA	10	1.280	11.140	12.430	11.898	0.440
	TCC	10	1.337	11.243	12.580	12.046	0.507
	TBL	10	1.271	12.344	13.616	12.987	0.448
	TOL GAS	10	1.466	8.124	9.590	8.815	0.437
	TATEPA	10	1.204	8.706	9.910	9.489	0.371
	INDUSTRY	60	5.492	8.124	13.616	11.166	1.559
CR	SIMBA	10	3.119	0.609	3.728	1.823	0.874
	TWIGA	10	4.950	0.910	5.860	3.026	1.355
	TCC	10	3.115	1.370	4.486	2.472	0.845
	TBL	10	0.951	0.569	1.520	1.025	0.368
	TOL GAS	10	0.904	0.365	1.269	0.844	0.326
	TATEPA	10	1.268	0.746	2.014	1.325	0.431
	INDUSTRY	60	5.492	0.365	5.858	1.752	1.093

Source; compiled on the basis of annual financial reports of companies from 2005-2014.

The following observations are made from descriptive analysis. Table 4.1

The GP of SIMBA, TWIGA, TCC, TBL, TOLGAS, TATEPA and INDUSTRY range between (9.74 – 11.09), (10.41 – 11.72), (10.76 – 12.14), (11.59 – 13.01), (3.37 – 9.38), (7.87 – 9.91) and (3.37 – 13.01) Tzs billion with mean of 10.76, 11.15, 11.59, 12.26, 6.98, 8.47 and 10.20 and standard deviation of 0.42, 0.42, 0.53, 0.50, 2.04, 0.62 and 2.09 Tzs billion respectively. TOLGAS indicates highest standard deviation compared to other listed manufacturing companies but less than of INDUSRY.

The INVTID of SIMBA, TWIGA, TCC, TBL, TOLGAS, TATEPA and INDUSTRY range between (3.3 – 10.1), (1.2 – 6.5), (1.0 – 3.4), (3.3 – 5.8), (22.5 – 140.5), (56.5 – 81.4) and (22.5 – 72.3) days with average of 4.76, 3.29, 1.59, 4.22, 52.77, 135.73 and 134.89 days and standard deviation of 1.95, 1.35, 0.66, 1.02, 41.83, 76.19 and 90.98 days respectively. TCC shows the lowest days in range minimum, maximum, mean and standard deviation than other companies and industry. The standard deviation of TOLGAS and TATEPA is very higher compared to other companies for this case they indicate high volatility comparably to other listed manufacturing companies used in this study, though less than of industry.

The ACP of SIMBA, TWIGA, TCC, TBL, TOLGAS, TATEPA and INDUSTRY range between (5.99 – 17.05), (5.36 – 50.16), (5.34 – 11.34), (6.56 – 20.57), (44.27 – 74.39), (3.71 – 101.12) and (3.70 – 101.13) days respectively. The mean of 12.04, 14.37, 8.35, 11.21, 58.79, 26.26 and 21.84 days. The standard devastation of 3.66, 13.24, 1.78, 4.58, 10.84, 28.55 and 22.03 days respectively, TCC showing the minimum and maximum days of (5.35 and 11.34days respectively) the lowest range comparatively to INDUSTRY and other listed manufacturing companies in DSE. While TOLGAS shows higher standard deviation comparatively to all companies and industry. Higher standard deviations imply high volatility.

The CCC of SIMBA, TWIGA, TCCL, TBL, TOLGAS, TATEPA and INDUSTRY range between (55.73 – 98.27), (36.57 – 81.92) (66.21 – 96.78), (22.15 – 114.37),

(24.11 – 67.32), (50.65 – 66.86) and (22.15 – 66.21) days, the mean of 80.40, 124.35, 260.87, 77.69, 64.08, 122.70 and 42.68 days respectively, the standard deviation of 14.00, 44.27, 78.66, 30.93, 44.98, 82.29 and 25.00 days respectively. The CCC average of TCCL is 260.87, days highest than other of all listed manufacturing companies and INDUSTRY, the CCC standard deviation of TATEPA is 82.29 highest comparatively to all listed manufacturing.

APP of SIMBA, TWIGA, TCC, TBL, TOLGAS, TATEPA and INDUSTRY range between (4.5 – 46.5), (14.6 – 130.5), 17.4 – 64.8), (14.4 – 60.7), (30.5 – 70.8), (7.3 – 96.0) and (4.5 -120.5) days with mean of 24.84, 35.38, 34.86, 28.39, 47.49, 39.30 and 35.04 days and standard deviation of 13.33, 32.23, 14.53, 15.57, 11.09, 26.86 and 20.93 respectively. The mean of TWIGA and TOLGAS is greater compare to the INDUSRY as well as other listed manufacturing companies of this study; once more TWIGA presented higher standard deviation comparatively to INDUSTRY and other listed manufacturing companies selected in the study. High standard deviation implies high volatility.

The firm size (SLn) of SIMBA, TWIGA, TCCL, TBL, TOLGAS, TATEPA and INDUSTRY range between (11.11 – 12.18), (11.14 – 12.43), (11.24 – 12.58), (12.31 – 13.62), (8.12 – 9.59), (8.71 – 9.91) and (8.12 – 13.62) billion with mean of 11.76, 11.90, 12.05, 12.99, 8.82, 9.49 and 11.17 billion and standard deviation of 0.39, 0.44, 0.51, 0.45, 0.44, 0.37 and 1.56 billion respectively. The standard deviation of TATEPA is lowest compare to all other listed manufacturing companies selected in this study and industry meaning that TATEPA low standard deviation means low risk. INDUSTRY reported highest standard deviation of (1.56 days) comparatively to all manufacturing companies in this study.

The CR of SIMBA, TWIGA, TCCL, TBL, TOLGAS, TATEPA and INDUSTRY range between 3.12, 4.95, 3.12, 0.95, 0.90, 1.27 and 5.49 days, mean of 1.83, 3.03, 2.47, 1.03, 0.84, 1.33 and 1.75 ratio, standard deviation of 0.87, 1.36, 0.85, 0.37, 0.33, 0.43 and 1.09 ratio, with minimum of 0.61, 0.91, 1.37, 0.57, 0.37, 0.75 and 0.37 ratio and maximum of 3.73, 5.86, 4.47, 1.52, 1.27, 2.01 and 5.86 ratio respectively. Statistics indicate that INDUSRY is having highest range and maximum of (5.49 and

5.86 ratios respectively) and lowest minimum of 0.37 ratio compared to all manufacturing companies selected for the study. Low ratio in standard deviation indicates low risk while high standard deviation indicates high volatility.

4.3 Correlation analysis

To identify the existing correlation between working capital components and profitability, Pearson correlation analysis is applied in this study. The expectation is CCCLn, INVTIDLn, and ACPLn has negative relationship with GPLn, the reason is that decrease in days of CCC, INVTIDLn, and ACPLn increases GPLn. Dissimilar, the relationship between APPLn and GPLn is expected to be positive, the reason is when delaying paying short term obligations the profit increase. Parallel to this CR, Firm size and GPLn are expected to have positive relationship. When sales/revenue increases GPLn also increase, CR measures the liquidity of a firm, if it have sufficient fund to meet emergence expenditures. If firm is liquid is an indicator of good performance hence good sound of the firm bring profitability.

Table 4.2 Correlation analysis of selected variables of the listed manufacturing companies in DSE

Variables	COMPANY		GPLn	APPLn	INVTID	ACPLn	CCCLn	SLn	CR
GPLn	SIMBA	COR	1	0.596	0.271	-0.101	0.002	0.889	-0.001
		SIG		0.034	0.224	0.391	0.498	0.000	0.499
	TWIGA	COR	1	-0.463	-0.015	0.068	0.265	0.963	-0.314
		SIG		0.089	0.484	0.426	0.23	0.000	0.188
	TCC	COR	1	0.096	0.417	-0.062	0.377	0.997	0.464
		SIG		0.396	0.115	0.433	0.141	0.000	0.088
	TBL	COR	1	-0.119	0.844	0.410	0.688	0.978	0.677
		SIG		0.371	0.001	0.120	0.014	0.000	0.016
	TOL GAS	COR	1	0.066	0.476	-0.103	0.342	0.485	0.448
		SIG		0.428	0.082	0.388	0.167	0.077	0.097
	TATEPA	COR	1	0.067	-0.484	0.057	-0.47	0.733	-0.463
		SIG		0.427	0.078	0.437	0.085	0.008	0.089
	INDUSTRY	COR	1	-0.270	0.548	-0.654	0.377	0.929	0.350
		SIG		0.019	0.000	0.000	0.002	0.000	0.003
APPLn	SIMBA	COR	0.596	1	0.552	-0.192	-0.055	0.230	0.147
		SIG	0.034		0.049	0.297	0.440	0.262	0.343
	TWIGA	COR	-0.463	1	0.794	0.734	0.493	-0.427	0.303
		SIG	0.089		0.003	0.008	0.074	0.109	0.197
	TCC	COR	0.096	1	-0.324	-0.023	-0.516	0.165	-0.311
		SIG	0.396		0.180	0.475	0.064	0.324	0.191
	TBL	COR	-0.119	1	-0.584	0.708	-0.763	-0.231	0.228
		SIG	0.371		0.038	0.011	0.005	0.260	0.264
	TOL GAS	COR	0.066	1	-0.163	0.207	-0.472	-0.048	-0.237
		SIG	0.428		0.326	0.283	0.084	0.447	0.255
	TATEPA	COR	0.067	1	0.540	0.723	0.364	-0.441	0.450
		SIG	0.427		0.053	0.009	0.15	0.101	0.096
	INDUSTRY	COR	-0.270	1	-0.004	0.535	-0.078	-0.334	0.016
		SIG	0.019		0.487	0.000	0.277	0.005	0.453

INVTID	SIMBA	COR	0.271	0.552	1	-0.483	0.741	0.047	-0.284
		SIG	0.224	0.049		0.079	0.007	0.449	0.213
	TWIGA	COR	-0.015	0.794	1	0.910	0.913	0.01	0.010
		SIG	0.484	0.003		0.000	0.000	0.489	0.489
	TCC	COR	0.417	-0.324	1	0.582	0.975	0.379	0.281
		SIG	0.115	0.180		0.039	0.000	0.14	0.215
	TBL	COR	0.844	-0.584	1	0.028	0.913	0.909	0.374
		SIG	0.001	0.038		0.469	0.000	0.000	0.143
	TOL GAS	COR	0.476	-0.163	1	-0.222	0.872	0.760	0.056
		SIG	0.082	0.326		0.269	0.001	0.005	0.439
	TATEPA	COR	-0.484	0.540	1	0.541	0.971	-0.762	0.712
		SIG	0.078	0.053		0.053	0.000	0.005	0.010
	INDUSTRY	COR	0.548	-0.004	1	-0.457	0.924	0.455	0.467
		SIG	0.000	0.487		0.000	0.000	0.000	0.000
ACPLn	SIMBA	COR	-0.101	-0.192	-0.483	1	-0.147	0.098	0.562
		SIG	0.391	0.297	0.079		0.343	0.394	0.045
	TWIGA	COR	0.068	0.734	0.910	1	0.859	0.199	-0.041
		SIG	0.426	0.008	0.000		0.001	0.291	0.455
	TCC	COR	-0.062	-0.023	0.582	1	0.542	-0.08	-0.193
		SIG	0.433	0.475	0.039		0.053	0.413	0.297
	TBL	COR	0.410	0.708	0.028	1	-0.207	0.349	0.210
		SIG	0.120	0.011	0.469		0.283	0.161	0.280
	TOL GAS	COR	-0.103	0.207	-0.222	1	0.045	-0.028	0.267
		SIG	0.388	0.283	0.269		0.451	0.47	0.228
	TATEPA	COR	0.057	0.723	0.541	1	0.496	-0.332	0.091
		SIG	0.437	0.009	0.053		0.072	0.174	0.401
	INDUSTRY	COR	-0.654	0.535	-0.457	1	-0.302	-0.661	-0.311
		SIG	0.000	0.000	0.000		0.010	0.000	0.008
CCCLn	SIMBA	COR	0.002	-0.055	0.741	-0.147	1	0.030	0.002
		SIG	0.498	0.440	0.007	0.343		0.468	0.498
	TWIGA	COR	0.265	0.493	0.913	0.859	1	0.36	-0.237
		SIG	0.23	0.074	0.000	0.001		0.154	0.255
	TCC	COR	0.377	-0.516	0.975	0.542	1	0.328	0.328

		SIG	0.141	0.064	0.000	0.053		0.178	0.178
	TBL	COR	0.688	-0.763	0.913	-0.207	1	0.769	0.177
		SIG	0.014	0.005	0.000	0.283		0.005	0.312
	TOL GAS	COR	0.342	-0.472	0.872	0.045	1	0.706	0.149
		SIG	0.167	0.084	0.001	0.451		0.011	0.341
	TATEPA	COR	-0.47	0.364	0.971	0.496	1	-0.676	0.609
		SIG	0.085	0.15	0.000	0.072		0.016	0.031
	INDUSTRY	COR	0.377	-0.078	0.924	-0.302	1	0.300	0.422
		SIG	0.002	0.277	0.000	0.010		0.010	0.000
SLn	SIMBA	COR	0.889	0.230	0.047	0.098	0.030	1	0.041
		SIG	0.000	0.262	0.449	0.394	0.468		0.455
	TWIGA	COR	0.963	-0.427	0.01	0.199	0.36	1	-0.386
		SIG	0.000	0.109	0.489	0.291	0.154		0.135
	TCC	COR	0.997	0.165	0.379	-0.08	0.328	1	0.445
		SIG	0.000	0.324	0.14	0.413	0.178		0.099
	TBL	COR	0.978	-0.231	0.909	0.349	0.769	1	0.598
		SIG	0.000	0.260	0.000	0.161	0.005		0.034
	TOL GAS	COR	0.485	-0.048	0.760	-0.028	0.706	1	-0.281
		SIG	0.077	0.447	0.005	0.470	0.011		0.216
	TATEPA	COR	0.733	-0.441	-0.762	-0.332	-0.676	1	-0.756
		SIG	0.008	0.101	0.005	0.174	0.016		0.006
	INDUSTRY	COR	0.929	-0.334	0.455	-0.661	0.300	1	0.295
		SIG	0.000	0.005	0.000	0.000	0.010		0.012
CR	SIMBA	COR	-0.001	0.147	-0.284	0.562	0.002	0.041	1
		SIG	0.499	0.343	0.213	0.045	0.498	0.455	
	TWIGA	COR	-0.314	0.303	0.010	-0.041	-0.237	-0.386	1
		SIG	0.188	0.197	0.489	0.455	0.255	0.135	
	TCC	COR	0.464	-0.311	0.281	-0.193	0.328	0.445	1
		SIG	0.088	0.191	0.215	0.297	0.178	0.099	
	TBL	COR	0.677	0.228	0.374	0.210	0.177	0.598	1
		SIG	0.016	0.264	0.143	0.280	0.312	0.034	
	TOL GAS	COR	0.448	-0.237	0.056	0.267	0.149	-0.281	1
		SIG	0.097	0.255	0.439	0.228	0.341	0.216	
	TATEPA	COR	-0.463	0.450	0.712	0.091	0.609	-	1

								0.756	
		SIG	0.089	0.096	0.010	0.401	0.031	0.006	
	INDUSTRY	COR	0.350	0.016	0.467	-0.311	0.422	0.295	1
		SIG	0.003	0.453	0.000	0.008	0.000	0.012	

Source; compiled on the basis of annual financial reports of companies from 2005-2014

The following observations of the correlation of variables are made from the analysis of the information contain in the table 4.2

The correlation between INVTID and GP of SIMBA, TCC, TBL, TOLGAS and INDUSTRY is positive against expectation (0.271, 0.417, 0.844, 0.476 and 0.548 respectively) and highly significant to TBL and INDUSTRY at ά = 1% (*p value* .001 and.000 respectively), but insignificance to SIMBA, TCC, and, TOLGAS at ά = 1% (*p value* .224, .115 and .082 respectively). The correlation between INVTID and GP of TWIGA and TATEPA is negative which in line with expectation (-0.015 and -0.484 respectively) though insignificant at ά = 1% (*p value* .484 and .078) respectively. Negative correlation indicate efficiency management of inventories while positive correlation mean inefficiency management of inventories

The correlation between ACP and GP of SIMBA, TCC, TOLGAS and INDUSRY is negative as expected (-.101, -.062, -.103 and -.654 respectively) but highly significant to INDUSRY at ά = 1% (*p value* .000) and insignificant to SIMBA TCC and TOLGAS at ά = 1% (*p value* .391, .433, and .388 respectively). The correlation between ACP and GP of TWIGA, TBL and TATEPA is positive correlated against the expectation (.068, .410, and .057) though insignificant at ά = 1% (*p value* .426, .120 and .437 respectively). negative correlation on ACP with GP imply that firms are taking few days in collecting receivables while positive correlation mean that firms are taking too long in collecting debts.

The correlation between CCC and GPLn of SIMBA, TWIGA, TBL, TOLGAS and INDUSRY shows positive coefficient against expectation (.002, .265, .377, .688 and .377 respectively) and not significant at ά = 1% (*p value* .498, .230, .141, and .167) for SIMBA, TWIGA, TCC and TOLGAS respectively, but significant to TBL and INDUSTRY at ά = 1% (*p value* .014 and .002 respectively). However TATEPA indicated negative coefficient (-.470) though not significant at ά = 1% (*p value* .085). Result shows that the CCC of TATEPA is in line with theories of WCM. Negative relationship indicates that CCC is shortened while lengthening of CCC is indicated by positive relationship with profitability measures.

The correlation between APP and GP of SIMBA, TCC, TOLGAS and TATEPA is positively as expected (0.596, 0.096, 0.66, and 0.067 respectively), but only significant to SIMBA at ά = 1% (*p value* .034) while TWIGA and TBL indicated negative relationship in opposition to the expectation (-.463 and -.119 respectively) and not significant. The relationship of companies put together as INDUSTRY is negative (-.270) and significant ά = 1% (*p value* .019) against expectation. With these relationships we can conclude that SIMBA, TCC, TOLGAS and TATEPA account payables are properly managed and contribute to profitability.

The correlation between firm size (SLn) and GPLn of SIMBA, TWIGA, TCC, TBL, TOLGAS, TATEPA and INDUSTRY confirm positive coefficient as expected .889, .963, .997, .978, .485, .733 and .929 respectively and highly significance at ά = 1% *p value* .000, .000, .000, .000, .008 and .000 for SIMBA, TWIGA, TCC, TBL, TATEPA and INDUSTRY respectively and not significant only to TOL GAS at ά = 1% *p value (*.077). It reveals that the increase in sales increases the profitability of the firm.

The correlation between CR and GPLn of TCC, TBL, TOLGAS and INDUSTRY indicate positive coefficient as expected .464, .677, .448 and .350 respectively but only significant to INDUSTERY and TBL at ά = 1% *p value* .003 and .016 respectively. While insignificant to TCC and TOLGAS ά = 1% *p value* .088 and .097 respectively. The coefficient of SIMBA, TWIGA and TATEPA is negative against

the expectation (-.001, -.314 and -.463 respectively) and insignificant at ά = 1% (*p value* .499, .188 and .089 respectively). The increase in current ratio signifies the liquidity hence increases profitability.

4.4 Regression analysis

The established structure of literature review and data analysis was aimed in investigating the effect of WCM on profitability. In order to shed light on the relationship of WCM on firms' profitability we apply multiple regression analysis.

Each model or regression equation formulated from the hypothesis is tested independently first by using individual company data comprises of ten (10) observations, finally all individual data are combined together to form INDUSTRY with sixty (60) observations, where by each model or equation is again tested in the same manner. Each model or regression equation consists of one Independent variable, two control variables and dependent variable. GPLn is taken as dependent variable of the study and APPLn, INVTIDLn, ACPLn and CCCLn are independent variable which influences the dependent variable. SLn and CR are control variable.

4.4.1 Regression analysis for SIMBA Company

Regression analysis is been carried to examine if there is significant relationship between ACP, APP, INVTID and CCC and GOP of SIMBA Company. Each independent variable is tested including two control variables basing on formulated four regression equation.

4.4.1.1 Influence of INVTID on GP of SIMBA Company

The first regression equation is examines the relationship between INVTID and GP. INVTID, SLn and CR are regressed together with GP. INVTIDLn is included as independent variable, SLn and CR as control variables and GP dependent Variable.

Table 4.3 Model Summaryb results of SIMBA Company

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	.919[a]	.844	.766	.20388	.844	10.816	3	6	.008	1.833

a. Predictors: (Constant), CR, SLn, INVTIDLn

b. Dependent Variable: GPLn

Table 4.4 Regression Coefficientsa results of SIMBA Company

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.509	2.449		-1.025	.345		
	INVTIDLn	.434	.306	.239	1.420	.205	.916	1.092
	SLn	.959	.177	.876	5.420	.002	.995	1.005
	CR	.015	.081	.031	.183	.861	.916	1.091

a. Dependent Variable: GPLn

SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.3 and 4.4.

The following observations are made from table 4.3 and 4.4.

The model summary shows Adjusted R^2 of 76.6%, and F Change 10.82%, the model highly Significant of F Change at ά = 0.05% (.008), Durbin-Watson is 1.83 where the upper limit for autocorrelation is 10, and VIF of variable selected are within the range. Therefore models fit for analysis. The coefficient of INVTIDLn is positive with GPLn (.434) against expectation and insignificant at ά = 0.05% P *value* (.205). There is a strong positive relationship between SLn and GP (.959) as expected and highly significant at ά = 0.05% (.002), it imply that when sales increase profitability of firm increases. However there is positive relationship between CR and GP (0.015) but weak and insignificant at ά = 0.05% P *value* (.861)**.**

4.4.1.2 Influence of ACP on GP of SIMBA Company

The second model of this study examines the relationship between ACP and GP. So far ACPLn, SLn and CR are regressed to test their influences on GP. ACPLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.5 and 4.6

Table 4.5 Model summary results of SIMBA Company

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	.912[a]	.833	.749	.21122	.833	9.941	3	6	.010	1.515

a. Predictors: (Constant), CR, SLn, ACPLn

b. Dependent Variable: GPLn

Table 4.6 Regression Coefficientsa results of SIMBA Company

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.281	2.176		-.129	.902		
	ACPLn	-.306	.252	-.246	-1.212	.271	.678	1.474
	SLn	.995	.184	.909	5.413	.002	.990	1.010
	CR	.048	.097	.100	.493	.639	.684	1.462

Dependent Variable: GPLn

The following observations are made from table 4.5 and 4.6

The overall model explain 74.9% of variation in GP caused by ACP after controlling the effects of control variable, therefore the variation is significant at ά = 0.05% P *value* (0.009). The collinearity is below the upper limit and Durbin-Watson statistics for autocorrelation are within the range. Hence Model fit for analysis.

The coefficient of ACPLn is negative with GPLn (-.306) as expected though not significant at ά = 0.05% P *value* (.271), but it implies that when average collection period decreases profitability increase and vice versa. The coefficient of SLn and CR is positive with GP (.995 and .048 respectively) SLn is highly significant at ά = 0.05% P *value* (.002) but CR not significant at ά = 0.05% P *value* (.639). When revenue increases profit increase likewise the increase of ratio of CR is an indicator for increase in profitability.

4.4.1.3 Influence of CCC on GP of SIMBA Company

The third model of this study examines the relationship between CCCLn and GP. CCCLn, SLn and CR are regressed together with GP. CCCLn is included as independent variable, SLn and CR as control variables and GP dependent Variable.

SPSS output of the model summary and regression coefficients for the influence of CCCLn on GP are given in table No 4.7 and 4.8

Table 4.7 Model Summaryb results of SIMBA Company

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	.890[a]	.793	.689	.23490	.793	7.655	3	6	.018	1.001

a. Predictors: (Constant), CR, SLn, CCCLn

b. Dependent Variable: GPLn

Table 4.8 Regression Coefficientsa results of SIMBA Company

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.292	3.070		-.095	.927		
	CCCLn	-.089	.452	-.038	-.196	.851	.920	1.087
	SLn	.976	.204	.892	4.792	.003	.997	1.004
	CR	-.023	.093	-.048	-.250	.811	.919	1.088

a. Dependent Variable: GPLn

The following observations are made from table 4.7 and 4.

Adjusted R^2 statistically influences the outcome of GP at 68.9%, the F statistically is used to test the significance of R, F Change is 7.66% and Significance of F Change is 0.018. VIF of variables is below 10. Therefore models fit for analysis.

The coefficient of CCCLn is negative with GPLn (.089) though insignificant at ά = 0.05% (.851). This emphasis that, when CCC decreases, profitability increases and vice versa, There is strong and positive relationship between SLn and GP (0.976) and highly significance at 0.003. Result entail that profitability increases as sales increases and vice versa. CR reveals negative association with GP (-0.023) against expectation and insignificance at 0.811.

4.4.1.4 Influence of APP on GP of SIMBA Company

The relationship between APP and GP is examined by applying the fourth model of the study. APPLn, SLn and CR are regressed to test their effects on GP. APPLn is taken as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of APP on GP are given in table No 4.9 and 4.10.

Table 4.9 Model Summaryb results of SIMBA Company

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	.981[a]	.961	.942	.10135	.961	49.866	3	6	.000	2.812

a. Predictors: (Constant), CR, SLN, APPLN

b. Dependent Variable: GPLN

Table 4.10 Regression Coefficientsa results of SIMBA Company

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.189	1.037		-.182	.862		
	APPLn	.265	.051	.428	5.142	.002	.928	1.077
	SLn	.870	.090	.795	9.646	.000	.947	1.056
	CR	-.047	.039	-.097	-1.193	.278	.978	1.022

a. Dependent Variable: GPLn

The following observations are made from table 4.9 and 4.10

The adjusted R^2 which statistically explain the percentage of which independent variable influence changes on dependent variable is 94.2% .the F Change is used to test the significant of R, the F Change is 49.87% and the significant of F change is 0.000. The Durbin-Watson statistics is 2.812 where by the upper limit for autocorrelation is 4. VIF of variables is below 10 which is the upper limit for association among independent variables.

The coefficient of APPLn is positive with GPLn (.256) as expected and is highly significant at ά = 0.05% P value (0.02). This means that the increase in account payables increases profitability of company. The coefficient of SLn is positive associated with GPLn (.870) as expected and highly significant at ά = 0.05% (0.000). Increase in revenue has positive impact on profitability of a firm. CR indicates negative relationship with GP (-.047) against expectation and insignificant at ά = 0.05% (0.278).

4.4.2 Regression analysis for TWIGA

Regression analysis is been carried to examine if there is significant relationship between ACP, APP, INVTID and CCC and GOP of TWIGA. Each independent variable is tested including two control variables basing on formulated four regression equation.

4.4.2.1 The influence of INVTID on GP of TWIGA

The relationship between INVTID and GP is measured by the first regression equation of this study. INVTIDLn, SLn and CR are regressed to test their effects on GP. INVTIDLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of INVTID on GP are given in table No 4.11 and 12.

Table 4.11 Model Summaryb results of TWIGA

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	.967[a]	.936	.903	.13067	.936	29.010	3	6	.001	2.039

a. Predictors: (Constant), INVTIDLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.12 Regression Coefficientsa results of TWIGA

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.230	1.463		.157	.880		
	SLn	.948	.107	.993	8.822	.000	.848	1.179
	CR	.022	.035	.070	.620	.558	.850	1.176
	INVTIDLn	-.086	.143	-.063	-.605	.567	.997	1.003

a. Dependent Variable: GPLn

The following observations are made from table 4.11 and 4.12

The regression model explain 90.3% of variation in GP caused by INVTID after controlling the impacts of control variables, therefore the discrepancy is statistically significant at P *value* (0.002). The collinearity is below the upper level. The coefficient of INVTIDLn is negative with GPLn (-.086) this is against the expectation and not significant at ά = 0.05% (.567). The SLn and CR are positively

with GP (.948 and .022) respectively. Highly significance to SLn (0.000) and insignificance to CR (.558). The implication is that the increase in SLn and CR will result to the increase in profitability of a firm.

4.4.2.2 The influence of ACP on GP of TWIGA

To examine the relationship between ACP and GP the second model is applied. So far ACPLn, SLn and CR are regressed to test their effects on GP. ACPLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.13 and 14.

Table 4.13Model Summaryb results of TWIGA

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	.974[a]	.948	.922	.11723	.948	36.529	3	6	.000	2.499

a. Predictors: (Constant), ACPLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.14 Regression Coefficientsa results of TWIGA

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.265	1.188		-.223	.831		
	SLn	.971	.098	1.017	9.891	.000	.817	1.223
	CR	.023	.031	.073	.724	.496	.850	1.177
	ACPLn	-.087	.063	-.131	-1.382	.216	.959	1.043

a. Dependent Variable: GPLn

The following observations are made from table 4.13 and 4.14

The adjusted R^2 which statistically explain the percentage of which independent variable influence changes on dependent variable is 92.2% .the F Change is used to test the significant of R, the F Change is 36.53% and the overall model is significant of F change is 0.000. The Durbin-Watson statistics is 2.499 where by the upper limit for autocorrelation is 4. VIF of variables is below 10 which is the upper limit for association between independent variables.

The coefficient of ACPLn is negative with GPLn (-.087) as expected though not significant at ά = 0.05% (.507). However, when average collection period decreases probably profit increases and vice versa. The coefficient of SLn and CR is positive with GP (.918 and .025 respectively) SLn is highly significant at ά = 0.05% (.000) but CR not significant at ά = 0.05% (.507) profitability is influenced by increase in CR

4.4.2.3 The influence of CCC on GP of TWIGA

The third model of this study examines the relationship between CCCLn and GP. So far CCCLn, SLn and CR are regressed to test their effects on GP. CCCLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.15 and 4.16.

Table 4.15 Model Summaryb results of TWIGA

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	.969[a]	.938	.907	.12800	.938	30.316	3	6	.001	2.209

a. Predictors: (Constant), CCCLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.16 Regression Coefficientsa results of TWIGA

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.124	1.339		.093	.929		
	SLn	.970	.110	1.017	8.812	.000	.775	1.290
	CR	.018	.034	.057	.519	.623	.840	1.191
	CCCLn	-.121	.152	-.087	-.796	.456	.859	1.164

a. Dependent Variable: GPLn

The following observations are made from table 4.15 and 4.16

The model shows Adjusted R^2 of 90.7%, F Change of 30.32% and highly significance of F change (0.001), the Durbin-Watson statistics of 2.209; furthermore the VIF is within the limit for all variables in the regression coefficient. The model strongly fit for analysis.

The coefficient of CCCLn is negative with GPLn (-.121) although not significant at ά = 0.05% P *value* (.456). SLn is significance positively with GP (.970) sig (.000) while CR is positively with GP (0.018) but insignificance. Normally positive relationship is an indicator for increase in profitability.

4.4.2.4 Influence of APP on GP of TWIGA

The relationship between APP and GP is been tested through fourth regression equation of the study. For that case APPLn, SLn and CR are regressed to test their effects on GP. APPLn is independent variable; SLn and CR are control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of APP on GP are given in table No 4.17 and 18.

Table 4.17Model Summaryb results of TWIGA

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	.968[a]	.936	.904	.13003	.936	29.317	3	6	.001	1.976

a. Predictors: (Constant), CR, APPLn, SLn

b. Dependent Variable: GPLn

Table 4.18 Regression Coefficientsa results of TWIGA

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.319	1.498		.213	.838		
	APPLn	-.050	.077	-.076	-.655	.537	.795	1.258
	SLn	.918	.114	.962	8.045	.000	.745	1.342
	CR	.025	.035	.080	.705	.507	.828	1.208

a. Dependent Variable: GPLn

The following observations are made from table 4.17 and 4.18

Adjusted R^2 statistically influences the outcome at 90.4%, the F statistically is used to test the significance change of R 29.32% and Significance of F Change is 0.001. Autocorrelation and collinearity are within the limit. Hence these models fit for analysis.

The coefficient of APPLn is negative with GPLn (-.050) against expectation and not significant at ά = 0.05% (.537). The results are not in line with theories of WCM.

Howe ever there is a strong positive relationship between SLn and GP (.918) and highly significance as expected. When sales increases profitability also grow up. Beside this, result indicate a positive relationship between CR and GP (0.025) though insignificance at ά = 0.05% (.507), the positive relationship imply that when CR increases profitability also increases.

4.4.3 Regression analyses for TCC

Regression analysis is been carried to examine if there is significant relationship between ACP, APP, INVTID and CCC and GOP of TCC. Each independent variable is regressed together with two control variables to verify its effect on GP.

4.4.3.1 The influence of INVTID on GP of TCC

The first model of this study examines the influence of INVTID on GP. However INVTIDLn, SLn and CR are regressed to test their effects on GP. INVTIDLn is independent variable; SLn and CR are control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of INVTID on GP are given in table No 4.19 and 4.20.

Table 4.19Model Summaryb results of TCC

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	.998[a]	.997	.995	.03846	.997	574.880	3	6	.000	1.052

a. Predictors: (Constant), CR, INVTIDLn, SLn

b. Dependent Variable: GPLn

Table 4.20 Regression Coefficientsa results of TCC

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.365	.410		-3.332	.016		
	INVTIDLn	.105	.064	.043	1.639	.152	.840	1.190
	SLn	1.023	.030	.973	34.612	.000	.732	1.367
	CR	.012	.017	.019	.691	.516	.787	1.271

a. Dependent Variable: GPLn

Adjusted R^2 shows 99.5% meaning that change in dependent variable is influence by independent variables at that percentage. F Change is 574.88 and significance of F Change is 0.000, indicating that model fit for analysis. VIF and Durbin-Watson statistics are all within the limit.

The coefficient of INVTIDLn in regression analysis is positive with GPLn (.105) this is against the expectation and not significant at ά = 0.05% (.152). The coefficient of SLn and CR is positively with GP (1.023 and 0.012) respectively though insignificance to CR (0.516) but strongly significant to SLn (0.000). it imply that the proportional change in sales will automatically change the profitability of the firm

4.4.3.2 The relationship between ACP and GP of TCC

The basis of second model of this study is to examine the relationship between ACP and GP. So far ACPLn, SLn and CR are regressed to test their effects on GP. ACPLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.21 and 4.22

Table 4.21Model Summaryb results of TCC

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	.998[a]	.995	.993	.04387	.995	44.489	3	6	.000	1.630

a. Predictors: (Constant), CR, ACPLn, SLn

b. Dependent Variable: GPLn

Table 4.22 Regression Coefficientsa results of TCC

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.077	.398		-2.702	.035		
	ACPLn	.056	.068	.023	.823	.442	.963	1.039
	SLn	1.038	.032	.986	32.203	.000	.802	1.247
	CR	.018	.020	.029	.941	.383	.777	1.287

a. Dependent Variable: GPLn

The following observations are made from table 4.21 and 4.22

The regression model explain 99.3% of variation in GOP caused by APP after controlling the impacts of control variables, therefore the discrepancy is statistically significant at 5% confidence level (0.000). The collinearity is below the required level. The Durbin-Watson statistics of 1.63, the model strongly fit for analysis

Result indicates that the coefficient of ACPLn is positive with GPLn (.560) against expectation of the theory and insignificant at ά = 0.05% (.442). Further investigation is needed so as to come out with clear conclusion on this relationship. The coefficient of SLn and CR shows positive associated with GPLn (1.023 and .012 respectively). SLn is highly significant at ά = 0.05% (.000) but CR not significant at ά = 0.05% (.516). Results indicate that; increases in revenue and ratio of CR has positive effects on profitability of the firm.

4.4.3.3 The influence of CCC on GP of TCC

The third model of this study focus on determines the existing relationship between CCCLn and GP. To achieve that objective CCCLn, SLn and CR are regressed together with GP. CCCLn is independent variable; SLn and CR are control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.23 and 4.24.

Table 4.23 Model Summaryb result for TCC

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	.999[a]	.997	.996	.03295	.997	784.332	3	6	.000	.974

a. Predictors: (Constant), CR, CCCLn, SLn

b. Dependent Variable: GPLn

Table 4.24 Regression Coefficientsa results of TCC

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.411	.336		-4.201	.006		
	CCCLn	.114	.047	.054	2.416	.052	.852	1.174
	SLn	1.025	.025	.974	41.369	.000	.765	1.308
	CR	.008	.015	.013	.532	.614	.765	1.308

a. Dependent Variable: GPLn

The following observations are made from table 4.23 and 4.24

The tables shows Adjusted R^2 of 99.6%, F Change of 784.33 and significance of F change is 0.000, the Durbin-Watson statistics of 0.97., further more the VIF is within the limit for all variables selected in the model. The model strongly fit for analysis.

The coefficient of CCCLn is positive with GPLn (.114) and not significant at ά = 0.05% (.056). The results are not in line with theories of WCM and need further investigation. SLn and CR indicates positive relationship with GP (1.025 and 0.008) respectively, SLn shows a strong relationship (sig 0.000) while CR shows a weak relationship. Generally when firm size and CR increases will positively affect the profitability of a firm.

4.4.3.4 Influence of APP on GP of TCC

The fourth model of this study examines the relationship between APP and GP. There for APPLn, SLn and CR are regressed to test their effects on GP. APPLn is independent variable; SLn and CR are control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.25 and 4.26.

Table 4.25 Model Summary results of TCC

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	1.000[a]	.999	.999	.01594	.999	33.582	3	6	.000	2.779

a. Predictors: (Constant), CR, APPLn, SLn

b. Dependent Variable: GPLn

Table 4.26 Regression Coefficientsa results of TCC

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.911	.134		-6.778	.001		
	SLn	1.068	.013	1.015	85.201	.000	.700	1.430
	APPLn	-.100	.015	-.075	-6.678	.001	.788	1.269
	CR	-.007	.008	-.011	-.905	.400	.650	1.539

a. Dependent Variable: GPLn

The following observations are made from table 4.25 and 4.26

The model shows Adjusted R^2 of 99.9%, F Change of 33.58% and significance of F change is 0.000, the Durbin-Watson statistics of 2.779., further more the VIF is within the limit for all variables selected in model three. The model strongly fit for analysis.

The coefficient of APPLn is negative with GPLn (-.100) against expectation and not significant at ά = 0.05% (.001). The results are in line of with theory of WCM. Manager has to delay paying supplies so as to utilize fund in other profitable project in short time. The coefficient of SLn is positive with GP (1.068) and strongly significance at ά = 0.05% (.000). Indicating that as sales increases the profitability also increases. CR is negatively with GP (-0.07) and insignificance.

4.4.4 Regression analyses for TBL

Regression analysis is been carried to examine if there is significant relationship between ACP, APP, INVTID and CCC and GOP of TBL. Each independent variable is regressed together with two control variables to verify its effect on GP.

4.4.4.1 The influence of INVTID on GP of TBL

The first model of this study examines the relationship between INVTID and GP. INVTIDLn, SLn and CR are regressed to test their effects on GP. INVTIDLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. The SPSS output of the model summary and regression coefficients for the influence of INVTID on GP are given in table No 4.27 and 4.28.

Table 4.27 Model Summaryb results of TBL

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	.987[a]	.973	.960	.09973	.973	73.149	3	6	.000	2.738

a. Predictors: (Constant), CR, INVTIDLn, SLn

b. Dependent Variable: GPLn

Table 4.28 Regression Coefficientsa results of TBL

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.686	1.518		-1.111	.309		
	INVTIDLn	-.330	.392	-.156	-.842	.432	.130	7.707
	SLn	1.178	.238	1.059	4.947	.003	.097	10.323
	CR	.138	.131	.102	1.059	.330	.478	2.094

a. Dependent Variable: GPLn

The following observation is made from table No 4.27 and 4.28

The Adjusted R^2 is 0.960, F Change is 73.15 and the significance of F Change is (0.00) indicating that the model fit for analysis. On the other hand Durbin-Watson statistics and VIF are within the range.

The coefficient of INVTIDLn is negative with GPLn (-.330) as expected but not significant at ά = 0.05% (.432). When inventories turnover in days decreases profit increases and vice versa. SLn and CR are positively associated with GP (1.178 and 0.113) though highly significance to SLn but insignificant to CR. Result are in line with WCM concepts. The increase in SLn and CR affect profitability of a firm positively.

4.4.4.2 The influence of ACP on GP of TBL

The influence of ACP on GP can be examined by applying the second regression equation of this study, which includes; ACPLn as independent variable, SLn and CR as control variables and GP dependent Variable.

SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.29 and 4.30.

Table 4.29 Model Summaryb results of TBL

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	.988[a]	.976	.963	.09565	.976	79.699	3	6	.000	2.974

a. Predictors: (Constant), ACPL, CR, SLn

b. Dependent Variable: GPLn

Table 4.30 Regression Coefficientsa results of TBL

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.688	1.098		-.627	.554		
	SLn	.963	.093	.866	10.409	.000	.590	1.695
	CR	.194	.108	.143	1.793	.123	.642	1.558
	ACPLn	.102	.089	.078	1.137	.299	.878	1.139

a. Dependent Variable: GPLn

The following observations are made from table 4.29 and 4.30.

The tables shows Adjusted R^2 of 96.3%, F Change of 79.70% and significance of F change is 0.000, the Durbin-Watson statistics of 2.97, whereby VIF is within the limit for all variables selected in the model. The model fit for analysis

The coefficient of ACPLn is positive with GPLn (.102) against expectation of the theory and not significant at ά = 0.05% (.299). The coefficient of SLn and CR is positive with GPLn (1.086 and .146) respectively SLn is highly significant at ά = 0.05% (.001) but CR not significant at ά = 0.05% (.332).

4.4.4.3 The influence of CCC on GP of TBL

The third model of this study examines the relationship between CCCLn and GP. CCCLn, SLn and CR are regressed to measure their influences on GP. CCCLn is included as independent variable, SLn and CR as control variables and GP dependent

Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.31 and 4.32.

Table 4.31 Model Summaryb results of TBL

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	.986[a]	.972	.958	.10210	.972	69.703	3	6	.000	2.995

a. Predictors: (Constant), CR, CCCLn, SLn

b. Dependent Variable: GPLn

Table 4.32 Regression Coefficientsa results of TBL

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.672	1.756		-.952	.378		
	CCCLn	-.076	.121	-.081	-.633	.550	.285	3.510
	SLn	1.086	.175	.976	6.221	.001	.189	5.296
	CR	.146	.138	.108	1.054	.332	.447	2.238

a. Dependent Variable: GPLn

The following observation is made from table 4.31 and 4.32

The Adjusted R^2 is 9.58%, F Change is 69.70% and the significance of F Change is (0.00) indicating that the model fit for analysis. On the other hand Durbin-Watson statistics and VIF are within the range. Result indicate that, the coefficient of CCCLn is negative with GPLn (-.076) as expected but not significant at ά = 0.05% (.550). Decreases in CCC increases profitability of the firm. Regression result shows the strong positive relationship between SLn and GP (1.086) highly significance at ά = 0.05% (.001).

4.4.4.4 Influence of APP on GP of TBL

The fourth model of this study examines the relationship between APP and GP. So far APPLn, SLn and CR are regressed to measure their influences on GP. APPLn is independent variable; SLn and CR are control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.33 and 4.34.

Table 4.33 Model Summaryb result of TBL

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	.987[a]	.974	.961	.09813	.974	75.625	3	6	.000	2.964

a. Predictors: (Constant), CR, APPLn, SLn

b. Dependent Variable: GPLn

Table 4.34 Regression Coefficientsa results of TBL

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.613	1.377		-1.172	.286		
	APPLn	.070	.072	.074	.964	.372	.738	1.355
	SLn	1.040	.103	.935	10.084	.000	.500	2.001
	CR	.137	.126	.101	1.093	.316	.501	1.998

a. Dependent Variable: GPLn

The following observations are made from table 4.33 and 4.34

Adjusted R^2 of 96.1%, F Change of 75.63 and significance of F change is 0.000, the Durbin-Watson statistics of 2.96; furthermore the VIF is within the limit for all variables selected in the model. The model fit for analysis.

The coefficient of APPLn is positive with GPLn (.070) as expected but insignificant at ά = 0.05% P *value* (.372), "delay to pay creditors improves company's profitability. The coefficient of SLn and CR reveal positive relationship with GP

(1.040 and .137) respectively, and highly significant on SLn but insignificant on CR. We can handle this by saying that any changes on SLn and CR will affects profitability of a firm in the same way.

4.4.5 Regression analyses for TOLGAS

Regression analysis is been carried to examine if there is significant relationship between ACP, APP, INVTID and CCC and GOP of TBL. Each independent variable is regressed together with two control variables to verify its effect on GP.

4.4.5.1 The relationship between INVTID and GP of TOLGAS

To examine the relationship between INVTID and GP researcher applied the first regression equation of this study. The equation consists of INVTIDLn, SLn, CR and GP. INVTIDLn is independent variable, SLn and CR as control variables and GP dependent Variable. The SPSS output of the model summary and regression coefficients for the influence of INVTID on GP are given in table No 4.35 and 4.36.

Table 4.35 Model Summaryb results of TOLGAS

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	.787[a]	.619	.428	1.54230	.619	3.244	3	6	.102	1.367

a. Predictors: (Constant), INVTIDLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.36 Regression Coefficientsa results of TOLGAS

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-28.310	15.450		-1.832	.117		
SLn	3.842	2.092	.823	1.836	.116	.317	3.157
CR	4.307	1.820	.690	2.367	.056	.749	1.336
INVTIDLn	-.592	1.351	-.189	-.438	.676	.343	2.917

a. Dependent Variable: GPLn

The following observation is made from table 4.35 and 4.36

The regression model explain 42.8% of variation in GP is caused by INVTID after controlling the impacts of control variables, therefore the variation is significant at 5% confidence level (0.102). These statistics indicate that, the model is weak. Although VIF and Durbin-Watson statistics are within the range.

The coefficient of INVTIDLn is negative correlated with GPLn (-562) as expected but not significant at ά = 0.05% (.676). SLn and CR shows positive relationship with GP (3.84 and 4.31) again they are relationship with GP are insignificant.

4.4.5.2 The influence of ACP on GP of TOLGAS

The second model of this study examines the relationship between ACP and GP. ACPLn, SLn and CR are regressed to test their influences on GP. ACPLn is included in the model as independent variable, SLn and CR as control variables and GP dependent Variable. The SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.37 and 4.38.

Table 4.37 Model Summaryb results of TOLGAS

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	.822[a]	.676	.515	1.42061	.676	4.181	3	6	.064	1.499

a. Predictors: (Constant), CR, ACPLn, SLn

a. Dependent Variable: GPLn

Table 4.38 Regression Coefficientsa results of TOLGAS

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-12.425	14.350		-.866	.420		
	ACPLn	-3.020	2.650	-.275	-1.139	.298	.926	1.080
	SLn	3.165	1.132	.678	2.797	.031	.919	1.088
	CR	4.446	1.570	.712	2.832	.030	.854	1.171

a. Dependent Variable: GPLn

The following observation is made from table 4.37 and 4.38

Adjusted R^2 is 51.5%, F change is 4.18 and significant of F change at ά = 0.05% P value (.064). The model is relatively weak though R^2 is above 50% but its significance is above confidence interval of 5%. VIF and Durbin-Watson statistics are within the limit.

The coefficient of ACPLn is negative with GPLn (-3.020) as expected, but insignificant at ά = 0.05% P *value* (.298). The coefficient of SLn and CR is positive with GPLn (3.165 and 4.446 respectively) SLn is significant at ά = 0.05% (.031) ant CR is significant at ά = 0.05% (.030).

4.4.5.3 The influence of CCC on GP of TOLGAS

The third model of this study examines the relationship between CCCLn and GP. So far CCCLn, SLn and CR are regressed to test their effects on GP. CCCLn is included

as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.39 and 4.40.

Table 4.39 Model Summaryb results of TOLGAS

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	.859[a]	.738	.607	1.27842	.738	5.632	3	6	.035	1.549

a. Predictors: (Constant), CCCLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.40 Regression Coefficientsa results of TOLGAS

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-36.895	12.064		-3.058	.022		
	SLn	5.359	1.652	1.147	3.244	.018	.349	2.864
	CR	5.365	1.582	.859	3.391	.015	.681	1.469
	CCCLn	-1.985	1.144	-.596	-1.736	.133	.371	2.698

a. Dependent Variable: GPLn

The following observation is made from table 4.39 and 4.40

Adjusted R^2 is 60.7%, F change is 5.63 and model is significant at at ά = 0.05% P value (.035). VIF and Durbin-Watson statistics are within the limit. Hence models fit for analysis.

Statistically indicate that; the coefficient of CCCLn is negative with GPLn (-1.985) though not significant at ά = 0.05% (.133). The relevance is; shortening of CCC increase profitability of a firm. SLn and CR indicates significance positive relationship with GP (5.36 and 5.37) respectively, meaning that any increase in CR or Sales will increase profitability of a firm.

4.4.5.4 Influence of APP on GP of TOLGAS

The fourth model of this study examines the relationship between APP and GP. So far APPLn, SLn and CR are regressed to test their effects on GP. APPLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.41 and 4.42.

Table 4.41 Model Summaryb results of TOLGAS

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	.820[a]	.673	.509	1.42886	.673	4.110	3	6	.067	1.502

a. Predictors: (Constant), CR, APPLn, SLn

b. Dependent Variable: GPLn

Table 4.42 Regression Coefficientsa results of TOLGAS

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-34.408	14.286		-2.408	.053		
	APPLn	2.338	2.121	.267	1.102	.313	.930	1.076
	SLn	3.255	1.145	.697	2.841	.030	.907	1.102
	CR	4.415	1.574	.707	2.804	.031	.858	1.165

a. Dependent Variable: GPLn

The following observation for TOLGAS is made from table 4.41 and 4.42

The Durbin- Watson statistics range from 0 to 4 and the model shows a statistics of 1.502, Adjusted R^2 of 0.509, F change 4.110 and significance of F change of 0.067. Significantly the model is relatively weak even though R^2 is above 50%. Durbin-Watson and VIF are within the limit.

The coefficient of APPLn is positively related with GPLn (2.338) as expected but not significant at ά = 0.05% P value (.313). SLn and CR shows positive relationship with GP (3.255 and 4.415) respectively both are highly significance, meaning that any negative change of these variable will adversely affects profitability of the firm.

4.4.6 Regression analyses for TATEPA

Regression analysis is been carried to examine if there is significant relationship between ACP, APP, INVTID and CCC and GOP of TATEPA. Each independent variable is regressed together with two control variables to verify its effect on GP.

4.4.6.1 The influence of INVTID on GP of TATEPA

The first model of this study examines the relationship between INVTID and GP. INVTIDLn, SLn and CR are regressed to test their effects on GP. INVTIDLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. The SPSS output of the model summary and regression coefficients for the influence of INVTID on GP are given in table No 4.43 and 4.44.

Table 4.43 Model Summaryb results of TATEPA

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	.750[a]	.563	.344	.50061	.563	2.572	3	6	.150	1.483

a. Predictors: (Constant), INVTIDLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.44 Regression Coefficientsa results of TATEPA

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-7.910	9.766		-.810	.449		
CR	.251	.625	.175	.402	.702	.384	2.603
SLn	1.596	.787	.958	2.028	.089	.326	3.063
INVTIDLn	.189	.684	.122	.276	.792	.376	2.661

a. Dependent Variable: GPLn

The following observation is made from table 4.43 and 4.44

The adjusted R^2 shows 34.4% of the ability to explain dependent variable of the study, F Change is 2.57% and its significance is 15% statistically they indicate that the model is weak in explain the relationship of variables used in the study. On the other hand VIF and Durbin-Watson statistics are within the limits, there is no autocorrelation and collinearly of variables, basing on these statistics we go further and making judgement of the result.

The coefficient of INVTIDLn is positive correlated with GPLn (.189) away from expectation and insignificant at ά = 0.05% (.792). Again SLn and CR indicate positive relationship with GP (1.596 and 0.251) respectively, but it has no statistical significant on profitability.

4.4.6.2 The influence of ACP on GP of TATEPA

The second model of this study examines the relationship between ACP and GP. To achieve the purpose, ACPLn, SLn and CR are regressed to test their effects on GP. ACPLn is considered as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.45 and 4.46.

Table 4.45 Model Summaryb results of TATEPA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df2	Sig. F Change	
1	.832[a]	.693	.539	.41966	.693	4.506	3	6	.056	1.737

a. Predictors: (Constant), ACPLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.46 Regression Coefficientsa results of TATEPA

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-11.059	6.721		-1.645	.151		
	CR	.523	.514	.365	1.018	.348	.399	2.504
	SLn	1.904	.630	1.143	3.023	.023	.358	2.792
	ACPLn	.270	.166	.404	1.627	.155	.830	1.205

a. Dependent Variable: GPLn

The following observation were made from table 4.45 and 4.46

The adjusted R^2 shows 53.6% of the ability independent variable to explain dependent variable of the study, F Change is 4.51 and its significance is ά = 0.05%P *value* (.056). On the other hand VIF and Durbin-Watson statistics are within the limits, there is no autocorrelation and collinearly of variables.

The coefficient of ACPLn is positively related with GPLn (.270) against expectation and not significant at ά = 0.05% P *Value* (.155). The coefficient of SLn and CR is positively related with GPLn (1.498 and .303 respectively) SLn is significant at ά = 0.05% (.096) ant CR is significant at ά = 0.05% (.498). Results indicate that; increases in revenue and ratio of CR, profitability of the firm increases.

4.4.6.3 The relationship between CCC and GP of TATEPA

To expose the relationship between CCCLn and GP the third model is exercised. CCCLn, SLn, CR and GP are included in the equation. Whereby CCCLn is independent variable; SLn and CR are control variables and GP dependent Variable. The SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.47 and 4.48.

Table 4.47 Model Summaryb results of TATEPA

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	.746[a]	.557	.336	.50376	.557	2.515	3	6	.155	1.476

a. Predictors: (Constant), CCCLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.48 Regression Coefficientsa results of TATEPA

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-6.201	8.879		-.698	.511		
	CR	.303	.608	.211	.498	.636	.411	2.436
	SLn	1.498	.760	.899	1.970	.096	.354	2.823
	CCCLn	.013	.510	.010	.025	.981	.521	1.920

a. Dependent Variable: GPLn

The following observation is made from table 4.47 and 4.48

The adjusted R^2 shows 33.6% the ability independent variable to explain dependent variable of the study, F Change is 2.515 and its significance at ά = 0.05% P *value* (.155) statistically they indicate that the model is weak.. On the other hand VIF and Durbin-Watson statistics are within the limits, there is no autocorrelation and collinearly of variables.

The coefficient of CCCLn is positive related with GPLn (.013) but insignificant at ά = 0.05% (.981). Shortening of CCC increase profitability of a firm and vice versa.

4.4.6.4 The influence of APP on GP of TATEPA

The third model of this study examines the relationship between APP and GP. APPLn, SLn and CR are regressed to test their effects on GP. APPLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of APP on GP are given in table No 4.49 and 4.50.

Table 4.49 Model Summaryb results of TATEPA

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	.854[a]	.730	.594	.39364	.730	5.395	3	6	.039	2.092

a. Predictors: (Constant), APPLn, SLn, CR

b. Dependent Variable: GPLn

Table 4.50 Regression Coefficientsa results of TATEPA

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-9.005	5.807		-1.551	.172		
	CR	.122	.475	.085	.256	.806	.411	2.432
	SLn	1.675	.549	1.006	3.053	.022	.415	2.407
	APPLn	.412	.210	.472	1.956	.098	.774	1.293

a. Dependent Variable: GPLn

The following observation is made from table 4.49 and 4.50

The result indicates F Change is 5.63 and Significance of F Change is at ά = 0.05% P *value* (.039) Adjusted R^2 statistically influence dependent variable at 60.7%, so far VIF and Durbin-Watson statistics are within the limit. Hence models fit for analysis

The coefficient of APPLn is positive associated with GPLn (.412) as expected but insignificant at ά = 0.05% P *value* (.098). the meaningfully of these result is TATEPA delay in paying supplies so as to utilize fund in other short time profitable projects. The delay increase profitability of the firm. CR indicate positive relationship with GP as expected though not significance at ά = 0.05% (.81). Even though its coefficient is positive; has no statistical significance on profitability. SLn indicated positive relationship with GP (1.67) and highly significance at ά = 0.05% (.022). The relationship has statistical significant on profitability of a firm. Thus the increase in firm size will positively affects its profitability.

4.4.7 Regression analysis for INDUSTRY

Four Regression equations are run to explore the relationship between INVTID, ACP, CCC and APP and GP. Each equation includes one independent variable, two control variables (SLn and CR) and profitability measures (GP)

4.4.7.1 The influence of INVTID on GP of INDUSTRY

The first model of this study examines the relationship between INVTID and GP. The INVTIDLn, SLn, CR and GP are regressed. In the measurement tool INVTIDLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. The SPSS output of the model summary and regression coefficients for the influence of INVTID on GP are given in table No 4.51 and 4.52.

Table 4.51 Model Summaryb results of INDUSTRY

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	.940[a]	.884	.877	.73643	.884	139.187	3	55	.000	1.384

a. Predictors: (Constant), INVTIDLn, SLn, CR

b. Dependent Variable: GPLn

Table 4.52 Regression Coefficientsa results of INDUSTRY

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-4.865	.836		-5.819	.000		
	CR	.058	.100	.030	.577	.566	.773	1.294
	SLn	1.148	.070	.854	16.439	.000	.784	1.275
	INVTIDLn	.451	.174	.145	2.590	.012	.671	1.490

a. Dependent Variable: GPLn

The following observation is made from table 4.51 and 4.52

The adjusted R^2 shows 87.7% the ability of independent variables to explain dependent variable, F Change is 139.19 and its significance is 0.000 statistically they indicate that the model is good to be used for analysis. VIF and Durbin-Watson statistics are within the limits where by autocorrelation and collinearly of variables is tolerable.

The coefficient of INVTIDLn shows positive relationship with GPLn (.451) beyond expectation and is significant at ά = 0.05% (.012). The coefficient of SLn and CR is positive association with GPLn (1.148 and .058 respectively) SLn is significant at ά = 0.05% (.000) ant CR is not significant at ά = 0.05% (.566). The increases in revenue and ratio of CR result to the increase of profitability of the firm and vice versa.

4.4.7.2 The relationship between ACP and GP of INDUSTRY

To meet the objective of examines the relationship between ACP and GP, the second regression model of this study is applied. Variable of the equation are ACPLn, SLn, CR and GP. ACPLn being independent variable, SLn and CR are control variable and GP dependent variable. The SPSS output of the model summary and regression coefficients for the influence of ACP on GP are given in table No 4.53 and 4.54.

Table 4.53 Model Summaryb results of INDUSTRY

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	.933[a]	.871	.864	.77489	.871	123.937	3	55	.000	1.222

a. Predictors: (Constant), ACPLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.54 Regression Coefficientsa results of INDUSTRY

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.746	1.319		-2.082	.042		
	CR	.146	.099	.076	1.484	.143	.889	1.125
	SLn	1.169	.087	.870	13.373	.000	.554	1.805
	ACPLn	-.144	.168	-.056	-.856	.396	.548	1.823

a. Dependent Variable: GPLn

The following observation is made from table 4.53 and 4.54

The adjusted R^2 shows 86.4% the ability of independent variables to explain dependent variable, F Change is 123.94 and its significance is 0.000 statistically indicate that the model is good to be used for analysis. On the other hand VIF and Durbin-Watson statistics are within the limits, there is tolerable autocorrelation and collinearly of variables.

Coefficient of ACPLn indicates negative relationship with GPLn (-144) although not significant at ά = 0.05% (.396), as expected Availability of cash within the firm depends on the magnitude of collection. SLn and CR indicates positive relationship with GP (1.169 and .146) respectively. Sales coefficient is statistically significance; any changes in volume of a firm probably will cause changes in its profitability. Apart from this, CR is not statistical significance.

4.4.7.3 The influence of CCC on GP of INDUSTRY

The third model of this study examines the relationship between CCCLn and GP. CCCLn, SLn and CR are regressed to test their influences on GP. CCCLn is included as independent variable, SLn and CR as control variables and GP dependent Variable. SPSS output of the model summary and regression coefficients for the influence of CCC on GP are given in table No 4.55 and 4.56.

Table 4.55 Model Summaryb results of INDUSTRY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df2	Sig. F Change	
1	.936[a]	.876	.869	.76142	.876	129.017	3	55	.000	1.278

a. Predictors: (Constant), CCCLn, SLn, CR

b. Dependent Variable: GPLn

Table 4.56 Regression Coefficientsa results of INDUSTRY

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-4.648	.931		-4.993	.000		
	CR	.098	.103	.051	.954	.344	.791	1.264
	SLn	1.193	.068	.887	17.456	.000	.875	1.143
	CCCLn	.289	.175	.088	1.650	.105	.788	1.269

b. Dependent Variable: GPLn

The following observation is made from table 4.55 and 4.56

The adjusted R^2 shows 86.9% the ability of independent variables to explain dependent variable, F Change is 129.02 and its significance is 0.000 statistically they indicate that the model fit for analysis. VIF and Durbin-Watson statistics are within the limits, there is tolerable autocorrelation and collinearly of variables.

The coefficient of CCCLn is positive related with GPLn (.298) but insignificant at ά = 0.05% (.105). The SLn shows positive relationship with GP (1.193) and highly significant at ά = 0.05% P *value* (.000). The CR shows positive relationship with GP (.098) but insignificant at ά = 0.05% P *value* (.344).

4.4.7.4 The relationship between APP and GP of INDUSTRY

In attempting to examine the relationship between APP and GP the researcher applied the fourth model of this study. Variables of the model are APP, SLn, CR and GP. APP is a predictor variable, SLn and CR control variables and GP predicted variable. The SPSS output of the model summary and regression coefficients for the influence of APP on GP are given in table No 4.57 and 4.58.

Table 4.57 Model Summaryb of INDUSTRY

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	.933[a]	.871	.863	.77671	.871	123.271	3	55	.000	1.169

a. Predictors: (Constant), APPLn, CR, SLn

b. Dependent Variable: GPLn

Table 4.58 Regression Coefficientsa results of INDUSTRY

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-4.297	1.159		-3.707	.000		
	CR	.151	.098	.079	1.539	.129	.898	1.113
	SLn	1.234	.073	.918	16.899	.000	.798	1.253
	APPLn	.127	.185	.036	.687	.495	.874	1.144

a. Dependent Variable: GPLn

The following observation is made from table 4.51 and 4.52 of regression result from third model.

The adjusted R^2 shows 86.3% the ability of independent variables to explain dependent variable, F Change is 123.27 and its significance is at ά = 0.05% P *value* (.000) statistically they indicate that the model is good to be used in the analysis. On the other hand VIF and Durbin-Watson statistics are within the limits, there is no autocorrelation and collinearly of variables.

There is positive relationship between APPLn and GPLn (.127) as expected but insignificant at ά = 0.05% P *Value* (.496). SLn is positively related with GP and highly significant to SLn ά = 0.05% (.000), any change in sales whether positive or negative will affect profitability on the same magnitude. CR indicated positive relationship with GP (.151) though insignificant to CR ά = 0.05% (.129).

Table 4.59: Summary of regression coefficient analysis for companies

Variables		APPLn	ACPLn	INVTIDLn	CCCLn	SLn	CR
SIMBA	COEF	0.265	-0.306	0.434	-0.089	0.959	0.048
	SIG	0.002	0.271	0.205	0.851	0.002	0.639
TWIGA	COEF	-0.050	-0.087	-0.086	-0.121	0.918	0.025
	SIG	0.537	0.216	0.567	0.456	0.000	0.507
TCC	COEF	-0.100	0.056	0.105	0.114	1.023	0.012
	SIG	0.001	0.442	0.152	0.052	0.000	0.516
TBL	COEF	0.070	0.102	-0.33	-0.076	1.086	0.146
	SIG	0.372	0.299	0.432	0.550	0.001	0.332
TOL GAS	COEF	2.338	-3.020	-0.592	-1.985	3.165	4.446
	SIG	0.313	0.298	0.676	0.133	0.031	0.030
TATEPA	COEF	0.412	0.270	0.189	0.013	1.498	0.303
	SIG	0.098	0.155	0.792	0.981	0.096	0.636
INDUSTRY	COEF	0.127	-0.144	0.451	0.289	1.148	0.058
	SIG	0.495	0.396	0.012	0.105	0.000	0.566

Source; tables of regression coefficient

CHAPTER FIVE: DICUSSION OF THE FINDINGS

5.1 Introduction

This chapter deals with discussion of the findings, covers discussion of the correlation analysis regression analysis. Discussions focus on comparability of companies selected for study and general performance of manufacturing firms listed on DSE Tanzania named as INDUSTERY.

5.2 Discussion of the Correlation analysis

The first objective seeks to know the relationship between INVTID and GP, after application of statistical tools we observed the following;

The correlation matrix indicates negative relationship between INVTD and GP only for TWIGA, TOLGAS and TATEPA, though not significant, hence result accepted first alternative hypothesis. The implication of the result is; the decrease in inventory turnover in days will positively affects profitability of the firm thus Managers can create the value of shareholders by shortening the average number of days in inventory turnover. (Ebenezer & Asiedu, 2013) found negative relationship between inventory days and dependent variable (GP). This study conforms to other researcher who found negative relationship between INVTID and GP although not significant. The correlation matrix of SIMBA, TCCL, TOLGAS and INDUSTRY's INVTID is positively propositional to GP, hence accepted the first null hypothesis which hypothesizes that; there is positive relationship between inventory turnover in days and profitability. However these findings are in line with studies conducted by (Naimulbari, 2012) and (Mathuva 2010) they found positive relationship between INVTID and GP. These results are against with empirical views of working capital management, the longer inventor turnover in days adversely affect profit. Effective measures are to be takes so as to shorten inventory turnover days.

Again, the second objective is to explore the relationship between ACP and GP after controlling data properly we found that; there is negative correlation between ACP and GP of SIMBA, TCCL, TOLGAS and INDUSTY but only highly significant to INDUSTRY. These results makes economic sense, since the shorter days a firm uses

in collecting cash the higher level of working capital levels it reserves and uses in order to increase profitability. (Lazaridis 2006) in his study of the relationship between working capital management and profitability on listed companies in the Ahens stock exchange, He found the same result and concluded “that that the net operating profit is negatively correlated with the variables of number of days accounts receivables, These results are consistent with the view that the shorter the period between credit sales and cash collections the larger firm's profitability”. Based on the result we conclude that INDUSTRY performance is comparatively effective in ACP. Moreover correlation matrix of TWIGA, TBL and TATEPA indicates positive relationship between ACP and GP; economically result does not make sense. Hence rejected second alternative hypothesis and accepted null hypothesis.

The third objective of this study is to explore the relationship between APP and profitability (GP). After running data on SPSS I come out with the following result.
A researcher find that the positive correlation between APP and GP of SIMBA, TCCL, TOL GAS and TATEPA these finding rejected fourth null hypotheses and accepted the alternative hypothesis, that there is positive relationship between APP and GP, result energizes that, firm with longer payment period their get more profit compared to firm with shorter payment period, the findings in line with (Michalski 2012) found that there was a positive correlation between average payment period and profitability meaning that profitable firms delays their payables, though SIMBA is the only company with significant correlation at ά = 0.05% (p value .034). On the other side TWIGA, TBL and INDUSTRY results accepted third null hypothesis and rejected the alternative hypothesis. That is there is no positive relationship between APP and profitability, where by INDUSTRY result indicates high significant relationship at ά = 0.05% (p value .0.19) the same result was founded by Reheman & Nasr (2007) the negative relationship between average payment period and profitability indicates that less profitable firms wait longer to pay their bills. Result of this study shows that the listed manufacturing companies on DSE are less profitable as APP in negatively related with profitability variable. This needs further investigation to understand the inconsistence of the variables.

The study revealed that the correlation matrix of CCC for SIMBA, TWIGA, TBL, TOLGAS and INDUSTRY is positive related with GP, results indicates that there is miss management of components of CCC which are account payables, account receivable and inventory turnover. Empirical review elaborates that the shortening of average collection period and inventory turnover days reduces the cycle. The result shows that lengthening of CCC ultimately reduces profitability of firms. TATEPA' CCC indicates negative relationship with GP, similar result was found by Mohamad & Saad, (2010). On their study on working capital management: The effect of market valuation and profitability in Malaysia where as viewing negative significant coefficient of CCC with ROA.

There is positively and highly significant correlation between SLn and GP of all manufacturing companies selected in this study except TOLGAS showing a significant at ά = 1% (*p value* .077). This means that firm size is the potential variable in predicting the profitability of firms; profitability is increased by increase in revenue.

CR indicated positive correlation with GP for TCC, TBL, TOLGAS and INDUSTRY and highly significant to TBL and INDUSTRY. The increase in liquidity probably increases profitability of the firm; generally manufacturing companies collectively are well performing. But SIMBA TWIGA and TATEPA's CR reported negative relationship with GP. The literature highlighted that the increase in ratio of liquidity increase profitability. Based on statistics SIMBA TWIGA and TATEPA needs short term finance for recovering short term debt or sales initiative mechanisms are to be implemented so as to fund those short term debt.

5.3 Discussions of regression analysis

This part covers the discussion of all four regression equation applied in this study.

5.3.1 The relationship between INVTID and GP

According to this study INVTIDLn shows negative relationship with GP for TWIGA, TOL GAS and TBL, WCM principles on inventory require managers to

convert raw material in to finished goods at less time (days) and sell those goods at considerable time. The longer time inventory stay in store loses weight and quality also increases handling cost. Results accepted alternative first hypothesis and rejected null hypothesis. These results are in line with Lazaidis & Tryfonidis (2006), Reheman & Nasr (2007) and Lu, (2013).

The implication of the result; Decrease in INVTID required in converting raw material into finished goods will result to the increase in profitability of the firm, but the average days of sales should be within the range so as to avoid over stocking. The long time (days) it takes to sale merchandise affect profitability negatively. Once more a researcher found a positive relationship between INVTID and GP of SIMBA, TCCL, TATEPA and INDUSTRY. basing on result it can be said that; firms are holding much inventories in their store, either taking measures against seasonal price fluctuation of materials and ensure sales throughout the year, by this actions cash to meet other contingency liabilities is tied up hence profitability is adversely affected by the increase in financial cost of those liabilities. But it needs further investigation to nullify the answers. Generally firm's managers should strive to decrease inventory turnover days while keeping sales constantly throughout the year.

5.3.2 The relationship between ACP and GP

The researcher found negative relationship between ACP and GP for SIMBA, TWIGA, TOL GAS, and INDUSTRY result in line with Dong (2010), Mathuva (2010), Reheman & Nasr (2007) and Muhamad (2010) who found negative relationship between ACP and profitability of the firm. Result indicates that decrease in number of days in account receivable accelerate positively the profitability of the firm, but the increase in days of account receivables has an opportunity cost of creating bad debt from debtors hence profitability of the firm is negatively affected, through taking initiative measures of reducing collection days managers should not interfere the relationship of company's customer. Therefore; when the ACP decrease profitability increases while bad debts decreases, contrary to this, when collection days increase profitability decreases while bad debts increases. These findings obey

the working capital policy that firm should collect their cash from credit customers as soon as possible in a manner of improving customer relationship.

The researcher also observed positive relationship between ACP and GP for TCC, TATEPA and TBL. The finding is contrary with rules of WCM and accepted second null hypothesis and reject alternative hypothesis. Further investigations are needed for those companies how's their ACP is positively related with GP.

5.3.3 The relationship between CCC and GP

Pearson regression analysis revealed the positive relationship between CCC and profitability for TCCL TATEPA and INDUSTRY, result conform to studies of (Gill., Biger., and Mathur 2012) and (Lyroud & Lazaridis 2000), the positive relationship between the firm's CCC and GP can also be described by the piece of evidence that maximizing the outlay in short term assets (current assets) can help in increasing profits. The fact is little liquid fund is maintained in the business for operations and contingency expenditures.

This study also finds negative relationship between CCC and GP, of SIMBA, TWIGA, TOL GAS and TBL the same result founded by Mekonnen (2011), and Reheman & Nasri (2010). Researchers insisted that shortening of cash conversion cycle boost profitability of firms. Thus Managers focus on decreasing the amount of cash tied up in current assets by shortening cash conversion cycle this can be done by decreasing the inventory turnover days, by reducing the average collection period and by increasing the average payables period.

5.3.4 The relationship between APP and GP

The existing positive relationship between APP and GP for SIMBA, TBL, TOLGAS, TATEPA and INDUSTRY implies that; the lengthening of days for payables positively affects the profitability of the firm. Naimulbari (2012) and Gill, Biger & Mathun (2011) found the same result in their studies and suggesting that an increase in the number of Day's accounts payable is associated with an increase in profitability. These findings are in line with the working capital management rule on payables; the profitable firms normally lag to pay supplies and other business

creditors so as to utilize the available cash for working capital requirements. Ponsian et al.. (2014) commented that “This result makes economic sense, the more a firm delays its payments to its creditors, the higher the level of working capital it reserves and uses in order to increase profitability”.

For TCC and TWIGA results indicate negative relationship between APP and GP, the same result was found by Lazaridis & Tryfonidis (2006) and noted that this result does make economic sense, since the longer a firm delays its payments the higher level of working capital levels it reserves and uses in order to increase profitability. For this case further investigation is needed so as to draw a conclusion, Though, Reheman & Nasr (2007) noted that ‘The negative relationship between the average payment period and profitability indicates that the less profitable firms wait longer to pay their bills’.

CHAPTER SIX: SUMMARY, CONCLUSIONS, AND POLICY IMPLICATION

6.1 Introduction

This chapter deals with summary, conclusions, and policy implication, covers conclusion, recommendations and suggested areas for further studies.

6.2 Conclusion

Ponsian et al...(2014) concluded that 'the management of working capital is one of the most important financial decision of a firm, sufficient level of working capital should be present for smooth running of the company regardless of the nature of the business.

Objectively, the study contributed the knowledge by examining how individual components of CCC affect the profitability of the individual company selected from DSE Tanzania as well as their collectiveness termed as industry. Firm's managers should make an effort for reducing their respective INVTID and ACP and increasing APP so as to shorten CCC and increase profitability of firms.

Results indicate that when INVTID decreases the profitability of a firm increases, likewise when INVTID increases the profitability decrease due to increasing storage cost. Therefore management can create shareholder value by reducing their inventories to reasonable level. Also as ACP decreases, the profitability of the firm increases, decreasing ACP result to the increasing in the level of cash of the firm, being having enough fund management can meet short term obligations. So far profitability can be increases by delaying in paying off creditors; company's mangers are to increase APP and utilizing the available cash to fund short term profitable projects.

Lastly the performance of a company is measured through its profit; the study reveals a strong significance positive relationship between firm size and profitability

measure, there for, firm managers have to adopt strategies to increase sales because it have high impact on profitability of companies.

6.3 Recommendation

There is no easy way to control inventories (raw materials, work in progress and stock of finished goods), though it can be done by purchasing quality materials at reasonable price, effective and efficiently utilization of material in production process and good inventory records indicating slow and fast moving items. These strategies are keeping inventories moving through the company as fast as possible and assist in decreasing INVTID.

However it is more important to decrease ACP by controlling the way credit sales is granted to customers because it is pleasing to get in new orders and new customers but this will prove a waste of time and effort if the order turns to be bad debts. In almost cases managers must strive to reduce ACP so as to improve profitability.

Lastly managers in manufacturing firms can adopt aggressive working capital policy, the policy requires firm to hold minimal safety stocks of cash and inventories and would be able to press customer to relatively quick settlement of their accounts while pushing creditors to prolong time interval between receipts and payments for materials. This policy reduces the cash conversion cycle.

6.4 Suggested areas for further studies

There is much to be done about working capital management in Tanzania; the researcher suggest that further research with wider sample should be conducted on the same topic and extending years for data analysis. The scope of further studies may be extended profitability variables like operating profit after tax, operating profit before tax, return on equity and return on assets.

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APPENDICES

APPENDIX I: PERCENTAGE CHANGE OF INDUSTRY WORKING CAPITAL AND ITS COMPONENTS

INDUSTRY	P change WC	Inventories P Change	Receivable P Change	Payables P Change	Profit P Change
2005	100%	100%	100%	100%	100%
2006	117%	118%	118%	118%	118%
2007	86%	135%	115%	97%	82%
2008	-37%	129%	95%	83%	86%
2009	-271%	141%	109%	115%	139%
2010	282%	108%	77%	70%	61%
2011	141%	112%	104%	135%	193%
2012	166%	121%	107%	103%	76%
2013	79%	102%	85%	79%	76%
2014	75%	109%	107%	126%	159%

Source; complied from annual audited financial statements of selected manufacturing companies.

APPENDIX II : DSE LISTED DOMESTIC COMPANIES

Company	ISIN	Date Listed	Number of Listed Shares	Nature of Business
TOL Gases Ltd. (TOL)	TZ1996100008	15th April, 1998	37,223,686	Production and distribution of industrial gases, welding equipments, medical gases, etc.
Tanzania Breweries Ltd.(TBL)	TZ1996100016	9th September, 1998	294,928,463	Tanzania Breweries Limited (TBL) manufactures sells and distributes clear beer, alcoholic fruit beverages (AFB's) and non-alcoholic beverages within Tanzania. TBL has controlling interests in Tanzania Distilleries Limited (TDL) and Dar brew Limited.
Tatepa Company Ltd.(TATEPA)	TZ1996100065	17th December, 1999	17,857,165	Growing, processing, blending, marketing and distribution of tea and instant.
Tanzania Cigarette Company.(TCC)	TZ1996100032	16thNovember,2000	100,000,000	Manufacturing, marketing, distribution and sale of cigarettes.
Tanga Cement Public Ltd Co.(SIMBA)	TZ1996100057	26thSeptember,2002	63,671,045	Production, sale and marketing of cement.
Swiss port Tanzania Ltd. (SWISSPORT)	TZ1996100040	26th September,2006	36,000,000	Airports handling of passengers and cargo.
Tanzania	TZ1996100024	29th	179,923,100	Production, sale and

Company	ISIN	Date Listed	Number of Listed Shares	Nature of Business
Portland Cement Co. Ltd. (TWIGA)		September,2006		marketing of cement.
DCB Commercial Bank (DCB)	TZ1996100214	16thSeptember,2008	67,827,897	Commercial bank
National Microfinance Bank (NMB)	TZ1996100222	6thNovember 2008	500,000,000	Commercial bank
CRDB Bank(CRDB)	TZ1996100305	17thJune 2009	2,176,532,160	Commercial bank
Precision Air Services Plc (PAL)	TZ1996101048	21stDecember 2011	193,856,750	Air transport services
Maendeleo Bank Plc (Maendeleo)	TZ1996101683	4thNovember 2013	9,066,701	Commercial bank
Swala Gas and Oil	TZ1996101865	11th August 2014	99,954,467	Mineral Exploration
Mkombozi Commercial Bank	TZ1996101972	29th December 2014	20,615,272	Commercial bank

Source; DSE data base