

Working Capital Management Efficiency: an empirical Survey on Tanzanian Universities

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A handwritten signature in black ink, appearing to read 'MFL' followed by 'mer'.

22nd June, 2011

Approval

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ABSTRACT

Efficient working capital management is one of the pre-conditions for the continued existence of organizations. This study examined the efficiency of working capital management (WCM) in Tanzanian universities. A sample of 8 out of 31 universities in Tanzania for a period from year 2005 to 2009 was studied. To measure the efficiency of WCM, three index values namely performance, utilization, and efficiency indices were computed. Different variables affecting WCM efficiency including return on assets (ROA), earnings before interest and tax (EBIT), number of computers and computer software were studied. Further, university sizes, growth in number of students, and type of university (Government or Private) were used as control variables. The data were analyzed using descriptive statistics, Pearson's correlation and regression. The findings of the study indicate that Tanzanian universities have managed their working capital satisfactorily. The result shows that there is a positive relationship between WCM efficiency and university's earnings. This means that the higher the earnings, the greater the measure of efficiency in working capital management. The study also found a positive relationship between number of computers and working capital management efficiency. It implies that an increase in number of computers with proportion to the number of finance staff lead to the efficiency in WCM.

TABLE OF CONTENTS

DECLARATION	ii
ABSTRACT	.iii
TABLE OF CONTENTS	iv
ACRONYMS	ix
ACKNOWLEDGEMENT	xi
DEDICATION	xii
CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 Background Information	1
1.1.2 Higher Education in Tanzania	2
1.1.3 Tuition Fees and Student Loans in Tanzanian Universities	3
1.2 The Statement of the Problem	5
1.3 The Objectives of the Study	6
1.3.1 Main objective	6
1.3.2 Specific objectives	6
1.4 Research questions:	6
1.5 Scope of the study	6
1.6 Significance of the Study	7
CHAPTER TWO	8
2.0 LITERATURE REVIEW	8
2.1 Introduction	8
2.2 Importance of Working Capital Management.	8
2.3 Measures to improve working capital management..	12
2.4 Prior Empirical Studies	12
2.5 Theoretical Framework	15
2.5.1 Efficiency level of working capital management..	15
2.5.1.2 Utilization index	16
2.5.1.3 Efficiency index of	16

2.5.2 University earnings and WCM efficiency	16
2.5.3 The role of information technology in working capital management	17
2.5.4 University size	19
2.5.5 Growth in number of students	19
2.5.6 Type of university (Government or Private)	20
2.6.0 Conceptual framework	22
2.6. 1 Dependent variable	22
2.6.2 Independent variables	23
2.6.3 Control variables	23
2.7 Operational Justification of the variables	24
CHAPTER THREE	25
3.0 RESEARCH METHODOLOGY	25
3.1 Introduction	25
3.2 Research design	25
3.3 Population/sampling frame	25
3.4 Sample size and Sampling procedures	26
3.4.1 Purposive (judgmental) sampling	27
3.5 Data collection methods and research instruments	27
3.6 Data analysis	27
3.8 Reliability and validity	29
CHAPTER FOUR	30
4.0 FINDINGS AND DISCUSSIONS	30
4.1 Introduction;	30
4.2 Working capital management efficiency analysis	30
4.2.1 Performance Index of WCM. (PI)	32
4.2.2 Utilization Index (UI)	34
4.2.3 Efficiency Index (EI)	35

4.3 Factors affecting working capital management efficiency	37
4.3.1 Descriptive statistics	37
4.3 Correlation matrix	39
4.4 Empirical results	40
4.4.1 Relationship between working capital management efficiency and return on assets	41
4.4.2 The relationship between working capital management efficiency and EBIT	42
4.4.3 Association between numbers of computers with Working capital management efficiency	44
4.4.4 The relationship between computer software and working capital management efficiency	45
4.4.5 University size	46
4.4.6 Growth in number of students	47
4.4.7 Type of university	47
CHAPTER FIVE	50
5.0 CONCLUSIONS AND RECOMMENDATIONS	50
5.1. Introduction	50
5.2 Summary	50
5.3 Conclusions	51
5.4 Recommendations	54
5.5 Limitation; of the study	54
REFERENCES	55
APENDIX I	60
LETTER OF INTRODUCTION	60
APEDIX II	61
QUESTIONNAIRE TO BE FILLED BY STUDENT'S LOAN OFFICERS	61
QUESTIONNAIRE TO BE FILLED BY FINANCE/ ACCOUNTING AND PROCUREMENT STAFF	62
APPENDIX III	65
APPENDIX IV	66
APPENDIX V	68
APPENDIX VI.	70

List of Tables

Table 3.1: Sample distribution	26
Table: 4.1 Average Performance, Utilization, and Efficiency Indices showing the WCM Efficiency of Tanzania Universities	31
Table: 4.2 Summary of descriptive statistics	37
Table 4.3 Pearson's correlation coefficient.	39
Table 4.4 OLS regression results of working capital management efficiency	40

List of Figures

Figure: 2. 1. conceptual framework	22
Figure 4.1 Performance index respondents	33
Figure 4.2 Utilization index respondents	35
Figure 4.3 Efficiency index respondents	36
Figure 4.4 Return on assets respondents	42
Figure 4.5 EBIT respondents	43
Figure 4.6 Number of computers respondents	45
Figure 4.7 Computer software respondents	46

ACRONYMS

AKU	Aga Khan University
ARU	Ardhi University
CSW	Computer Software
EBIT	Earnings Before Interest and Tax
El HESLB	Efficiency index
HKMU	Higher Education Students' Loans Board Hubert
IMTU	Kairuki Memorial University International Medical
KCMC	and Technical University Kilimanjaro Christian
MMU MU	Medical Centre
MUCCBS	Mount Meru University
MUCE	Mzumbe University
MUCO	Moshi University College of Cooperative and Business Studies
MUHAS	Mkwawa University College of Education
MWUCE	Makumira University College
NC	Muhimbili University of Health and Allied Sciences
OUT	Mwenge University College of Education
PI	Number of Students
ROA	Open University of Tanzania
RUCO	Performance Index
SAUT	Return on Assets
SJUT	Ruaha University College
SMMCO	St. Augustine University of Tanzania St.
SUA	John University of Tanzania Stephan
SUZA	Moshi Memorial College Sokoine
TCU	University of Agriculture State
TEKU	University of Zanzibar
	Tanzania Commission for Universities
	Kisanji University

UA	University of Arusha
UDOM	University of Dodoma
UDSM	University of Dar es Salaam
UI	Utilization Index
WBUCHS	Weil Bugando University College of Health Science
WCM	Working Capital Management
ZU	Zanzibar University

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DEDICATION

This Thesis is dedicated to my parents Ferdinand Lemeru and Theodora Valentine, my husband Deogratias Ngowi, and my three children Clare, Michael, and Theodora. I am proud of you for your care, moral, economic, and spiritual support and encouragement throughout my study at Strathmore University.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Various manufacturing and non manufacturing organizations follow policies and procedures of working capital management efficiency. Universities are among of them. Efficient management of working capital means management of various components of working capital in such a way that an adequate amount of working capital is maintained for smooth running of an organization and fulfilment of twin objectives of liquidity and profitability (Bardhan 2009; Ghosh and Maji 2003; Ramachandran & Janakiraman, 2007). Working capital management plays a big role in corporate finance because it measures the performance of organizations (Afza & Nazir 2008; Filbeck & Kureger, 2005; Reason, 2008). According to Krueger (2002), working capital is the difference between resources in cash or readily convertible into cash (current assets) and organizational commitments for which cash will soon be required (current liabilities). A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations (Kesseven, 2006). Hence, improving WCM efficiency is reasonably important for companies to withstand the impact of economic change (Reason, 2008). Efficient WCM involves planning and controlling current assets and current liabilities in a manner that eliminate the risks of inability to meet due course short term obligations on the one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004). However, firms with too low of level current assets may incur shortages and difficulties in maintaining smooth operations (Reheman and Nasr, 2007).

The efficiency provision of working capital will ensure greater success of a business while inefficient management will lead to ultimate downfall of what otherwise might be considered as prosperous concern (Ghosh & Maji, 2003). Moreover, investigating the determinants of WC M in an organizational setting provides valuable information that can be used in formulating an efficiency WCM strategy (Filbeck & Krueger, 2005; Hill & Sartoris, 1992). According to Chowdhury (2007) the inefficient management of working capital not only reduces profitability but ultimately may also lead a concern to financial crisis. However, proper management of

working capital leads to material savings and ensures financial returns at the optimal level even on the minimum level of the capital employed (Reheman & Nasr, 2007). Inadequate working capital usually interrupts the normal operations of a business and impairs profitability.

Working capital management efficiency for non manufacturing companies ¹ in developing countries particularly Tanzanian universities is a forgotten area of research (Bruce 2005; Reheman & Nasr 2007; Genesan 2007; Ifeh 2002). Understanding this which is of importance to society and country at large, the study examined and analyzed the way WCM efficiency is influenced by university earnings, information technology system, size, growth and type of university.

The goal of working capital management efficiency is to ensure that an organization is able to continue its operations and that it has sufficient cash flows to satisfy maturing short-term debt and upcoming operational expenses (Reheman & Nasr, 2007). This is to say, an organization has sufficient money available to make payments in a timely manner and these payments can either be simply account payables, payroll or short- term (current) debts obligations. Furthermore, it is relevant to ensure that there is no idle cash (Ghosh & Maji 2003; Gitman, 2006).

Many studies about WCM have been done yet the efficient of working capital management especially in higher learning institutions is not explicit. Previous studies in this area were based on the relationship between working capital management and corporate performance, the development model to improve working capital management, trend in working capital management and its impact on firm performance.

1.1.2 Higher Education in

Tanzania current total population is around 40 million people .There is a total of 42 higher education institutions distributed as follows: twelve (12) public universities and university

¹ Previous studies :WCM and profitability by Reheman & Nasr (2007);Trends in WCM and its impact on firms' performance by Kesseven(2006); An analysis of WCM results across industries by Krueger (2002); An analysis of WCM efficiency in Telecommunication equipment industry by Genesan (2007); Relationship between WCM efficiency and EBIT by Ramachandran & Janakiraman (2009)

²According to Daily News of July (2010)

colleges, nineteen (19) private universities and university colleges, eleven (11) non university higher education institutions (including technical colleges, but excluding non university institutions in Zanzibar). Most of these institutions are currently offering degrees in professional fields.

The government of the United Republic of Tanzania established the Ministry of Science, Technology and Higher Education in November, 1990 with responsibility of coordinating and overseeing a policy of higher education (Msolla, 2009). In the period of forty six years since independence, the education system in Tanzania has grown from only one Institution of higher education (a university college) in 1961 to more than 20 universities by December, 2006. Following the establishment of the Ministry of Science, Technology and Higher Education in November, 1990 there has been further development in the higher education sector.

In the early 1990s, Tanzania introduced a policy of higher educational cost sharing, designed to remove some of the cost of higher education. Despite the Tanzanian government's existence of cost sharing in higher education policy for the last fifteen years and its limited ability to finance public higher education because of many competing needs, still shoulders the burden of financing both public and private higher education through the Higher Education Students' Loans Board (Ishengoma, 2009). Tuition policy in Tanzania was essentially discontinued when the government introduced loans in July, 2005.

1.1.3 Tuition Fees and Student Loans in Tanzanian Universities

According to the Tanzania Commission for Universities (2009), tuition fees contribute to about 70% of university's income and without a good policy in fees collection; many universities are facing cash problems. Bruce (2003) explained that, the fundamental financial problems faced by institutions of higher education are worldwide and stem from two nearly universal forces. The first of these is high and increasing unit cost per student, and cost of higher education. The second force greatly exacerbating the financial problems of tertiary education institutions is the pressure of increasing enrolments, particularly where high birth rates are coupled with rapidly increasing proportions of youth finishing secondary schools with legitimate aspirations for some tertiary education.

The central reality of all Tanzanian higher education system is severe financial crisis. Teferra & Altbach (2004), insisted that academic everywhere, even in wealthy industrialized nations, faces fiscal problems, but the magnitude of these problems is greater in Africa than anywhere else. They further explained the causes of problems to include; the pressure of expansion that have added large numbers of students to most African academic institutions and systems. The economic problems facing many African countries that make it difficult, if not impossible, are the increased need of funding for higher education as well as the ability for students to afford the tuition fees.

By virtue of the above facts, many students in Tanzanian universities depend on loans from government to sustain or to carry on their studies. In this view, government lends funds to students in percentage depending on their socio-economic family backgrounds. However, in recent years loans to the students have been delayed leading to a lot of disturbances to the universities and to the students. Hence WCM efficiency is affected because of the difficulties the universities incurred on the process of budgeting (TCU, 2009).

The management of Tanzanian universities has the responsibility of estimating the WCM so as to fulfil the twin objectives of liquidity and earnings. However, it is very difficult for the management of Tanzanian universities to estimate WCM properly because, the amount of working capital varies across universities in respect with the type of university (Government or Private), degree of competition, and the terms of fees collection since most of students depend much on Higher Education Students' Loans Board for their fees payments. Thus it is important to study the efficiency of WCM in Tanzanian universities to find clearly the way current assets are handled for the purpose of generating income and to examine how the use of information technology system influence the efficiency of WCM.

Moreover, it is therefore felt that there is the need to study the importance role of working capital in earning generating process simply because it will increase the efficiency on universities operations. Since fixed capital and working capital are the dominants contributors to the total capital of the developing country, thus, the study of WCM efficiency occupies an important place in financial management and its satisfactory provision can lead not only to material savings in the economical use of capital but can also assists in furthering the ultimate of the business

and maximizing financial returns on the minimum amount of capital which need to be employed

(Leslie, 1971).

1.2 The Statement of the Problem

Working Capital Management is a big problem for most Tanzanian universities (TCU, 2009).

The problem arises due to rapidly increasing proportions of youth finishing secondary school, which leads to an increase in the number of students enrolled in universities most of whom depend on government loans for fees payment, and increasing unit per student cost of higher education (Bruce, 2003).

Student fee Component represents a major source of university income and therefore delayed loan disbursement by government (through Higher Education Students' Loan Board) makes WCM a difficult task for universities in Tanzania

The problem of managing working capital in university is enlarged by the inability of the government to finance higher education because of many competing needs. This leads to an increase in debts, little cash to be collected at the beginning of the academic year, and difficulty in forecasting cash needs.

The inability of financial managers to properly plan and control current assets and current liabilities, a poorly performing information technology system, few trained and qualified personnel, and highly bureaucratic management systems increase financial difficulties and inefficiency of working capital management (Altbach and Teferra, 2004; Bruce, 2005; lfeh, 2002; Mukiyopathyah, 2005).

Despite the introduction of a loan policy by the government, roost of the universities have commercialized their activities in the strict sense of the them that allow them to sell the work of universities for income generating activities.

The study examined now well the working capital _{is} managed in the selected Tanzanian universities.

1.3 The Objectives of the Study

1.4 Research questions:

1.3.1 Main objective

The main objective of this study was to examine the efficiency of working capital management in Tanzanian universities.

1.3.2 Specific objectives

- (i) To establish the efficiency level of working capital management Tanzanian Universities.
- (ii) To establish if there is a relationship between working capital management efficiency and earnings in Tanzanian universities.
- (iii) To examine the use of information technology on working capital management efficiency in Tanzanian universities.

This study was guided by the following questions:

- (I) Do Tanzanian universities have the efficiency level of working capital management?
- (ii) Is there any relationship between working capital management efficiency and earnings in Tanzanian universities?
- (iii) Does the use/application of an information technology system lead to efficiency in working capital management?

Scope of the study

The study examined the WCM efficiency in selected sample of Tanzanian universities and the way working capital is managed with relation to university earnings, use of information technology system, size, the growth in number of students, and type of the university. The study covered a period of 5 years from year 2005 to year 2009. This was the period when loan policy was introduced by the government for both private and public universities.

1.6 Significance of the Study

This study is expected to bring to light in the first instance problems and prospects of the WCM

efficiency in universities and to the government. This includes;

- (I) Setting targets and policies on working capital management.
- (ii) Finding other sources of generating income instead of depend on HESLB.
- (iii) Improving information technology in universities.
- (iv) Updating and developing skills of employees concerning WCM efficiency.
- (v) Knowing the problem of Higher Education Students Loan's Board, the study will try to face and solve the problems of delayed and distribution of funds to students.
- (vi) The study is expected to help the government to increase efficiency in allocating funds to students.
- (vii) Also the study expected to contribute to the body of knowledge by identifying how Tanzanian universities manage their working capital. Further, the study will help other researchers to develop new ideas, techniques and methods in respect of management of working capital.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter intended to explain and revisit what other researchers have contributed on working capital management. In this regards, the study seeks to bridge a knowledge gap and enhance understanding of WCM efficiency.¹ The literature review based on the importance of working capital management, measures to improve working capital management, prior empirical research, and at the end of this chapter, the conceptual framework and operational justification of the variables is given."

2.2 Importance of Working Capital Management.

Working capital management is the management of current assets and current liabilities (Emery, et al., 2004; Hapton & Wagner, 1989; Hill & Sartors, 1992, Scherr, 1989; Vander Weider & Maier, 1985). WCM includes maintaining optimum balance of working capital components receivables, inventories, and payables and using the cash efficiently for day to day operations (Genesan, 2007; Gitman, 2006; Scherr 1989).

Current assets include all those assets that in the normal course of business return to the form of cash within a year and such temporary converted into cash upon need. These assets include cash, accounts receivable, inventory, marketable securities, prepaid expenses and other liquid assets that can be readily converted to cash (Gitman 2006; Reheman & Nasr, 2007). Also, current assets can be explained as assets that are used to fund day to day operations and pay ongoing expenses (Gitman 2006; Ross et al., 2008). ²

³ According to Kombo (2006), literature review enables a researcher to study different theories, to gain clarity and better understanding of the theoretical foundations related to the current research.

⁴ Goetz and Lecompte (1984); Bliss, et al., (1983) emphasized that, a conceptual framework increasingly strengthens and keeps the research on track by providing clear links from the literature to the research goals and questions.

Current liabilities represent the firm's short - term financing, because they include all debts of the firm that come due and must be paid in one year or less. These debts usually include amount owed to suppliers (account payable), employees and government (accruals), outstanding short term loans typically from commercial banks and notes payable (Gitman 2006).

The purpose of cash management is to determine the optimal level of cash needed for operation and that to be invested in marketable securities, which is suitable for the nature of business operation cycle (Emery et al, 2004; Gitman 2006; Scherr, 1989). Marketable securities are short term, interest-earnings, money market instruments that can easily be converted into cash (Gitman, 2006). Inventory comprises goods held for resale and properties held for, or in the course of, development and are valued at the lower of cost and net realizable value. Inventory includes work in process and finished goods held by the firm (Gitman, 2006). Inventory plays an important role to determine the activities in producing, Marketing, and purchasing (Hill & Sartoris 1992). Accounts receivable represents the amount a firm is expected to receive from its debtors in payment for goods and services delivered or rendered (Ifeh, 2002). However, the management of accounts receivable is largely influenced by the credit policy and collection procedure. A credit policy specifies requirement to value the worthiness of customers and a collection procedure provides guidance to collect unpaid invoices that will reduce delays in outstanding receivable (Hill & Sartoris, 1992; Richard & Laughlin, 1980). Accounting payables are one of the major sources of unsecured short-term financing (Gitman, 2006; Hill & Sartoris, 1992).

Janakiraman & Ramachandran (2007) argue that efficient WCM is necessary for achieving both liquidity and profitability of a company. A poor and inefficient working capital management leads to tie up funds in idle assets and reduces the liquidity and profitability of a company (Kameswari and Reddy, 2004). According to Ghosh & Maji (2003), efficient management of working capital means management of various component of working capital in such a way that an adequate amount of working capital is maintained for a smooth running of a firm and for fulfilment of objectives of liquidity and profitability. While inadequate amount of working capital impairs the firm's liquidity, holding excess working capital results in the deduction of profitability.

Ghosh & Maji (2003) insisted that an organization will remain in business when it successfully manages its working capital. On the other hand, Laurence (2006) states that, company's operations will help in identifying and implementing strategies that generate short-term cash. This can be achieved by having the right set of executives who are responsible for setting targets and business objectives.

From the company's point of view, excess working capital means operating inefficiencies. Laurence, (2006) insists that money which is tied up in inventory or which customers still owe to the company cannot be used to pay off any of the company's obligations. So if a company is not operating in the most efficient manner, it will show up as an increase in working capital. This can be seen by comparing the working capital from one period to another. Slow collection may signal an underlying problem in the company's operations. If the working capital is well managed then the company will be able to foresee any financial difficulties that may arise. Janakiraman & Ramachandran, (2007) emphasize that, even if a business that has billion of dollars in fixed assets it will quickly find itself in bankruptcy if it can't pay its monthly bills. Under the best circumstances, poor working capital leads to financial pressure on a company, increasing borrowing, and late payments to creditors all of which result in a lower credit rating. Shin and Soenen, (1998) emphasized that the efficient WCM is very important for creating value for shareholders. However, the way working capital is managed has a significant impact on both profitability and liquidity. The success of the firm depends ultimately, on its ability to generate receipts in excess of payments.

Efficient WCM is necessary for achieving liquidity and earnings of a company. A poor and inefficient working capital leads to tying up funds in idle assets and reduces liquidity of company (Reddy and Kameswari, 2004). However if cash is well managed, planned and controlled, it will eliminate the risk of inability to meet short-term requirement (Ghosh & Maji, 2003).

In working capital analysis, the direction of change over a period of time is of crucial importance. Thus, the important task of the financial managers is to select an assortment of appropriate sources of finance for the current assets. Kesseven (2006) in his study insisted on how an organization is required to maintain a balance between liquidity and profitability while conducting its day to day operations.

The importance of cash as an indicator of continuing financial health should not be surprising in view of crucial role within business. Based on the statement one may think that, cash increase in an organization indicates less performance in short term investment. Thus, instead of holding excess cash, an organization can invest it in short term investments so as to sustain the organization in the future (Hill & Saltors, 1992).

Managers can create value by reducing their inventories and the number of days for which their accounts are outstanding; shortening the cash conversion cycle also improves the firms' profitability (Pedro Martinez 2007). Hence, reducing inventory and the number of outstanding receivables will not only improve the firms' profitability but also will increase cash which will be used to pay debts and dividends (Gitman, 2006).

The optimal level of working capital management needs to be identified. Industry factors may impact firms' credit policy, inventory management, and bill paying activities. Some firms may be better suited to minimize accounts receivable and inventory while others maximize accounts payable (Filbeck and Krueger, 2005).

According to Mukhopathyay (2005) short term liquidity of firm show the financial ability of the firm to meet its current liabilities as well as its effective in managing current assets for generating of sales. An organization should determine exact requirement of working capital and maintain the same evenly throughout operating cycle (Genesan, 2007). However, a firm should have neither excess nor inadequate working capital as both the phenomena of over capitalization and under capitalization (Mukhopathyay 2005). The efficiency working capital necessitates careful handling of current assets to ensure short term liquidity and solvency of the business.

Moreover, WCM is efficiency where there is careful maintenance and track off between credit receiving period from sundry creditors and credit allowing period to sundry debtors (Gitman, 2006). Maintenance of requisite cash and bank balances including provision for contingency and planning both the short term investments in appropriate manner without allowing any cash/bank balance to remain idle in organization (Mukhopathyay 2005).

2.3 Measures to improve working capital management

The essence of effective WCM is proper cash forecasting. This should take into account the impact of unforeseen events, and actions of competitors. However, when addressing the issues of working capital on a corporate basis-wide, there arises some advantages for which cash generated at one location, can be utilized at another location. For this to happen, information access, efficient banking channels, good linkages between production and billing internal systems to move cash and good treasury should be in place (Laurence 2006).

O'Regan (2006) states that "An innovation approach combine operational and financial skills and all-encompassing view of the company's operations will help in identifying and implementing strategies that generate short term cash." This will be possible by ensuring that funds are held in cash at bank deposits for a long period as possible.

Improving WCM is reasonably important for universities to withstand the impacts of economic turbulence (Reason, 2008). Hence, efficient working capital management in universities will increase quality control which will improve the university's competitive position. The wider perspective of working capital management contributes to the greater opportunities to create wealth. Increasing the speed of a cash cycle through accounts receivable and accounts payable management helps generating more profitability and liquidity (Jonson and Soenen, 2003). Thus, efficient cash management, inventory, receivable and accruals are essential to the management of liquidity and profitability to organizations (Ghosh & Maji 2003).

2.4 Empirical Studies

Soenen (1993) investigated the relationship between the trade cycle as the measure of working capital and return on investment in U.S firms. The result of chi-square tested indicated a negative relationship between length of net trade cycle and return on assets was found different upon industries depend on the type of industry.

Reheman and Nasr (2007) conducted research on WCM and profitability on the Pakistan firm. Their sample consisted of 94 firms listed on Karachi Stock Exchange. They investigated the impact of working capital management on the profitability of those firms for the period of 1999 - 2004. They studied the impact of different variables of working capital management including

average collection period, inventory turnover in days, average payment period, and cash conversion cycle on the net profitability of firms. They concluded that there is a strong negative relationship between working capital ratio and profitability of firms.

Kesseven (2006) conducted research based on trend in WCM and its impact on firm's performance in Mauritanian small manufacturing firms. His sample consisted of 58 small manufacturing firms. He reported that the higher investment in inventories and receivable is associated with lower profitability. He found a strong significant relationship between WCM and profitability.

Chiou and Cheng (2006) conducted research on the factors determining working capital requirement. Their study explored how working capital management of a firm is influenced by the different variables including business indicators, industry effect, operating cash flows, growth opportunity for the firm, firm performance and size of the firm. Their study provided consistent results of leverage and operating cash flows for both net liquidity balance and working capital requirement.

Krueger (2005) on his study based on WCM across industries discovered that differences exist between industries in working capital measure across time. He reported that changes in interest rates, rate of innovation and competition are likely to impact WCM. He insisted that an optimal level of WCM needs to be identified. Industry factors may impact firm's credit policy, inventory management, and bill paying activities. He concluded that significant differences exist between industries in WC measures across time.

Genesan (2007) conducted research on the WCM efficiency in Telecommunication. In his sample of 443 annual financial statements, he reported that, day's working capital does not impact the profitability of the firms. Their study found negative relationship but not significant between days working capital profitability.

Nazir and Afza (2008) on their study which looked into the various factors which determine the requirements of WCM in the firms, they used sample of 204 manufacturing firms from 16 industrial groups listed on Karachi Stock Exchange. Their study suggested some policy implications on the market. They reported that when working capital is not managed properly,

allocating more than enough of it will render the management non-efficient and reduce the benefits of short-term investment. Further, they insisted that, if working capital is too low, the company may miss a lot of profitable investment opportunities or suffer short-term liquidity crisis, leading to degradation of company credit, as it cannot respond effectively to temporary capital requirements.

Saravanan (2001), carried out a study on WCM in ten selected non-banking financial companies. For his study he employed several statistical tools on different ratios to examine the effective management of working capital. He concluded that the sampled firms had placed more importance upon the liquidity aspect compared to that of profitability.

Surendra et al (2007), made a study on WCM practices of public sector enterprises in India. The study was based on an analysis of 13 years period data from 1991 to 2003 of 137 public sector enterprises and stated that, a business organization has to be conscious that inadequate working capital is also can disrupt its operations leading illiquidity. At the same time excessive working capital is also not desirable since it adversely affects profitability.

Vishman & Shah (2007) had taken an empirical study on impact of WCM policies on corporate performance by examining coefficient of correlation and regression analysis between profitability ratio and some key working capital policy indicator ratios of 23 Indian consumer electronics companies during the period 1994-95 to 2004-05. They concluded that, no established relationship between liquidity and profitability exists for the industry as a whole. The various companies of the industry depicted different type of relationship between liquidity and profitability, although majority of them revealed positive association between liquidity and profitability. But WCM policies and practices have profound impact on a company's profit performance.

All the above studies provide the base and ideas regarding to WCM and its components. They provided the results and conclusions of those researches already done on the same area from different aspects especially in manufacturing industries and profit making organizations. Based on these researches done in different countries, the current study dealt with service provider organizations taking the case of Tanzanian universities.

2.5 Theoretical Framework

2.5.1 Efficiency Level of working capital management

According to Bardhan, (2005) working capital is highly important in firms as it is used to generate further returns for the stakeholders. When working capital is managed improperly, allocating more than enough of it will render management non-efficient and reduce the benefits of short term investments. On the other hand, if working capital is too low, the company may miss a lot of profitable investment opportunities or suffer short liquidity crisis, leading to degrading of company credit, as it cannot respond effectively to temporary capital requirement. Efficient management of working capital is, thus, an important indicator of sound health of an organization which requires reduction of unnecessary blocking of capital in order to bring down the cost of financing (Ghosh & Maji 2003).

To achieve the level of efficiency in WCM different indices used by Barthan, 2005; Ghosh & Maji 2003; Ramachandran & Janakiraman, 2007 are applied to measure and monitor the efficiency of WCM.

Based on WCM efficiency benchmark as stated by Barthan, 2005; Ghosh & Maji 2003; Ramachandran & Janakiraman 2007, Performance Index (PI) ≥ 1 , Utilization Index (UI) ≥ 1 , and Efficiency index (EI) ≥ 1 are said to be standard, that is, WCM is well performed, utilized and efficient. If PI, UI, and EI are less than one then, WCM is not well performed, utilized, and efficient.

2.5.1.1 Performance Index

The Performance index of WCI^T represents the average performance index of the various components of current assets. A firm may be said to have managed its working capital efficiently if the rise in total income is more than the corresponding rise in current assets during the particular period (Ghosh & Maji 2003). Performance index more than one indicates efficient management of working capital (Bardhan, 2005; Ghosh & Maji 2003; Ramachandran & Janakiraman, 2007).

2.5.1.2 Utilization Index

While performance index represent the average overall performance in managing the components of current assets, the utilization index indicates the ability of the firm to utilize its current assets as a whole for a purpose of generating sales (Ghosh & Maji, 2003). If an increase in total current assets is coupled with a more than proportionate increase in total income, then, the degree of utilization of these assets with respect to income is said to have improved. If the increase in income is greater than a proportionate increase in current assets, the index would be greater than one, which is a sign of improvement (Bardhan, 2005). Utilization index greater than one indicate that current assets are well utilized.

2.5.1.3 Efficiency index of WCM

The efficiency index is the product of a performance index and the utilization index. It is the measure of ultimate efficiency in WCM. Efficiency index greater than one indicate efficient WCM (Bardhan, 2005; Ghosh & Maji 2003; Ramachandran & Janakiraman, 2007).

2.5.2 University earnings and WCM efficiency

Earning is the rate of return on university's investment. An unwarranted high investment in current assets would reduce this rate of return (Vishnani, 2007). The purpose of WCM efficiency is to manage the university's current accounts so as to attain a desired balance between earnings and risks (Ricci and Vito, 2000).

Aggressive WCM efficiency reflected in low investment in current assets influences net income positively (Magpayo, 2010). This is consistent with a theory that a restricted lean-and-mean current assets investment policy generally provides the highest expected return (Barghanm and Gapenski, 1997). Eljelly (2004) pointed out that excessive liquidity results to reduction in earnings due to lost profit and unnecessary costs.

Good business acumen dictates that business resources should be managed efficiently. Brigham and Gapenski, (1997) pointed out that money tied up in working capital is an area worth looking into. Working capital, for most firms, constitutes a big chunk of their investment. Tying up cash in working capital is as much as an investment as is tying up cash in plant and equipment (Louderback, et al. 2000).

H1: There is positive relationship between working capital management efficiency and return on assets.

The way in which working capital is managed can have a significant impact on the liquidity and earnings of the university (Deloof, 2003). For example, decisions that tend to maximize earnings tend to minimize the chances of adequate liquidity. Conversely, focusing almost entirely on liquidity will tend to reduce the potential earnings of the firm (Mathuva, 2009). Although not only business activities are for profit, business needs resources to support all its activities (Magpayo, 2010). According to Derck (2003), opportunities to make money from intellectual work are pursued throughout the university by professors of computer science, biochemistry, corporate finance, and numerous other departments. Nevertheless, university's officials have initiated entrepreneurial venture through research and consultancy, evening programs, and other activities that allow the university to generate income,

Reddy and Kameswari (2004) pointed out that efficient WCM is necessary for achieving both liquidity and earnings of a company. A poor and inefficient WCM leads to tie up funds in idle assets and reduces the liquidity and profitability of the company. Efficient liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due-term obligations and avoid excessive investment in these assets (Ramachandran and Janakiraman (2009).

H2: There is positive relationship between working capital management efficiency and EEIT

2.5.3 The Role of information technology working capital management.

Working capital has to play a vital role to keep pace with the scientific and technological developments that are taking place in universities. Chowdhury & Amin (2007) emphasized that, if new ideas, methods, and technologies are not injected or brought into practice for working capital, the concern will certainly not be able to face competition and survive. Thus the use of modern technology (accounting software) will increase efficiency in fees collections, management of both inventories and account payables (Shin, 2001).

Moreover, electronic systems automate the accounts payable process and enable the company to conduct business more effectively while also reducing costs. Efforts to reengineer remittance 17

processing in most situations, through the use of technology innovation, focus on shortening the time between the customer approval for payment of an invoice and the company's receipt of that payment (Pricewaterhouse Cooper, 2006). Thus automation creates process efficiencies in the treasury system and eliminates the high risks involved with spreadsheet accounting.

For example, the chief financial officers of most organizations spend most of their time and efforts on day to day in WCM. Still, due to the inability of financial managers to properly plan and control the current assets and current liabilities of their companies, because of poor use of information technology (Weil, 1992).

Nevertheless, working capital will be managed if the company will install management accounting system and allow it to function independently under the supervision and control of a qualified management accountant who can provide relevant and significant information to the management for the purpose of effective decision making (Mukihopathy, 2005).

Competent managers will influence the cash management and determine the optimal level of cash needed for operation and invested in marketable securities which are suitable for the nature of business operation cycle (Emery et al; 2004; Gitman, 2009; Scherr, 1989). According to Johnson & Soenen, (2003) the challenge of cash management is to balance the appropriate level of cash and marketable security. Thus, a company's competence to manage cash inflow, by using cash budgeting and forecasting in formulating a cash management strategy is important.

Efficient management and administrative systems are of paramount significance to the productivity and effectiveness of any enterprise. Teferra and Altbach (2004) emphasized that African universities suffer from poor, inefficient, and highly bureaucratic management systems. Poorly trained and poorly qualified personnel; inefficient, ineffective and out of date management and administrative infrastructures; and poorly remunerated staff. Misappropriation of funds and poor prioritization also increase financial difficulties in universities.

H3: The more the number of computers used in finance department to total number of finance staff will lead to efficiency working capital management.

H4: Using accounts software« for managing "working capital increase» efficiency in working capital management.

2.5.4 University size

Past studies have also shown that firm size is one of factors to be considered when examining WCM efficiency. Further, prior studies used the firm size to evaluate the efficiency of working capital management. Wajat & Hammad (2010), pointed out that the large size of the firm tend to have excess cash, more creditors, inventories, and many suppliers. In normal circumstances large firms fail to utilize their current assets and take long time to pay their creditors.

Wajat & Hammad, (2010) study revealed that the size of the firm has inverse relationship with WCM efficiency. On the other hand, Amarjit et al, (2010) found no significant relationship between firm size and operating profit. The study of Falope and Ajilore (2009) also found no significant variations in the effects of WCM between large and small firms in Nigeria using a sample of 50 quoted companies. The study done by Rehman & Nasr found that there is a positive relationship between size of the firm and WCM efficiency.

For this reason therefore, large firms are unable to handle their working capital properly. This leads the study to the fifth hypothesis.

H5: There is negative relationship between size of the university and working capital management efficiency.

2.5.5 Growth number of students

Working capital management in universities depends upon the number of students enrolled; amount of fees paid, and fees collection policy (Bruce, 2003). The more the number of students enrolled, the more the cash received. This will be possible only if, there is a good collection policy. The management of accounts receivable deals with establishing viable credit and collection policies. The collection policy should be designed to keep the level of investments in receivables at appropriate level (Ifeh, 2002).

Furthermore, the management of accounts receivable is largely influenced by the credit policy and the collection procedure. A credit policy specifies requirements to value the worthiness of customers and a collection procedure provides guidelines to collect unpaid invoices that will reduce delays in outstanding receivable (Reason, 2008). reduce accounts receivable, a firm

may have strict collection policies and limited credit sales to its customers; this would increase cash inflow (Genesan, 2007).

Government lending funds to the students increases the number of students enrolled in universities (Bruce, 2003). Loans enable students finance their current studies against future income. Albetich, (1992) pointed out that student loans have been found to provide performance incentives to students at universities and helps ease the financial burden of students from poor families. By reducing the private direct cost of a college education, such loans indirectly guarantees increased university enrolment. However, major problems with lending to students, especially to needy students in poor countries are absence of credit worthiness (Johnstone, 2005).

According to Marcucci et al., (2008) tuition policy in Tanzania was essentially discontinued when the government introduced loans for 2005-2006 academic years to cover tuition fees, other academic fees, rooms and board for all higher education students. This student loan policy dramatically changed the country's tuition policy, moving it from dual track policy to one in which all students must pay tuition fees albeit deferred as a loan to be repaid once they have finished their studies.

H6: The increase in number of students in the university, the efficient is the university in managing the working capital.

2.5.6 Type of university (Government or Private)

Type of university either government or private was included in this study as the factor that may influence the efficiency of WCM. According to Bruce (2005), Government universities are considered to have more assets and income because they receive subsidies from government. With contrarily private universities are considered to have few assets and little income. However, private universities attempt to be more efficient in budget control.

Altbach (1999) pointed out that type of university (Private or Government) has influence the efficiency of WCM with regards to the individual students and their families, for the occupational and social status and great earnings. However, it is presumed to convey, as well as from government for the public benefits, it is presumed to bring to the social, culture, political and economic well-being of countries.

Private universities in Tanzania seem to increase due the several functions including; demand absorption, differentiated education, and demand for better education (Eisemon 1992). Besides themes that focus on definitional aspects and the emergence of private higher education, further themes evident in the literature, amongst others, that of funding models, ownership and profits, expansion and the differentiation of the academic system, academic autonomy and multinationalization of private higher education institutions (Altbach 1999).

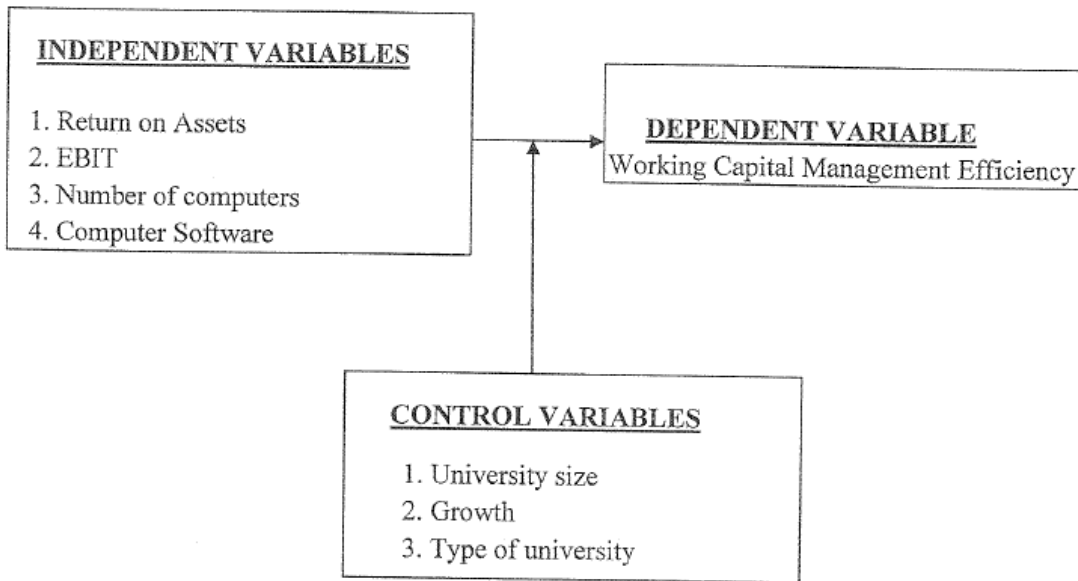
Moreover, the growth of private university in Tanzania has been an excess in the social demand for higher education which the public university sector could not meet (Eisemon 1992). This expansion could not be accommodated by the public sector and subsequently private universities were permitted to develop.

In East Africa, there is evidence pointing to the emergence of more secular-based private higher institutions with a for-profit motive, managed by a new group of education entrepreneurs' who are developing market principles in education (Useem 1999). Thus, private higher education is perceived as a marketable commodity that can be traded. Altbach (1999) pointed out that, the application of the market ideology to higher education is related to the global economic (private) higher education phenomenon that emphasizes education as a (private) good for economic growth.

H7: There is a negative relationship between type of university and working capital management efficiency.

2.6.0 Conceptual framework

Figure: 2.1 Conceptual framework.



RESEARCH MODEL: $WCME = f(ROA, EBIT, NC, CSW, SIZE, GROWTH, TYPE)$.

The following is a brief explanation of variables.

2.6.1 Dependent variable

Working capital management efficiency (WCME) as dependent variable used by (Ramachandran & Janakiraman 2007); Ghosh & Maji 2003) is measured by the following indices:-

PERFORMANCE INDEX (PI) I

$$PI_{wcm} = \frac{Is \sum_{i=1}^n \frac{W_{i(t-1)}}{W_{it}}}{N}$$

Where Is = Sales Index defined as St/St_1 , W= Individual group of current Assets group

N= Number of current Assets group, $i= 1,2,3, \dots, N$

UTILIZATION INDEX (UI)..... II

$$UI_{wcm} = \frac{A_{t-1}}{A_t}$$

Where A = (Current Assets) /Sales

EFFICIENCY INDEX OF WCM (EI)..... III

$$EI_{wcm} = PI_{wcm} \times UI_{wcm}$$

2.6.2 Independent variables

Variable	Measures	Source
Return on Assets	Net Operating Income/Total assets	Kesseven (2006)
EBIT	Natural logarithm of EBIT	Magpayo (2010).
Number of computers	Ratio: Total number of computers to total number of finance personnel.	Weil, (1992)
Computer Software	Dummy variable: 1 if account software 0 if other software	Weil, (1992)

2.6.3 Control variables

Variable	Measures	Source
University size	Natural logarithm of total income of universities	Ramachandran & Janakiraman (2007)
Growth	Percentage change in number of students	Afza & Nazir, (2008).
Type of the university	Dummy variable: 1 if government university 0 if private university	Bruce (2005)

2.7 Operational Justification of the Variables

Several variables were investigated to examine the efficiency of WCM in Tanzanian universities.

Dependent variable

The dependent variable is working capital management efficiency. Bardhan, 2005; Ghosh & Maji 2003; Ramachandran & Janakiraman, 2007 measured WCM efficiency by using Performance Index (PI), Utilization Index (UI), and Efficiency Index of WCM (EI). EI is the product of PI and UI. Efficiency index of WCM greater than one indicates that WCM is efficient.

Independent variables:

Similar to Kesseven (2009), Return on Assets was used to measure university earnings. Formula to be used is Net operating Income divide by total assets of university.

Magpayo, (2010) measured EBIT to find relationship between WCME and EBIT. Similar to Magpayo, Natural logarithm of EBIT was used to measure EBIT.

Working capital management efficiency is influenced by Information technology (number of computers in finance department, and computer software) which is used in universities. A well organized information technology will lead to an effective cash collection, identifying debtors and creditors. Moreover, information technology will simplify ordering, receiving, issuing and supplying of inventories. Advanced technology will lead to less time spent in collection, few personnel to supervise the collections which will lead to cost reductions (Wei11992).

Control variables

In order to account for University's size and other variables that may influence \VCM efficiency size of university, growth in number of students, and type of university (private or government) were included as control variables.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter intends to explain the strategies which were used to obtain relevant information to achieve the main objective of the study, that is, to examine the efficiency of W.F.M in Tanzanian universities. The chapter described the type of research design, area of study, target population, sample and sampling procedures and data collection methods. This study explained methods of data analysis, reliability and validity precautions.

3.2 Research design

Both quantitative and qualitative research approaches were used in survey design. Through quantitative approach the study was able to describe the population characteristics as well as understand the effects of variables of the study. Conclusion drawn from quantitative approach showed the way variables relate with WCM efficiency. Qualitative" approach enabled the current study to collect information which was not easy to capture through structured instrument and which needs probing. Conclusion drawn from this approach showed the way working capital is managed in universities.

3.3 Population/sampling frame.

The population of study was all Tanzanian universities; i.e. 31 universities, from which a sample size of 8 universities was drawn, which composes 4 government universities and 4 private universities." Based on the number of universities (19 from private and 12 from government), selection of sample studied based on average number of students from government and private universities. Moreover, sample selected based on accessibility of information since Tanzanian

⁵ According to Kothari, (2006); Kombo, (2006); quantitative approach is based on measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity whereby a researcher can make confirmation, proof, and corroboration.

⁶ According to (Kothari, 2006) qualitative approach is involving quality or kind. It is designed to find out how people feel or what they think about a particular thing,

universities do not disclose their financial statements. In order to meet the population, the universities must be in their operations for the whole study period beginning 2005 to 2009; this was the period when loan policy was introduced by the government for both private and public universities. The target respondents included university's staff who are directly dealing with WCM.

3.4 Sample size and Sampling procedures

In this study sample distribution from the different categories were drawn to represent the university.

Table 3.1 shows the target respondent distribution of the different categories for the population in each university.

Table 3.1: Target respondents

<i>SIN</i>	Category	Population	Sample Size	Percentage Sampled
1	Finance staff	9	4	44%
2	Procurement staff	5	2	40%
3	Admission staff	5	2	40%
4	Student's loan department	4	2	50%
	Total	24	10	42%

⁴

Table 3.1, indicates that various population categories contributed different proportions to the sample based on their size. This has ensured that representativeness was maintained. These sample sizes were within recommended range for quality analysis (Mugenda and Mugenda, 1999).

⁷ According to Kombo, (2006); Kothari, (2006) population sample is drawn to ensure diversity, representative, accessibility and knowledge of the topic being investigated so as to capture the variability in population which allows more reliability of the study.

In determining cases to be included in the various categories, this study used purposive (judgmental) sampling method to obtain sample frame and sample size.
Purposive (judgmental) sampling.

This study used this method to select some of universities to be studied as well as the categories of the key members who were in better position to provide the information for the study. The selection of universities based on the accessibility of information.

3.5 Data collection methods and research instruments.

Primary data were collected through administered questionnaires and face to face interviews, and were complemented by secondary data (documentary information) from university's records. The data for measure of WCM efficiency were collected from the annual financial statements of sample universities over 2005-2009 periods.

The survey instrument such as questionnaires, interview and document review guide were used to gather the data.

3.6 Data analysis

Qualitative and quantitative techniques were used to analyze the data from all population categories.

Under quantitative techniques, two analyses were used;

The first analysis was the measure of the efficiency level of WCM for which three indices were used, viz, Performance Index (PI), Utilization Index (UI), and Efficiency Index (EI). Statistical techniques viz Minimum, Maximum, Mean, and Standard deviation were used to show the level of WCM efficiency in Tanzanian universities.

The second analysis was the measure of the relationship between variables for which multiple regression analysis was used to test all hypotheses in which significant factors was shown as determinant of WCM efficiency. Significant of the model was determined-by use of P-value, R-squared, and F-score while T-values and P-values for each independent variable were used to determine their significant.

On the understanding that there is no clear cut explanation of cause-effect type of relationship, researcher also used correlation matrix to test the extent of relationship among variables. This helped to measure variability among variables to avoid measuring the same or closely related variables as if their different.

The major tool for analysis was MINITAB computer software where computer outputs was produced and used for interpretations.

The regression model then took the form of:

$$WCME = \beta_0 + \beta_1(ROA) + \beta_2(EBIT) + \beta_3(NC) + \beta_4(CS) - \beta_5(SIZE) + \beta_6(GROWTH) - \beta_7(TYEP) + e$$

Where

WCME = Working Capital Management Efficiency (Measured by WCME Index)

ROA = Return on assets (Measured by Net Operating Income /Total assets)

EBIT = Earnings before Interest and Tax (Measured by Natural logarithm of EBIT)

NC =Number of computers (Measured by Ratio: Total number of computers in finance department to total number of finance personnel).

CS = Computer Software: Dummy variable 1 if account software and 0 if other software.

SIZE = Size of university (Measured by natural logarithm of total income of university).

GROWTH= Growth (Measured by percentage change in number of students)

TYPE = Type of university: Dummy variable 1 if government university and 0 if private university.

e = the error term

Qualitative data was analyzed by using charts and percentage.

3.8 Reliability and validity

To achieve the quality of data that was obtained, the following was done:

1. A standard questionnaire for scaling instrument was used to collect data.
11. The questionnaires were serialized to avoid repeated entry of data.
111. Validity of this study was also supported by statistical measures as Variance Inflation Factor (VIF) ranging between 1 and 3 showing non-existence of multicollinearity effect, Durbin-Watson statistic of 2.000 indicating no serial correlations of errors and P-value ($p < 0.000$) indicating that the model is significant to measure the results obtained.

CHAPTER FOUR

4.0 FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents the interpretation and implication of the study findings analysis on the basis of the objectives and hypotheses set out earlier in the study. The results are presented and explained clearly to show the outcomes of the analysis and interpretations. The first part of this chapter analyses the level of working capital management efficiency through Performance Index (PI), Utilization Index (UI), and Efficiency index (EI). The second part analyses the relationship between the variables and working capital management efficiency. This part answered objective two and three of the study. Descriptive statistics and regression analysis was used to explain factors affecting WCM efficiency.

4.2 Working capital management efficiency analysis.

This part examined the level of WCM efficiency of selected sample of Tanzanian universities for a period from 2005 to 2009. The analysis on performance, utilization and efficiency indices helped the researcher to achieve objective one of this study. Descriptive statistics including mean standard deviation, minimum and maximum value of performance index, utilization index and efficiency index were calculated to establish the level of WCM efficiency.

Table 4.1 shows the efficiency level of working capital management.

Table: 4.1 Average Performance, Utilization, and Efficiency Indices showing the WCM Efficiency in sample selected of Tanzanian Universities

Year	PI	UI	EI
2005	1.849	0.976	1.931
2006	0.86	0.843	0.859
2007	1.456	1.811	2.856
2008	1.585	1.159	1.946
2009	1.423	1.028	1.636
Minimum	0.860(2006)	0.843(2006)	0.859(2006)
Maximum	1.849(2005)	1.811(2007)	2.856(2007)
Mean	1.435	1.163	1.846
SD	0.462	0.379	1.096

The table 4.1 shows the yearly average performance, mean, median, minimum and maximum values of Performance Index (PI), Utilization Index (UI), and Efficiency Index (EI) of WCM. Figures in brackets are years.

Consistent with WCM efficiency, the findings support the literature given by Bardhan (2005), and Afza & Nazir (2008) that working capital management is highly important in firms as it is used to generate further returns for the stakeholders. When working capital is managed improperly, allocation more than of it will render management non-efficient and reduce the benefits of short term investments. On the other hand, if working capital is too low, the company may miss a lot of profitable investment opportunities or suffer short liquidity crisis, leading to degrading of company credit, as it cannot respond effectively to temporarily capital requirements.

Based on WCM efficiency benchmark as stated by Barthan, 2005; Ghosh & Maji 2003; Ramachandran & Janakiraman 2007, Performance Index (PI)>1, Utilization Index (UI)>1, and Efficiency Index (EI)>1 are said to be standard, that is, WCM is well performed, utilized and efficient. If PI, UI, and EI are less than one then, WCM is not well performed, utilized, and efficient.

The results have proved that sample selected in Tanzania universities are financially healthy as presented by utilization index, performance index and efficient index of WCM as discussed below.

4.2.1 Performance Index of WCM. (PI)

Numerically overall performance index more than one indicates efficiency management of working capital. The finding supports the literature since an average performance index of a sample of eight universities in Tanzania was more than one. An average performance index as presented in Table 4.1 shows that the performance index in year 2007, 2008, and 2009 were more than one (1.00). This shows that sample selected universities have most satisfactorily managed their working capital while handling their current assets for generating income and adopted strong WCM policy. Thus, the performance of the sample studied in Tanzanian universities was mostly efficient for the four years period of the study. However, during the year 2006, the average performance was less than one (0.860) which reveals that management of working capital was not proper for all universities studied even though the average performance was nearly to one. The study period from 2005 to 2009, with overall mean of 1.435, reveals that, the performance was 80% successful in managing working capital in selected sample of Tanzanian universities. In a year wise comparison, results reveal that the number of efficient varied year after year. Year 2006, performance index decreased from 1.849 to 0.86 which is below standard. Performance index increased from 0.86 to 1.456 and 1.584 in the year 2007 and 2008 respectively. The results also show the decrease of 1.584 to 1.423 in year 2009. The variation reveals inconsistency in managing working capital.

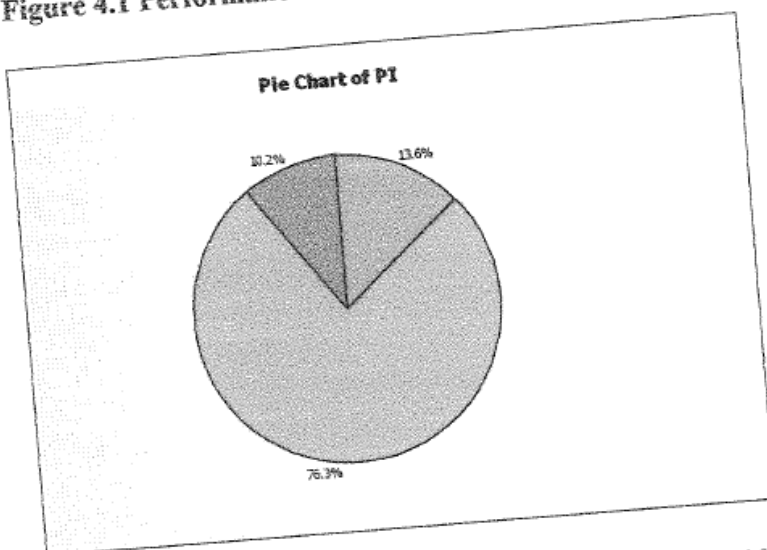
On the other hand the minimum number of 0.860 was obtained in the year 2006 and the maximum number of 1.849 is found in the year 2005. This reveals that the year 2005 appeared to be the most successful year and sample studied in Tanzanian universities maintained well their average overall performance in the matter of managing various components of current assets compared to other years.

Moreover, the results are in line with that of Bardhan (2005) of State Banks in India, Ramachandran and Janakiraman (2007) of paper industry in India and Ohosh & Maji, (2003)

of cement industry in India. Those studies used performance index of WCM and the average index results were above one.

Qualitative data supports this view on how universities perform in managing working capital. From the results 76.3% of the respondents answered that the WCM in universities is well performed.

Figure 4.1 Performance index respondents



From figure 4.1 above, category 1 represents well performed (76.3%), category 2 represent fairly performed (13.6%) and category 3 represents poorly performed (10.2%).

Figure 4.1 shows the impression of the performance index of WCM efficiency. From this pie chart 76.3% of respondents considered the performance index of WCM to be well performed, 13.6% of the respondents considered the performance to be fairly performed while 10.2% considered the performance of WCM to be poorly managed.

The reason behind such value for performance index of sample studied in Tanzania universities lie in improvement in fee collection, budgetary control, training to personnel, well management in inventories and student's debtor was reduced to a minimum level.

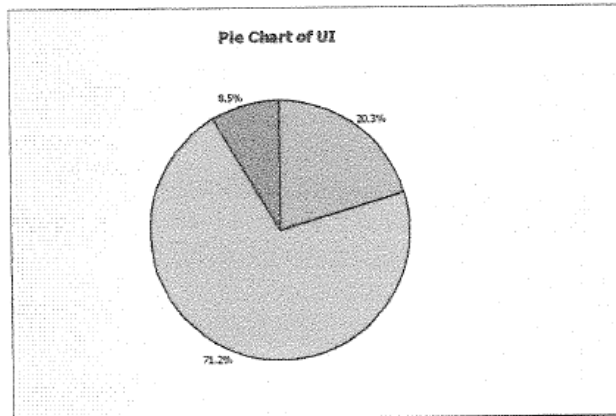
4.2.2 Utilization Index (UI)

Utilization index greater than one (.00), indicates efficient WCM. Table 1, the average value of utilization index is greater than one (1.163) for the period of study for Tanzanian universities. The results show that utilization index is greater than one for year 2007, 2008 and 2009. This indicates that Tanzanian universities included in the sample possessed the ability to utilize the current assets for the purpose of generating income. On the other hand, in years 2005 and 2006, selected sample of Tanzanian universities did not utilize well their current assets because utilization indices were (0.976 for 2005 and 0.843 for 2006). In year wise comparison, the results show the variation in utilization index. Utilization index decreased from 0.976 to 0.843 this shows a disimprovement and the number were below standards. Also from year 2007 to year 2009, the results showed the decrease in utilization index, however, the numbers maintain the standards. The minimum number of 0.843 is found in the year 2006 and the maximum number of 1.811 is found in the year 2007. This indicates that year 2007 was the best year for sample selected of Tanzanian universities in the matter of utilizing their current assets for the purpose of generating income.

The average utilization index greater than one result differs from the study done by Bardhan (2005), and Ghost and Maji (2003) which found that their companies did not perform remarkably well. This may be due to the sample drawn, study period and the nature of the company.

Qualitative data support this view on how Tanzanian universities utilize their current assets. Results show that 71.2% of the respondents answered that, current assets were utilized in the short term liquidity. 20.3% of the respondents answered that current assets were utilized in fixed assets while 8.5% of respondents answered that current assets were utilized in purchasing inventories.

Figure 4.2 Utilization index respondents



From figure 4.2, category 1 represents cash invested in short term liquidity (71.2%), category 2 represents cash invested in fixed assets (20.3%), and category 3 represents investment in inventories (8.5%).

Figure 4.2 shows the impression of the utilization of currents assets. From this pie chart, 71.2% of respondents considered the currents assets to be invested in short term liquidity, 20.3% of the respondents considered the currents assets to be invested in fixed assets while 8.5% considered the currents assets to be invested in inventories.

4.2.3 Efficiency Index (EI)

Findings reveal the WCM in sample selected of Tanzania universities to be efficient since the average efficiency index is greater than one 1.846. The average is closely to 2.00 this indicate highly degree of efficiency in managing working capital.

From this study, the efficiency index is greater than one for four years (2005, 2007, 2008, and 2009). It reveals that the WCM was efficiently managed by those universities due to the fact that the average efficiency index was 1.846 (see table no 4.1). However, year 2006 has the lowest efficiency index of 0.859, it reveals to be the outcome of sample universities inefficiency in adopting sound WCM policy for this year. Numerically, the maximum efficiency index is 2.856 compare to minimum efficiency index of 0.859, which indicates the large gap. This large gap between maximum and minimum reveals the degree of inconsistency associated with the

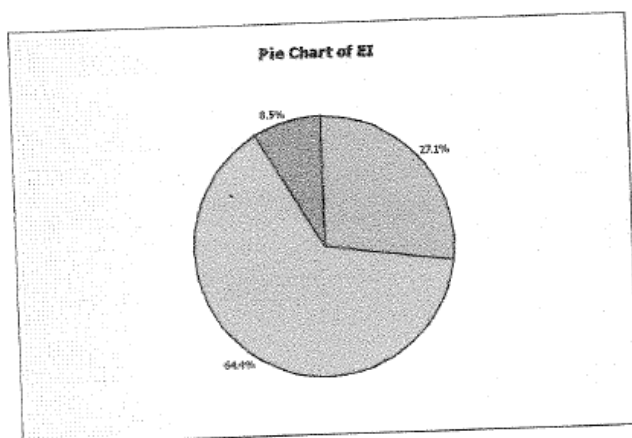
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management of working capital by selected sample of Tanzanian universities during the study period. In year wise comparison, result shows variation in efficiency index.

The findings are consistent with study done by Ramachandran and Janakiraman (2007), who concluded that their industry has satisfactorily managed their working capital while handling their current assets for generating income.

Qualitative data supports this view on how sample selected universities in Tanzania manage their working capital. 64.4% of the responded answered that WCM is well managed.

Figure 4.3 Efficiency index respondents



From figure 4.3 above, category 1 represents well managed (64.4%), category 2 represents fairly managed (27.1%), and category 3 represents poorly managed (8.5%).

Figure 4.3 shows the impression of the efficiency of WCM. From this pie chart 64.4% of respondents considered the efficiency index of WCM to be well managed, 27.1% of the respondents considered the efficiency index of WCM to be fairly managed while 8.5% of the respondents considered the efficiency of WCM to be poorly managed.

The reasons behind such a value for efficiency index in that, Tanzania universities included in the sample have well trained personnel who increased performance in WCM and also utilized current assets to generate more income, proper budgeting, and other sources of income generating such as donations, research consultancy, and administrative cost reductions.

Thus, it can be inferred that sample universities have monitored the current assets reasonably well and this can be partly due to their need for generating income from operating activities instead of relying from outside funds.

4.3 Factors affecting working capital management efficiency. This

part answered the objective two and three of the study.

4.3.1 Descriptive statistics

Table 4.2 shows the descriptive statistics including mean, standard deviation, median, minimum and maximum value of WCM efficiency, Return on assets, Earnings before interest and tax, Number of computers, Computer software, Size of universities, Growth in number of students, and Type of university. These values have been computed for a sample of eight universities in

Tanzania for a period of five years (2005-2009).

Table: 4.2 Summary of descriptive statistics

Variable	Number	Mean	St.Dev	Minimum	Median	Maximum
WCME	40	1.8470	1.2650	0.1700	1.6350	6.5300
ROA	40	0.1257	0.1499	0.0010	0.0860	0.8300
EBIT	40	7.2960	1.5950	3.4960	7.3020	9.6840
NC	40	0.5504	0.0940	0.4000	0.5245	0.7500
CSW	40	0.5500	0.5038	0.0000	1.0000	1.0000
SIZE	40	10.7200	1.1580	8.3040	10.9110	12.7950
GROWTH	40	0.5740	1.0140	-0.2700	0.1400	3.6000
TYPE	40	0.5000	0.5064	0.0000	0.5000	1.0000

Table 4.2 above, shows the descriptive statistics of number of observations, mean, standard deviation, minimum, median and maximum values. WCM is the working capital management efficiency measured by WCJE Index, ROA is the return on assets measured by net operating income over total assets, EBIT is earnings before interest and tax measured by natural logarithm of EBIT, NC is number of computers measured by ratios of the total number of computers to total number of finance personnel, CSW is the dummy variable where 1 if account software and 0 if other software, SIZE is the size of university measured by the natural logarithm of total income of university, GROWTH is the growth in number of students measured by percentage change in number of students, TYPE is a dummy variable; 1 if government university and 0 if private university.

Table 4.2 mean value of WCM efficiency is 1.847 while the standard deviation is 1.265. Minimum value is 0.17 and the maximum is 6.53. ROA has a mean value of 0.1257 while standard deviation is 0.1499, minimum value 0.0010 and value is 0.83.

To know the earnings of university and its relationship with WCM efficiency, natural logarithm of net earnings is used. The mean value of log of earnings is 7.296 while the standard deviation is 1.595. The minimum value of log of earning for university is 3.496 and the maximum is 9.684. The ratio between number of computers and finance staff has a mean value of 0.55 while standard deviation is 0.094. The minimum value is 0.4 and the maximum value is 0.75. Computer software whether accounting software or other software has a mean value of 0.55 while standard deviation is 0.5038.

To know the size of university and its relation with WCM efficiency, natural logarithm of total income is used as a control variable. The mean value of log of total income is 10.72 while the standard deviation is 1.158. The minimum value of log of total income is 8.3040 and the maximum is 12.795. Growth in number of students has a mean value of 0.574 while standard deviation is 1.014. The minimum value is -0.27 and the maximum value is 3.6. Type of university has a mean value of 0.5 while standard deviation is 0.5064.

In Table 4.2 the comparison of mean value and the range (maximum-minimum) shows that there is high variation in the variables as also manifested by the standard deviation values. This arouses some concern of performance for some universities. For instance, analysis of the WCM efficiency variable indicates that, while there is a university with a score of 6.53 on WCM efficiency there is another with as low as 0.1700 score (range = 6.53 - 0.17) this difference is too high in the view of the study to the extent of requiring additional explanation through other studies.

Another observation exists at EBIT with the mean of 7.296 and a median of 7.3020 indicates that majority (over half) are performing above the mean. It is therefore serious for those playing below the mean figure value showing a high of inefficiency in the managing of earnings.

Analysis of the ROA variable has indications of administrative challenges. The comparison of the mean value (0.257) and the median (0.0860), shows that, more than half of the universities

performance of ROA is less than average though others are highly excelling maximum of 0.83. The question dwells on the performance of management on the utilization of assets concerned.

4.3 Correlation matrix

Pearson correlation matrix is used to determine whether the independent variables are correlated amongst themselves to any extent of causing multicollinearity threat in the analysis. Table 4.3 shows the results of Correlation Matrix Analysis.

Table 4.3 Pearson's correlation coefficient

	GROWTH	SIZE	SW	NC	EBIT	ROA	WCME
TYPE	0.180	0.492	0.402	-0.174	0.224	0.010	-0.281
GROWTH		0.277	-0.050	-0.320	-0.007	0.420	0.088
SIZE			0.612	0.042	0.027	0.379	-0.117
CSW				0.474	0.155	-0.103	-0.229
NC					0.186	-0.345	-0.035
EBIT						0.228	-0.329
ROA							0.040

Table 4.3 above shows the Pearson's correlation coefficient matrix. It shows the way variables are correlated amongst themselves. WCME is the working capital management efficiency measured by WCME Index, ROA is the return on assets measured by net operating income over total assets, EBIT is earnings before interest and tax measured by natural logarithm of EBIT, NC is number of computers measured by ratio of the total number of computers to the total number of finance personnel, CSW is the dummy variable where 1 if account software and 0 if other software, SIZE is the size of university measured by the natural logarithm of total income of university, GROWTH is the growth in number of students measured by percentage change in number of students, TYPE is a dummy variable; 1 if government university and 0 if private university.

Table 4.2 shows the way variables are correlated. The highest correlation is seen to exist between computer software and size of university at 1 % significant level. According to literature, there is no threat of existence of multicollinearity among the data. Tibachnick and Fidell (1996) stated that one should think carefully before including two variables with bivariate correlation of negative 0.8 and positive 0.8 or more the same analysis since the variable will tend to

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influence each other before the overall effect on the dependant variable. It follows that, for the analysis all the variables are included in the regression model as their correlation coefficient are all bellow 0.8.

4.4 Empirical results

The following model was used to determine the significant and insignificant factors in explaining the efficiency of WCM. $WCME = f(ROA, EBIT, NC, CSW, SIZE, GROWTH, TYPE)$ which yielded the following equation

$$WCME = \beta_0 + \beta_1(ROA) + \beta_2(EBIT) + \beta_3(NC) + \beta_4(CSW) - \beta_5(SIZE) + \beta_6(GROWTH) - \beta_7(TYEP) + e$$

These results are presented in table 4.4

Table 4.4 OLS regression results of working capital management efficiency

Predictor	Coef	P-Value	VIF
Constant	0.3641	0.015	
ROA	0.4737	0.053**	2.5
EBIT	0.5680	0.078**	1.2
NC	0.9810	0.002*	3.4
CSW	0.8558	0.117	1.9
SIZE	-0.0205	0.791	1.4
GROWTH	0.0981	0.401	2.7
TYPE	-0.9921	0.000*	3.3

R-Sq = 58.9% R-Sq(adj) = 50.0%

P-Value 0.000

Durbin-Watson statistic = 2.35436

$$WCME = \beta_0 + \beta_1(ROA) + \beta_2(EBIT) + \beta_3(NC) + \beta_4(CSW) - \beta_5(SIZE) + \beta_6(GROWTH) - \beta_7(TYEP) + e$$

Table 4.4 above shows the regression analysis. It shows the significant and insignificant variables explaining the efficiency of WCM. **ROA** is the return on assets measured by net operating income over total assets, **EBIT** is earnings before interest and tax measured by natural logarithm of EBIT, **NC** is the number of computer measured by the total number of computers to total number of finance personnel, **CSW** is the dummy variable where 1 if account software and 0 if other software, **SIZE** is the size of university measured by the natural logarithm of total income of university, **GROWTH** is the growth in number of students measured by percentage change in number of students, **TYPE** is a dummy variable ; 1 if government university and 0 if private university. *,** Statistically significant at 1% and 5% respectively

The regression analysis helped the researchers to achieve objective two and three of this study.

4.4.1 Relationship between working capital management efficiency and return on assets

From the regression results, it appears that return on assets has a significant positive association with WCM efficiency. The positive relationship indicates that ROA as a measure of university earnings is one of the factors that can be used to explain the efficiency of WCM in Tanzanian universities. The higher the return on assets the greater is the measure of efficiency in working capital management. The positive relations supports hypothesis one (H1) which states

H1: There is a positive relationship between working capital management efficiency and return on assets.

The results show that return on asset has a statistically significant positive relationship with WCM efficiency. This proves that aggressive WCM efficiency reflected in low investments in current assets influences income positively. This is consistent with the theory that, a restricted lean-and-mean current assets investment policy generally provides the highest expected return (Brigham and Gaspenski 1997). Likewise, this is consistent with Eljelly (2004) study, which pointed out that excessive liquidity results in reduction of earnings due to loss in earnings and unnecessary costs. However, this finding differs with the studies of Afza & Nazir (2007), Wajahat & Hamad (2010), who found no significant relationship between WCM and earnings. Study by Reheman & Nasr (2007) which found strong negative relationship between WCM and earnings.

This variable was also supported by 49.2% of respondents on the view of return on assets. Most of them viewed the return on assets to be high.

Figure 4.4 Return on assets respondents

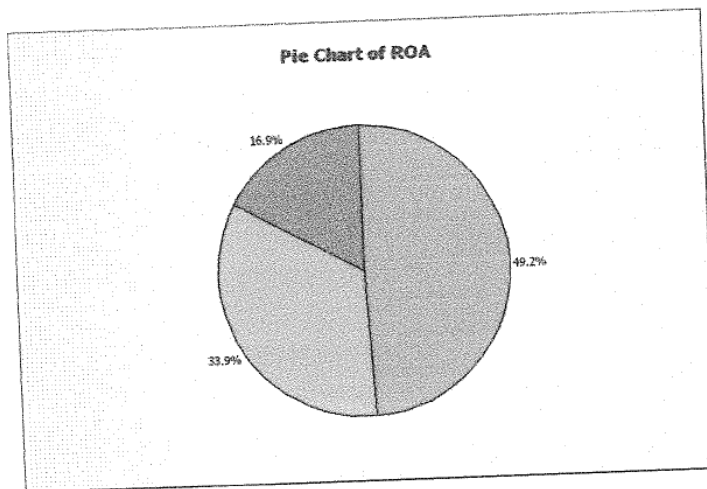


Figure 4.4 shows the relationship between WCM efficiency and ROA. Category 1 is 49.2% of respondents answered that ROA is high, category 2 is 33.9% of respondents answered that ROA is low and category 3 is 16.9% of respondents do not know about ROA in their university.

Figure 4.4 shows the impression of respondents towards the return on assets in selected sample of Tanzanian universities. From this pie chart, only 49.2% of respondents answered that return on assets is high, 33.9% of the respondents considered the return of assets to be low while 16.9% of respondents do not know anything about return on assets in their universities.

4.4.2 The relationship between working capital management efficiency and EBIT

The result from Table 4.4 shows that there is a significant positive relationship between WCM efficiency and EBIT. Significant positive relation implies that EBIT is the factor that can be used to explain the WCM efficiency. The significant positive relationship supports hypothesis two (H2) which states,

H2: There is a positive relationship between working capital management efficiency and EBIT.

Results of the study found a significant positive relationship between WCM efficiency and EBIT. This proves the theory of earnings and WCM efficiency that efficient WCM is necessary for achieving both liquidity and profitability of a company, a poor and inefficient WCM leads to tie up funds in idle assets and reduces the liquidity and profitability of a company (Reddy & Kameswari, 2004). This is consistent with the study of Ramachandran & Janakiraman (2007),

Magpayo (2005) who found a significant relationship between WCM efficiency and EBIT. It means that as the earnings increase, will lead to an increase in WCM efficiency.

However, this result differs from the study done by Rehemani (2007) when he found a significant negative relationship between variables of the working capital management and earnings of a firm.

Qualitative data supports this view on how Tanzanian universities maintain their annual budget. 66% of respondents responded that their universities maintain surplus in their annual budget.

Figure 4.5 EBIT respondents

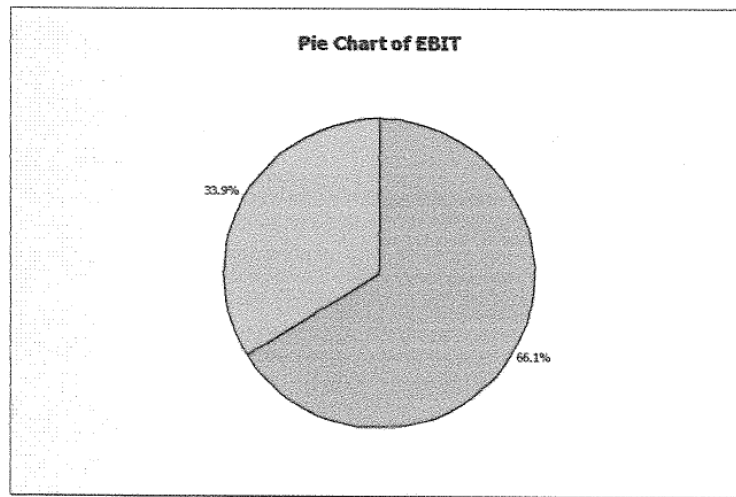


Figure 4.5 shows the relationship between WCM efficiency and EBIT. Category 1 is 66.19% of respondents who answered "surplus", category 2 is 33.99% of respondents who answered "deficit".

The above figure 4.5 shows the impression of respondents who devote to answer the question about university's earnings. Majority of respondents (66.19%) answered that their university maintain surplus in their annual budget.

4.4.3 Association between numbers of computers with Working capital management efficiency

The highly significant positive relationship between number of computers and WCM efficiency was found from regression analysis. This result implies that number of computers is the factor that can be used to explain the efficiency of WCM.

The strong significant positive relationship supports the hypothesis three (H3) which states

H3: The more the number of computers used in finance department to total number of finance staff will lead to efficiency WCM

Uses of information technology (Number of computers) influence the efficient of WCM. The results show that number of computer has a statistically significant positive relationship between number of computers and WCM efficiency. Findings support the theory that the use of modern technology will increase efficiency in managing current assets and current liabilities (Shin, 2001). The result is also consistent with the study of Weil (1992), who found a significant positive relationship between the WCM efficiency and the use of information technology system.

Qualitative data supports this view concerning the number of computers used in the universities. 81.4% of respondents responded that the rate of number of computer used in their universities increases efficiency in WCM.

Figure 4.6 Number of computers respondents

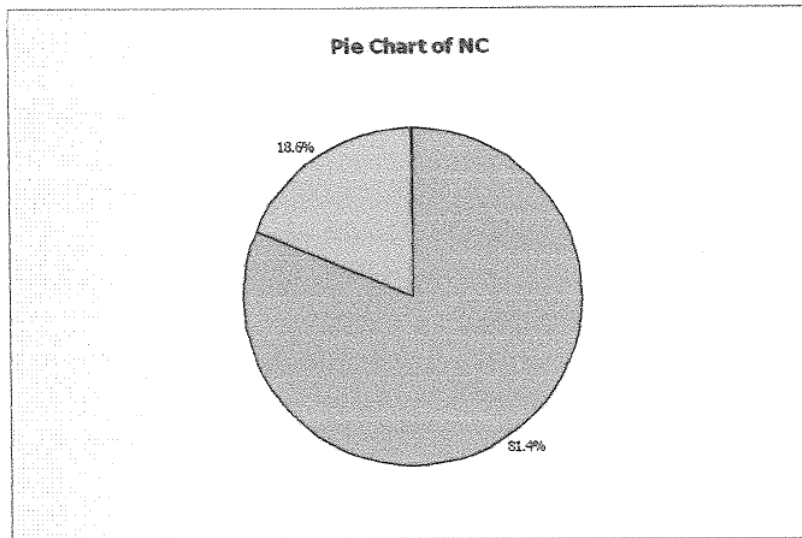


Figure 4.6 shows the relationship between WCM efficiency and number of computers, category 1 is 81.4% of respondents who answered YES, category 2 is 18.6% of respondents who answered NO.

Figure 4.6 shows the impression of universities staff toward the use of computer system. It reveals that most of respondents considered the number of computers used in their universities to increase efficiency in working capital management.

4.4.4 The relationship between computer software and working capital management efficiency

The result was obtained through dummy variable between accounting software and other computer software. From regression analysis, insignificant positive relationship between computer software and WCM efficiency was found. Though the result has positive relation, yet computer software cannot be used to explain the efficiency of working capital management. Positive relationship supports hypothesis four (H4) which states

H4: Using account software for managing working capital will increase efficiency in working capital management.

Results of the study found an insignificant relationship between computer software and WCM efficiency. It implies that using accounting software is not the way of improving efficiency in

working capital management. Other computer software such as excel may be used in universities depending the size of university and number of students. The result is not consistent with the theory which says, the use of accounting software will increase efficiency in fee collections, cash management, inventory and accounts payable (Shin 2001).

Qualitative data supports this view of computer software used in the universities. 72.99% of respondents answered that they use account software in their finance department.

Figure 4.7 Computer software respondents

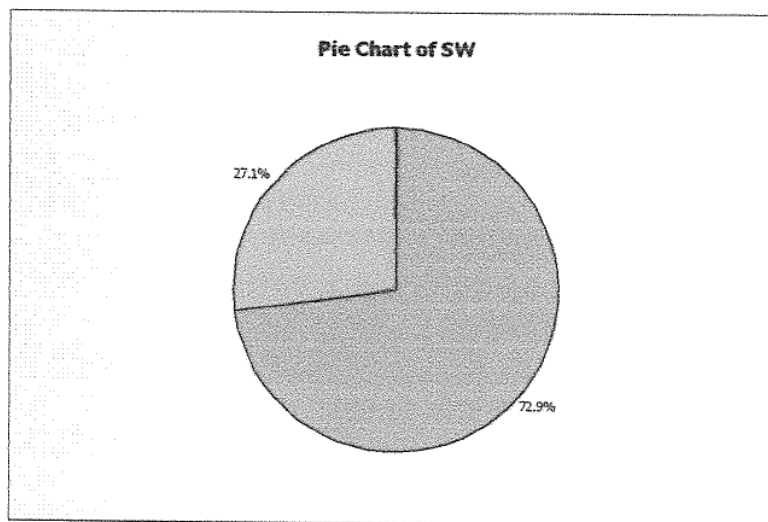


Figure 4.7 shows the relationship between WCM efficiency and computer software. Category 1 is 72.99% of respondents who answered Accounting software; category 2 is 27.1% of respondents who answered other software.

Figure 4.7 shows the impression of respondents toward the computer software. It reveals that majority of universities use accounting software.

In Table 4.4 the size of university, the growth in number of students, and the type of university (government or private) were the variables which used to control other variable s from this study.

4.4.5 University size

On regression analysis insignificant negative relationship between university size and WCM efficiency was found.

The insignificant negative of university size shows that the size of university does not explain the efficiency of WCM. Moreover, the insignificant negative relationship between WCM efficiency and university size contradicts previous studies which showed a positive relationship. However, the result supports hypothesis five (H5) which states

H5: There is a negative relationship between size of university and WCAI efficiency

Results of the study also showed that university size has insignificant negative relationship with WCM efficiency. This is consistent with the study of Wajahat & Hamad (2010), Afza & Nazir (2007) which found inverse relationships. Study of Amarjit et al (2010), which found no significant relationship. In this study, large universities are identified with excess current assets which under normal circumstances would translate to inefficiently WCM.

4.4.6 Growth in number of students

From regression analysis, the result shows an insignificant positive relationship between the growth in number of students and WCM efficiency. It implies that growth in number of students is not the factor that can explain the efficiency of working capital management. However, this result supports hypothesis six (H6) which states

H6: The growth in number of students will lead to the efficiency of working capital management.

The study findings found insignificant relationship between GROWTH and WCM efficiency. This is consistent with study done by Afza & Nazir (2007) which was unable to find any statistically significant relationship between WCM efficiency and income growth. Its implication is that an increase in number of students will increase efficiency in fees collection since Tanzania universities mostly depend on Higher Education Students Loan Board to pay their fees.

4.4.7 Type of university

The variable TYPE with a $\sim$ coefficient of -0.9901 has a P-value of 0.000 which indicates that there is highly significantly negative relationship between working capital management efficiency and the type of university. The coefficient is highly significant. This indicates that type of university explain the efficiency of working capital management.

The study findings found relationship between type university and WCM efficiency. Its implication is that government universities tend to have more cash since they receive subsidies from government and private universities depend much on Higher Education Students Loan Board. Hence, both private and government universities are likely to influence the efficiency in WCM.

The variables ROA, EBIT, NC, CSW have considerably high explanatory powers over WCM efficiency with $\sim$ value of 0.4737, 0.568, 0.981, and 0.8588 respectively. The rest which include SIZE (-0.0205) and GROWTH (0.0981) have less explanatory power on the variation of WCM efficiency.

The model used to produce these results is highly significant at ($P < 0.000$). Also, the coefficient of determination (R-Squared) the explanatory power of the model is considerably good (58.9%). Meaning that variation of 58.9% is explained by factors affecting WCM efficiency.

There is no serial correlation of errors as supported by Durban- Watson statistic of more than 2. Multicollinearity was not problem since the Variance Inflation Factor (VIFs) value ranged between 1 and 3.

These results show that four variables explain the efficiency of WCM in Tanzanian universities. The model is significant as shown by an explanatory power (58.9%) and small P-value ($P < 0.000$).

Summary

This Chapter discussed the major results and findings from data analyses. The results of regression analysis reveal ROA, EBIT, NC, and TYPE as statistically significant in explaining the working capital management efficiency in sample selected in Tanzanian universities. The following is the summary of regression results.

results for table 4.4

Variable	Is variable significant?
ROA	YES
EBIT	YES
NC	YES
CSW	NO
SIZE	NO
GROWTH	NO
TYPE	YES

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter gives a summary of the findings relating to the research objectives. Conclusions are drawn based on the findings presented in Chapter Four. Further, this chapter gives recommendations to Tanzanian universities as per the view of the respondents and based on the finding of the study. The chapter also concludes by inviting future researchers to contribute to the body of knowledge by identifying how Tanzanian universities managed their working capital. Finally, the limitation of the study was given.

5.2 Summary

As explained previously, the purpose of this study is to examine the efficiency of WCM in Tanzania Universities. To achieve this objective, the researcher put forward three specific objectives. The first objective was to establish efficiency level of working capital management in Tanzania Universities. The second objective was to establish the relationship between WCM efficiency and earnings in Tanzanian universities. The third objective was to examine the use of information technology on WCM efficiency in Tanzania universities.

Data was collected from the annual financial statements of sample universities over 2005-2009 periods and was complimented by primary data through administered questionnaires and face to face interviews. From literature point of view, the study analyses the level of \VCM through performance index, utilization index and efficiency index of WCM. Also the study identified four independent variables that may affect WCM efficiency, and three control variables.

On the efficiency level of working capital management, the study found that sample selected of Tanzania universities have mostly satisfactorily managed their working capital while handling their current assets for generating income and adopted strong WCM policy. Also the study revealed that, selected sample of Tanzanian universities have the ability to utilize the current

assets for the purpose of generating income. Finally, the study reveals that the WCM was efficiently managed by universities studied in Tanzania.

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From the empirical findings, the study also found four variables that are significant in explaining the efficiency of WCM in Tanzania universities. These are Return on Assets, Earnings Before Interest and Tax, Number of computers and Type of university.

Firstly, there exist a significant positive relationship between ROA and working capital management. This implies that universities which are efficiently in managing their assets to generate earnings will also manage their working capital efficiently. Secondly, there is a significant positive relationship between EBIT and working capital management efficiency. The implication of this is that the higher the universities increase earning power from operating income, the higher is the WCM efficiency. Thirdly, a highly significant positive relationship exists between number of computer and working capital management efficiency. This indicates that when Tanzania universities applying information technology by using proportionate number of computers to number of finance staff, will increase efficient in WCM. Fourthly, there exist highly significant negative relationships between type of university and WCM efficiency.

The results also support hypothesis (H1, H2, H3 and H7) which show that the efficiency of working capital management is positively associated with ROA, EBIT, number of computers and Type of university.

5.3 Conclusions

This study examines the efficiency of working capital management in Tanzania universities. A sample of eight universities in Tanzania universities was investigated for a period of five years from year 2005 to 2009. The important of efficient WCM is essential for achieving both liquidity and earnings of the university.

An attempt has been made in this study to examine the level of WCM efficiency in Tanzania universities, to investigate the relationship between WCM efficiency and earnings in Tanzania university and finally to examine the use of information technology on WCM efficiency in Tanzania universities. Three index values, performance index, utilization index and efficiency index were used to determine the efficiency level of WCM in sample selected of Tanzanian

Regression analysis also was done to find the relationship between variables affecting the efficiency of working capital management.

From the study, it is observed that sample selected of Tanzania universities perform remarkably well during the period of study. Average efficiency index in sample selected of Tanzania universities was greater than one in four years out of five years for the period of study. This reveals that the efficiency of WCM was 80% successfully in universities studied. Therefore, from this study it is concluded that sample selected of Tanzania universities are financially healthy since they have managed their working capital efficiently. Though universities studied in Tanzania had successfully improved the efficiency in WCM during these years, the existence of a high degree of inconsistency in this matter clearly points out the needs for adopting sound WCM policy.

Results on the study indicated that ROA, EEIT, NC and TYPE have significant relationship to the WCM efficiency. The regression analysis statistics showed significant results ($P < 0.000$), R^2 58.9% and Durbin Watson statistics 2.35436

Regarding to hypotheses, it is concluded that the positive relationships support hypothesis one, two and three which state; H1: There is a positive relationship between WCM efficiency and return on assets, H2: There is a positive relationship between WCM efficiency and EBIT, and H3: The more the number of computers used in finance department to total number of finance staff will lead to the efficiency of WCM. However, variables including computer software, size of university and growth in number of students showed insignificant relationship with WCM efficiency, they supported hypotheses four (H4) Five (H5), and six (H6). Negative relations support hypothesis seven (H7) which states that there is a negative relationship between type of university and working capital management efficiency. The negative relationship between size of university and WCM efficiency is consistent with the view that if the size increases it will lead to a decrease WCM efficiency.

Descriptive statistics revealed that majority of universities were performing above the mean managing earnings. Consequently, it was observed more half of the universities performance of ROA was less than average mean. The question is left on the performance of management on the utilization of assets concerned.

The statistical evidence indicate that coefficient of determination (R-Squared) the explanatory power is considerably good (58.8%) which is higher than study done by Ramachandran & Janakiraman (2007). It can be concluded that an increase in this explanatory power is due to the additional variables including number of computers and computer software, and the use of index dependant variable instead of common ratios of working capital management.

The conclusion is in confirmation with Eljelly (2004), Magpayo (2005) who found positive relationship between the WCM efficiency and return on assets and Study of Ramachandran & Janakiraman (2007), who also found a significant relationship between WCM efficiency and EBIT.

This study therefore, makes the following contribution to the body of knowledge.

Firstly, in Tanzania context, the working capital management efficiency is the first study done on service provider firms (Tanzanian Universities).

Secondly, variables including ROA, EBIT, SIZE, GRO\VTH and TYPE can also be used in service provider firms to explain WCM efficiency.

Thirdly, this study determines the number of computers and computer software as new variables which can influence WCM efficiency.

Fourthly, the study has shown that the sample studied universities in Tanzania are financially healthy.

There is much to be done about working capital management in Tanzania in future

Firstly, the great difference which escalated in the comparison of scores in the mean value and the range, highlighted that there is a need to cover the gap of efficiency level of working capital management, or at least to raise the performance of those universities which have very low scores by identifying the causes of low performances and ensuring that they move higher to be in a better position.

Secondly, on the issue of return on assets as indicated in the findings, the challenge is focused on the performance management of the utilization of assets concerned. However, there is a feeling that universities need to interact so as to exchange ideas, experiences and share programmes to enable those which are less than the average to come up with solutions on how to get a better performance.

Thirdly, from the results, the study observed that, majority (over half) of universities are highly managing their earnings. This reveals that few universities are showing a high of inefficiency in managing of earnings. The inefficiency in the managing of earnings brings a perception that universities which are performing below the mean value have to assess their skills and methods of managing their earnings. To overcome this problem, universities should consider the training to their finance staff, and employ more competent personnel.

Finally, the study suggest that further research be conducted on the same topic with the same firm or different firms and increase the sample size as well as the period of the study.

Limitations of the study

Research design used:

The survey design which was used covered the sample of 8 universities out of 31. Therefore, it was not possible for the data collected from the selected universities to be similar to all universities for the country.

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APENDIX I

LETTER OF INTRODUCTION

To whom it may concern

Dear respondent,

RE: A REQUEST TO GRANT PERMISSION TO SEEK RESPONSE ON A GRADUATE SCHOOL SURVEY QUESTIONNAIRE.

I am a student of Strathmore University pursuing a Master Degree in Commerce.

I am doing a research on the Efficient of Working Capital Management In Tanzanian Universities.

Strathmore University requires graduate students to carry out a research thesis for a partial fulfilment of the master of commerce degree program. The study intends to find out the problems associated with working~ capital management in Tanzanian Universities and suggest remedial measures to be taken and hence improve it.

Kindly I request you to carefully read each question and answer them, and comment where necessary. It will be appreciated if you would help in the completion of the questionnaires within the shortest possible time.

All information you provide in this questionnaire will be treated with utmost confidentiality and for a research work only.

Thank you for your cooperation.

Mary Lemeru

APEDIX II

QUESTIONNAIRE TO BE FILLED BY STUDENT'S LOAN OFFICERS

You are kindly requested to mark (✓) in the box choices or a brief explanation in the open space.

1. What problems do you have while performing/ dealing with students loans?
.....
.....
2. Have you made any efforts in finding solutions to these problems
YES ☐ NO ☐
3. If (YES) what efforts
.....
.....
4. If (NO) why?
.....
.....
5. Do you have any proper procedure used for collecting fees from students
YES ☐ NO ☐
6. If (YES) what are those procedures
.....
.....
7. If (NO) explain
.....
.....
8. If a student applied for a loan and didn't get it, what measures does the university take?
.....
.....

QUESTIONNAIRE TO BE FILLED BY FINANCE/ ACCOUNTING AND PROCUREMENT STAFF

You are kindly requested to mark (✓) in the box choices or a brief explanation in the open space.

1. Does your university maintain surplus or deficit in your annual budget?
.....
2. Does the rate of the number of computers to finance staff increase the efficiency of WCN ☐
YES
NO ☐
3. How does your university utilize its currents assets? Mark 1st, 2nd, 3rd in order of priority
 - Invest in liquid short terms ☐
 - Invest in fixed assets ☐
 - Invest in inventory ☐
4. Does your university use account software for financial transactions?
5. YES ☐ NO ☐
6. If YES how many computers do you have in your department?
7. Does your university plan and control cash budget?
YES ☐ NO ☐
8. If YES on what basis: Monthly ☐ Quarterly ☐ Semi-annually ☐ Annually ☐
9. Does the finance staff regularly attend updating courses concerning working capital
management
YES ☐ NO ☐
10. If YES how often?
.....
11. Does your university depend much on students loan
YES ☐ NO ☐

12. In YES when loans are delayed, what other sources of financing do you have?

.....

.....

13. If NO, what other sources of generating income

.....

.....

14. Is the return of assets in your university high or low?

Please indicate the extent to which you agree or disagree with each of the following statement by placing (√) on the scale provided.

STATEMENT	STRONG AGREED	AGREED	DON'T KNOW	DISAGREED	STRONG DISGREED
Working capital is well managed in your university					
The efficiency of the working capital management in your university is well performed					
Computer facilities in your university are sufficient for managing your working capital					
The uses of information technology in your university have reduced time and cost in cash collection and paying your suppliers					
Accounting package used in your university have enough capacity for cash collections and payments for your creditors.					
The systems of receiving and payment of cash in your university automated.					
You have enough and competent staff in your department					
The greater the number of competent staff lead to an increase in the performance of working capital					

Higher Education Students' Loans Board (HESLB) has increased students enrolment in your university.					
The more the HESLB delays distribution of fees in university the more working capital management is affected.					
Your university suffers from poor inefficient, highly bureaucratic management system, and misappropriate of funds.					

APPENDIX

STUDENTS ENROLMENT IN TANZANIAN UNIVERSITIES 2005/2006 - 2009/2010

S/N	Institutions	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
1	UDSM	15081	13927	14799	14203	16064
2	SUA	2286	2393	3204	3619	4135
3	OUT	9282	7142	25829	28935	30069
4	MU	9210	3474	3537	4088	5172
5	MUHAS	2056	2530	1431	2165	2383
6	ARU	1194	1358	1602	1908	2115
7	SUZA	260	424	1005	1035	1003
8	UDOM	0	0	1116	5337	15121
9	MUCCOBS	866	1104	1374	3068	2702
10	DUCE	527	1483	3326	3528	2955
11	MUCE	1006	917	1084	1899	2109
12	HKMU	109	109	442	531	651
13	IMTU	172	371	168	701	821
14	ZU	485	1241	1350	1477	1987
15	SAUT	1344	2665	4165	6244	9137
16	SJUT	0	0	791	1872	2898
17	U.A	154	514	1029	866	868
18	MMU	164	236	267	636	697
19	MUM	167	326	654	159	1059
20	AKU	123	187	761	214	761
21	TEKU	62	274	894	1784	2552
22	RUCO	221	446	964	1212	2462
23	WBUCHS	35	155	714	598	680
24	MWUCE	33	125	190	596	1171
25	IUR	1308	2042	234	2931	3351
26	KCMC	220	228	234	1005	1119
27	MUCO	271	325	918	1159	1298
28	TUTARCO	264	1328	1454	1700	
29	SMMCO	0	0	396	493	617
30	SECUCO	0	0	138	438	638
31	UCEZ	143	155	213	430	656
	TOTAL	40993	45501	76172	95525	118951

Number of students enrolled in universities Increased from 40,993 year 2005/2006 to 118,951

SOURCE: Daily News July, 2010.

APPENDIX IV

Data containing universities' Performance Index (PI), Utilization Index (UI), Efficiency Index (EI) and their values

University	Year	PI	UI	EI
UDSM	2005	1.13	0.60	0.68
	2006	1.12	1.10	1.23
	2007	1.49	1.85	2.76
	2008	1.38	1.01	1.40
	2009	1.11	0.80	0.89
SAUT	2005	2.27	1.17	2.66
	2006	0.50	0.49	0.24
	2007	0.79	0.99	0.78
	2008	1.60	1.17	1.87
	2009	1.80	1.30	2.34
MUCCOBS	2005	2.02	1.07	2.16
	2006	0.52	0.51	0.26
	2007	1.53	1.90	2.90
	2008	1.05	0.77	0.81
	2009	0.68	0.49	0.33
MU	2005	1.94	1.03	2.00
	2006	1.20	1.18	1.42
	2007	1.18	1.47	1.73
	2008	1.38	1.01	1.39
	2009	1.33	0.96	1.28
WBUCHS	2005	2.08	1.10	2.29
	2006	0.81	0.79	0.64
	2007	2.29	2.85	6.53
	2008	2.15	1.57	3.38
	2009	2.03	1.47	2.98

MWUCE	2005	1.92	1.02	1.96
	2006	1	1.51	2.33
	2007	1.10	1.37	1.51
	2008	226	1.65	3.73
	2009	1.91	1.38	2.64
KCMC	2005	0.98	0.52	0.51
	2006	0.77	0.75	0.58
	2007	1.65	2.05	3.38
	2008	1.41	1.03	1.45
	2009	1.73	1.25	2.16
ARU	2005	2.45	1.30	3.19
	2006	0.42	0.41	0.17
	2007	1.62	2.01	326
	2008	1.45	1.06	1.54
	2009	0.79	0.57	0.45

APPENDIX

Data containing universities' variable values

University	Year	WCME	ROA	EBIT	NC	SW	SIZE	GROWTH	TYPE
UDSM	2005	0.68	0.062	9.621	0.625	1.000	11.019	0.030	1.000
	2006	1.23	0.059	9.541	0.652	1.000	10.910	-0.080	1.000
	2007	2.76	0.072	9.602	0.640	1.000	11.082	0.060	1.000
	2008	1.40	0.021	9.561	0.689	1.000	9.519	-0.040	1.000
	2009	0.86	0.036	9.684	0.667	1.000	10.076	0.130	1.000
SAUT	2005	2.66	0.027	7.203	0.667	0.000	8.304	0.120	0.000
	2006	0.24	0.032	7.888	0.500	0.000	9.201	0.980	0.000
	2007	0.78	0.087	8.334	0.750	1.000	10.830	0.560	0.000
	2008	1.87	0.160	8.739	0.600	1.000	11.840	0.500	0.000
	2009	2.34	0.315	9.120	0.727	1.000	12.795	0.460	0.000
MUCCOBS	2005	2.16	0.062	6.764	0.400	0.000	10.912	0.020	1.000
	2006	0.26	0.091	7.007	0.400	0.000	11.464	0.270	1.000
	2007	2.90	0.027	7.225	0.437	0.000	10.339	0.240	1.000
	2008	0.81	0.098	8.029	0.437	1.000	11.712	1.230	1.000
	2009	0.33	0.178	7.902	0.529	1.000	12.488	-0.270	1.000
MU	2005	2.00	0.150	9.128	0.470	1.000	12.332	0.230	1.000
	2006	1.42	0.141	8.153	0.470	1.000	11.356	0.620	1.000
	2007	1.73	0.149	8.170	0.409	1.000	11.498	0.020	1.000
	2008	1.39	0.182	8.316	0.454	1.000	11.775	0.160	1.000
	2009	1.28	0.158	8.551	0.545	1.000	12.681	0.140	1.000
WBUCHS	2005	2.29	0.003	3.555	0.500	0.000	9.635	0.010	0.000
	2006	0.64	0.001	5.043	0.500	0.000	8.364	3.430	0.000
	2007	6.53	0.004	6.571	0.428	0.000	10.441	3.600	0.000
	2008	3.38	0.029	6.393	0.500	1.000	10.448	-0.160	0.000
	2009	2.98	0.001	6.522	0.667	1.000	11.058	0.140	0.000
MWUCE	2005	1.96	0.423	3.496	0.500	0.000	8.991	0.000	0.000

KCMC	2006	2033	0.830		0.500	0.000	8.663	2.790	0.000
	2007	1.51	0.139	5.247	0.500	0.000	90348	00520	0.000
	2008	3.73	0.171	6.913	0.600	0.000	9.556	2.140	0.000
	2009	2.64	0.217	7.020	0.600	0.000	10.849	0.970	0.000
	2005	0.51	0.081	5.394	0.500	0.000	9.839	0.030	0.000
	2006	0.58	0.381	5.429	0.500	0.000	10.767	0.040	0.000
	2007	3.38	0.157	5.455	0.500	1.000	10.000	0.030	0.000
	2008	1.45	0.056	6.913	0.667	1.000	11.099	3.290	0.000
	2009	2.16	0.136	7.657	0.0625	1.000	11.121	0.110	0.000
ARU	2005	3.19	0.049	7.082	0.530	1.000	10.996	0.020	1.000
	2006	0.17	0.020	7.213	0.530	1.000	10.242	0.140	1.000
	2007	3.26	0.045	7.379	0.625	1.000	11.185	0.180	1.000
	2008	1.54	0.085	7.552	0.588	1.000	11.921	0.190	1.000
	2009	0.54	0.094	7.657	0.588	1.000	12.145	0.110	1.000

APPENDIX VI

Results of Regression Analysis

The regression equation is

$$\text{WCME} = 0.364 + 0.474 \text{ ROA} + 0.57 \text{ EBIT} + 0.9813 \text{ NC} + 0.856 \text{ SW} - 0.0205 \text{ SIZE} + 0.098 \text{ GROWTH} - 0.99 \text{ TYPE}$$

Predictor	Coef	SE Coef	T- Value	P-Value	FIV
Costant	0.3641	0.9813	0.37	0.015	
ROA	0.4737	0.7910	0.60	0.053	2.5
EBIT	0.568	0.7390	0.42	0.078	1.2
NC	0.981	0.2310	3.33	0.002	3.4
SW	0.8558	0.5307	1.61	0.117	1.9
SIZE	-0.0205	0.0767	-0.27	0.791	1.4
GROWTH	0.0981	0.1153	0.85	0.401	2.7
TYPE	-0.9921	0.6663	-4.49	0.000	3.3

$$S = 0.470770 \quad R\text{-Sq} = 58.9\% \quad R\text{-Sq}(\text{adj}) = 50.0\%$$

Analysis of Variance

Source	DF	SS	MS	F- Value	P- Value
Regression	7	0.1824	0.4546	6.56	0.000
Residual Error	32	0.0920	0.2216		
Total	39	0.2743			

$$\text{Durbin-Watson statistic} = 2.35436$$