

**WORKING CAPITAL LEVEL, WORKING CAPITAL
FINANCING APPROACHES, FIRM SIZE AND PROFITABILITY
OF MANUFACTURING FIRMS IN UGANDA**

**BY
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**A THESIS PRESENTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION,
SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.**

2018

DECLARATION

I declare that this PhD research is my original work and has not been submitted to any University towards any academic award.

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ABBREVIATIONS & ACRONYMS

BSE	Bombay Stock Exchange
CA	Current Assets
CCC	Cash Conversion Cycle
CL	Current Liabilities
CPR	Cash Position Ratio
DIO	Days Inventory Outstanding
DPO	Days Payable Outstanding
DRO	Days Receivables Outstanding
DSO	Days Sales Outstanding
FS	Firm Size
GDP	Gross Domestic Product
HMR	Hierarchical Multiple Regression
LSE	London Stock Exchange
NSE	Nairobi Securities Exchange
NTC	Net Trade Cycle Theory
NWC	Net Working Capital
OCT	Operating Cycle Theory
OLS	Ordinary Least Square
ROA	Return on Assets
ROCE	Return on Capital Employed
TA	Total Assets
TCL	Total Current Liabilities
TSE	Tehran Stock Exchange
UMA	Uganda Manufacturers Association
USSIA	Uganda Small Scale Industries Association
VIF	Variance Inflation Factor
VSE	Vietnam Stock Market
WCF	Working Capital Financing
WCL	Working Capital Level
WCM	Working Capital Management
WIP	Work in Progress

ABSTRACT

The purpose of the study was to examine the relationship among working capital level, working capital financing approaches, firm size and profitability of manufacturing firms in Uganda. The study employed a panel data that was unbalanced of cross sectional and time series where cross – sectional referred to the different firms and time series the five year period (2011 – 2015). A total population of 169 manufacturing firms was considered and data was obtained from 31 firms out of a sample of 116 and the response rate was 27%. Stratified and simple random sampling were used and as the study used only secondary data, audited financial statements were obtained from Uganda Revenue Authority. Prerequisite tests were carried out to meet the parametric assumption and these were; Shapiro – Wilk test for normality, a scatter plot was used to check linearity, a scatter plot was used for homoscedasticity and multicollinearity was gauged by the correlation matrix. The Positivism philosophy was employed as it is rational and objective and is generally characterized by the formulation and testing of hypotheses. A records survey sheet was used for collection of secondary data. The study used a descriptive statistics to describe relevant aspects of the phenomenon, Pearson correlation analysis was then used to check the relationship among the study variables and finally the data was deemed fit and therefore the regression analysis was carried out. Findings revealed that the influence of working capital level on firm profitability was not significant and this implied that null hypothesis (H_1) was not rejected. Working Capital Financing had a positive though not statistically significant relationship with Working Capital Level and profitability and therefore null hypothesis (H_2) was not rejected. The moderator of firm size between Working Capital Level and profitability was not significant and therefore Null hypothesis H_3 was not rejected. Null hypothesis four (H_4) was rejected because there appeared a statistically significant relationship among all variables combined and profitability. The findings of this study add to the frontiers of knowledge in the area of working capital level, working capital financing approaches, firm size and profitability of manufacturing firms. It can therefore be concluded that profitability can be enhanced if emphasis is put on all the independent variables combined together. This study helps financial managers to focus on having optimal levels of the working capital level constructs so as to enhance profitability. Future studies can consider carrying out the same study in different countries preferably those that are more developed than Uganda and researchers could consider using different measures for profitability.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Working Capital Level (WCL) denotes the financial amount injected into current assets that a firm may choose to operate with. Large amounts of Current Assets (CA) can cause a firm to realize low returns on the venture made if not well managed. Nevertheless, units with very low current assets may suffer inadequacies and challenges in their operations (Van - Horne & Wachowicz, 2000). It is therefore important that financial managers focus their attention to determining an optimal level, which maximizes return on investment without putting the firm to a high liquidity risk. Working capital level inadequacies are mentioned among the most common reasons for the decline Ugandan manufacturing firms as this influences the profitability and liquidity of the firms (Raheman & Nasr, 2007). The management of the WCL is a tool used to safeguard firms against financial disruptions and when managed purposefully can enhance a firm's competitive position and profitability (Gill, 2011). Management of working capital level is very crucial in determining firm profitability since it has an effect on the liquidity of firms (Vahid, Mohsen & Mohammadreza, 2012).

Working capital level may be informed by the Baumol Theory which was introduced in 1952. Baumol designed a cash management model which provides a conventional method for determining an optimal cash balance under certainty and this model dwells on uniform cash flows. This concept is also underpinned by the Cash Conversion Cycle (CCC) Theory which was initiated by Hager in 1976 and links with the inventory level. In addition, the Net Trade Cycle (NTC) was introduced by Soenen (1998) has also underpinned the WCL concept and it is equivalent to the CCC where the debtors,

inventory and creditors are expressed as percentages of turnover and this one projects the sales period for financing a firm. According to Shin and Soenen (1998), productive units that manage WC systematically by reducing the NTC, realize better cash flows and are profitable. The study has also considered the Resource - Based Theory which was introduced by Grant (2001) which theory emphasizes effective management of CA and finally the study has considered the Agency Theory which was introduced by Jensen and Mecking (1976) and this theory was to do with delegation of authority by a firm owner to a financial manager.

Manufacturing firms are a viable part of Ugandan economy and make up 40% of her total industrial sector. Manufacturing firms are estimated to contribute over 20% of GDP (Uganda Small Scale Industry Association [USSIA], 2014). The sector is dominated by multinational firms and the existence of these multinational firms is largely attributed to the Government of Uganda's privatization program which commenced in the mid-1990s. This sector is currently faced with a lot of problems that have hindered its growth which include, power supply, increase in overhead costs for production activities, competitive imports and increased level of poverty which affect the purchasing power of the local market. The study conducted by Kazooba (2006) indicates that Uganda is one of the countries with a high commencement of manufacturing businesses, a high number of non-performing firms as well and a very high number of firms shutting down. This failure has been caused by the inadequate ability of the financial managers in budgeting as well as controlling the CA and Current Liabilities (CL) of the firm (Mbaguta, 2002).

The manufacturing sector is a driving force behind the growth of the Ugandan economy. The Amin era had succumbed to unviable and unfriendly, social, political and economic environment and has now enjoyed a more severe and calm environment ushered in by the Museveni regime to revive and promote this sector to curb the ever rising unemployment rate. While agriculture still stands as the back bone of Uganda's economy, the current growth of the manufacturing sector has taken second place in the share of the economic growth of the country and therefore deserves and indeed commands a more elaborate study of its structure to critically ascertain factors that attribute to betterment of the sector (USSIA, 2014)

1.1.1 Working Capital Level

Working capital (WC) is referred to as the resources obtained for financing the daily obligations of business activities (Adeniji, 2008). Working capital is also seen as the driving force for productive units and is used for short term financing (Dong & Su, 2010). Therefore, it is important for firms to maintain sustainable investment in WC to enable their survival over a period of time as inefficiency in the level of WC may cause adverse effects on firm's performance (Islam & Mili, 2012). Akinsulire (2008) defines WC as resources necessary for daily manufacture of goods for sale by a firm. It is expressed as the excess of CA over CL, this is an indicator that a company has funds to settle current liabilities as they occur.

A firm can maintain WC at a high level in relation to its total assets (TA) or on the other hand, it may place it at low levels. Irrespective of the level of WC a firm maintains, an opportunity cost is incurred, which affects either the firm's liquidity or profitability. An optimal level of WC is desired and it is where risk and efficiency are balanced.

Increasing WC by taking long to settle incoming invoices from suppliers would raise interest expense and even make the credit rating weak (Sharma & Kumar, 2011). On the other hand ensuring an optimal investment in accounts receivable, a firm must have a suitable credit policy to reduce costs that may arise due to failure of clients to settle their debts like bad debts and costs of recovering debts by the firm (Filbeck & Kruegar, 2005).

As regards inventory, when a firm maintains a high level of inventory in raw materials and finished goods, smooth production and sales will be ensured. However, problems of high level of inventory will crop in like high holding costs and abnormal wastage which will affect firm profitability (Pandey, 2008). Having low inventory level is risky as ordering costs will appear high leading to running out of stock. Watson and Head, (2010) assert that maintaining optimal inventory and cash levels has benefits but involves serious planning and controlling cash inflows and out flows within the firm (Pandey, 2008). Idle cash in the statement of financial position would not generate any profit whereas little cash will cause shortages in inventory and will freeze payments of expenses in the firm which may affect firm operations. Working capital procedures try to attain the optimum level of WC as both shortage and excess of WC involves a cost to the business. When the levels of CA and CL are well managed, there is an improvement in cash level and this is reflective in enhancement of the value of the shareholders (Jeng - Ren, Li, & Han - Wen, 2006).

According to Mathur (2008), management of WC as an aspect of finance involves the management and control of the levels of CA, which comprise cash, accounts receivable, bills receivable and inventory. An asset may be termed CA when it is obtained for the purpose of disposing of after adding value through the process of manufacturing. Current assets are the items that are easily converted into cash and payables are what the business owes to outsiders as a result purchasing goods on credit. Thus, working capital level refers to the position of all these components, individually and collectively, too and maintaining perfect equality in each of the WC constructs is very crucial in ascertaining the WC level.

1.1.2 Working Capital Financing Approaches

Working capital involves the total resources needed by the firm to finance its daily activities and therefore meaningful financing decisions, require assets to be divided into non – current assets, permanent CA and fluctuating CA (Nkwankwo & Osho, 2010). In an effort to determine whether there existed differences in working capital financing (WCF) among firms, Weinraub and Visscher (1998) developed a concept of aggressive, conservative and moderate approaches to financing. Working capital financing refers to decisions regarding financing CA and calls for categorization of assets into non – current assets, permanent current assets and fluctuating current assets. Further studies have since been made by different scholars who include (Nazir & Afza, 2009).

The conservative financing approach is a technique by which the firm opts to use more of long-term finance sources and less from short-term sources for its WC. When the asset and liability strategies are combined, the conservative strategy maintains a low level of short term liabilities thus below 0.5 and on the other hand, current assets are on

the higher side of all the assets thus above 0.5 (Meszek & Polewski, 2006). This decision implies that the firm's funding is going to suffer a high interest and this will create an adverse effect on the firm's profit despite the avoidance of liquidity problems. The firm will primarily finance all the long term CA and most of its fluctuating CA using long term debt. When it chooses to adopt a conservative policy, it is just a trivial part of the circulating CA, which is funded by the short-term financial sources. Al – Mwalla (2012) established that a conservative policy contains a notable influence on the firms' value and profitability.

In contrast, the aggressive financing strategy is where a firm primarily finances the circulating CA and majority of its permanent CA using short term financing and a small part of its permanent CA are financed by long term financing. In this strategy, the short term liability level is high thus above 0.5 with fewer current assets compared to all assets thus below 0.5 (Meszek & Polewski, 2006). Such a firm that adopts the use of short-term financial sources more than long-term financial sources will suffer a low cost against a high risk of cash and inventory shortage. Between the conservative and aggressive WC financing strategies lies what is termed as moderate financing strategy. It is termed moderate because those who adopt it use short term finance for financing CA and long term for permanent CA. The approach opted to finance WC by a firm is therefore very crucial since it will have an effect on its profitability and liquidity (Weinraub & Visscher, 1998)

1.1.3 Firm Size

Firm Size is a feature specific to any business and is often regarded as what defines the difference between firms (Snow & Hrebiniak, 1980). This feature is also commonly

referred to as a firm level factor. Ayyagari, Ashi and Vojislav (2005) assert that size may attribute to the success or failure of the firm since this characteristic is a context upon which a firm is operationalized. It is fundamental since it is regarded as establishing the organizational competences of a firm's core strength. Firm level factors portray how the firm changes, adapts to its environment and these include age, firm size, regulatory frame work, asset growth, sales growth among others.

This study investigated one of the key firm characteristics, firm size because it is one of the most popular variables used by theorists to classify levels of a firm and so can be relied upon (Salimath, 2008). Banos – Caballero et al. (2010), argues that organizations, which have been in existence for a longer time are normally large in size and can therefore access external financing more easily with favourable terms and their WC is improved. They also assert that the size of the firm has a positive correlation to its working capital.

1.1.4 Firm Profitability

According to Hofstrand (2013), profitability is a state or condition of yielding a financial profit or gain. Agha (2014) states that profitability is firms' capacity to generate profits. It is normally calculated periodically by the revenues obtained from business activities minus the expenses incurred (Ildiko & Tamas, 2009). Firm profitability depends on the way in which WC is regulated (Kaur, 2010) and profitability stands as the best measure of business success. An enterprise that is profitable can reward its owners with a reasonable return unlike the one suffering losses. Profitability is the better determinant for overall efficiency of a firm as it indicates whether there is an upward or downward trend in performance.

Profitability is the most crucial measure of business success. A non-profitable undertaking has challenges; conversely, an undertaking with high returns has the capacity to repay the proprietors well on their investment (Sharma & Kumar, 2011). Profit is the yardstick for measuring the overall efficiency of a firm. Profits are the margin of safety to an investor, test of efficiency, worth of investment to the owner and measure of a tax – paying capacity to a government.

Many profitability measures may be taken monthly or yearly depending on the firm policies and is calculated by excess of income over operational expenses. According to Bodie, Kane and Marcus (2004), profitability may be measured as follows; Turn over minus cost of sales; Gross profit minus operating expenses is equal to operating profit. Profitability may be explained as a correlation of some earnings benchmarked against some point of reference like resources of a company (Deloof, 2003).

1.1.5 Manufacturing Firms in Uganda

Manufacturing industries are a part of Uganda's economy and make up 40% of Uganda's total industrial sector. Manufacturing industries are estimated to contribute over 20% of GDP but are currently contributing 8.8% which is an indication that there is a decline (Daily Monitor, 31st October 2018). The manufacturing sector is therefore next to agriculture in importance. The sector is also important because 26.6% of the households owning businesses depend on them for all their income while for about 33% of households, at least half of their incomes come from the enterprise (USSIA, 2014). The fact that the manufacturing firms in Uganda have stagnated, some manufacturing firms have collapsed and others are incapable of expanding or diversifying, their activities calls for an investigation. Holding other factors constant, it is possible that

firms in the industry are not managing adequately the WCL because they do not have sufficient understanding of the determining factors of WC.

The service industry has taken a central role in the West by superceding the manufacturing sector which has been seen to be declining due to the high cost of labour and has stimulated global capital transfer. Leading manufacturers have opened up companies in the East where the cost of labour has been low relative to the West. Current records show that the manufacturing sector represents 11% of GDP of UK. It is still accounting for over 2.6 million in employment which is above 8% of the total employment in the UK (B.I.S, 2010). The sector however, continues to be a force to reckon with in its contribution to the West economies and will remain to be seen as the leading sector in the economies of the West due to its large size and level of industrial growth.

1.2 Research Problem

The manufacturing sector in Uganda is relatively small but diverse in terms of its composition. It is one of the priorities for the Government to expand the economy through industrial production by adding value to raw materials. Working capital level, working capital financing approaches, firm characteristics and profitability are vital concepts in the manufacturing firms. Studies of the reasons for failure in manufacturing industries show negligent financial management to be the root cause (Chittenden, Hall, & Hutchinson, 1996). According to Filbeck and Kreueger (2005) smaller firms rarely use WCM methods like cash management models, inventory control models, credit analysis and security portfolio models. Effective management of WC and financing approach are regarded as a major corner stone of industrial development. The impact

of WCL on firms' profitability is a subject of great empirical investigations in accounting and finance. Filbeck and Kreueger (2005) further assert that adequate planning for CA and CL is a part of the important functions in the management of the finances in any industrial setting.

In Uganda the manufacturing sector is next to agriculture in importance. The sector is also important because 26.6% of the households owning businesses depend on it for all their income while for about 33% of households, at least half of their incomes come from the manufacturing sector (USSIA, 2014). The fact that the manufacturing industry in Uganda has stagnated, some have collapsed as evidenced by the closure of Tri - Star Apparel which was a textile firm that had attracted a large number of women from villages and the greatest expectation was to curb unemployment which is a very big challenge in Uganda today especially among the youth (The Guardian, 2015). Other firms are incapable of expanding or diversifying and therefore their activities call for investigation (Kazooba, 2006). Management of WCL thus plays a vital role in firm financing and this supposition is supported by the view that challenges for WC are the most common reasons for decline of manufacturing firms and yet there appears a statistical relationship between WCM and profitability (Mbaguta, 2002). Industrialization gives hope for higher employment level, better purchasing power and increase in tax base and if this trend continues, Uganda's hope of curbing unemployment as per her vision 2040 may not be attained. Uganda is among the countries with very high youth unemployment at 62% (The Guardian, 2015) therefore Uganda needs to protect its industries if the country is to realize continued growth in the sector.

Considering the importance of WCM, scholars have dwelt on examining association between WCM and profitability. Internationally, Lazaridis and Tryfonidis, (2006) focused on WCM and firm profitability in Malaysia. His study focused on CCC, and did not consider other factors like firm size and financing approach; Arbidane and Ignatjeva (2013) investigated the influence of WC on profitability of Latvian manufacturing firms and did not consider any mediating and moderating variables; Samiloghi and Akgun, (2016) examined the relationship between WC and profitability by investigating trade receivables, trade payable and the CCC in Turkey, they did not consider inventory level; Kasozi (2017), investigated firms that efficiently manage their accounts receivable and payable in a timely manner compared to those that do not in regard to profitability in the South African manufacturing firms, he ignored the cash level position and the inventory level.

Mathuva (2010) focused on WCM and corporate profitability and dwelt on current assets; Makori and Jagongo (2013) investigated WCM and the profitability of companies that carry out manufacturing operations listed in the Nairobi Securities Exchange. Mutaju (2014) investigated the linkage between WCM and profitability of manufacturing firms quoted on Dar essalaam Stock Exchange in Tanzania. There are methodological and contextual gaps that this study will address. At methodological level, most of the studies used Pearson Bivariate correlation, two used Ordinary Least Square (OLS), one used Regression estimation approach, one used pooled data regression and one used Principle Components Analysis (PCA). None of the studies used hierarchical regression analysis to examine the moderating and intervening effects of firm size and working capital financing on the link between WCL and profitability of manufacturing firms in Uganda. The majority of the studies accessed considered only one type of analysis and not a combination of various analyses as the current study. At the contextual level, very few studies have been considered in the East African region

and this is an indication that WC is not taken as a serious issue and studies from more developed countries may not be applicable to the Ugandan context because of the differences in natural endowment. The fact that the requirements for manufacturing like plant are imported into Uganda imply a great cost to the economy whereas in more developed nations it may not be a cost as per say. Is there a relationship among working capital level, working capital financing approaches, firm size and profitability of manufacturing firms in Uganda?

1.3 Research Objectives

The study's key objective is to examine the relationship among working capital level, working capital financing approaches, firm size and profitability of manufacturing firms in Uganda. The specific objectives were;

- i. To analyze the relationship between working capital level and profitability of manufacturing firms in Uganda.
- ii. To assess the intervening effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda.
- iii. To examine the moderating effect of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda.
- iv. To establish the joint effect of working capital level, working capital financing approaches and firm size on the profitability of manufacturing firms in Uganda.

1.4 Value of the Study

The study has significantly added to already existing theories and the body of knowledge by showing relationship among the study variables which include WCL, WCF, size and profitability. This expands the theoretical and empirical development

on literature as different studies have been made though using different variables and proxies. The study will enable Uganda manufacturers realize the importance of WCL and its influence on profitability.

Findings of this study will add value to the policies of manufacturing firms in Uganda in that policy makers will therefore be expected to design policies to be used by firms in solving the mix of WC components to improve profitability. This would enable manufacturers to prioritize implementation of good practices regarding WCL and other variables in appropriate proportions. This study may help develop the policy making capacity and also apply innovation in policy implementation in areas of training and financial management. The findings may also be an eye opener to those desiring to set up manufacturing firms.

The study also provides an opportunity for future researchers to examine the link between WCL, WCF approaches, firm size and firm profitability. The recommendations of this study create room for future research on the relationship among the above variables and as a result, the study may be used as a diagnostic tool to determine specific areas which may require improvement in connection with WC components. The outcome of the study offers suggestions that could be beneficial to Ugandan manufacturing firms.

1.5 Organization of the Thesis

This thesis comprises five chapters: Chapter one introduced the conceptual, theoretical and contextual aspects of the study and this included working capital level, working capital financing approaches, firm size and firm profitability of manufacturing firms in

Uganda. This draws up the basis for presenting the research problem, the research objectives and the value for the study to support the research. This chapter also presents the organization of the thesis which encompasses five chapters.

Chapter two made provision for a review of theories and empirical literature that explains the association among study variables. The theories covered; the Baumol Theory, The Cash Conversion Cycle Theory, The Agency Theory, The Net Trade Cycle Theory and the Resource – Based Theory. A summary of the empirical studies and research gaps have also been availed together with a conceptual frame work and research hypotheses.

The third chapter presented the methodology used in the study and included the research philosophy that was employed, research design, study population, sample size and sampling technique. The chapter discussed reliability and validity and also considered the diagnostic tests that were used in the study. The chapter presented methods adopted in data collection, operationalization and measurement of research variables, data analysis techniques, summary of objectives, hypotheses and analytical models and ethical issues for secondary data were considered.

Chapter four covered the study response rate, descriptive statistics that was used such as the mean, standard deviation for all the constructs of working capital level, working capital financing, firm characteristics and firm profitability. Various diagnostic tests were also carried out and correlation analysis was made using Pearson's Product Moment. This chapter presented the testing of hypotheses, interpretation of findings and discussion of the study which included relationship between WCL, working capital financing and firm size on profitability. Finally, chapter five revealed the summary of findings, conclusion of the study and recommendations, policy implications of the study, contributions of research findings, limitations and areas for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provided the theoretical foundation of the study by reviewing selected conceptual and empirical literature relating to key variables with the aim of highlighting the research study gaps. A summary highlighting research and knowledge gaps was provided and this indicated the need for conducting this study. In conclusion, a conceptual model to guide empirical research was used and hypotheses extracted from the model.

2.2 Theoretical Foundation

A theoretical frame work avails the base for conducting the study and interpreting the results (Turner et al., 2013). The theories upon which working capital level is based vary from one firm to another and these include; the Baumol, Cash Conversion Cycle, Agency, Net Trade Cycle and Resource – Based Theories.

2.2.1 The Baumol Theory

Baumol (1952) designed a cash management model which offers a conventional method for ascertaining a firm's optimal cash balance under certainty. It provides that cash management and inventory management have a similar problem. The model assumes that the firm is able to predict cash requirements with confidence and that cash outflows are uniform over a period of time. Uniformity in cash flows is a contradiction of the reality in that it is almost impossible to have uniform cash flows as financial requirements differ over a period of time. It further assumes that the opportunity cost of holding cash is known and uniform and the same transaction cost is to be incurred

whenever securities are converted into cash. The relevancy of this theory is that it is a working capital theory and represents the liquidity of a firm which is very vital in the firm operations. However, this theory may not be applicable as it considers uniform cash flows which may not be possible in reality in the Uganda situation.

2.2.2 The Cash Conversion Cycle Theory

The cash conversion cycle (CCC) theory was developed by Hager (1976) and this integrates both short term assets and liabilities and many scholars assert that this approach is better than other forms of WC analyses that rely on ratio analysis. This theory was further advanced by Richards and Laughlin (1980) and in their effort they perceived and critically investigated working capital and its individual components. They felt that although financial managers have allotted time on making decisions pertaining to current assets and liabilities, little has been forwarded by scholars in this respect. They described inventories, receivables and payables as vital components of this cycle and any impact on any of the components would have a resultant impact on the outcome of the overall mix of the WC components.

The concept of CCC focuses on examining a cycle that commences from the procurement of raw materials, its transformation into new products up to the recovery of receivables as a result of inventory sale of finished goods (Hillier, Ross, Westerfield, Jaffe & Jordan). The CCC is obtained by deducting days payable owing from sum of inventory days outstanding and receivable days due. The degree of investment in WC is reflected in the length of the CCC and also predicts the period of operation for which financing is needed. Financing decisions are made according to the predetermined period of operation that a firm takes. It is a measure of how a firm can convert cash into

more cash by following the cash as it turns into inventory, accounts payable and by credit sales accounts receivable and back to cash. This theory claims superiority over other WC analyses that are dependent on ratio analyses.

The CCC Theory is applicable to this study in that it represents the interplay between the CA and CL and the flow of liquidity in a firm. It focuses on the area managers should put attention to in regard to cash tied up in short term assets. Cheatham, (1989) argues that cash in current assets could be reduced by reducing the CCC. This cycle shows the relationship among the WC components and firm profitability and it is perceived as a vital measure of WC that establishes conversion time of cash out flow back into cash inflow (Richard & Laughlin, 1980). Mathuva (2014) is in support of this theory and asserts that the CCC is a vital theory that explains the effect of WC and profitability. Gill, Bigger and Marthur (2010) indicated in their observations that a profound connection between the CCC and profitability existed. Yazdanfar and Ohman (2014) argued that optimization of the CCC affects cash flows and profitability and in turn the amount of external financing needed for running daily operations. The relevancy of this theory is that it is a working capital theory and represents the interplay between CA and CL and the flow of liquidity in the firm.

2.2.3 The Resource - Based Theory

Business profitability and survival highly depends on the resources invested in the firm in various forms. The production process entails inputs that are considered vital in the production process and these inputs are highly dependent on the sector in which the firm is engaged. Firm resources include capital invested and brand names among others. Therefore the sources of a given firm's capability are referred to as resources (Grant,

2001). Resource – Based theory involves the ability of business managers to put emphasis on effective management of current assets of the business (Alvarez & Busenitz, 2001). When current assets are managed effectively, good results are expected to be yielded.

The Resource – Based Theory therefore implies that business managers, whose resources are specified, can facilitate and ensure recognition of new opportunities and assembling resources in an effective manner as well as ensuring prompt payment and shortening the recovery period of accounts receivable. This would ultimately have a positive effect in the WCM and firm profitability. Akinsulire (2008) is in support of this theory when he says that WC are resources necessary for the daily manufacture of goods to be sold by a firm. A firm's ability to produce better quality is dependent upon its resources and capabilities which enables a firm to gain competitive advantage over other firms in the same sector. Resource – based is holistic in that it does not only consider what is tangible but also the knowledge regarding the firm and the human capital (Barney, 1991). Firm resources must therefore be accorded utmost importance as they are a vital aspect in manufacturing firms. The relevancy of this theory is that it is holistic and takes into consideration all aspects of a manufacturing firm both tangible and intangible.

2.2.4 The Net Trade Cycle Theory

The net trade cycle theory (NTC) was developed by Shin and Soenen (1998) and is not different from the CCC except that it is presented in percentages in relation to the turn over. They further asserted that NTC is a better WC efficiency measure compared to CCC as it shows sales period the firm has to finance and this improves the financial

management of the production unit. The NTC shows the duration of cash in the trade pattern before turning into cash again once the number of days are computed for each item of WC, receivable days outstanding are added to inventory days outstanding and then payable days outstanding are subtracted to come up with total net trade days.

The number of days can either be positive or negative. When the NTC is positively linked, then a line of credit would be the best option for the firm. When NTC is negative, the firm is being paid in advance. The study was anchored on this theory because it is relevant to the study in that it depicts sales period to be financed in relation to firm size and takes into consideration short term assets. Weinraub and Visscher, (1998) argue that finance approach of a firm is of fundamental importance and affects profitability and liquidity. Without finance, a firm would not be able to operate and therefore careful examination must be taken on the approach of financing to be adopted. Banos – Caballero et al., (2010) asserts that firms which have been in existence for a longer time can access external financing more easily and with favourable terms and this in turn would have working capital enhanced. This theory is relevant as it considers current assets and current liabilities that are part of working capital.

2.2.5 Agency Theory

The agency theory stands as a very crucial theoretical paradigm in Finance and Accounting and was developed by Jensen & Mecking (1976). An agency relationship involves a business owner engaging an agent to carry out functions on his behalf which concerns delegation of authority in making decisions. This relationship arises when the owner of the firm does not manage or control it by himself. Agency theory is deeply rooted in Economic theory and states that investors who own the company delegate the operations of the business to the manager or an agent. This theory enables better

decisions as well as higher profits as it has ways of subduing problems related with incentives into models. This theory has been adopted by several researchers in Accounting (Demski & Feltham, 1978), Finance (Fama, 1980, Iraya 2014 and Wakaisuka 2017), and Economics (Spence & Zeckhanser, 1971). Although the theory has a wider applicability, it is still surrounded by a controversy in that the interests of the principal and agent differ.

The focal point of the Agency Theory is that it should be a theory that looks at how to ensure agents' transparency in relation to the principals of any business. Agents are entrusted with resources and are urged to ensure that firm's resources yield fruit but in most cases the agents have their own personal interests that may even have adverse effects to the firm. The relevancy of agency theory to WCL could be judged from the angle of an agent, who is delegated power to work on behalf of the owners of the business. He is entrusted with taking decisions regarding short term assets of the business and ensuring that there is profitable investment in the venture.

2.3 Empirical Literature Review

This section looks at the literature, which concerns the link between the WCL and profitability. It also looks at the intervening role of working capital financing approaches on the link between the WCL and profitability, the moderating effect of firm size on the link that exists among the WCL and profitability and the joint effect of WCL, working capital financing approaches and firm size on profitability.

2.3.1 Working Capital Level and Profitability

An investigation was made by Lazaridis and Tryfonidis (2006) whereby they studied relationship of WC and profitability of 131 Greek companies that were quoted for a period of five years (2001 – 2004) using the regression estimation approach. Their revelation was that CCC had a negative impact on gross profit besides other working capital components. Consistent with Deloof (2003), he argues that using capital that is tied up enhances returns, while the negative effect of payables could be by low profitable firms delaying settlement of their payables. They concluded that having an optimal level of WC components improves performance. Study would have been better if they had used net profit as it takes into consideration operating expenses.

By shortening the conversion period of inventory and cash conversion cycle, Nobanee and Alhajjah, (2009) proved that it was possible for managers to improve and increase profitability of their companies. By using Pearson correlation coefficient, they found a direct association between profitability and accounts payable period which form part of working capital management and so concluded likewise. This observation was carried on a sample of 2123 listed Japanese firms and arrived at the results. Study would have been better if regression analysis had been used as well to identify outcome variable from predictors.

By using correlation analysis and weighted least square (WLS) regression Gill, Biger and Mathur (2010) analyzed 88 firms quoted on NYSE for a 3 year period. Observations indicated a profound connection between the CCC and profitability. The study emphatically affirmed the possibility by managers to create profit for their companies if they could correctly regulate the CCC as well as maintaining an optimal level of accounts receivable. The study considered optimal level of accounts receivable, optimal level of cash and inventory would have been of vital importance as well as they are attributes to working capital.

A negative relationship was observed after a study of Dong and Su (2010) on using pooled data regression. Secondary data on listed companies of the Vietnam Stock Exchange (VSE) was obtained and the study considered three constructs of working capital management thus; accounts receivable, inventory holding period and cash conversion cycle. Resultant observation held that long hold of inventory would affect profitability negatively and similarly a longer or shorter accounts receivable period would also influence returns of a company. However, the variables were itemized as accounts receivable, inventory holding period and cash conversion cycle. Accounts receivable and inventory holding period are already part of the cash conversion cycle that may result into multicollinearity which may bias the results.

According to Mathuva (2010), his focus on relationship between WCM and profitability showed an indirect relationship between the time firms take to be cleared by their clients and corporate profitability. His revelation was that there appeared a direct association between days' inventory due and profitability. Firms had a perception that more inventory influence costs and cut down challenges like lack of inventory that may lead to loss of customers for failure to provide enough products. The study also exhibited a direct linkage between the average payment period and profitability. However, small firms were excluded meaning that the results of this study could only be compared to large companies.

Sharma and Kumar (2011) investigated WC in relation to profitability of firms in India. Data was obtained from Bombay Stock Exchange by sampling 263 firms for a nine year period. Analysis was made by OLS multiple regression. Findings were that WCM with profitability correlated positively and it was further revealed that number of days accounts payable and inventory are not positively correlated with firm returns, while cash conversion period and accounts receivable related positively.

Researchers such as Bhunia and Das (2012), investigated WCM in relation to returns of firms in India. The predictor variables considered in the study were ratios that influence WCM and were; liquidity ratio, current ratio, debt equity ratio, cash position ratio, inventory turnover ratio and payables' turnover ratio. Having used multiple regression analysis a weak relationship was displayed between WCM and profitability. However, the current study used a different measure of profitability from the current study.

Oladipo and Okafor (2013) investigated the implication of WCM practices on profitability and dividend payout ratio. Having extracted data from twelve manufacturing firms in Nigeria from 2002 up to 2006, correlation analysis was done and Ordinary Least Square (OLS) regression technique were performed and it was discovered that NTC and debt ratio promoted corporate profitability. Study would have been improved if in addition to debt, size had been investigated as well.

Samilogh and Akgum (2016) assessed WC in relation to profitability for a period of ten years. A sample of 120 manufacturing firms from Turkey was taken into consideration and multiple linear regression models were used for analysis. Findings showed a significant and negative relationship all variables. Study would have been better if size had been controlled for.

Kasozi (2017) analyzed WCM and profitability in South Africa. Panel data was used and outcome was that days sales outstanding and accounts payable period were negative and significant in relation to profitability. Similarly, a significant relationship between days inventory outstanding and profitability was displayed implying that productive

units with optimal levels of inventory suffer less from stock outs. However, the measure of profitability was Earnings before Tax which is different from the current study that used Earnings after Tax. Earnings after tax would be more appropriate as it takes expenses into consideration.

Having investigated the effect of WCM on Jordan firms, Dalayeen (2017) used secondary data from financial statements to check relationship between predictor variable WC and profitability. The proxy for profitability was ROCE and findings were that a significant impact of WCM related to returns of firms. It would have been better to use return on assets (ROA) as it gauges profitability as a profit margin ratio. Return on capital employed (ROCE) measures profitability but after factoring in the amount of capital used.

2.3.2 Working Capital Level and Working Capital Financing Approaches

According to Moyer et al., (2003), working capital comprises 50 – 60 % in retailing and whole sale industries which is a large portion of firms and the 40% is considered to be in manufacturing. As a strategy, the firms could increase funds for expansion by downsizing financing costs. They also discovered that cash levels are of paramount importance to the liquidity position of a firm and this helps the firm out of financial commitments and saves it from bankruptcy.

A relationship between conservative and aggressive WC financing strategies was examined by Afza and Nazir, (2007) on 17 industrial groups with 263 as sample on public companies quoted on Karachi Stock Exchange (KSE). They used cross sectional data for a six year period (1998 – 2003) in conjunction with ANOVA and Least

Significant Difference (LSD) tests. Their findings were that, a significant difference existed between WC investment and WC financing. Analysis showed differences for six years and OLS analysis revealed a negative association between firm profitability and the extent of assertiveness and strategies regarding investment and financing of working capital. However, study would have been better if they had concentrated on financing and left out investment.

Nobanee (2006) in his study of non – financial corporation in USA discovered that CCC as a measure of the WCM effectiveness puts into consideration cash flows related to inventory, accounts receivable and accounts payable. The author noted that maintaining inventories, receivables and accounts payable at optimal levels helped reduce the handling costs and opportunity cost of holding inventories, receivables and payables and there by leading to a favourable length of CCC. However, the study did not control for size.

Vahid, Mohsen and Mohammadreza, (2012) examined the influence of WCM policies (conservative and aggressive) on profitability of firms and value of firms quoted on Tehran Stock Exchange (TSE). Panel data was employed and WCM policy was operationalized as conservative / aggressive. The findings revealed that a financing policy that is aggressive and an investment policy that is conservative have a negative effect on firms' returns. However, the study had a mix of investment and financing which must have caused some ambiguity in outcome.

2.3.4 Working Capital Level, Firm Size and Profitability

Having investigated WCM and firm profitability in the UK for three years (2006 – 2008) using a sample of 30 UK firms, Chatterjee (2010) analysed and discovered a negative association between profitability and liquidity of the UK firms and that a progressive association manifests with size and returns. Results recommend that the managers could improve returns by bringing down both receivable and inventory days outstanding and to take a longer time to pay less profitable firms. However, the study dwelt on a developed economy and such findings cannot be compared to developing economies like Uganda because of differences in endowment.

Abdu and Mohamed (2007) investigated the influence of various constructs of WCM and current ratio on the net profit of firms quoted on KSE in Pakistan from 1999 up to 2004 and a sample of 94 firms was considered. Correlation and regression analyses were employed and the findings exhibited a negative relationship between the constructs of WCM and profitability implying that as CCC increased, profitability reduced. They also discovered that liquidity and profitability did not relate positively while Firm size and profitability related positively and finally a negative association was displayed between debt and profitability.

2.3.5 Working Capital Level, Firm Size, Working Capital Financing Approaches and Profitability

Chatterjee (2010) investigated the impact of WCM on profitability of firms listed in the London Stock Exchange (LSE) for a three year period (2006 – 2008) using a sample of 30 UK companies. The researcher discovered that there was a remarkable negative link between liquidity and profitability of the firms operating in UK and that a positive

association manifests between firm size and its profitability. The outcome indicates that the managers can enhance profitability by bringing down days receivable outstanding and days inventory outstanding and to take a longer time to pay less profitable firms. Three years may not be long enough to compare profitability So, five or more years may bring out better comparison for the period.

Maradi, Salehi and Arianpoor (2012) had a comparison of chemical and medicine industry. They compared the WCM of the two groups and obtained 34 companies from chemical and 30 companies from medicine. Data as per the companies was collected from 2001 to 2010 and was analyzed by using OLS multiple regression. Findings exhibited that debt ratio makes more impact on reduction of net liquidity in medicine compared to chemical industry. But examination of influence on leverage over WC ratio revealed that debt ratio has more effect on reducing WC in chemical industry compared to medicine. However, study concentrated on one sector and therefore results can only be generalized on chemical and medicine.

By using Pearson Bivariate Correlation and regression analysis, a study by Almazari (2013) was undertaken to examine the relationship between WCM and firms' profitability for cement firms in Saudi. A sample of 8 Saudi firms listed on the Saudi Stock Exchange (SSE) was considered from (2008 – 2012). The study findings were that firms' current ratio affected profitability most. The study also discovered that profitability and size of the firm correlate. The regression tests done confirmed a relationship between WCM and profitability. However, the sample size was so small and may result into very big standard errors which may bias the results.

2.4 Summary of Knowledge Gaps from Previous Studies

The relationship between the constructs in this study have been tested empirically in other studies their conceptualization, contextualization and data collection methods and analysis have differed from current study. The gaps unearthed therefore relate to conceptualization and operationalization of the variables in this study. Methodological gaps have also been laid bare relating to population of study, sample size as well as data collection and analysis methods.

Previous studies have generally focused on investigating just a portion of the WCL in question Vahid et al., (2012) focused on WCM policies and profitability; Mathuva (2010) dwelt on receivables, inventory holding period and payables; Dong and Su (2010) used three components, Inventory holding period, accounts receivable period and CCC to mention but a few. The current study looks at WCL holistically and takes all components of WCL into consideration. Another conceptual gap is that most studies on manufacturing firms have not controlled for any moderating and intervening variable. If other studies had introduced firm size and working capital financing approaches then the outcome would have been different.

The contextual gap is that most studies have been conducted in developed economies and these differ from developing economies in terms of endowment. Studies on working capital in Uganda and the East African region as a whole are very few and therefore future research should investigate how to generalize findings in developing economies and also focus on non – listed firms to further the generalizability. The methodological gap arises in the analysis that the empirical studies used. Most of the studies accessed used one or two methods of data analysis and yet the current study used the diagnostic tests, descriptive, correlations and regression analysis in the same study. Some manufacturing firms used different proxies for profitability like return on capital employed and others used performance as their outcome variable and not profitability as in the current study.

Table 2.1: Knowledge Gaps

Researcher	Focus	Findings	Gap in knowledge	How current study addresses the gap
Lazaridis & Tryfonidis (2006)	Working Capital Management and profitability.	Inventory, debtors, creditors and cash conversion cycle had a negative impact on gross income.	Nothing is said about firm characteristics and financing approach.	All aspects of WCM are to be considered. Moderating and intervening variables are to be taken into account.
Nobanee and Alhajjar (2009)	Focused on all WCM components with profitability.	All WCM components were negatively related to profitability except accounts payable period.	Ignored the moderating and intervening variables.	All aspects of WCM to be considered. Moderating and intervening variables to be used.
Mathuva (2010)	Emphasis was on WCM and profitability.	He found an indirect relationship between the time firms take to be cleared by their clients and firm profitability. The study also exhibited a direct linkage between the average payment period.	His study dwelt on corporations leaving out small scale manufacturing firms.	Current study will use size as a firm characteristic and therefore SMEs WCM will be investigated
Dong and Su (2010)	Focused on inventory holding period, accounts receivable and CCC with profitability.	As inventory takes longer time to sell, profitability is affected. Increase or decrease in Accounts receivable affects profitability. When CCC is longer, profitability is smaller.	Used only three components of WCM. Left out accounts payable. Did not incorporate firm characteristics.	All components of WCM are to be considered. Firm characteristics are to be incorporated.
Gill, Biger and Mathur (2010)	Relationship of WCM and profitability among American firms .	Having used Correlation and WLS regression techniques. They found a statistically	Consideration should be given to unlisted firms as well.	Unlisted firms would be investigated as well

Researcher	Focus	Findings	Gap in knowledge	How current study addresses the gap
		significant relationship between CCC and profitability.		
Chatterjee (2010)	Investigated WCM in relation to profitability on firms in the UK. 30 firms at London Stock Exchange (LSE) were taken as sample.	Liquidity and profitability had a negative relationship. Returns could be improved by reducing DRO and DIO and increasing DPO.	The study dwelt on WCM levels and profitability and is silent about the moderating and mediating variables.	The current study introduces firm characteristics as moderator and financing approach as intervening variables.
Vahid, Mohsen and Mohammadreza (2012)	Focused WCM policies (aggressive and conservative) and firm's profitability.	Results showed that application of conservative & aggressive financing policies have a negative impact on a firm's profitability and value.	There is silence about firm characteristics. Study ignored working capital components as a whole.	All aspects of WCM are to be considered. Moderating and intervening variables are to be considered too.
Oladipo and Okafor (2013)	Examined the association of firm's WCM routine on profitability and dividend payout ratio.	Findings revealed that shorter NTC and debt ratio enhance profitability.	Used only three components of WCM. Left out accounts payable. Left out firm characteristics.	All aspects of working capital are to be considered. Firm characteristics are to be considered.
Almazari (2013)	Analysed WCM in relation to profitability of Saudi cement firms.	Having used Pearson Bivariate Correlation and regression analysis findings exhibited that current ratio superseded other ratios in affecting profitability.	The quick ratio would perform better in affecting profitability.	Methodological gap noted so quick ratio would be used
Correia et al., (2015)	Effect of working capital management on profitability.	Firms enhance profitability by shortening CCC and by effectively management of accounts receivable.	Did not consider a mediating and moderating variable.	The current study used the mediator and moderator.

Researcher	Focus	Findings	Gap in knowledge	How current study addresses the gap
Wasiuzzaman (2015)	Working capital management and profitability.	A negative relationship between WC and its components with profitability.	He considered only the OLS technique in data analysis.	The current study used various methods including structural equation models.
Samilogh and Akgun (2016)	Working capital management and profitability	A significant and negative relationship between accounts receivable period and ROA, ROE, operating profit margin and net profit margin in firms.	Used different proxies for the dependent variable like ROA, ROE and operating profit margin	The current study used one proxy for the dependent variable ROA
Dalayeen (2017)	Working capital management and profitability	A significant impact of WCM and profitability.	Did not consider the mediating and moderating variables.	The current study considered the mediating and moderating variable.
Kasozi (2017)	Working capital management and profitability.	Average collection period and average payment period are negative and statistically significant for profitability.	Did not use mediator and moderator.	The current study has used a mediator and moderator.

Source: Author,2018

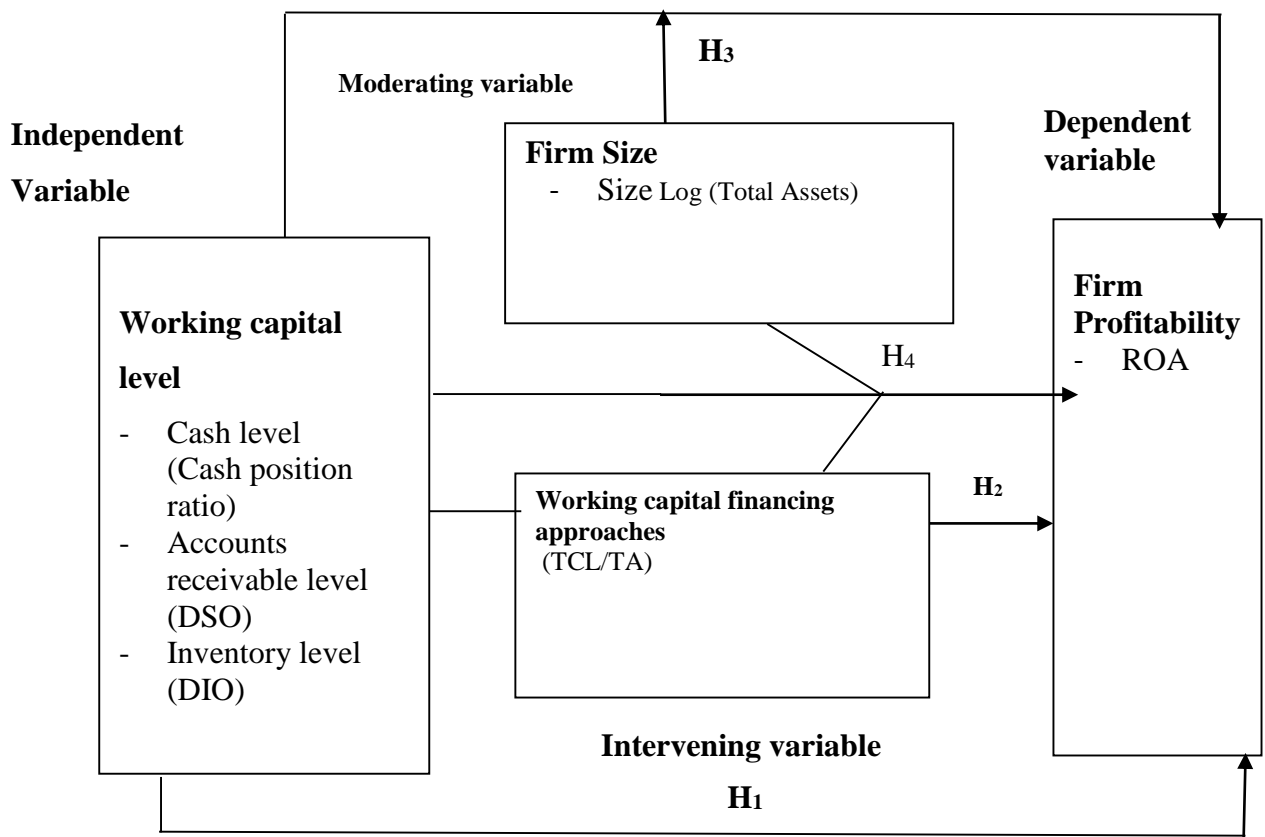
2.5 Conceptual Framework

Figure 2.1 presents a conceptual model of the relationship among Working Capital level, working capital financing, Firm Size and Profitability. The figure shows that working capital level which is the predictor variable of this study directly influences profitability the outcome variable. The independent variable of this study indicates the constructs that have been used to measure WCL and these include; cash level, accounts receivable level and inventory level. There are however, other variables that intervene to accelerate or moderate the relationship between WCL and Profitability. The model shows the relationship among working capital level, working capital financing approaches, firm size and profitability. From the model, working capital financing approaches is the intervening variable while firm size are regarded as the moderating variable. The routine inclusion of control variables hold the premise of providing more information from outcome studies by generating practical information involving intervention and theory testing. A mediating variable is relevant for in depth understanding of the process by which two variables relate to each other, such that one variable causes a mediating effect which brings about a change in the outcome variable. Moderating variables are important whenever a researcher wants to assess whether two variables have the same relation across groups.

The working capital financing approaches will take into consideration total current liabilities and total assets. This will be analyzed as intervening variable of the relationship between WCL and profitability. The financing approach was dependent on the level of payables in relation to total assets. Firm size was an attribute that was analyzed as moderating variable of the relationship between WCL and profitability. Firm size was measured using; $\log(\text{Total Assets})$. Profitability is a very crucial measure

of business success and is regarded as a state or condition of yielding a financial profit or gain (Hofstrand, 2013). Profitability was measured using Return on Assets (ROA) as this is a financial ratio that shows the percentage of profit that a company earns in relation to its overall resources. The model further shows that WCL and profitability are moderated by firm size and intervened by the working capital financing approaches and this is the relationship that this study has endeavored to address.

Figure 2.1 Conceptual Model



Source: Author (2018)

2.6 Research Hypotheses

Following the research objectives, the null hypotheses tested are shown below:

- H₁** The relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.
- H₂** The intervening effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.
- H₃** The moderating influence of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.
- H₄** The joint effect of working capital level, firm size and working capital financing approaches on profitability of manufacturing firms in Uganda is not significant.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was employed in the study and specifically lays emphasis on research philosophy, research design, study population, sample size and sampling technique, reliability and validity together with diagnostic tests. It further highlights on the operationalization of research variables and concludes by data analysis methods that were used.

3.2 Research Philosophy

Philosophy of science which is at the centre of knowledge development is grounded on important assumptions about the way researchers perceive the world (Saunders, Lewis & Adrian, 2003). Research philosophy is the direction in which the research of different domains is conducted. The dominant philosophical orientation in social sciences is phenomenology and positivism. Positivism or empiricism is the oldest of the research paradigms with its origin in natural science. It was first embraced in the 19th century by Auguste Comte who emphasized the importance of scientific rigour in quest for knowledge. On the other hand, phenomenological paradigm involves qualitative approach of research and speculates that knowledge is subjective, is based on experience and depends on personal knowledge and interpretation of the individual (Blumberg, Cooper & Schindler, 2005).

Cooper and Schindler (2006) posit that positivism is based on real facts, objectivity, neutrality, measurement and validity of results. Positivism emphasizes that expertise should be grounded on facts and not obstructions and therefore knowledge is

demonstrated through observations and experiments based on existing theory. The study followed a pattern of deductive reasoning beginning with a linear approach of formulating hypotheses and operational definition about the characteristics of phenomena being observed based on the Baumol theory, the Cash Conversion Cycle Theory, The Resource Based Theory, the Agency Theory and the Net Trade Cycle Theory, testing hypotheses was based on statistical methods and consequently leading to either support or not supporting the hypotheses.

This study was anchored on a positivism paradigm. Positivism is preferred as it is rational and objective since the study is assumed to remain independent of the research subject to ensure total objectivity during data collection and analysis (Muganda, 2010). Positivist research paradigm is generally characterized by the formulation and testing of hypotheses and includes the use of methods such as survey, laboratory experiments, formal methods and numerical methods (Myres, 1984). Positivism research uses precise objectivity and is usually associated with quantitative data. This method uses deductive reasoning, beginning with a theoretical position and moving towards an empirical position. Positivism tries to explain and forecast a relationship among various parts of the phenomenon (Burrell & Morgan, 1979). The most vital characteristic of the positivistic philosophy is therefore the production of quantitative data based on large samples as well as on theory and hypothesis testing. However, critics of the positivism paradigm spelt out the inappropriateness and inadequacies in examining social matters that surround human activity. On the other hand, phenomenology claims to have understanding of social context of a firm by appreciating social processes pertaining to an organization and how the employees of the organization perceive them (Kempster & Parry, 2011).

3.3 Research Design

Research design refers to the plan and arrangement of perceived investigation to get satisfactory responses to research questions and to control variance (Kerlinger, 1973). It may also be defined as a blue print for conducting the study with maximum control over factors that may interfere with the validity of the findings (Burns & Grove, 2010). This study employed a pooled panel data analysis of cross – sectional and time series data. The cross – sectional survey design was appropriate for the study because it augments data collection that is uniform for comparison across many firms at one point in time. It also offers the researcher opportunity to capture population characteristics and test hypotheses.

Cross sectional studies have been found to be robust in relationship studies given their ability to capture the characteristics of a population in their free and natural occurrence (O' Sullivan & Abela, 2007). A cross sectional approach enhances the credence of results by arriving at conclusions on data at a given point in time. The study comprises manufacturing firms whose products have been certified under the Uganda Bureau of standards. Time series referred to the five year period of the study and the descriptive aspect was used to discover the relationship between working capital level, working capital financing, firm characteristics and profitability. Researchers like Nkundabanyanga, Ahiazu, Sejjaaka & Ntayi (2013); Tutar, Altinoz & Cakiroglun (2011) used similar research designs.

3.4 Study Population

Population may be defined as total collection of elements about which people wish to make some inferences (Cooper & Schindler, 2006). Kothari (2004) defines population as all items in any field of inquiry which is known as universe. Other researchers

(McMillian & Schumacher, 2010; Zikmund, 1997) define population as a huge collection of subjects from which sample can be drawn. The context of this study has been Ugandan manufacturing firms.

The study has focused exclusively on the manufacturing firms that deal with transformation of raw materials into finished goods. The population of the study has been 169 registered manufacturing firms whose products have been certified by UMA. Uganda has been chosen because manufacturing in Uganda is next to agriculture in importance and requires in depth investigation on the mix of WC components. The study has concentrated on the twelve sectors as these are the ones registered with Uganda Manufacturing Association as indicated in the appendix 11.

3.5 Sample Size and Sampling Technique

Different scholars define the term sample in various ways like Bryman and Spiegel (2008) defined a sample as a portion of the total population. However, Kothari (2004) defines it as a collection of units from the larger population, which represent it and asserts that the sample should be as representative as possible of the entire population. Kerlinger (1973) asserts that a smaller sample reflects a bigger sampling error and a larger sample relates to a smaller error and also argues that a 10% sample size is sufficient to provide accuracy in estimations.

The sample size was calculated based on Krejcie and Morgan (1970) table. This table has been used to obtain sample size by credible researchers like Owino (2017). The table of Krejcie and Morgan in the appendices shows how a sample can be calculated basing on the given for the population. The population is 169 and lies between 160 and

170 therefore the sample will be estimated to lie between 113 and 118. To get the sample size $(113+118)/2 = 115.5$ which is 116 when rounded off. The study applied both stratified and simple random sampling whereby stratification was used to ensure that firms from the different sectors are all represented. Simple random sampling was used to randomly select the firms from the sampling frame and Sample lists of firms from each of the different identified sectors was made from which samples of firms were selected and the sample size was 116 firms.

Table 3.1 Population and Sample Size

	SECTOR	POPULATION	SAMPLE
1	Steel and roofing	6	4
2	Bakery and manufacture of other food products	13	9
3	Processing of meat, fish and other dairy products	17	12
4	Vegetable oil and oil products	7	5
5	Petroleum jelly, cosmetic and personal care	14	10
6	Textile, leather and garment	12	8
7	Soap and detergents	9	6
8	Wine, alcohol and spirits	16	11
9	Soft drinks and beverages	28	19
10	Wood, furniture and wood products	7	5
11	Grain milling	8	5
12	Natural mineral water	32	22
	Total	169	116

Source: Author, 2018

3.6 Data Collection

Hussey and Hussey (1997), define data as facts that are known or items used as a basis for inference. Data can be described as either qualitative or quantitative and the current study used quantitative type explaining phenomena by analyzing numerical data, using mathematically based methods. In the context of this thesis, the study relied on secondary data which was used to compute working capital level, working capital financing approaches, firm size and firm profitability. The study used secondary data, which was obtained from audited financial statements of manufacturing firms. Secondary data analysis requires that the study begins with sound theoretical framework (Magee, Lee, Giuliano & Muuro, 2006). The framework delineates the variables in the study and defines how these variables are conceptualized. A records survey sheet was used for collection of secondary data (Appendix 1).

Secondary data was collected from audited annual financial statements and reports of the selected firms was obtained from manufacturing firms and later was compared with the information that the Uganda Revenue Authority had for purposes of authenticity. The firms selected for the study as reflected in appendix 11 covered a five-year period (2011 – 2015). Akoto, Awunyo – victor and Angmor (2013) also employed secondary data for a period of five years. This period is important because five years is long enough a period to check profitability and therefore make recommendable conclusions. The financial reports from which data was extracted included; the statement of profit, loss and comprehensive income and statement of financial position.

The study employed panel data, which comprised time series and cross – sectional data. The cross – sectional data consisted of the firms whereas time series were in form of years from 2011 – 2015. On combining time series with cross – sectional data, quantity and quality of data would be enhanced (Gujarati, 2003). The information used for this thesis was obtained from audited financial reports and these were obtained from the manufacturing firms and the Uganda Revenue Authority. The data collection form in Appendix 1 was used to extract data which was later compiled. The data that was extracted included amounts for the following; Cash and cash equivalent, accounts receivable, closing inventory, other assets, non – current assets, total assets, total current liabilities, net sales, gross profit, expenses, earnings before tax and earnings after tax and the data obtained was for the period 2011 to 2015.

3.7 Reliability and Validity Tests

Reliability refers to consistency or stability of measurement under a variety of conditions (Nunally, 1978). It is the extent to which a source of data can be relied upon and therefore the data itself. The reliability of secondary data sources comes from the credibility accorded to the reports (Tasic & Feruh, 2012). Further argument was made that researchers must ensure that secondary data is free from material error and bias, as reliable data is dependable, authentic and reputable (Paker 2012). Reliability was ensured by considering financial reports that had been audited by professional auditors.

Validity is the test for precision and is the extent to which out come from data indicates the phenomenon under study (Mugenda & Mugenda, 2003). Validity for secondary data was ensured by accessing only financial statements audited and verified by certified auditors and accountants. If financial reports are confirmed by auditors who have

adhered to the generally accepted accounting principles and methods of auditing, such statements are declared valid.

3.8 Diagnostic Tests

In order to use parametric tests of analysis, the study variables were subjected to diagnostic tests of analysis on the assumption of Partial Least Square (PLS) and these were normality, Linearity, multicollinearity and homoscedasticity. Normality refers to a symmetrical, bell – shaped curve, which has the highest frequency of scores in the center with lower frequencies towards the end (Pallant, 2005). Arranging data around the center ensures that data has been normally distributed. Data that exhibits non – normality characteristics may lead to inaccuracy and distortion of the results (Field, 2009).

The normality test may be considered graphically and statistically but the statistical approach is preferred because histograms tell little about whether a distribution is close enough to normality and skewness and kurtosis consider only one aspect of non – normality (Field,2009). Statistically, normality would be considered by checking whether a distribution deviates from a comparable normal distribution and this could only be taken care of by Shapiro – Wilk test. When the test is insignificant, ($P > .05$) it implies that the sample distribution insignificantly differs from normality. However, if test is significant ($P < .05$) then distribution is significant and different from normality. A significant value (Sig. $< .05$) indicates a deviation from normality. Therefore, the assumption of normality was tested using Sharpiro – Wilk test. If this test failed, the data would be transformed to fit the normality function by using the log transformation.

Linearity test was made and was concerned with whether the projected value of dependent variable gives rise to a straight line function of each independent variable while other variables are held constant. If not, it may lead to a misleading prediction (Field, 2009). Statistical analysis which uses linear regression assumes that the data is observed in terms of a straight line. The study adopted graphical methods and a plot of standardized residuals against standardized estimates (Fitted values) to cater for linearity.

Multicollinearity is a situation whereby some individual independent variables are highly correlated. Thus, a multiple regression model would not be able to give reliable results about any individual predictor variable or about which predictor variables are redundant with respect to others. Independent variables would not give an appropriate prediction of the outcome variable (Farrar & Glauber, 1967). The presence of multicollinearity endangers the multiple regression analysis results in that it makes it difficult to assess the individual importance of a predictor, it is difficult to know the variable that is more important in the model (Field, 2009). This implies that the estimated values of the regression coefficient is likely to be unstable. Bowerman and O'Connell (1990) recommend that if Variance Inflation Factor (VIF) is above 1, then multicollinearity may cause bias to the regression model. Values less than one indicate severe problems, although Menard (1995) advises that values less than 2 are alarming. Multicollinearity problem was evaluated by using VIF and Tolerance estimates.

Homoscedasticity is an assumption that the variance of one variable is stable at all levels of another variable or relatively similar. Parametric tests require that data used should have homogeneity of variance. Whenever the error terms have no constant

variance, the situation is said to be heteroscedastic and Field, (2009) noted that heteroscedasticity occurs when there is a variance of the error term. Heteroscedasticity occurs when the residuals do not uniformly align along the horizontal line and this may weaken the analysis and lead to type 1 error.

3.9 Operationalization and Measurement of Variables

Shabarati, Helena, Pedro and Jordan (2010) contend that operationalization of variables is the measurement procedure bridging the conceptual - theoretical level with the empirical observation level. Operationalization is the process whereby study variables are assigned numerals, numbers and other symbols. According to Sekaran (2006), operationalization is the categorical specification of a variable to make it measurable.

The constructs under scrutiny in this study were operationalized as outlined below and enabled the researcher to measure their relationships quantitatively. Working Capital Level was the predictor variable and comprised cash level, accounts receivable level and inventory level, while profitability was conceptualized and operationalized as the dependent variable. Working capital financing approaches played the intervening role between WCL and profitability while firm size had a moderating role between WCL and profitability.

3.9.1 Operationalization of Profitability

The current study measures profitability using return on assets (ROA). Return on assets is one of the profitability ratios that computes income in relation to total assets. The efficiency of a firm in generating income from assets is ascertained by ROA and this ratio is expressed as a percentage. Most credible empirical studies use ROA as their

measure of profitability and these included Dalyeen (2017), Meena and Reddy (2016), Kungu (2014). Nyabwanga, Ojera, Otieno & Nyakundi, (2013) assert that ROA should be positive and the ideal figure for ROA should be 10% - 20%. A high ROA is an indication that a business is earning better on the capital invested.

$$ROA = \frac{\text{Earnings after Tax}}{\text{Total Assets (TA)}}$$

Table 3.2: Operationalization of Firm Profitability

Variable	Nature	Parameter	Measurement	Data source	Supported
Profitability	Dependent variable	ROA	$ROA = \frac{\text{Earnings after Tax}}{\text{Total Assets (TA)}}$	Secondary data from financial statements	Ogundipe et al. (2012) Pratheepkanth, 2011; Abor,2005

Source: Author, 2018

Profitability was treated as the outcome variable and this was examined for the different manufacturing firms for a period of five years (2011 - 2015). All the manufacturing firms investigated had a different figure for profitability. A high figure for profitability is an indicator that the firm is performing well while a low figure is an indication of poor performance and this is dependent on the resources invested in the business. An effort is made to check on the trend of profitability and to ensure that there is an enhancement. Un necessary expenditure requires serious investigation as it is one of the reasons for decline in profit margin. As regards manufacturing firms, wastage in the production process may have an adverse effect on the total income.

3.9.2 Operationalization of Working Capital Level
Table 3.3 Operationalization of Working Capital Level

Variable	Nature	Parameter	Measurement	Data source	Supported
WCL Attributes	Independent variable	Dimensions <ul style="list-style-type: none"> • Cash level (Cash position ratio) • Receivables level (DSO) • Inventory level (DIO) 	Cash & cash equivalent: CL $\frac{\text{Ac Rec} \times 365}{\text{Net sales}}$ $\frac{\text{Average stock} \times 365}{\text{Cost of goods sold}}$	Secondary data from financial statements.	Akinsulire (2008), Reddy and Kameswari (2004)

Source: Author, 2018

The above table represents the predictor variable (working capital level) which was examined by investigating the cash position ratio (CPR), receivables level (DSO) and inventory level (DIO) Howorth & Westhead (2003). Cash and cash equivalent represent the most liquid items under the category of current assets. These measure the cash level position of the firm and play a vital role in the working capital level. Cash being the basic input it does not go directly in the manufacturing process and the ultimate output expected by investors. It is of great importance to keep some of the firms' resources in cash due to the recognized motives of holding cash such as the transaction motive that

recognizes that a firm has to manage cash transactions on a daily basis; the precautionary motive where cash cushions the unforeseeable problems and the speculative motive where a business maintains cash balance to take advantage of any profitable business that may crop up. All the firms in the study have cash and cash equivalents an indicator that special attention is given to firm liquidity.

Accounts receivable are debts that a firm is expected to receive in the near future. It is money owed to the business and is expected in the shortest time possible. Accounts receivable arise when there is time lag between delivery of goods and collection of money for the said goods. In Uganda, trade credit is a vital source of working capital and inventory level refers to the amount in raw materials, work in progress and inventory in finished goods.

3.9.3 Operationalization of Firm Size

Variables that commonly provide insight into a firm's characteristic include size and age (Chatterjee, 2010)). In this study, size of the firm was measured using the natural log of total assets. The choice of Firm's size to measure Firm's characteristics was informed by Chen and Hambrick (1995), and Mintzberg (1979). Assets for different firms differ and a firm with large volumes of assets is termed as big in size and one with few assets is regarded as small size. Assets have monetary value attached on to them and therefore a large firm will translate into very high monetary value and on the other hand, a small firm will have lower monetary value of assets. The formula for firm size chosen is $\log(\text{Total assets})$ and this is because manufacturing firms invest heavily in non – current assets for the manufacturing process.

Table 3.4: Operationalization of Firm Size

Variable	Nature	Parameter	Measurement	Data source	Supported
Firm Size	Moderating variable	<ul style="list-style-type: none"> Size 	Log (Total assets)	Secondary data from financial statements. Company records.	Nandi and Ghosh (2012)

Source: Author, 2018

Firm Size was the moderator of the relationship between WCL and profitability.

$$\text{size} = \ln(\text{TA})$$

3.9.4 Operationalization of Working Capital Financing

Table 3.5: Operationalization of Working Capital Financing

Variable	Nature	Parameter	Measurement	Data source	Supported
Working Capital Financing approaches	Intervening variable	<ul style="list-style-type: none"> Total current liabilities Total assets 	$\text{TCL}/\text{TA}_{it}$	Secondary data from financial statements	Booth et al., (2008)

Source: Author, 2018

Working capital financing was the mediator and was operationalized as in Table 3.5.

Working capital financing was measured by dividing total current liabilities (TCL) by

total assets (TA). The approaches adopted in the financing of working capital of a firm highly depends on the firm policies. The three categories of financing are aggressive, conservative and matching as explained in 1.1.2. Most firms in Uganda prefer the conservative so that they do not run out of cash and inventory.

3.10 Data Analysis

The data collected was edited for accuracy, uniformity, consistency and completeness and then entered in Statistical Package for Social Scientists (SPSS) version 20.0 for analysis. Data was cleaned by checking for omissions, and entry errors. Descriptive statistics like frequency distributions, graphs, mean scores, standard deviations and coefficient of variation were used to ascertain the basic features of the data. Pearson product moment correlation (r) analysis was made to determine the direction of association among variables and in addition, hierarchical linear regression was used where by an outcome variable was predicted as a function of a linear combination of one or more variables.

However, in instances, where mediating effects were involved, as in these studies, hierarchical multiple regression (HMR) testing procedures were the most appropriate. Typical of the HMR based strategies is the very frequently cited and widely used procedures described by Baron and Kenny (1986). Hierarchical regression was used to assess the link between a set of predictor variables and that of outcome variables, with a keen concern on the impact of various sets of predictor variables on the outcome variables. Hierarchical multiple regression requires that outcome variables be metric and predictor be metric or non – metric.

3.10.1 Effect of Working Capital Level and Profitability

In modeling for the effect of Working Capital Level (WCL) on profitability (P) the equation (1) below was used. The model tested hypothesis one as follows;

$$P_{it} = \beta_0 + \beta_1(CPR + DSO + DIO)_{it} + \varepsilon_{it} \dots\dots\dots(1)$$

But WCL is a variable with dimensions; cash level (Cash position ratio), receivables level (DSO) and inventory level (DIO). And where:

β_0 is the intercept at the profit axis, β_1 is the coefficient of WCL dimensions and ε is the error term that caters for the inexplicable variations, in the number of firms used in the sample i represents the number of firms and t is the period of the study.

WCL = Cash Level, Accounts Receivable level and Inventory level

Cash Level (CPR), Accounts Receivable (DSO) and Inventory (DIO)

$$P_{it} = \beta_0 + \beta_1 CPR_{it} + \beta_2 DSO_{it} + \beta_3 DIO_{it} + \varepsilon_{it}$$

3.10.2 Mediating effect of Working Capital Financing approaches on the relationship between Working Capital Level and Profitability

Mediation occurs when an effect on a variable is through another variable (the mediator). According to Baron and Kenny (1986), for mediation to take place; (1) the predictor variable should significantly affect the outcome variable, (2) the outcome variable should significantly affect the mediating variable and (3) the mediator should significantly influence the outcome variable. The variations in the predictor variable significantly explain the variations in the mediator variable whose variations in turn should significantly explain changes in the outcome variable (Jose, 2013).

To examine the mediating effect of working capital financing approaches on the relationship between WCL (measured using Cash position ration) and profitability, the author adopted Baron and Kenny (1986) four steps of mediation and examined the mediating effect of working capital financing on the relationship of WCL and firm profitability as follows;

Step I: $P_{it} = \beta_0 + \beta_1 WCL_{it} + \epsilon_{it}$ (2)

Where P, β_0 , β_1 WCL, i, t and ϵ are defined in 3.10.1 above. Profitability is regressed on WCL and thus profitability is the dependent variable and working capital level is the predictor variable. The regression of profitability on the WCL, ignoring the mediator, should be significant.

Step II: $WCF_{it} = \beta_0 + \beta_1 WCL_{it} + \epsilon_{it}$ (3)

The second step of the mediating analysis was to evaluate the association between working capital financing the intervening variable as the outcome variable and working capital level as the predictor variable. These two are regressed against each other, leaving out firm profitability which stands as the outcome variable in the study. Working capital financing is regressed on WCL and therefore working capital financing is the outcome variable while WCL is the predictor variable. If no relationship exists between predictor variable and mediator then, relationship between working capital level and profitability cannot be mediated. The regression of the mediator on the predictor should be significant

Step III: $P_{it} = \beta_0 + \beta_1 WCF_{it} + \epsilon_{it}$ (4)

The third step involves a simple regression analysis with working capital financing predicting firm profitability. Profitability is regressed on working capital finance and therefore profitability is the outcome variable and working capital financing is the predictor variable. The regression of profitability on the mediator should be significant.

Step IV: $P_{it} = \beta_0 + \beta_1 WCL_{it} + \beta_2 WCF_{it} + \mathcal{E}_{it}$ (5)

The fourth step is the final in assessment of the mediation effect on the relationship between WCL (measured using CPR) and firm profitability. Where firm profitability and WCL are defined in step I and step II, the model confirms that the mediator is a significant predictor of the outcome variable while controlling for the independent variable. This entailed a multiple regression analysis with working capital level, working capital financing and profitability.

3.10.3 Relationship between Working Capital Level and profitability moderated by Firm Size

$P_{it} = \beta_0 + \beta_1 WCL_{it} + \beta_2 FS_{it} + WCL * Size_{it} + \mathcal{E}_{it}$ (6)

Firm Size (FS) was measured using firm size while WCL was measured using cash position ratio (CPR). Firm size was calculated as the logarithm to base ten of total assets (Log₁₀ TA).

3.10.4 Relationship between Working Capital Level, Working Capital Financing, Firm Size and profitability

The study sought to determine the joint effect of WCL, WCF and FS on the profitability of the firms, which is anticipated to be more immense and statistically significant and is represented by the model equation 5 below:

$P_{it} = \beta_0 + \beta_1 WCL_{it} + \beta_2 WCF_{it} + \beta_3 FS_{it} + \mathcal{E}_{it}$ (7)

Table 3.6: Summary of Objectives, Hypotheses and Analytical Models

Objective	Hypotheses	Analytical Model	Analysis Techniques	Interpretation
To determine the relationship between WCL and profitability of manufacturing firms in Uganda	H ₁ : The relationship between WCL and profitability of manufacturing firms in Uganda is not significant.	Analytical model $P_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it}$ Where P = Profitability β_0 = Intercept $\beta_1 - \beta_3$ = coefficient of WCL dimensions ϵ = Error Term i = Number of Firms t = Period of time X_1 = Cash Level (CPR) X_2 = Accounts Receivable Level (DSO) X_3 = Inventory Level (DIO)	Correlation, regression and goodness of fit tests.	Significance test for r and R ² by use of F – statistic. Correlation coefficient (r) is an indicator of direction and strength among variables. R ² shows percentage of variance of outcome variable (P) accounted for by the predictor variable (WCL dimensions). Correlation ranges between -1 and +1 where 0.5 is a strong relationship, 0.3 is moderate and 0.1 depicts a weak relationship. Pearson correlation coefficient is not significant.
To establish the intervening effect of WCF on the relationship between WCL and profitability of manufacturing firms in Uganda.	H ₂ : The intervening effect of WCF on the relationship between WCL and profitability of manufacturing firms in Uganda is not significant.	Baron and Kenny (1986) Approach Steps Step I: $P_{it} = \beta_0 + \beta_1 WCL_{it} + \epsilon_{it}$ Step II: $WCF_{it} = \beta_0 + \beta_1 WCL_{it} + \epsilon_{it}$ Step III: $P_{it} = \beta_0 + \beta_1 WCF_{it} + \epsilon_{it}$ Step IV: $P_{it} = \beta_0 + \beta_1 WCL_{it} + \beta_2 WCF_{it} + \epsilon_{it}$	Correlation, regression and goodness of fit tests.	Intervening effect exists if the regression coefficient ($\beta_1 \dots \beta_2$ value) is statistically significant. The relationship is strong if r ² and F-test is significant where P < .05 Pearson correlation coefficient is not significant.
To establish the moderating effect of firm size on the relationship of WCL and profitability of manufacturing firms in Uganda.	H ₃ : The moderating influence of firm size on the relationship between WCL and profitability of manufacturing firms in Uganda is not significant.	Hierarchical Multiple Regression Model to determine moderating effect of FS on relationship between WCL and profitability using Baron and Kenny (1986) Approach. $P_{it} = \beta_0 + \beta_1 WCL_{it} + \beta_2 Size_{it} + \beta_3 WCL * Size_{it} + \epsilon_{it}$ Where P = profitability, FS = firm size, WCL = WCL dimensions, WCL was measured using CPR. (WCL * Size) = interaction term and ϵ error tem.	Correlation, regression and goodness of fit tests.	Moderation occurs when moderator variable alters the strength of the causal relationship between dependent and independent variable, R ² change is significant as well as interaction term p < .05 (model 2 of hierarchical regression model) Pearson correlation coefficient is not significant.

<p>The joint effect of WCL, firm characteristics and WCF on profitability of manufacturing firms in Uganda.</p>	<p>H₄ The joint effect of WCL, firm characteristics and WCF on profitability in manufacturing firms in Uganda is not significant.</p>	<p>Multiple regression model is used to test the joint effect of WCL dimensions, WCF, FC on profitability. $P = (CPR, DSO, DIO) + WCF + FS + \epsilon$ $P_{it} = \beta_0 + \beta_1 WCL_{it} + \beta_2 WCF_{it} + \beta_3 FS_{it} + \epsilon_{it}$ Where P= profitability, β_0= constant, WCL = CRP, DSO and DIO, $\beta_1 - \beta_3$ represent regression coefficient and CPR=cash Level, DSO = Accounts receivable and DIO = Inventory Level which represent the predictor variables and ϵ is the error term.</p>	<p>Correlation, regression and goodness of fit tests</p>	<p>Significance test for r and R² by use of F – statistic. Correlation coefficient (r) is an indicator of direction and strength among variables. R² shows percentage of variance of dependent variable (P) accounted for by the predictor variables (WCL dimensions). r ranges between +1 and -1 where 0.5 is a strong relationship, r= 0.3 is moderate and r = 0.1 depicts a weak relationship. Pearson correlation coefficient is significant.</p>
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Source: Author, 2018

3.11 Ethical Issues

The ethical requirement of confidentiality impresses upon researchers the obligation to implement security controls to safeguard entrusted information by protecting it from un authorized access. Secondary data was used and to execute this obligation, codes were used instead of real names of the said firms whose information had been used in this study. Although a list of manufacturing firms whose information was used appears in appendix 11, codes were used meaning that any un authorized user would not be able to relate data to a particular firm. In this regard the information was kept private, anonymous and with utmost confidentiality.

3.12 Chapter Summary

The chapter presented the methodology that the study used. It laid emphasis on research philosophies and zeroed down on the Positivistic paradigm. The study employed a cross – sectional and time series design as this was believed to be appropriate for the study. A population of 169 manufacturing firms was used with a sample size of 116 which

was based on Krejcie and Morgan (1970) table. Data was obtained from only 38 manufacturing firms as it was very difficult to obtain financial statements and the data used was from only 31 firms. Some of the firms did not have data for the said five years and those that had all the five years had some key aspects of the data missing. The study used secondary data that was obtained from the Uganda Revenue Authority and this was explained quantitatively by explaining phenomenon using mathematically based methods. A composite variable could not be computed as the constructs of the independent variable had different measures for the cash position ratio used ratio and the accounts receivable and inventory level had number of days. A composite cannot be computed when the measures are dissimilar. Reliability and validity tests were considered and operationalization of study was applied. A table displaying the summary of objectives, hypotheses and analytical models was made.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents descriptive and inferential findings based on the specific objectives of the study. The study employed secondary data which was collected from 38 manufacturing firms by use of a survey sheet. To confirm the source of information, data for the said manufacturing firms was obtained from the Uganda Revenue Authority as the manufacturing firms are required to submit financial statements annually to this body which information is used for tax assessment.

4.2 The Study Response Rate

This study used a sample of 116 out of 169 manufacturing firms from 12 sectors, 38 availed financial statements respectively. Data was obtained from 31 firms leaving out 7 firms and therefore the response rate was 27%. This rate is adequate because it is very difficult to obtain financial statements from manufacturing firms given the sensitivity of the information in the financial statements and this is attributed to the fact that most firms may not believe that such information is required for academic purposes only and some firms thought the information would be divulged to competitors. Other firms argued vehemently that such information was private and confidential.

Firms having data for the required five years was very difficult to obtain as firms begin operations at different times. For some reason or the other, some firms that had been sampled did not have the data for the five years. Some had for four years, others three

years or two years data was available. Worse still, while some sampled firms had all sets of data for the five years, some key aspects would be found missing. In the event, firms with serious missing data which could not be mitigated were left out and the firms considered were those that had reasonable data and therefore the study used a panel that was unbalanced. The response rate was 27% with 89 observations. Boeckelman, (2017) argues that average response rates hover around 26%, while others say a response rate between 10 – 20% is reasonable and examples are; Choi et al., (2008) who had a response rate of 14.6% on his study of relationship between knowledge management and organizational performance. Yli – Renko, Antio and Sapienza (2001) had a response rate of 19.2% on their study of social capital, knowledge acquisition and knowledge exploitation in young, technology based firms.

The study involved the descriptive aspect of analysis and according to Majumdar (2005) the principal objective of descriptive statistics is to obtain a precise and accurate description of the characteristics of the phenomenon and to determine the frequency with which some events or characteristics occur in the population or sample under study and the associations that exist among them.

4.3 Descriptive Statistics

Descriptive statistics help to describe relevant aspects of a phenomenon by showing the average, standard deviation, minimum and maximum values of the variables of interest. The mean is used to measure central tendency which is used to describe the most typical value in a data set and this gives a concise picture of the huge data under investigation (Field, 2009). The Standard deviation is used to measure dispersion and this shows how much spread or variability is present in a sample and when the numbers in the

sample are closely placed, the standard deviation is close to zero, when they are well dispersed the standard deviation tends to be large.

4.3.1 Relationship between Profitability, Working Capital Financing, Working Capital Level and Firm Characteristic

The study adopted Return on Assets (ROA) as the proxy for profitability and ROA was considered as the dependent variable and WCL was represented by CPR, DSO and DIO.

Table 4.1 Descriptive statistics of Profitability (ROA), Working Capital Financing, Working Capital Level Dimensions (CPR, DSO & DIO) and Firm Size

Variable	N	Minimum	Maximum	Mean	SD
Return on Assets (ROA)	89	-.09	.37	.15	.097
Working Capital Financing Approaches (WCF) (Ratio)	89	.03	1.04	.39	.29
Cash Position Ratio (Ratio)	89	.0000	1.26	.11	.23
Days Sales Outstanding (Days)	89	.00	843.23	50.94	94.32
Days Inventory Outstanding (Days)	89	.03	26865.56	490.51	2866.41
Firm Size (Log TA)	89	20.64	26.80	24.00	1.37

Source: Research Findings

The results in Table 4.1 showed that ROA had a mean of .15 a minimum of -.09, a maximum of .37 and standard deviation of .097. Working Capital Financing had a mean of .39 a minimum of .030, a maximum of 1.04 and a SD of .29. Comparatively, CPR had a mean of 0.11, a minimum of 0.0, a maximum of 1.26 and a SD of 0.23. Days sales outstanding had a mean of 50.94 meaning that on average it takes 51 days to recover money from accounts receivable, with a minimum of .00 implying that some firms recover money from receivables within one day and a maximum of 843 days

given the nature of the product and the type of consumer together with a standard deviation of 94.32. Days inventory outstanding refers to the number of days it takes for raw materials to be converted into finished goods and these had a mean of 490.51 translating into sixteen months. The maximum was 26,866 days translating into many years. The above figure appeared very high and the researcher suspects that it could have been an outlier. Firm size had a mean of 24.00 with a minimum of 20.64, a maximum of 26.80 and a SD of 1.37.

4.3.2 Working Capital Level

Table 4.2: Working Capital Level Dimensions

WCL Dimension	N	Minimum	Maximum	Mean	SD
Cash Position Ratio (Ratio)	89	.00	1.26	.11	.23
Days Sales Outstanding (Days)	89	.00	843.23	50.94	94.32
Days Inventory Outstanding (Days)	89	.03	26865.56	490.51	2866.41

Results in Table 4.2 showed that Cash Position Ratio had a mean of .11 with a minimum of .00, a maximum of 1.26 together with a SD of .23. This is an indication that all firms have ready cash at their disposal and some firms strive to utilize the liquidity of the firms for operations to the extent of having no cash at all left. Comparatively, DSO had a mean of 50.94 with a minimum of .00, a maximum of 843.23 together with a SD of 94.32. This is an indication that firms take on average 51 days to recover money from accounts receivable and this being above one month shows that ways should be devised to recover this money faster by the firms though this may have costs attached. The maximum number of days to recover from accounts receivable is over two years and this automatically culminates into bad debts which reduces the returns of the firm. However, the minimum shows that the money could be recovered within a day implying

that some clients take cash on delivery. Days Inventory Outstanding had a mean of 490.51 with a minimum of .03, a maximum of 26,865.56 together with a SD of 2866.41. This implies that converting raw materials of inventory into finished goods and obtaining money from the finished goods may take a long period of time.

4.3.3 Firm Size

Variables that commonly provide insight into a firm's characteristic include size and age (Chen & Hambrick (1995). Firm characteristics (FC) was measured using firm size and was computed as Natural log of total assets (log TA).

Table 4.3: Firm Size

	N	Minimum	Maximum	Mean	SD
Firm Size (log TA)	89	20.64	26.80	24.00	1.37

The results in Table 4.3 showed that Firm Size as a characteristic had a mean of 24.0 with a minimum of 20.6, a maximum of 26.8 and SD of 1.37. Most of the firms considered had size that did not deviate from the mean a lot meaning that firms had reasonable number of assets.

Table 4.4: Working Capital Level dimensions (N=89) Units – Ug Shs (000,000)

	Minimum	Maximum	Mean	SD
Cash and Cash equivalent	.00	30,975	1,078	3,585
Accounts Receivable	.00	39,505	7,159	8,585
Closing Inventory	.00	91,996	12,669	18,587

The results in Table 4.4 has units in UG Shs, showed that Cash and cash equivalent had a mean of 1.1b with a minimum of .00, a maximum of 31b together with a SD of 4b. This is an indication that firms utilize cash in operations as funds in form of cash do not earn any interest. Comparatively, Accounts receivable had a mean of 7.2b with a minimum of .00, a maximum of 39.5b together with a SD of 8.6b. A minimum of zero is an indication that some firms have very strict policies and may not give credit but these should be very few. Results show that majority of firms engage in credit dealings though these may have costs associated with them. Closing inventory had a mean of 12.7b with a minimum of .00, a maximum of 92b together with a SD of 18.6b. This implies that some manufacturing firms produce on order and that is why such a minimum is registered. The majority of firms have closing inventory because it is not so easy to sell all finished goods unless a firm has produced in small quantities which may in turn affect the trend of profitability.

Table 4.5: Working Capital Financing Dimensions – Units Ug Shs (000,000)

WCF Dimensions	N	Minimum	Maximum	Mean	SD
Total Assets (TA)	89	920	435,840	59,593	85,672
Total Current Liabilities (TCL)	89	217	116,377	14,463	18,656

The results in Table 4.5 are presented in UG Shs and showed that TA had a mean of 59.6b with a minimum of 920m, a maximum of 435.8b together with a SD of 85.7b. The values for total assets suggest that manufacturing firms invest heavily in assets especially the productive machinery. The minimum value is a reflection that all manufacturing firms in Uganda have injected much in the business. The Total Current Liabilities had a mean of 14.5b with a minimum of 217m, a maximum of 116.4b and a SD of 18.7b. The results show that all manufacturing firms in Uganda use TCL as a source of finance but when the figures are compared to the total assets, it can be concluded that some firms get external financing as well.

4.3.4 Firm Profitability

Profitability is the capacity of a firm to earn profit (Agha, 2014). Profitability was measured using ROA, which was computed using the formula Earnings after Tax (EAT) divided by the total assets (TA).

Table 4.6: Firm Profitability – Ug Shs (000,000)

	N	Minimum	Maximum	Mean	SD
Total Assets (TA)	89	920	435,840	59,593	85,672
Earnings After Tax (EAT)	89	-1,086	47,747	5,805	7,437

The results from Table 4.6 are presented in units of UG Shs and showed that TA had a mean of 59.6b with a minimum of 920m, a maximum of 435.8b and a SD of 85.7b. The Earnings after Tax had a mean of 5.8b with a minimum of -1.1b, a maximum of 47.7b and a SD of 7.4b. It is evident that manufacturing firms invested in assets but sadly some manufacturing firms are making losses and such losses require serious investigations.

4.4 Preliminary Analysis

Prior to doing many of the statistical analysis such as Correlation analysis, t-tests, ANOVA and Regression analysis, it is important to check that many of the assumptions made by the individual tests are not violated. These include Normality, Linearity, Homogeneity and Multicollinearity. Testing of assumptions involves obtaining descriptive statistics on the variables such as Mean, standard deviation, Kurtosis and skewness values.

4.4.1 Tests of Normality

Normality refers to a symmetrical, bell – shaped curve, which has the highest frequency of scores in the center with lower frequencies towards the extremes (Pallant, 2005). Before data is analyzed, the assumption of normality is put into consideration to

ensure parametric testing. Normality is assessed graphically or numerically. Data that exhibits non – normality characteristics may lead to inaccuracy and distortion of the results (Field, 2006). Ghasemi and Zahediasl (2012), emphasized that statistical procedures like correlation analysis, t–test, and regression analysis among others assume that data is normally distributed.

Figure 4.1: Testing for Normality on Return on Assets

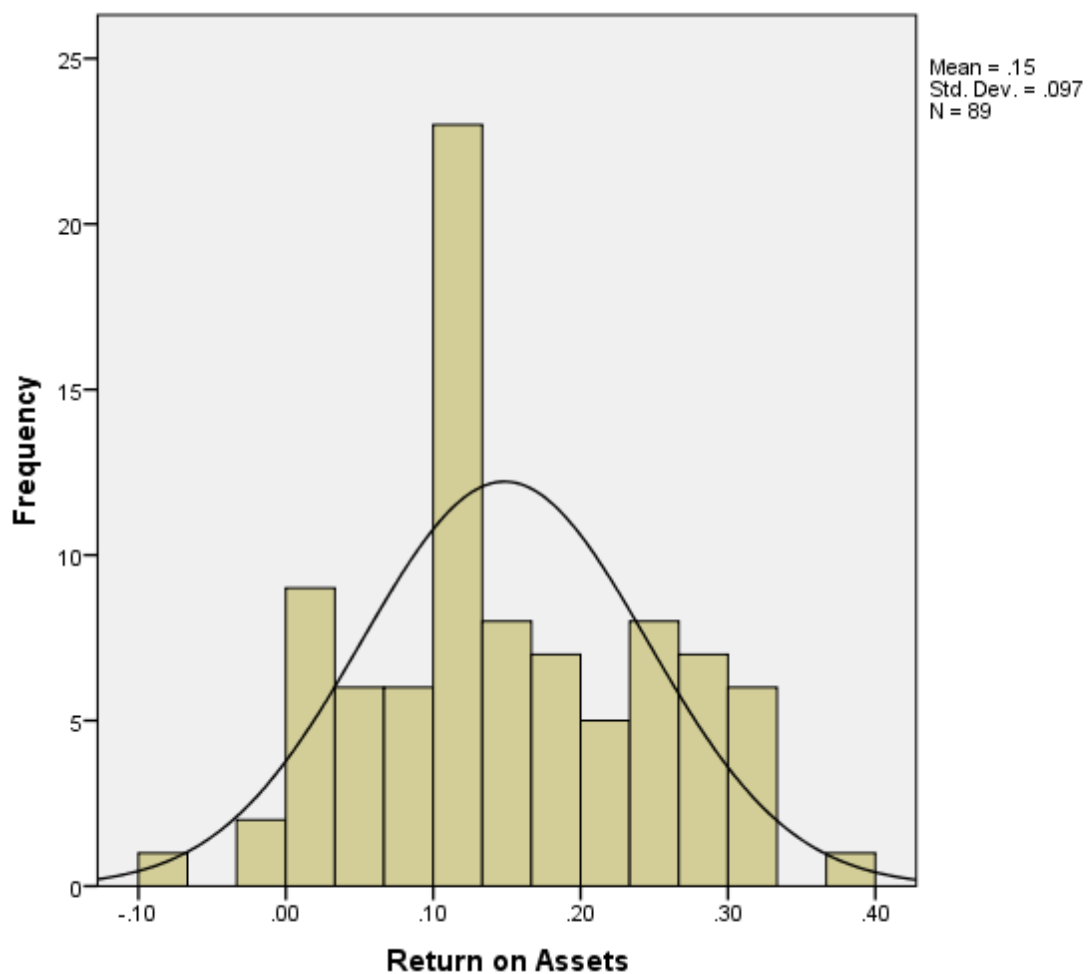
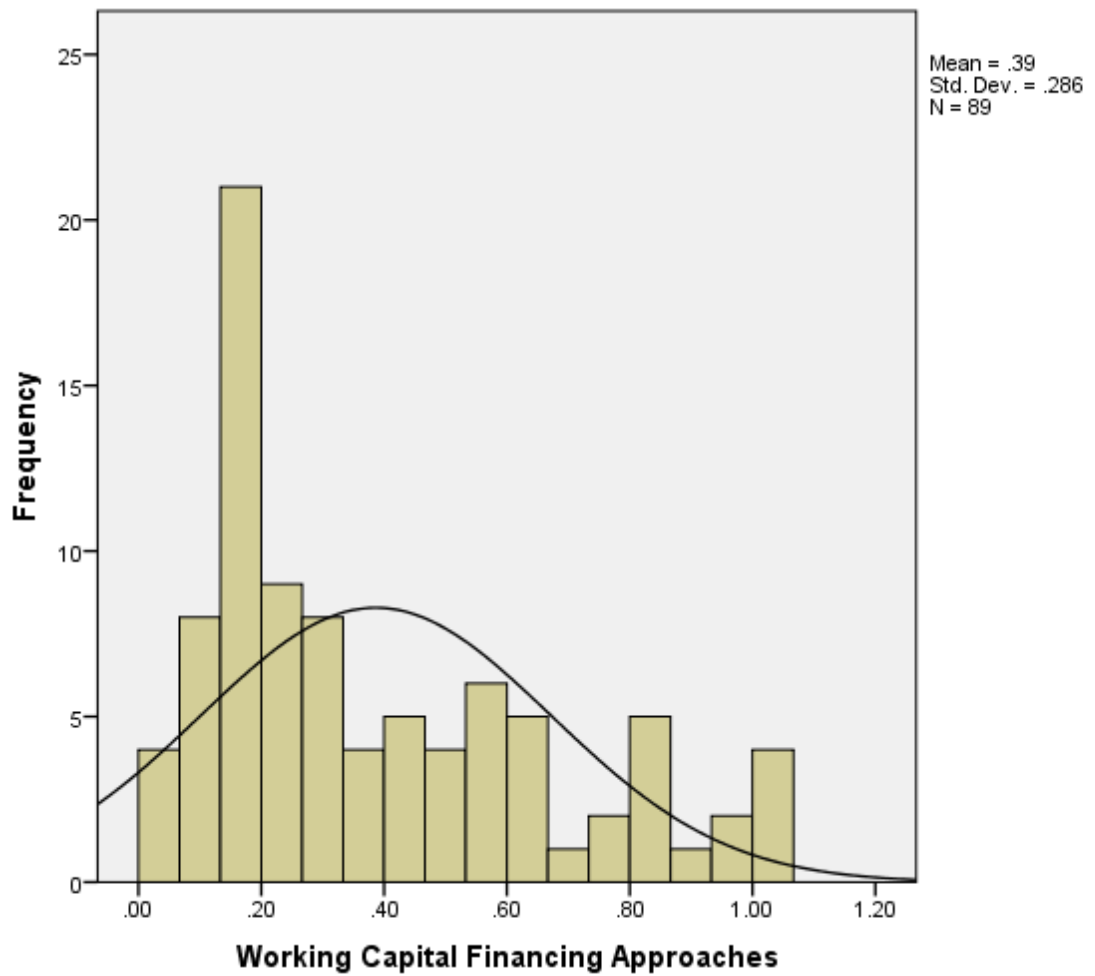


Figure 4.1 the graph exhibited some degree of normality as most of the data was falling in the middle of the curve. As represented in Table 4.7, Returns on Asset exhibited some normality as the statistic was very close to one (.974) and the p – value greater than .05

Figure 4.2: Testing for Normality on Working Capital Financing Approaches



The data regarding Working Capital Financing Approaches in Figure 4.2 was positively skewed to the left an indication that the distribution was not normal.

The assumption of normality was violated as most of the data was inclined to the left.

Table 4.7 showed a statistic not so close to one and a p – value that was less than .05 an indication that the assumption of normality had been violated.

Figure 4.3: Testing for Normality on Firm Size

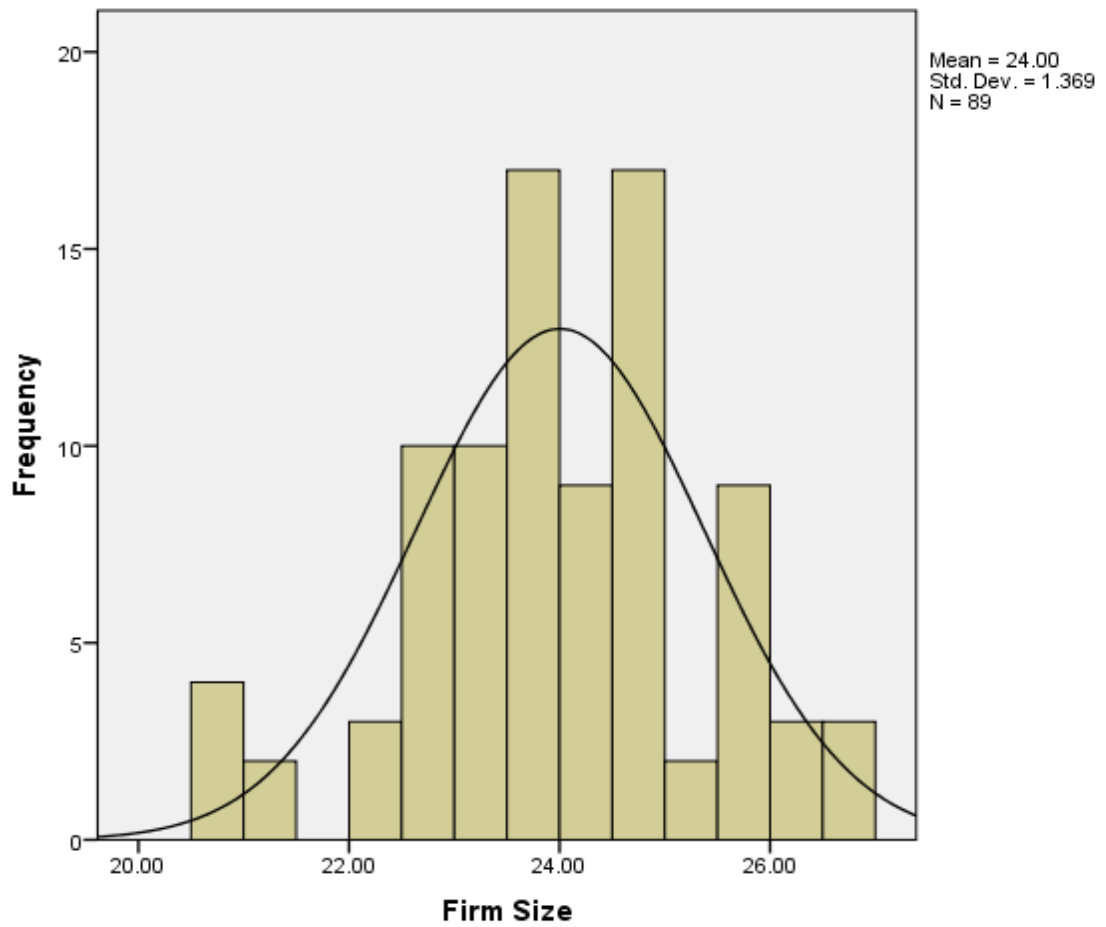


Figure 4.3 demonstrates the super imposed curve with most of the data falling under the bell shaped curve and this implies that size was fairly normally distributed. It is also evident from the normality assumption was upheld as the statistic was close to one and the p – value greater than .05.

Table 4.7: Tests of Normality of the Study Variables using Shapiro – Wilk test

Variables	Shapiro-Wilk		
	Statistic	df	Sig.
Return on Assets	.974	89	.072
Working Capital Financing Approaches	.887	89	.000
Cash Position Ratio	.529	89	.000
Days Sales Outstanding	.386	89	.000
Days Inventory Outstanding	.131	89	.000
Firm Size	.976	89	.102

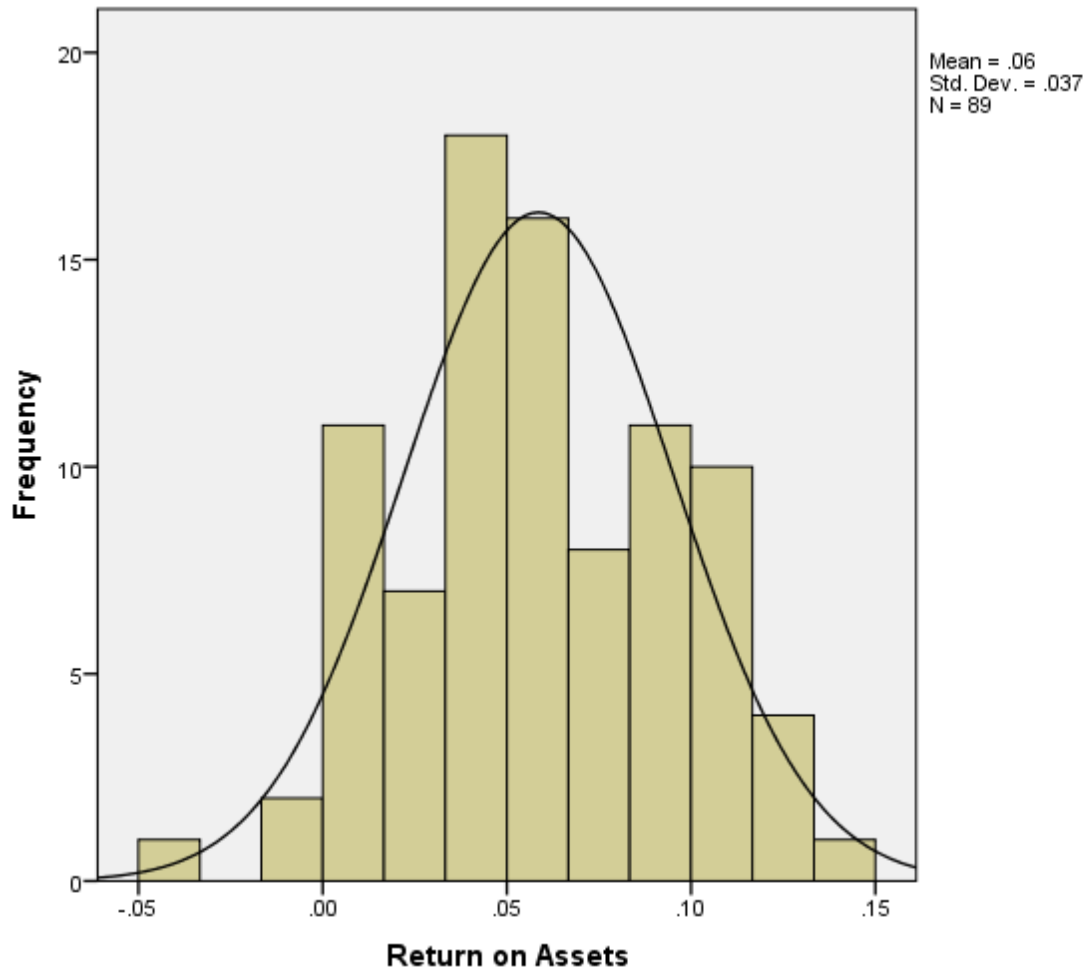
Source: Research Findings

Return on assets (ROA) and Firm size did not exhibit wide departures from normality assumption as shown in Table 4.7. The two variables are therefore suitable for further analyses that are parametric. The Sig. value of the Shapiro-Wilk test is less than .05 for working capital financing (WCF) and Cash Position ratio, Days sales outstanding and Days inventory outstanding an indication that the data is not normal and so this called for data transformation to mitigate the problem, specifically for CPR, DSO and DIO and WCF and so data for all the variables was transformed.

4.4.1.1 Data Transformation

Transforming data encompasses performance of mathematical operations on the scores in a data set, and thereby changing the data set into a new set of scores which are used in the analysis of the results (Field, 2009). As suggested by Tabachnick and Fidell (2007) and Howell (2007), data was transformed using given guidelines for (ROA, WCF, CPR, DSO and DIO) to make it suitable (normal) for further analysis using parametric tests.

Figure: 4.4: Testing for Normality on Return on Assets after Data Transformation



Normality refers to a bell – shaped curve which has the highest frequency of scores in the center with lower frequencies towards the extreme (Pallant, 2005). Arranging data around the center ensures that data has been normally distributed. Data that exhibits non – normality characteristics may lead to inaccuracy and distortion of results (Field, 2009). Figure 4.4 shows that profitability was fairly normally distributed as it displays the greatest frequencies of scores in the middle with smaller frequencies towards the extremes. It is evident from Table 4.9 after data transformation that profitability was

fairly normally distributed with a statistic close to one (.976) and a p – value of .105 which is greater than .05 meaning that the normality assumption has not been violated.

Figure 4.5: Testing for Normality on Working Capital Financing Approaches after Data Transformation

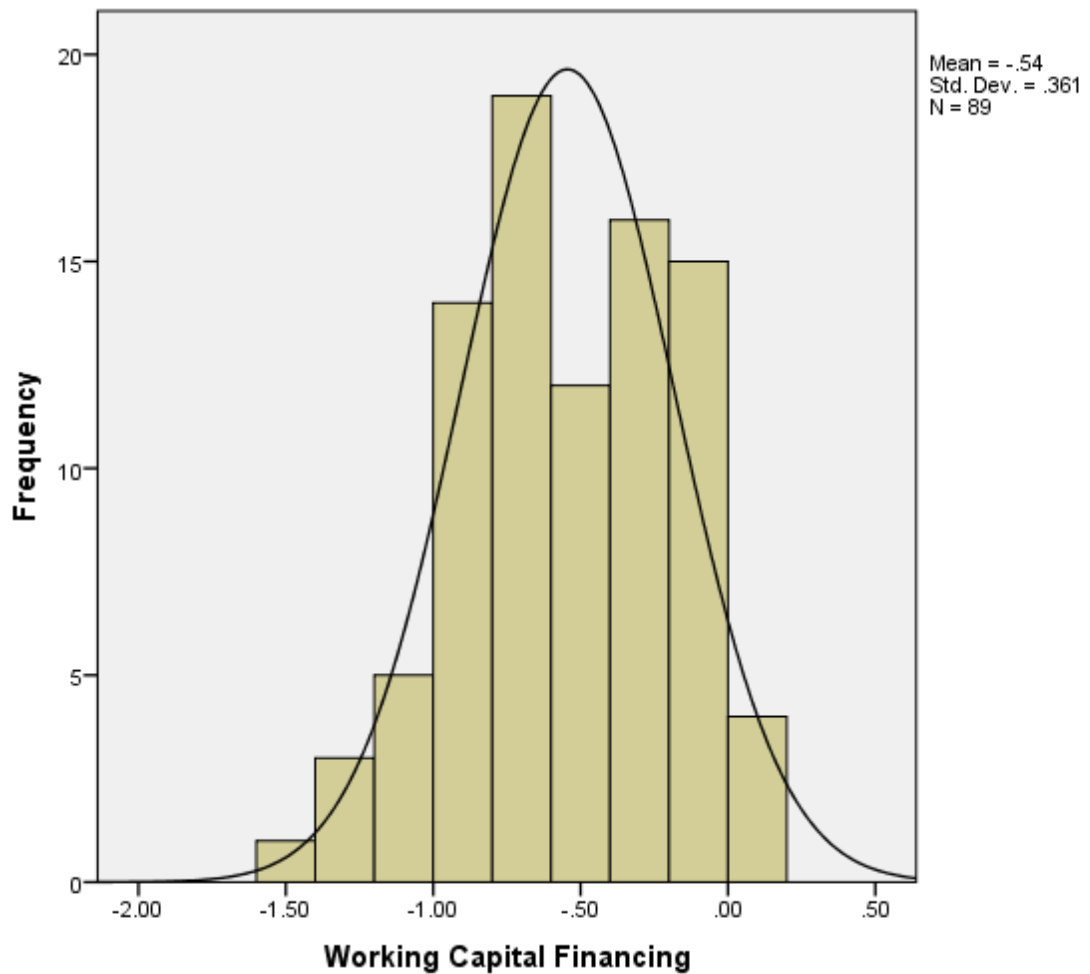
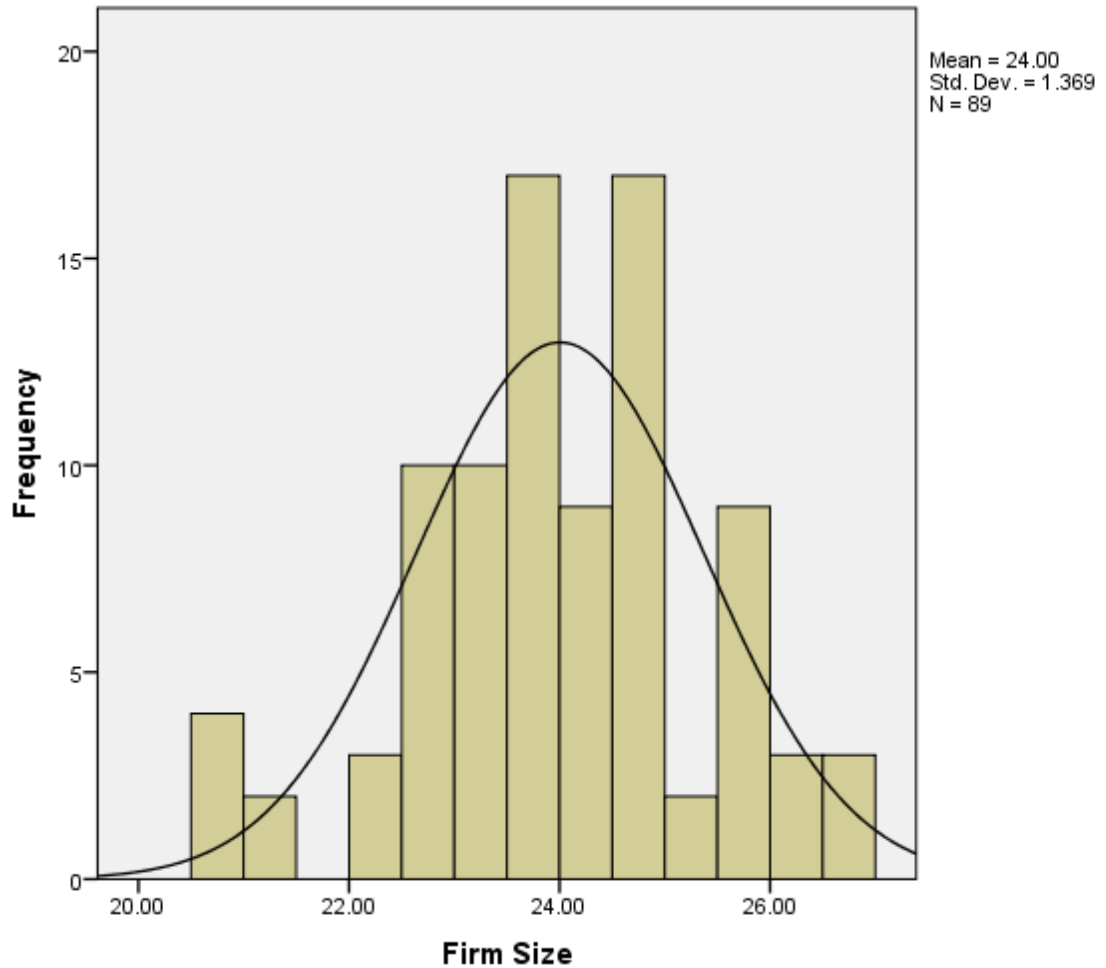


Figure 4.5 demonstrates the superimposed curve with most of the data falling under the bell – shaped curve. Correspondingly, Figure 4.5 displays the highest scores in the middle with low scores at the end implying that Working Capital Financing was fairly normally distributed. After data transformation, WCF depicted the normality function

to some degree and this was further confirmed by Table 4.9 with a statistic close to one and a p – value of .589 which is higher than .05.

Figure 4.6: Testing for Normality on Size after Data Transformation



The moderator firm size met the assumption of normality when it showed a statistic of .976 and a p – value of .120 as indicated in Table 4.7.

Figure 4.7: Testing for normality on Cash Level Position after data transformation

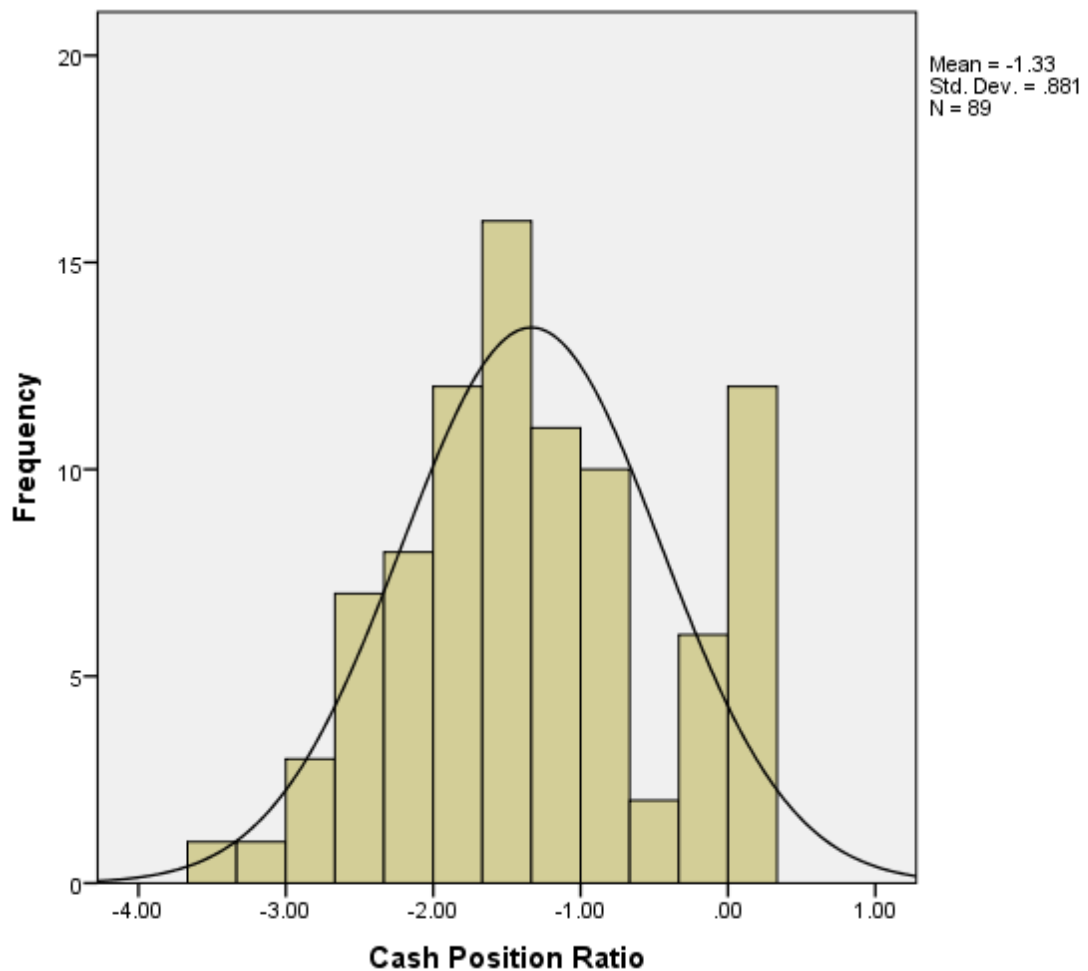


Figure 4.7 exhibits the superimposed curve with most of the data lying below the curve. This showed that CPR was normally distributed and in addition, Figure 4.7 displays the greatest frequency scores in the middle with less frequencies towards the extremes implying that cash level was fairly normally distributed with a statistic of .966 and a p – value of .205.

Furthermore, the assumption of normality was tested using the Shapiro – Wilk test as demonstrated in Table 4.8. The Shapiro – Wilk statistic (1965) is the ratio of the best estimator of the variance to the usual corrected sum of squares estimator of the variance

to test for normality of a distribution. The statistic is positive and less than or equal to one if the data is normally distributed. On the other hand, if p – value is greater than .05 then that is an indication that data came from a normally distributed population. After data transformation, the assumption of normality was upheld for all the variables under study.

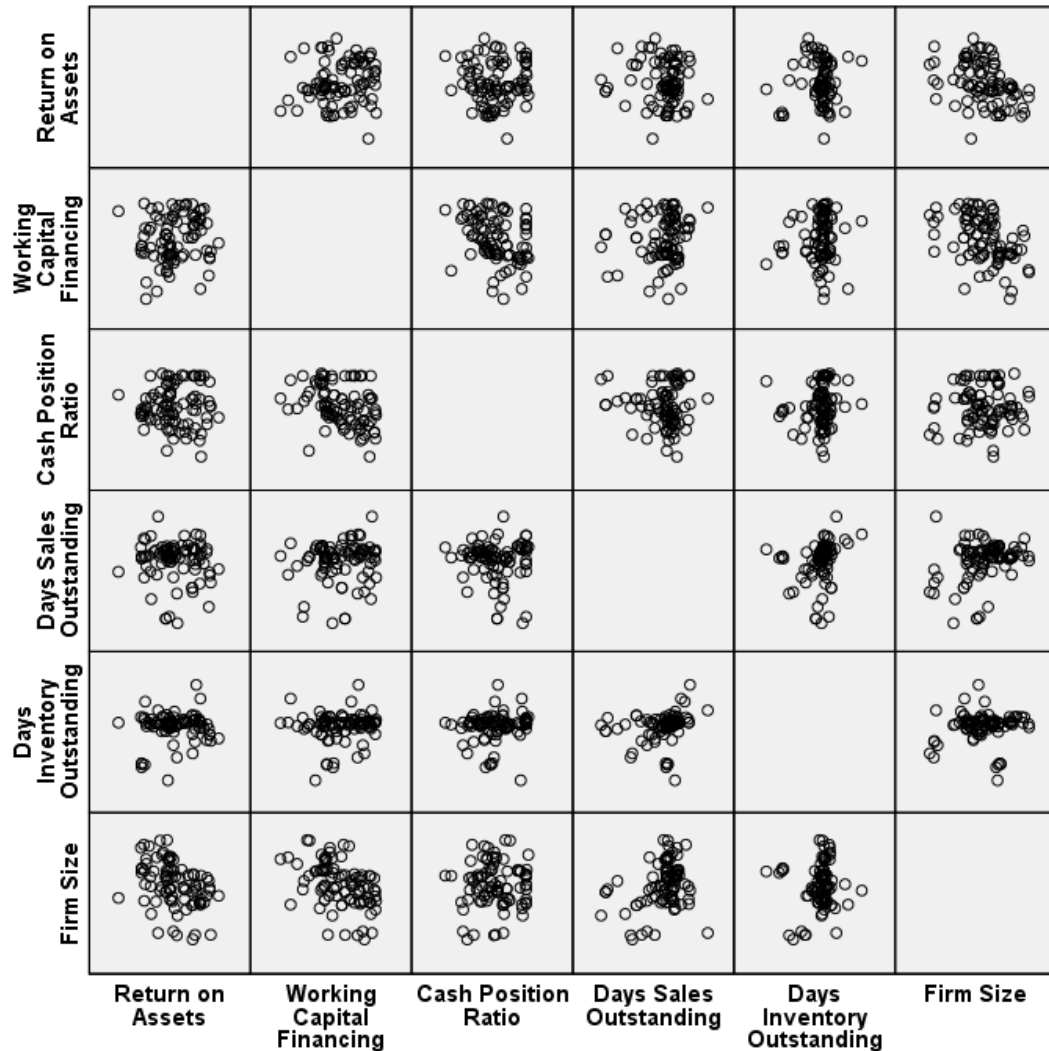
Table 4.8: Tests of Normality of the Study Variables using Shapiro – Wilk test after Data Transformation

Variables	Shapiro-Wilk		
	Statistic	df	Sig.
Cash Position Ratio	.966	89	.205
Days Sales Outstanding	.868	89	.450
Days Inventory Outstanding	.819	89	.102
Working Capital Financing	.965	89	.589
Return on Assets	.976	89	.105

4.4.2 Tests of Linearity

Linearity test is concerned with whether the projected value of dependent variable gives rise to a straight-line function of each independent variable while others are held constant and if not, it may lead to a misleading prediction (Field, 2009). Linearity was investigated using scatterplots. The scatterplot shows whether the variables are related in a linear or curvilinear fashion. The relationship between the variables under consideration should be fairly linear.

Figure 4.8: Scatterplot of Return on Assets, Cash Position Ratio, Days Sales Outstanding, Days Inventory Outstanding, Working Capital Financing and Firm Size



As shown in Figure 4.8, there exist a fairly linear relationship among Return on Assets, Working Capital Financing, Firm Size, Cash Position Ratio, Days Sales Outstanding and Days Inventory Outstanding the data used appears fairly in a straight line which is an assumption for parametric tests.

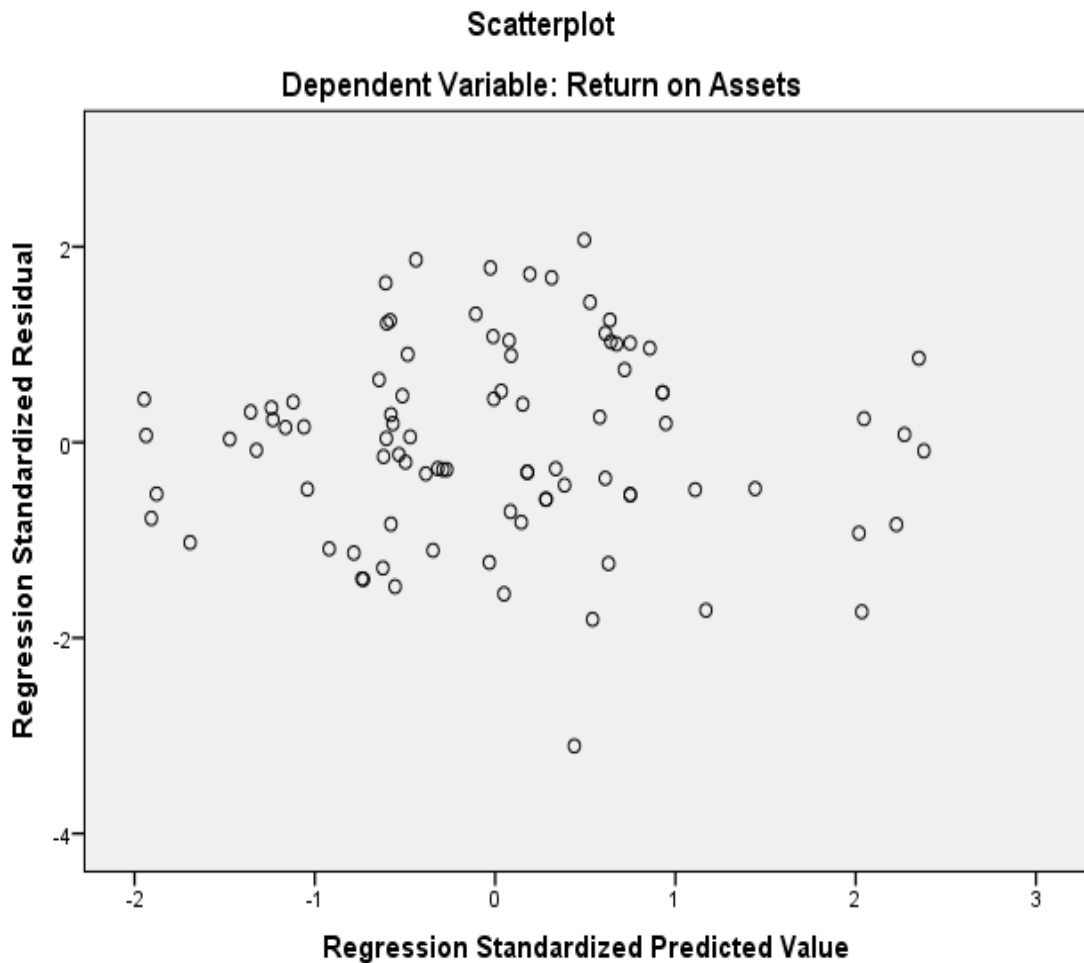
4.4.3 Multicollinearity

Multicollinearity is a situation whereby some individual independent variables are highly correlated. If multicollinearity is present, the multiple regression model will not be able to give reliable results. To check for the presence of multicollinearity, the values of tolerance and VIF were used for the various models. The limits of multicollinearity are VIF being less than five or tolerance value greater than .2 which indicates presence of multicollinearity in case VIF values are above five and tolerance values less than .2. . The results of the test showed that VIF and tolerance were within limit (Table 4.27) and therefore the multicollinearity assumption was met. The $VIF < 5$ and tolerance value $> .2$ were a sign that variables were not highly correlated and hence no multicollinearity.

4.4.4 Homoscedasticity:

The graph below shows a plot of the standardized values our model would predict, against what was obtained. As the predicted values increase (along the X-axis), the variation in the residuals should be the same. A random array of dots indicates that the assumption is met (Field, 2009). A funnel shaped array indicates violation of the assumption (Field, 2009). According to Figure 4.9, the assumption of homoscedasticity has been met.

Figure: 4.9: Dependent Variable: Return on Assets



This is an assumption that the variance of one variable is stable at all levels of another variable or relatively similar. Parametric tests require that data used should have homogeneity of variance. To test this assumption, a plot of the standardised values in the model predict against the standardised residuals that were obtained from various regression models.

4.5 Correlation Analysis

For the relationship between the study variables, Pearson correlation coefficient was used. The linear association of the two scale variables is measured by Pearson correlation coefficient (Field, 2009). The direction and strength of the relationship

among the study variables of manufacturing firms in Uganda which were WCF, DIO, DSO, CPR, Firm Size and profitability (ROA) was revealed by the correlation analysis.

Table 4.9: Pearson Product-Moment Correlations between Return on Assets, Firm Size, Working Capital Financing, Cash Position Ratio, Days Sales Outstanding and Days Inventory Outstanding

Scale	1	2	3	4	5	6
1. Return on Assets	1	.143	.030	-.087	.095	-.390**
2. Working Capital Financing		1	-.343**	.108	.083	-.437**
3. Cash Position Ratio			1	-.070	.117	.043
4. Days Sales Outstanding				1	.234*	.311**
5. Days Inventory Outstanding					1	.099
6. Firm Size						1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The study revealed that the correlation between the log transformed ROA (profitability) and WCF is positive, weak though non – statistically significant ($r = .143, p > .01$) as shown in Table 4.9 suggesting that as WCF increases, profitability increases in the same direction. Relationship between ROA and Cash Position Ratio is very weak and non – statistically significant ($r = .030, p < .01$) suggesting that as CPR increases, the change in ROA is very trivial. Similarly relationship between ROA and Days Sales Outstanding is negative, very weak and non – statistically significant ($r = -.087, p < .01$) suggesting that as DSO increases, ROA reduces with a very trivial impact. The relationship between ROA and Days Inventory Outstanding is weak, positive and non – statistically significant ($r = .095, p < .01$) and this implied that when DIO increases, ROA increases though with a very small amount. Relationship between ROA and size is negative,

moderate and statistically significant ($r = -.390, p < .01$) and this implies that as size increases, ROA reduces significantly.

The relationship between WCF and CPR is negative and statistically significant ($r = -.343, p < .01$) as shown in Table 4.9 and this implies that as CPR increases, WCF decreases significantly. Similarly, the relationship between WCF and Firm size was also negative and statistically significant ($r = -.437, p < .01$) implying that as size increases, WCF reduces significantly. Relationship between WCF and DSO was weak though positive and non – statistically significant ($r = .108, p < .01$) implying that as DSO increases, WCF increases but with a very small impact. Relationship between WCF and DIO was very weak, positive and non – statistically significant ($r = .083, p < .01$) and this implied that as DIO increased, WCF also increased but with a very small effect.

The relationship between Cash Position Ratio and DSO was negative, and non – statistically significant ($r = -.070$) and this implied that as DSO increased, CPR reduced but with a very small change. The relationship between CPR and DIO was weak and non – statistically significant ($r = .117, p < .01$) and this implied that as DIO increased, CPR increased in the same direction with a small change. Relationship between CPR and size was very weak and non – statistically significant ($r = .043, p < .01$) and this implied that as size increased, CPR increased but with a very small change.

The relationship between DSO and DIO is positive, weak and statistically significant ($r = .234, p < .01$) implying that as DIO increases, DSO increases as well with a significant change. The relationship between DSO and size is moderate and statistically

significant ($r = .311, p < .01$) implying that as size increases, DSO increases with a moderate effect. Results also showed a very weak, positive and not statistically significant relationship between DIO and size ($r = .099, p < .01$) and this implied that as size increases, DIO increases though with a very trivial change.

The correlation matrix also helps to check for presence multicollinearity a situation that may lead to regression models being poor. Since all the statistic is less than .8, the data is assumed to be free from multicollinearity and therefore further analysis was carried out.

4.6 Hypotheses Testing

This section presents findings of the four hypotheses formulated in the study and their interpretation. The null hypothesis one tested the relationship between WCL constructs/dimensions and firm profitability, null hypothesis two tested the mediating effect of working capital financing on the relationship between WCL and profitability. Null hypothesis three tested the moderating effect of firm characteristics on the relationship of WCL and profitability. Null hypothesis four tested the joint effect of WCL, working capital financing, firm characteristics on the profitability of manufacturing firms in Uganda. Multiple regression analysis and correlation analysis was performed.

Multiple Regression analysis tested the hypothesized relationships at 95% confidence level. Regression analysis identifies the relationships between an outcome variable and one or more predictor variables. A model of the relationship is hypothesized and estimates and the parameter values are used to develop an estimated regression equation

(Field, 2009). Multiple regression is used because multiple predictor variables have been taken into consideration to predict on a single outcome variable. Since the aim of this study was to predict the relationships between an outcome variable and one or multiple predictor variables using a regression equation, unstandardized regression coefficients were used.

It was not possible to have a composite variable for the independent variable as the two constructs (DSO and DIO) had the same measurement thus number of days but CPR had a different measure that was a ratio. Therefore in testing null hypotheses H_2 and H_3 , the CPR was used to represent the WCL as this ratio checks the financial health of the firm just like WC. It indicates the extent to which a firm can settle its current obligations without involving inventory sale or depending upon accounts receivable. The CPR ratio is a fulcrum of WCL as both DSO and DIO are input to CPR when they have been converted into cash. The main objective of this study was to examine the relationships among working capital level, working capital financing approaches, firm characteristics and profitability of manufacturing firms in Uganda.

4.6.1 Relationship between Working Capital Level Constructs and Profitability of Manufacturing Firms in Uganda

The first objective of this study was to analyze the relationship between working capital level and profitability of manufacturing firms in Uganda. Profitability was measured by Return on assets (ROA).

The study predicted that the relationship between WCL and profitability of manufacturing firms in Uganda is not statistically significant. Simple regression analysis was used to assess if the association between working capital level (WCL) constructs and profitability. Profitability was measured using ROA. Results indicate that the relationship was statistically insignificant. To assess the association between working capital level and profitability, the following null hypothesis was tested.

Hypothesis 1: The relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.

Table 4.10: Model Goodness of Fit with Return on Assets as Dependent Variable and Working Capital Level Constructs as Predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.147 ^a	.022	-.013	.03690	.849

a. Predictors: (Constant), Days Inventory Outstanding, Cash Position Ratio, Days Sales Outstanding

b. Dependent Variable: Return on Assets

The results of simple multiple regression with Return on Assets as dependent variable and WCL constructs as predictors are shown in Table 4.10. The multiple regression model produced $R^2 = .022$, $F(3, 85) = .626$, $p > .05$ as indicated in Table 4.11, the model reveals a weak non-statistically significant relationship between working capital level and profitability of manufacturing firms in Uganda. Working Capital Level accounted for 2.2% of the variance in profitability and the remaining 97.8% remained unexplained and was therefore accounted for by other factors.

Table 4.11: Model Overall Significance with Return on Assets as Dependent Variable and Working Capital Level Constructs as Predictors

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.003	3	.001	.626	.600 ^b
	Residual	.116	85	.001		
	Total	.118	88			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Days Inventory Outstanding, Cash Position Ratio, Days Sales Outstanding

The analysis from the model had *F* value of .626 at $p > .05$, the findings were not sufficient to support influence of WCL on profitability implying WCL is not a significant predictor of profitability as shown in Table 4.11.

Table 4.12: Regression Coefficients with Return on Assets as Dependent Variable and Working Capital Level as Predictor

Model	Unstandardized Coefficients		t	Sig.	Collinearity Statistics		
	B	Std. Error			Tolerance	VIF	
1	(Constant)	.058	.013	4.560	.000		
	Cash Position Ratio	.000	.005	.073	.942	.976	1.024
	Days Sales Outstanding	-.006	.006	-1.030	.306	.936	1.069
	Days Inventory Outstanding	.005	.005	1.084	.281	.927	1.078

a. Dependent Variable: Return on Assets

The regression coefficient (β) value of CPR was .000 and significance level (*p*-value) of .942 and this confirms that CPR is not a significant predictor of ROA as shown in Table 4.12. The regression coefficient (β) value for DSO was -.006 and significance

level (p – value) of .306. This is an indication that DSO is not a significant predictor of ROA. The regression coefficient (β) of DIO was .005 and significance level .281 and this implies that the relationship is non – statistically significant.

In modelling for the effect of WCL (CPR, DSO, DIO) on profitability (P) the equation below was used with ϵ as error term.

$$P_{it} = \beta_0 + \beta_1 \text{CPR}_{it} + \beta_2 \text{DSO}_{it} + \beta_3 \text{DIO}_{it} + \epsilon_{it}$$

$$P_{it} = .058 + .00\text{CPR}_{it} - .006 \text{DSO}_{it} + .005 \text{DIO}_{it} + \epsilon_{it}$$

The null Hypothesis one (H_1) explored the relationship between working capital level (measured by CPR, DSO and DIO) and profitability (measured as Return on Assets) of manufacturing firms in Uganda by suggesting that there is no statistically significant relationship between WCL and Profitability. Results of this study indicate that the relationship between WCL and Profitability is not statistically significant ($p > .05$) as shown in Table 4.12. The null hypothesis (H_1) was therefore supported. The regression coefficient of WCL is not different from zero and the strength of the relationship between Return on Assets and WCL was not statistically significant ($p > .05$).

4.6.2 The Intervening Effect of Working Capital Financing Approaches on the Relationship between Working Capital Level and Profitability of Manufacturing Firms

The second objective of this study was to assess the mediating effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda. The study predicted that working capital financing approaches has no statistically significant intervening effect on the relationship between working capital level and profitability of manufacturing firms in Uganda. Multiple

regression analysis were used to assess the relationship and the following hypothesis was tested and WCL was measured using CPR. Cash position ratio was used in mediation because a composite variable could not be created as all the predictor variables had measures that were not similar. Days sales outstanding and DIO had number of days whereas cash position level had a ratio. Cash position ratio has input from both DSO and DIO and therefore can represent working capital level.

Hypothesis 2: The intervening effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.

The method of Baron and Kenny (1986) was applied to assess the intervening effect of WCF on the relationship between WCL and Profitability. In order to test intervening effect, first there is need to predict the outcome of the outcome variable (profitability) from the predictor variables (WCL), ignoring the mediator (step 1). Generally the model should be significant ($p < .05$). Secondly regression analysis between WCL (measured using CPR) and mediator (WCF) ignoring the dependent variable is performed and the model should be statistically significant. In step 3, regression analysis was performed between outcome variable and mediator (WCF) ignoring the predictor variable. The fourth step of the intervention analysis was performed to assess the relationship between ROA (dependent variable), WCF (intervening variable) and CPR (independent variable). Cash position ratio represented the WCL in mediation as DSO and DIO focus on the level of cash.

Table 4.13: Model Goodness of Fit with Return on Assets as Dependent Variable and Working Capital Level (CPR) as Predictor

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.030 ^a	.001	-.011	.03685

a. Predictors: (Constant), Cash Position Ratio

In step 1 of the mediation model, regression analysis was performed to assess the association between Profitability (ROA) and WCL (measured using CPR) ignoring the mediator (WCF). The model was not statistically significant (p -value $>.05$) as shown in Table 4.14. The regression model produced $R^2 = .001$, $F(1, 87) = .079$, $p > .05$. The model reveals a weak non-statistically significant relationship between working capital level (CPR) and profitability of manufacturing firms in Uganda. Working Capital Level accounted for only 0.1% of the variance in profitability. This implies WCL is not a significant predictor of profitability.

Table 4.14: Model Overall Significance with Return on Assets as Dependent Variable and Working Capital Level as Predictor

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.079	.779 ^b
	Residual	.118	87	.001		
	Total	.118	88			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Cash Position Ratio

The analysis from the model had F value of .079 at $p > .05$, the findings were not sufficient to support the influence of WCL on profitability implying that WCL is not a significant predictor of profitability.

Table 4.15: Regression Coefficients with Returns on Assets as Dependent Variable and Cash Position Ratio

Model	Unstandardized Coefficients		T	Sig.	
	B	Std. Error			
1	(Constant)	.060	.007	8.469	.000
	Cash Position Ratio	.001	.004	.281	.779

The study findings indicate CPR is not a significant predictor of profitability as shown in Table 4.15. The regression coefficient (β) value of CPR was .001 and significance level (p -value) of .779. In modelling for the effect of WCL on Profitability, the equation below was used:

$$P_{it} = \beta_0 + \beta_1 \text{CPR}_{it} + \varepsilon_{it}$$

$$P_{it} = .060 + .001 \text{CPR} + \varepsilon_{it}$$

In step 2 of the mediation model, multiple regression was made to check the association between WCL (independent variable) and the intervening variable (WCF) excluding the outcome variable.

Table 4.16: Model of Goodness of Fit with Working Capital Financing as Dependent Variable and Working Capital Level (CPR) as Predictor.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.343 ^a	.118	.107	.34151

a. Predictors: (Constant), Cash Position Ratio

The regression model produced $R^2 = .118$, $F(1, 87) = 11.585$, $p < .05$. The model reveals a statistically significant relationship between working capital financing (mediator) and WCL (independent variable). This is an indication that CPR is a significant predictor of WCF. Cash Position Ratio accounted for only 11.8% of the variance in WCF. Research findings reveal that the strength of the relationship between CPR and WCF was statistically significant ($p < .05$).

Table 4.17: Model of Overall Significance with Working Capital Financing as Dependent Variable and CPR as Predictor

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.351	1	1.351	11.585	.001 ^b
Residual	10.147	87	.117		
Total	11.498	88			

a. Dependent Variable: Working Capital Financing

b. Predictors: (Constant), Cash Position Ratio

The analysis from the model had F value of 11.585, a $p < .05$ and as such the findings were sufficient to support the influence of CPR on WCF implying that CPR is a significant predictor of WCF as shown in Table 4.17.

Table 4.18: Regression Coefficients with Working Capital Financing as Dependent Variable and Working Capital Level as Predictor

Model		Unstandardized Coefficients		T	Sig.
		B	Std. Error		
1	(Constant)	-.732	.066	-11.108	.000
	Cash Position Ratio	-.141	.041	-3.404	.001

a. Dependent Variable: Working Capital Financing

The regression coefficient (β) value of CPR was -0.141 (p -value $<.05$). In modelling for the effect of CPR on WCF the equation below was used:

$$WCF_{it} = \beta_0 + \beta_1 CPR_{it} + \varepsilon_{it}$$

$$WCF_{it} = - .732 - 0.141CPR_{it} + \varepsilon_{it}$$

In step 3 of the mediation model, the simple regression was performed to assess the association between WCF (intervening variable) and ROA (Profitability).

Table 4.19: Model Goodness of Fit with Profitability (ROA) as Dependent Variable and Working Capital Financing as Predictor

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 Working Capital Financing	.143 ^a	.021	.009	.03649

The regression model produced $R^2 = .021$, $F(1, 87) = 1.827$, $p > .05$. The model reveals a weak non-statistically significant relationship between working capital financing (WCF) and ROA (profitability) of manufacturing firms in Uganda. This is shown in Table 4.20 and Working Capital Level accounted for only 2.1% of the variance in profitability.

Table 4.20: Model Overall Significance with Return on Assets as Dependent Variable and Working Capital Financing as Predictor

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.002	1	.002	1.827	.180 ^b
1 Residual	.116	87	.001		
Total	.118	88			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Working Capital Financing

The analysis from the model had F value of 1.827, a $p > .05$, the findings were not sufficient to support the influence of WCF on profitability implying that WCF is not a significant predictor of Profitability.

Table 4.21: Model Regression Coefficient with Return on Assets as Dependent Variable and Working Capital Financing as Predictor

Model	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
(Constant)	.066	.007	9.469	.000
1 Working Capital Financing	.015	.011	1.352	.180

a. Dependent Variable: Return on Assets

The study findings indicate that WCF is not a significant predictor of Profitability.

The regression coefficient (β) value of WCF was .015 and the strength of the relationship between WCF and ROA was not statistically significant ($p > .05$). In modelling for the effect of WCF on Profitability the equation below was used:

$$P_{it} = \beta_0 + \beta_1 WCF_{it} + \varepsilon_{it}$$

$$P_{it} = .066 + .015WCF_{it} + \varepsilon_{it}$$

The fourth step of the intervention analysis was performed to assess the relationship between ROA (dependent variable), WCF (intervening variable) and working capital level (CPR). The model reveals a non-statistically significant relationship between working capital level, working capital financing (WCF) and ROA (profitability) of manufacturing firms in Uganda. Working Capital Level and WCF jointly accounted for only 2.8% of the variance in ROA as in Table 4.22.

Table 4.22: Model Goodness of Fit with Profitability (ROA) as Dependent Variable and Working Capital Level and Working Capital Financing as Predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.166 ^a	.028	.005	.03657

a. Predictors: (Constant), Working Capital Financing, Cash Position Ratio

The regression model produced $R^2 = .028$, $F(2, 86) = 1.224$, $p > .05$. The model reveals a non – statistically significant relationship among CPR, WCF and ROA (profitability). Working Capital Level together with Working Capital Financing accounted for 2.8% of the profitability. The research findings indicate that CPR and WCF are not significant predictors of Profitability.

Table 4.23: Model Overall Significance with Return on Assets as Dependent Variable and Working Capital Level and Working Capital Financing as Predictors

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.003	2	.002	1.224	.299 ^b
	Residual	.115	86	.001		
	Total	.118	88			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Working Capital Financing, Cash Position Ratio

The analysis from the model had F value of 1.224, a $p > .05$, the findings were not sufficient to support the influence of WCL (represented by CPR) together with WCF on profitability implying that WCL and WCF are not significant predictors of profitability.

Table 4.24: Model Regression Coefficient with Return on Assets as Dependent Variable and Working Capital Level (CPR) and Working Capital Financing as Predictors

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	.073	.011	6.668	.000
1 Cash Position Ratio	.004	.005	.793	.430
Working Capital Financing	.018	.011	1.539	.127

a. Dependent Variable: Return on Assets

The regression coefficient (β) value of CPR was .004 ($p > .05$). The regression coefficient (β) value of WCF was .018 ($p > .05$). In modelling, for the effect of working capital level (CPR) and WCF on Profitability, the equation below was used:

$$P_{it} = \beta_0 + \beta_1 \text{CPR}_{it} + \beta_2 \text{WCF}_{it} + \varepsilon_{it}$$

$$P_{it} = .073 + .004 \text{CPR}_{it} + .018 \text{WCF}_{it} + \varepsilon_{it}$$

Intervention occurs if independent variable (WCL) predicts ROA and the model (model 1) is statistically significant, WCL predicts WCF and the model (model 2) is statistically significant, WCF predicts ROA and the model (model 3) is statistically significant and the joint effect of WCL and WCF on ROA is statistically significant (model 4). It was hypothesized that there was no intervening effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda and therefore the null hypothesis (H_2) was supported.

4.6.3 The Moderating Effect of Firm Size on the Relationship between Working Capital Level and Profitability of Manufacturing Firms in Uganda

The third objective of this study was to determine the effect of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda. The study predicted that the moderating effect of firm size on the relationship between WCL and profitability of manufacturing firms in Uganda is not statistically significant. Hierarchical multiple regression analysis was used to assess if the association between working capital level (measured using CPR) and profitability was moderated by firm size. To assess the effect of firm size on the relationship between working capital level and profitability, the following hypothesis was tested.

Hypothesis 3: The moderating influence of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant

The moderating effect was assessed using the method proposed by Baron and Kenny (1986). In order to test moderating effect, first there is need to predict the outcome of dependent variable (ROA) from the predictor variables (WCL and Firm Size). Generally the model should be significant. Secondly the independent variables and the moderator are centered and interaction term created by multiplying the independent variable and the moderator (CPR*Size). The interaction term is then entered in the regression equation to determine whether the moderator variable alters the strength of the causal relationship. The R^2 change should be significant as well as the interaction term ($p < .05$). If both are significant, then moderation is occurring.

In step 1, the results of hierarchical multiple regression predicting ROA from Working Capital Level (measured using CPR) and Firm Size are reported in Table 4.26.

Table 4.25: Model Goodness of Fit with Profitability (ROA) as Dependent Variable and Working Capital Level (CPR), Firm Size and Interaction Term (CPR*Size) as Predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.393 ^a	.154	.135	.03410	.154	7.844	2	86	.001
2	.393 ^b	.155	.125	.03430	.000	.042	1	85	.839

a. Predictors: (Constant), Firm Size, Cash Position Ratio

b. Predictors: (Constant), Firm Size, Cash Position Ratio, Interaction term (CPR*Size)

The multiple regression model (model 1) produced Adjusted $R^2 = .154$, $F(2, 86) = 7.844$, $p < .05$. The model (model 1) reveals a statistically significant relationship between ROA, CPR (independent variable) and Firm Size (moderator). The variability accounted for by firm size and WCL (measured using CPR) on profitability is 15.4% leaving 84.6% to be explained by other factors.

In step 2 (model 2), the interaction between CPR and Firm Size (CPR*Size) was entered into the regression equation. The change in variance accounted for (ΔR^2) was equal to .042, which was not statistically significant increase in variance accounted for over the step one model as shown in Table 4.26. Model 2 shows that the relationship between ROA, CPR, Firm Size and the interaction term (CPR*Size) jointly was statistically significant, $R^2 = .155$, $F(3, 85) = 5.185$, $p < .05$ as shown in Table: 4.26 Model 2 accounted for 15.5% of the variance in ROA ($R^2 = .155$) leaving 84.5% to be accounted for by other factors.

Table 4.26: Model Overall Significance with Return on Assets as Dependent Variable and Working Capital Level (CPR), Firm Size and Interaction Term (CPR*Size) as Predictors

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.018	2	.009	7.844	.001 ^b
	Residual	.100	86	.001		
	Total	.118	88			
2	Regression	.018	3	.006	5.185	.002 ^c
	Residual	.100	85	.001		
	Total	.118	88			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Firm Size, Cash Position Ratio

c. Predictors: (Constant), Firm Size, Cash Position Ratio, Interaction term (CPR*Size)

As shown in Table 4.27, prior to consideration of the interaction term (model 1), the regression coefficient (β) value of CPR was 0.002 with a *t*-test of 0.474 and significance level (*p*-value) of .637. The regression coefficient (β) value of Firm Size was -.011 with a *t*-test of -3.949 and significance level (*p*-value) < .05. After consideration of the interaction term, the regression coefficient of CPR remained at 0.002 and it was not statistically significant (*p* > .05). The beta coefficient of Firm Size was -.010 and it was statistically significant (*p* < .05). The interaction term (CPR*Size) was not statistically significant ($\beta=0.001$, *p* > .05) as shown in Table: 4.27.

Table 4.27: Model Regression Coefficients with Return on Assets as Dependent Variable and Working Capital Level (CPR), Firm Size and Interaction Term (CPR*Size) as Predictors

Model	Unstandardized Coefficients		t	Sig.	Collinearity Statistics		
	B	Std. Error			Tolerance	VIF	
1	(Constant)	.313	.064	4.864	.000		
	Cash Position Ratio	.002	.004	.474	.637	.998	1.002
	Firm Size	-.011	.003	-3.949	.000	.998	1.002
2	(Constant)	.311	.066	4.706	.000		
	Cash Position Ratio	.002	.004	.486	.628	.991	1.009
	Firm Size	-.010	.003	-3.807	.000	.958	1.043
	Interaction term (CPR*Size)	.001	.003	.204	.839	.952	1.050

a. Dependent Variable: Return on Assets

Hypothesis three (H₃) explored the relationship between ROA, Working capital level (measured using CPR) and Firm Size in manufacturing firms in Uganda by suggesting that the moderating influence of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant. The value of R^2 change was 0.042 as shown in Table 4.25 and results were not statistically significant. The interaction term was not statistically significant ($p > .05$). This indicates that Firm Size has no moderating effect on the relationship between ROA and WCL and therefore null (H₃) was supported. The regression equation is as follows:

$$ROA = .311 + 0.002CPR_{it} - .010Size_{it} + 0.001CPR*Size_{it} + \varepsilon_{it}$$

4.6.4 The Joint Effect of Working Capital Level Dimensions, Working Capital Financing Approaches and Firm Size on the Profitability of Manufacturing Firms in Uganda

The fourth objective of this study was to determine the joint effect of WCL dimensions, Working capital financing and Firm Siz on profitability and multiple regression analysis was used.

Hypothesis 4: The joint effect of working capital level, firm size and working capital financing approaches on profitability of manufacturing firms in Uganda is not significant.

Table 4.28: Model Goodness of fit with Profitability (ROA) as Dependent Variable and Working Capital Level Dimensions, Working Capital Financing and Firm Size as Predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.416 ^a	.173	.123	.03432

a. Predictors: (Constant), Days Inventory Outstanding, Working Capital Financing, Days Sales Outstanding, Cash Position Ratio, Firm Size

The multiple regression model with all the four predictors produced $R^2 = .173$, $F(5, 83) = 3.478$, $p < .05$. Results of this study indicate that WCL dimensions, WCF and Firm Characteristics jointly affect profitability. Working Capital Level, WCF and Firm Size jointly explained 17.3% of the variance in ROA (profitability), $R^2 = 0.173$. The overall model reveals a statistically significant relationship between Profitability (ROA), WCL dimensions, WCF and Firm Characteristics ($p < .05$) as shown in the table 4.29.

Table 4.29: Model Overall Significance with Return on Assets as Dependent Variable and Working Capital Level constructs, Working Capital Financing and Firm Size as Predictors

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.020	5	.004	3.478	.007 ^b
Residual	.098	83	.001		
Total	.118	88			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Days Inventory Outstanding, Working Capital Financing, Days Sales Outstanding, Cash Position Ratio, Firm Size

As shown in Table: 4.30, the regression coefficient (β) value of CPR was 0.001 with a t -test of 0.145 and significance level (p -value) of .885. The regression coefficient (β) value of WCF was -.006 with a t -test of .013 and significance level (p -value) of .657. The regression coefficient of Firm Size was -.012 and it was statistically significant ($p < .05$).

Table 4.30: Model Regression Coefficient with Return on Assets as Dependent Variable and Working Capital Level, Working Capital Financing and Firm Size as Predictors

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
1 (Constant)	.324	.072	4.488	.000
Working Capital Financing	-.006	.013	-.445	.657
Firm Size	-.012	.003	-3.558	.001
Cash Position Ratio	.001	.005	.145	.885
Days Sales Outstanding	.001	.006	.219	.827
Days Inventory Outstanding	.006	.004	1.290	.201

Dependent Variable: Return on Assets

$$P_{it} = \beta_0 + \beta_1 WCL_{it} + \beta_2 WCF_{it} + \beta_3 FC_{it} + \varepsilon_{it}$$

$$P_{it} = .324 + (.001CPR_{it} + .001DSO_{it} + .006DIO_{it}) - .006WCF_{it} - .012FC_{it} + \varepsilon_{it}$$

The results in Table: 4.30 depicts a statistically significant relationship between all the variables combined together with profitability basing on the model of overall significance. It can be concluded that null hypothesis H_4 was rejected..

4.7 Discussion of Findings

This section presents the discussion from the findings of the descriptive statistics, the diagnostic tests, correlation analysis and regression analysis. The discussion is in line with the findings and test of each hypothesis based on the general objective of the study which was to examine the relationship among WCL, working capital financing approaches, firm characteristics and profitability of manufacturing firms in Uganda.

4.7.1 Descriptive Statistics Discussion

Results of the descriptive statistics indicate that ROA has a mean of 15% implying that profitability generated from total assets is 15% on average. Return on Assets can be used to assess the financial health of a company as it indicates how efficiently a company uses assets to generate profits and this is consistent with Ghosh et al., (2000) who confirmed that ROA measures the efficiency of assets in producing income. A positive ROA means that the firms were on average profitable however, some firms had negative ROA which is an indication that they were suffering losses. Many factors may cause losses such as paying for unnecessary expenses, mismanagement of assets especially the financial assets, failure to produce quality products and failure to tap market for the goods produced at the appropriate time.

Some firms had cash and cash equivalent that was zero an indication that all cash was being used up in operations that would generate profit and this was consistent with Pathirawasam (2013) who found that liquidity had an effect on ROA. However, some firms that had small values for cash and cash equivalent could have considered that amount as immaterial and thus ignored and considered that as a zero. An amount that is immaterial is that which may have a very small impact on the financial statements and when an audit is carried out, the auditor may consider such value as immaterial in his independent opinion. However, the magnitude of materiality depends on the policies of the firm.

Some firms had a minimum of Days Sales Outstanding as 0.3 implying that such firms had very strict policies regarding accounts receivable though in Uganda it is very difficult not to have a big amount of accounts receivable and such firms would be very few. This could also imply that the prices for cash sales are very attractive and much lower than credit sales and this forces clients to pay cash on delivery. Selling at low prices impacts the returns of the firms and recovering money from accounts receivable very fast would bring about costs like discounts allowed which would have an effect on profitability and selling on cash basis may result into reducing the price which will in turn affect the profitability of the firm. It was also evident from the descriptive statistics that some inventory takes a long period of time to convert to cash in some manufacturing firms, this was consistent with Panigrahi (2013) who examined the relationship between the inventory conversion period and profitability of firms and discovered that there existed a significant linear relationship between inventory conversion period and firms' profitability.

4.7.2 Diagnostic Tests Discussion

To ensure that the data was parametric, the study used diagnostic tests such as the normality test which was carried out by the use of the Shapiro – Wilk test as this was deemed to be the most powerful of all normality tests. Two of the variables (WCL and WCF) had a significant value that was less than .05 an indication that the two had distribution that was not normal. The data was therefore transformed to ensure the normality assumption is adhered to in order to proceed with analysis. Results after data transformation showed that the test was insignificant indicating that the distribution was not statistically different from a normal distribution and this showed the models were good for testing and thus making the study was reliable. The test for linearity was made and there was a fairly linear relationship and the test for multicollinearity as shown in Table 4.27 showed that the predictor variables were not highly correlated. The test for homoscedasticity was performed and the variations were roughly similar as a random array of dots was exhibited.

4.7.3 Correlation Analysis Discussion

Correlation analysis was done to examine the variables in terms of nature, strength and direction of the relationship and the Pearson Product Moment was employed. Table 4.9 depicted a weak, positive and non - significant correlation between ROA and WCF this implies that any change in WCF will have a very trivial effect on profitability and when WCF changes, profitability will change in the same direction but the change will be very small and this is largely attributed to the way the financial managers manage the financing aspect, it is more likely in the Ugandan context that managing finances is very poor and this is inclined to the policy regarding financing and thus if a financing policy has high interest like the conservative policy, profitability would be reduced and

it is the reason why the change in profitability is very small. This is a reflection that most Ugandan manufacturing firms apply the conservative policy of financing and this is consistent with Mwalla, 2012. Return on Assets and CPR had a very weak, positive and non – statistically significant relationship this implies that when CRP changes, profitability will change positively in the same direction but the change will be extremely small, this implies that liquidity in manufacturing firms may enhance profitability and this will depend on the way it is managed. It is evident in Uganda that it is not well managed and it is the reason why the impact on profitability is very trivial. Days sales outstanding and ROA had a very weak, negative and a non – statistically significant relationship implying that as DSO increased, ROA reduced and this implies that as the days of recovering money from the debtors increased, profitability reduced meaning that cash was tied up in debtors and operations in firms would not move on well to improve profitability this was consistent with Nkwankwo & Osho, 2010.

Days inventory outstanding had a very weak. Positive and non – statistically significant relationship with profitability, as DIO increased, profitability also increased but with a very small margin this is probably because it requires a lot of input to reach the level of finished goods. Size and ROA had a negative though statically significant relationship and this implied that as size increased, profitability reduced significantly. There could be a number of reasons why size of a firm may not reflect in firm profitability. Firms in different industry may reflect low profitability regardless of size due to nature of goods produced. Consistent with the current study, Goddard, Tarakoli & Wilson, (2005) analyzed and showed evidence that a firm's size had a negative relationship with profitability and inconsistent with the study, Almazari, 2013 discovered that as size increases in a manufacturing firm, profitability increased.

Working Capital Financing and CPR had a negative, moderate and statistically significant relationship implying that as CPR increases, WCF decreases significantly meaning that a high CPR is an indication of high liquidity and therefore a manufacturing firm will not suffer liquidity problems in that there will be enough funds to even cater for accounts payable which is a source of finance if settling them is delayed. Working Capital Financing and DIO had a weak, positive and non – statistically significant relationship implying that as DIO increases, WCF also increase but with a very trivial effect. Working Capital Financing and size had a negative and statistically significant relationship implying that as size increases, WCF reduces significantly.

Cash Position Ratio and DSO had a weak, negative and non – statistically significant relationship and this implied that as DSO increased, the CPR reduced meaning that when much money is tied up in debtors the liquidity will reduce and this calls for the attention of financial managers to have policies of recovering money fast though costs may crop up. When costs crop up, profitability will be impacted by such costs. The relationship between CPR and DIO was weak, positive and non – statistically significant implying that as DIO increases, CPR increase though at a very slow rate this is probably because the input in the production of a manufacturing firm consumes a lot of funds. The relationship between CPR and Size is weak, positive though non – statistically significant implying that as size increases, CPR also increases but at a very slow rate this is probably because size increase requires additional funding which will affect the CPR.

The relationship between DSO and DIO was positive, slightly weak though statistically significant and this implied that as DIO increased, DSO also increased in the same direction this probably means that in the Ugandan context as more goods are produced more sales are made on credit basis. The relationship between DSO and size was moderate, positive and statistically significant implying that as size increases, DSO increases significantly. This means that as a manufacturing firm grows in size there would be an automatic increase DSO as this will translate from big volumes of production and when production is high, there is likely to be high sale on credit. The relationship between DIO and size was weak, positive and non – statistically significant and this implied that as size increased, DIO also increased though at a slow rate and this means that as Ugandan manufacturing firms increase in size, production also increases and this may in turn increase the day's sales outstanding.

4.7.4 Relationship between Working Capital Level and Firm Profitability

The first specific objective of the study was to analyze the relationship between WCL and profitability of manufacturing firms in Uganda. Hierarchical linear regression analysis was applied to ascertain the association between WCL as the predictor variable and profitability as the outcome variable. It was hypothesized that the relationship between working capital level and profitability was not significant.

The regression results confirmed the findings from the correlation as they depicted a weak and non – statistically significant relationship between WCL and firm profitability and showed that WCL has little or no influence profitability and this is not consistent with Gartia – Teruel and Martinez – Solano (2007).

The working capital level in the current study comprised cash level (CPR), accounts receivable level (DSO) and inventory level (DIO). The cash level position was measured using the cash position ratio (CPR) and this was operationalized as cash and cash equivalent in relation to current liabilities. When the cash and cash equivalent figure is higher than the current liabilities, then it implies that there is more than enough liquidity to settle the CL. Cash and cash equivalent represents the assets that can quickly be converted into cash. Firms always desire to have enough liquidity as too much or too little of it may have adverse effects on firm returns and therefore a high ratio is an indication that the manufacturing firm has liquidity. This ratio measures the percentage of realization of cash out of sales proceeds and the higher the ratio, the better will be the management of cash or idle cash will be minimized and this may affect profitability.

A firm desires to have an optimal level of liquidity as too much liquidity has an adverse effect on profitability. On the other hand, little liquidity translates into not having enough inventory and inability to settle expenses. An optimal level of cash position is therefore desired by the firms. In the Baumol Theory (1952), a cash management model was designed for determining firm's optimal balance under certainty. The model assumed that the firm is able to forecast its cash needs with certainty and that cash payments are uniform over a period of time. Uniformity of cash flows is a contradiction of the reality in that it is almost impossible to have uniform cash flows as financial requirements of firms defer. Liquidity is a vital aspect of firms and this is consistent with Mathuva (2010) when the shorter the time in recovering from customers, the higher the profits. It must be ensured that the three constructs are maintained at the optimal level because having them in excess or having inadequacy of these constructs may cause adverse effects to returns of the firm.

However, in the Ugandan context the cash payments cannot be uniform in the manufacturing firms as manufacturers differ in line of production and therefore there will be variations in the payments. In addition, Moyer, Meguigar & Kretlow (2002) discovered that cash levels are of paramount importance to the liquidity position of a firm and if they are well maintained, they will save the firm from bankruptcy. Chatterjee (2010) was consistent with current study as he discovered a significant negative relationship between liquidity and profitability of the United Kingdom companies implying that when liquidity is high, profitability will be low and vice versa.

Accounts receivable level denotes the degree to which inventory of finished goods has been sold out on credit. Inventory is sold out on credit to clients who are trust worthy and have a proven record in their credit status. Both cash sales and credit sales are combined to make up the total turnover of the business implying that they have an influence on firm profitability. The level of accounts receivable has been measured by $\text{Accounts Receivable} \times 365 / \text{Net Sales}$, this can also be referred to as the Days Sales Outstanding. When this ratio is high, it implies that it is taking too long to recover funds that are tied up in accounts receivable and if the ratio is low, this implies that obtaining funds tied up in accounts receivable is fast and therefore the firm has enough liquid to produce and have a high rate of turn over which influences the profitability.

As regards the study, Uganda manufacturing firms have a high ratio of days sales outstanding and therefore take many days to recover from the accounts receivable which affects the profitability. The number of credit sales outstanding highly depends on the nature of the goods produced and the kind of clients. If clients are government institutions, they may take a long period of time to settle their debts and this will

translate into many days of sales outstanding. Goods such as iron sheets when sold on credit could cause a very high DSO because in the Ugandan context, when iron sheets are sold to government institutions like schools and hospitals, the government may take a very long period of time to settle their accounts payable. Among the firms used is Roofings Uganda Ltd and this is one of the firms that is financially distressed which may be attributed to a very high number of days in DSO. This explains the very high figure in the descriptive statistics. If the ratio of Days Sales Outstanding is high, costs crop in like bad debts and discounts allowed which in turn impact the level of profitability. Financial managers in manufacturing firms should ensure that the ratio of days sales outstanding is kept as low as possible. A high rate of turnover on the other hand may imply costs of recovering debts which would also influence profitability. A perfect credit policy may happen to be there but firms that matter will still suffer from increasingly delayed payments by especially would be reliable customers such as government institutions or local government authorities.

There are institutions that advertise tenders and are won by appropriate suppliers in as far as the set criterion by the awarding institutions are fulfilled. This however, does not normally guarantee prompt payment for the goods because such tenders involve large quantities and are hence attractive to suppliers. Many unpredictable issues come into play and this delays payment by Government institutions making it harder and always a struggle for a cheque to come through. This adversely affects the working capital of the firm that supplied the tendered material. The Cash Conversion Cycle Theory (Hager, 1976) links well with accounts receivable as it emphasizes shortening the recovery period of accounts receivable. When the CCC is reduced, the days sales outstanding is likewise reduced and as such, this theory appears relevant because it is a working capital theory.

The inventory level was yet another construct of working capital level and its measurement was $\text{Average inventory} \times 365 / \text{Cost of goods sold}$. Inventory level comprises the following; raw materials, partially finished inventory and inventory of finished goods. The ratio of rate of turn over which measures the level of inventory is a clear signal of the movement of inventory in the manufacturing firm. The level of inventory could be improved by employing sales promotion techniques such as advertising which on the other hand has a cost associated with it. It should be done at the lowest cost possible because when this ratio is high, it is an indication that inventory is being turned very fast and this implies that there is an enhancement in firm profitability. Consistent with the study, Barbosa and Louri (2005) found that the inventory negatively impacted on profits and even suggested that large inventories created a drag on firm profitability.

Padachi (2006) found out that a high investment in inventories had an association with a low profitability level that could be true if the rate of turnover is low. Deloof (2003) also analysed a sample on Belgium industries and his findings were that firms could improve in performance by reducing the period for inventory conversion. Ogbo, Victoria and Ukpere (2014), who studied the relationship between effective systems of inventory management and firms' performance, found that flexibility in inventory control management was important to enhance firms' profitability. The Cash Conversion Cycle commences from payment for procurement of raw materials up to the time when finished goods are sold and cash has been obtained and this links the cash conversion cycle theory to inventory level. Mathuva (2010) had his focus on working capital management and profitability and according to his findings, there was a direct association between days' inventory and profitability. His perception was that firms with high levels of inventory influence costs and cut down challenges like lack of inventory that may lead to loss of customers.

The research findings of this study were consistent with other researchers like Dong and Su (2010) who used secondary data to investigate working capital management and profitability of manufacturing firms in Vietnam. As the working capital constructs, they applied cash conversion cycle, inventory level and accounts receivable level and related them to profitability. Resultant observations held that long hold of inventory had a negative effect on profitability and similarly, a longer or shorter accounts receivable period influenced profitability of firms, their focus was basically management of the levels with an aim of getting to optimal levels. Lazaridis and Tryfonidis (2006) carried out a somewhat similar study on working capital and profitability. They applied levels of inventory, accounts receivable level, cash conversion cycle and accounts payable level and these had a negative impact on gross operating income. This result differed probably because they used accounts payable as one of the variables. Vida et al., (2011) investigated cash conversion cycle and profitability of 101 listed firms on Tehran Stock Exchange during the period 2004 -2008. Pearson Correlation and multiple regression were used to test hypotheses and findings were that cash conversion cycle had a significant relationship with profitability. These studies also differed from the current study in that they were carried out in developed nations and they did not use both moderating and mediating variables. It was not possible to have a composite variable for the independent variable as the two constructs had the same measure and the cash position ratio had a different measure which was ratio (CPR).

The null hypothesis (H_1) to this objective was that the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant. The null hypothesis (H_1) therefore failed to reject as the findings from all the analyses did not depict a significant and positive relationship between working capital level and firm profitability.

4.7.5 Mediating Effect of Working Capital Financing Approaches on the Relationship between Working Capital Level and Profitability

The second specific objective of the study was to assess the effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda. It was hypothesized that mediating effect of working capital financing approaches on the relationship between working capital level and profitability was not significant. In testing null H_2 , the CPR was used to represent WCL as this ratio checks the financial health of the business like WC. It indicates the extent to which a firm can settle its current obligations without involving inventory sale or depending on accounts receivable. The CPR is the fulcrum of WCL as both DSO and DIO are inputs to the CPR when they have been converted into cash. When inventory of raw materials has been turned into cash or accounts receivable if sold on credit, and when accounts receivable settle their debts, the cash position level is improved.

Under regression analysis, the study determined the mediating effect of WCF on the relationship between WCL and firm profitability and this was approached statistically. Mediation occurs when an effect on a variable is through another variable (mediator) Baron & Kenny, (1986). For mediation to take place three conditions must be met thus; (1) the independent variable must significantly affect the dependent variable, (2) the mediating variable also significantly affects the dependent variable and (3) the independent variable should have a significant effect on the mediating variable. Condition (3) was met but conditions (1) and (2) had relationships that were insignificant.

The first step in mediation involved regressing profitability on WCL and the constructs of WCL were cash level (CPR), accounts receivable level (DSO) and inventory level (DIO). Cash level is the liquidity position of the manufacturing firm and so must be managed carefully as firm operations revolve around liquidity, CPR represented the WCL dimensions. Cash level as a pertinent aspect of manufacturing firms is consistent with Sharma and Kumar (2011) when they state that cash conversion period exhibits a positive relationship with profitability.

Accounts receivable arise when manufactured items are sold on credit basis to clients with a proven record and are expected to settle the debt within one year or else may turn into a bad debt that would negatively affect the profits. Credit risk crops in and this refers to the probability that the receivables will default despite vetting their integrity or regardless of the effectiveness of the credit policy the firm may have put in place. A firm may have vetted her customers for integrity and financial health to determine their credit worthiness which however does not completely eliminate the risk of customer defaulting. If such a customer had been sold large quantities on credit and eventually happen to default, it will have an adverse effect on the WC of such a firm and decisions have to be quickly taken to devise mitigating solution to close the created gaps.

Manufacturing firms in Uganda offer credit to trust worthy customers so accounts receivable are on the higher side as compared to cash basis and precaution is taken to ensure that the money is recovered. This is consistent with Gill et al., (2010) who analysed 88 listed firms of New York Stock Exchange (NYSE) for a three year period and showed a clear connection between the CCC and profitability and their study affirmed possibility of managers to create profit for their companies if they maintained

an optimal level of accounts receivable. Inconsistent with the study, Dong and Su (2010) also assert that a shorter accounts receivable period would influence profitability of a firm. Consistent with the current study are Similogh and Akgum (2016) who investigated manufacturing firms in Turkey and their findings showed a significant and negative relationship between accounts receivable period and return on Assets (ROA).

Inventory level is part of WCL and is very pertinent in the contribution it makes towards profitability. There are few firms whose input can be obtained locally and majority of firms do import large quantities of inputs for production, thus this makes them vulnerable to change in exchange rates. The value of inputs at delivery time may be different at settlement time of the invoice of the supplier. This is true given the fact that the firm transacts in local currency. In Uganda currency exchange is a big problem and as such a big impact on firms payables. A high level of inventory being held is an indication of low profitability and a low level of inventory may imply high profitability or low cash level to manage operations of a firm. Garcia – Teruel and Martinez – Solano (2007) are in agreement when they argued that company profitability can be improved by reducing the number of inventory holding days. Inventory level should be maintained at the optimal level to reduce on the costs that are associated with high inventory level like storage costs and costs associated with low level of inventory like loss of customer loyalty. The current study is also consistent with Dong and Su (2010) who assert that long hold of inventory would have a negative effect on profitability.

Inconsistent with the study, Mathuva (2010) asserts that high levels of inventory influence costs and cut down challenges like lack of inventory that may lead to customers for failure to provide enough products. Kasozi (2017) is not in agreement as

he discovered a positive and significant relationship between number of days inventory and profitability and this is not in line with the current study. However, Sharma and Kumar (2011) examined effect of WC on profitability of Indian firms and their study revealed that inventory negatively correlated with profitability.

The constructs of WCL linked well with the Resource - Based theory which involves the ability of business managers to put emphasis on effective management of current assets of the business (Alvarez & Busenitz, 2001). The Agency theory whereby by an agent is entrusted by the owner of the firm should ensure that resources invested in the firm in form of current assets are well utilized to yield fruit. The first condition of mediation was not met as WCL and profitability were not statistically significant.

The second step of mediation was regressing WCF on to WCL and this had results that were statistically significant. Working capital financing considers the policy as regards financing the firm, and may either be aggressive, conservative or moderate as regards effect on profitability and liquidity. According to Weinraub and Visscher (1998), the approach of finance of a firm is crucial and has an effect on profitability. And this is consistent with the current study which states that WCF has a positive relationship though not statistically significant.

Basically, three approaches exist for working capital financing. They are as follows; the conservative financing approach is a technique by which the firm decides to use more of long term source of finance and less of short term means finance to finance its working capital. This is an extreme method of financing working capital. This approach commits a higher percentage of capital in liquid assets as opposed to productive assets

(Al – shubiri, 2011). This decision means that the firm's finance is going to suffer a high interest (that is foregoing low cost finance); this will create an adverse effect on the firm's profit despite the avoidance of liquidity problems. The firm will primarily fund all its permanent current assets and most of its fluctuating current assets using long-term source of finance. When it chooses to adopt a conservative policy, it is only a small percentage of its fluctuating CA that is financed by short-term source of finance. The Ugandan manufacturing firms are discouraged from obtaining long term finance because of the high interest rates and as a result the conservative strategy may may not be appropriate. The results are not consistent with Al – Mwalla (2012) who discovered that a conservative policy had a positive effect on the profitability and value of the company.

In contrast, the aggressive financing strategy is where a firm primarily finances all its fluctuating CA and most of its permanent CA using short term source of finance and only a small proportion of its permanent CA are financed by long term source of finance. Such a firm that adopts the use of short term finance more than long term source of finance, will incur less cost but against a high risk of cash and inventory shortage. Between the conservative and aggressive WC financing strategies lies what is termed as moderate strategy. It is termed moderate because those who adopt it use long term source to finance permanent current assets and short term source to finance fluctuating CA. The approach opted for to finance WC by a firm is therefore very important since it will have an impact on its profitability and liquidity (Weinraub & Visscher, 1998), this is not consistent with the current study. The financing approach used in the manufacturing firms in Uganda is dependent on the policies of a particular firm. Interest rates cannot be overlooked in WC financing and this refers to the

chances that the financial institution will charge their lending rates over the year. Lending rates are normally affected by the economic situation in the country. If the economy is stable the rates are expected to remain stable and if the economy is unstable chances are that the lending rates are bound to rise. This will affect both short term and long term borrowing. Higher than budgeted borrowing rates will influence the firm 's decision to go for a loan or find alternative cheaper finance for short term cash shortages or cheaper finance to acquire new fixed assets.

Step three involved regressing profitability on working capital financing. Working capital financing was the independent variable and profitability the dependent variable and findings from the study indicated a significant and positive relationship. This implies that any change in WCF, there would be a small change in profitability. The fourth step in assessing the mediation effect on the relationship between WCL and profitability entailed a multiple regression analysis with WCL, WCF and profitability and the relationship was not statistically significant. Since three of the four steps of Baron and Kenny (1986) were not upheld and all the regression coefficients of three of the four steps were statistically insignificant, then it can be concluded that WCF was not a mediating variable of the relationship between WCL and profitability. Objective number two was to assess the effect of working capital financing approaches on the relationship between working capital level and firm profitability of manufacturing firms in Uganda. The null hypothesis (H_2) was that the intervening effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant. The null hypothesis (H_2) therefore failed to reject.

4.7.6 Moderation of Firm Size on the Relationship between Working Capital Level and Firm Profitability.

The third specific objective was concerned with moderation of firm size on the relationship between working capital level and firm profitability. The null hypothesis stated that the moderating influence of firm size on the relationship between working capital level and firm profitability is not significant. There could be a number of reasons why size of the firm may not reflect in firm profitability and according to the findings, size as a firm characteristic did not moderate the relationship between WCL and profitability.

Size had a p – value $> .05$ meaning that the relationship was insignificant and by such it is very normal to think that a large establishment and large enough firm would be benefitting from economies of scale which interprets in being able to suffer low production costs compared to the smaller firms, whose production costs would automatically interpret in low profitability and this has not been the case. Despite the size, these firms have indicated low profitability as compared to smaller firms in the same industry and this could be due to nature of industry thus firms in food industry have different profit levels from those in other manufacturing industries due to differences in costs of production and the nature of products. Food industries like Hot loaf Ltd in Uganda produce goods with a short expiry date than other goods from other manufacturing industries of different sectors.

Firms in different industry may reflect low profitability regardless of size due to nature of goods produced. Consistent with the current study, Goddard, Tarakoli et al., (2005) analysed the European manufacturing and services industries and showed evidence that

a firm's size had a negative relationship to profitability. Unlike this finding, Nunes & Serrasqueiro (2008) addressed that the size of small and medium firms had a positive and significant correlation with profitability whereas an insignificant relationship between size and profitability was observed in large Portuguese firms. Inconsistent with the study, Almazari, (2013) discovered that as size increases in a manufacturing firm, profitability increased. In the same vein Chatterjee, (2010) found that there exists a positive relationship between size of the firm and its profitability. Akoto et al (2013) assert that firm size significantly and positively affect profitability.

It can be argued that among the many reasons why size has had an insignificant reflection on firm profitability is the fact that firms have been able to adopt, develop or improve in many areas that have given them a competitive edge over others. This has been common especially with new firms that have redesigned their operation process that have enabled them to improve on the goods produced at a competitive price or that has kept them ahead of other long standing firms, even with similar production in technology. Realization of good profitability may be highly dependent of good firm management, on the contrary, Banos – caballero et al. (2010), argues that larger firms usually get external financing more easily and under better conditions, so they tend to have more working capital. If external financing is not well managed, the firm will not bear fruit and this will have an effect on profitability.

4.7.7 Relationship of the Joint Effect of Working Capital Level, Working Capital Financing and Firm Size on Firm Profitability

The joint effect of working capital level, working capital financing and firm Size on firm profitability was significant and therefore were significantly influencing profitability since their P value was less than .05. The joint effect among WCL, WCF

approaches and firm size on profitability was significant ($P < .05$). This implies that all predictor variables combined together have a positive and significant effect on profitability.

4.8 Chapter Summary

The Secondary data was obtained from audited financial reports filed with the Uganda Revenue Authority for a period (2011 to 2015). The study used correlations and regressions to analyze the data by the use of SPSS version 20.0,. This analysis involved the use of adjusted R and R^2 to determine the relationship between the variables.

Descriptive statistics were used on the study variables of the manufacturing firms in Uganda and this aimed at investigating the characteristics of the variables of manufacturing firms in Uganda. Proxies for all the constructs were taken into consideration. The standard deviation was computed so that closeness of data to the mean is taken into consideration. Mugenda and Mugenda (2003) assert that descriptive statistics provide the basic features of the data collected on variables and provide the impetus for conducting further analysis on data.

Diagnostic tests were made to confirm that data was parametric and these included tests for normality where the Shapiro – Wilk (1965) was performed as per Table 4.8. the p – value was greater than .05 which is an indication of normality. The linearity test was performed to confirm data is observed in a straight line. Graphical methods and a plot of standardized residuals against standardized estimates (Fitted values) of the dependent variables showed a random pattern an implication that non - linearity was absent. Homoscedasticity was tested to confirm that the variance of one variable is stable at all levels or relatively similar.

The study revealed that the correlation between the log transformed ROA (profitability) and WCF is positive, weak though non – statistically significant ($r = .143$, $p > .01$). Relationship between ROA and Cash Position Ratio was very weak and non – statistically significant ($r = .030$, $p < .01$). Similarly relationship between ROA and Days Sales Outstanding was negative, very weak and non – statistically significant ($r = -.087$, $p < .01$). The relationship between ROA and Days Inventory Outstanding was weak, positive and non – statistically significant ($r = .095$, $p < .01$). Relationship between ROA and size is negative, moderate and statistically significant ($r = -.390$, $p < .01$). The relationship between WCF and CPR is negative and statistically significant ($r = -.343$, $p < .01$). Similarly, the relationship between WCF and Firm size was also negative and statistically significant ($r = -.437$, $p < .01$). Relationship between WCF and DSO was weak though positive and non – statistically significant ($r = .108$, $p < .01$). Relationship between WCF and DIO was very weak, positive and non – statistically significant ($r = .083$, $p < .01$). The relationship between Cash Position Ratio and DSO was negative, and non – statistically significant ($r = -.070$). The relationship between CPR and DIO was weak and non – statistically significant ($r = .117$, $p < .01$). Relationship between CPR and size was very weak and non – statistically significant ($r = .043$, $p < .01$). The relationship between DSO and DIO is positive, weak and statistically significant ($r = .234$, $p < .01$). The relationship between DSO and size is moderate and statistically significant ($r = .311$, $p < .01$). Results also showed a very weak, positive and not statistically significant relationship between DIO and size ($r = .099$, $p < .01$).

Regression analysis was performed and the four null hypotheses were tested. The results from objective one showed the relationship was weak and insignificant and therefore the null hypothesis (H_1) failed to reject. Results from objective two showed that the intervening variable (WCF) could not mediate the relationship and therefore the null hypothesis (H_2) failed to reject. Results from objective three depicted that firm size was not a true mediator of WCL and Profitability and therefore null hypothesis (H_3) failed to reject. Results from objective four showed that the joint effect of WCL, WCF and Firm Characteristics on Profitability had a statistically significant relationship and therefore the null hypothesis (H_4) was rejected.

4.9 Summary of Objectives, Hypotheses and Decision

The following table shows the objectives and hypotheses of the study. It also indicates the decision that was taken and this was dependent on the findings from the analysis.

Table 4.31: Objectives, Hypotheses and Decisions

Objectives	Hypotheses	Decision
To analyze the relationship between working capital level and profitability of manufacturing firms in Uganda	The relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.	Failed to reject
To assess the effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda	The intervening effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.	Failed to reject
To examine the effect of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda	The moderating influence of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda is not significant.	Failed to reject
To establish the joint effect of working capital level, working capital financing approaches and firm size on the profitability of manufacturing firms in Uganda	The joint effect of working capital level, working capital financing approaches and firm size on profitability of manufacturing firms in Uganda is not significant.	Rejected

Source: Author, 2018

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and recommendations of results of the working capital level, working capital financing, firm size and profitability of manufacturing firms in Uganda. The chapter also identifies the theories, limitations of the study and areas for future research.

5.2 Summary of the Findings

The main purpose of the study was to empirically establish the relationship that exists between Working Capital Level and Firm Profitability. The study also aimed at testing the intervening variable (Working Capital Financing) and the moderating variable (Firm Size) on the said relationship. The data for the study was collected from 38 manufacturing firms.

The first objective of the study was to analyze the relationship between working capital level and profitability of manufacturing firms in Uganda. It was hypothesized that the relationship between WCL and Profitability of manufacturing firms in Uganda was not significant. Results showed that the relationship between the two variables was not statistically significant and as such the null hypothesis (H_1) failed to reject.

The second objective of the study was to assess the mediating effect of working capital financing approaches on the relationship between working capital level and profitability of manufacturing firms in Uganda. The study predicted that working capital financing approaches has no statistically significant intervening effect on the relationship between

working capital level and profitability of manufacturing firms in Uganda. Having gone through four stages of Baron and Kenny (1970) results revealed that the relationship of Working Capital Financing as a mediator of WCL and Profitability was not statistically significant and therefore the null hypothesis (H_2) failed to reject.

The third objective of this study was to determine the effect of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda. The study predicted that the moderating effect of firm size on the relationship between working capital level and profitability of manufacturing firms in Uganda is not statistically significant. Results revealed that the interaction effect of firm size was not statistically significant and therefore the null hypothesis (H_3) failed to reject.

The fourth objective of this study was to determine the joint effect of Working capital Levels, Working capital financing and Firm Size. The study predicted that the joint effect of working capital Level, Working Capital Financing, Firm Size and Profitability was not significant. Results revealed that the overall model had a statistically significant effect on the dependent variable and therefore the null hypothesis (H_4) was rejected.

5.3 Conclusion of the Study

The current study aimed at analyzing the relationship among working capital level, working capital financing, firm size and profitability of manufacturing firms in Uganda. The study was grounded on the assumptions of the Baumol Theory, Cash Conversion Cycle Theory, Resource Based Theory, Net Trade Cycle Theory and the Agency Theory together with the Positivist Philosophy which tested four quantitative hypotheses.

The first objective was to analyze the relationship between working capital level and profitability of manufacturing firms in Uganda. According to the research findings, a weak and non - significant relationship was displayed between working capital level and profitability implying that any change whether positive or negative in the constructs of working capital level will have no influence on firm profitability. If the cash level is high, it is an implication of sufficient liquidity but on the other hand, may cause idle cash and this does not generate any profit. A high level of accounts receivable is an indication of high sales implying high profits though on the other hand, may bring about costs like bad debts and cash discounts. When inventory level is high, wastage may crop up. The optimal level of working capital constructs is desired. The insignificant relationship between working capital level and profitability is evident.

The second objective was to assess the effect of working capital financing approaches on the relationship that exists between the working capital level and profitability of firms operating in manufacturing industry in Uganda. Four steps of Baron and Kenny (1986) were employed and the outcome revealed a non - significant relationship as the working capital financing could not intervene the relationship of working capital level and firm profitability. It can therefore be concluded that working capital financing is not a true mediator of working capital level and firm profitability.

The third objective was to assess the effect of firm size as a moderator of working capital level and profitability of manufacturing firms in Uganda. Firm size was the variable under investigation. The findings revealed that firm size did not moderate the relationship between working capital level and profitability of manufacturing firms. It can therefore be concluded that Firm size is not a true of working capital level and firm profitability.

The fourth objective was to establish the joint effect of working capital level, working capital financing and firm size on profitability of manufacturing firms in Uganda. The findings revealed that the joint effect of all the variables on the dependent variable was statistically significant and therefore influenced firm profitability.

The findings reveal that Ugandan manufacturing firms are highly dependent on working capital as depicted in the large figures of current assets. It suggests that the theoretical underpinnings of the following theories; The Boumol Theory(1952) which is used to determine the firm's optimal cash balance, this theory relates to cash level position, however it has some limitations. The Resource – Based Theory (Grant, 2001) links well with accounts receivable level as it emphasizes effective management of current assets. The Cash Conversion Cycle Theory (Hager, 1976) has a link to the inventory level and the Net Trade Cycle Theory (Soenen, 1998) indicates the sales period that a firm has to finance. All the above theories are in support of this study and therefore the results of this study offer support to some of the theories. There is no study known by the researcher that has been similar to the current study. The uniqueness of this study is brought by the mediating and moderating variable being used jointly with working capital level on firm profitability. Conclusively, the findings of this study indicate that working capital level and working capital financing do not significantly influence firm profitability.

5.4 Recommendations

In view of the above writing, it is appreciated that this study was neither final nor exhaustive and therefore made recommendations that may guide future researchers and practitioners in the domain of financial management.

This study could help manufacturers as well on the ways of improving working capital level which will in turn have a positive effect on firm profitability. The study also examines the relevance of working capital financing and its influence on firm profitability as an intervening variable. Working capital financing did not significantly relate to firm profitability and therefore manufacturers should know where to lay emphasis so as to improve profitability of their undertakings. They should bear in mind that a well-financed firm may not necessarily translate into high profits, the management of operations may have to come into play regarding the finances.

The Government on the other hand should sensitize the manufacturers through conferences and seminars on how to improve on the financial management. Financial management gives techniques on how the optimal levels of the working capital components could be obtained. Optimal levels enable manufacturers to avoid unnecessary costs and avoid wastage of resources. Manufacturing firms are a source of employment and if the Government extends a helping hand, the level of un employment may be reduced to an extent especially among the youth and may be by 2040 as envisioned by the Ugandan government, Uganda will be at a much better level and manufacturing firms would be absorbing a big number of youths in form of employment.

5.5 Policy Implications of the Study

The general aim of this study was to assess the joint effect of working capital level, working capital financing, firm characteristics and profitability of manufacturing firms in Uganda. This objective sought to address the wide spread failure of some manufacturing firms in Uganda. Academicians around the globe have questions about failure of manufacturing firms and have dwelt on working capital management and profitability of manufacturing firms unlike the current study that has emphasized working capital level and in addition have used a mediator of working capital financing and the moderator of firm characteristics.

Size as the moderator had no significant effect on firm profitability. The findings of this thesis revealed that financial managers in manufacturing firms should pay much attention on the working capital level and working capital financing and firm size and check the impact they may have on profitability. Any change in any of the two variables, a resultant change may not be reflected in the level of profitability meaning that there are other factors that financial managers need to investigate in depth that bring about low profitability or even losses in manufacturing firms.

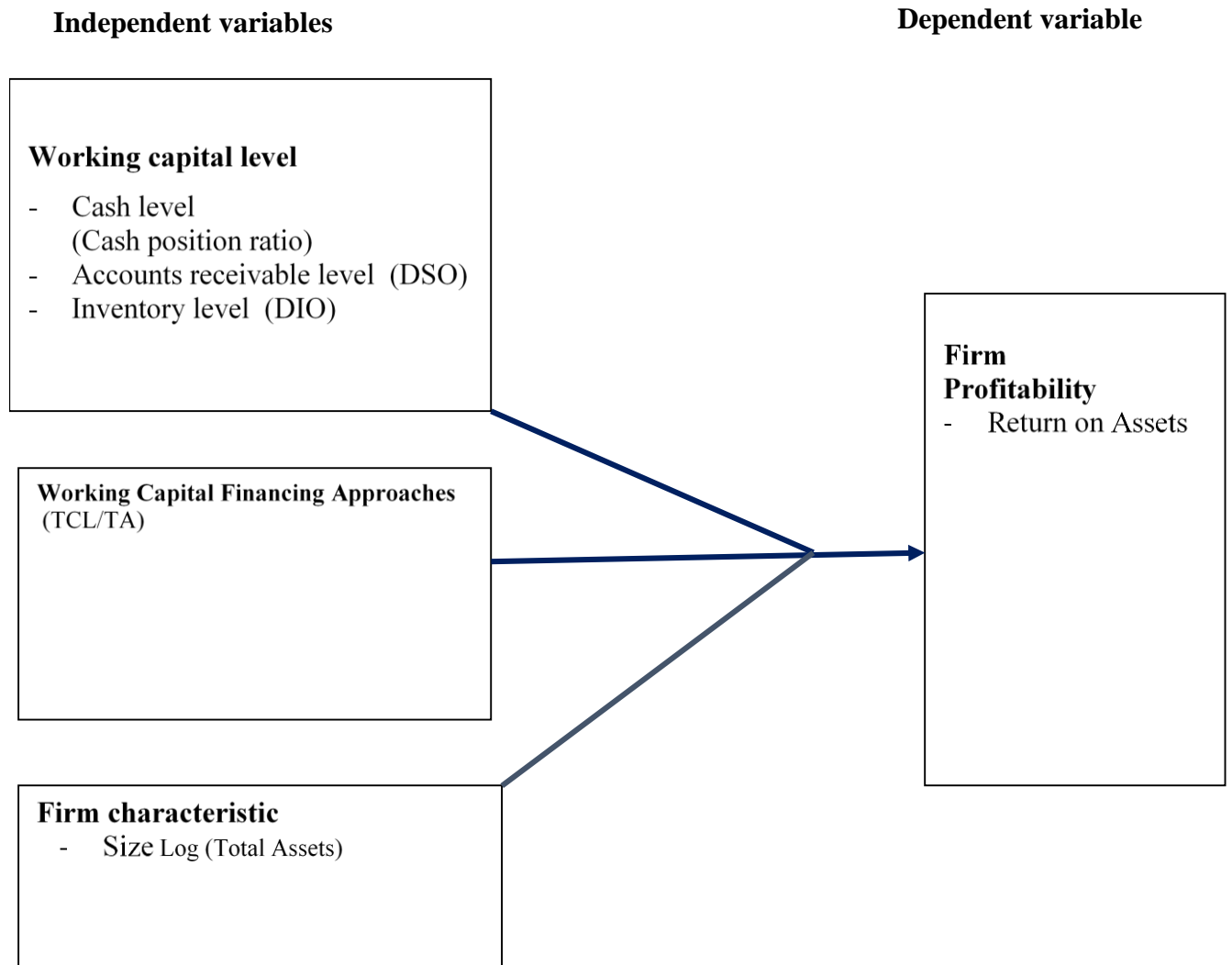
5.6 Contributions of the Research Findings

Despite the variations in the results reported on the joint effect of working capital level, working capital financing and firm characteristics on profitability of manufacturing firms in Uganda, this study also contributes to both the body of knowledge and managerial policies and practice. The study adopted a positivistic paradigm which calls for statistical data analysis. And any study based on scientific inquiry and testable hypothesis serves the purpose of either validating the theory or disproving it.

The study used working capital level as the predictor variable and profitability as the outcome variable. The study incorporated the intervening variable which was working capital financing approaches and firm size served as the moderator and among the studies investigated that were accessed, none had considered all the four variables in one study and therefore this contributes to the body of knowledge.

The present study adds value to the existing theories in the management of working capital level constructs. The WCL constructs thus, cash level, accounts receivable level and inventory level all surface in the Cash Conversion Cycle Theory, the Resource – Based Theory, Net Trade Cycle Theory and the Agency theory and as all these are resources of the firm, they require effective management by whoever may be in charge and if duty is delegated to the agent, must ensure that they are well managed so as to enhance profitability of the manufacturing firm.

Figure: 4.10 Final Model



Source: Researcher 2018

The final depicts that Working Capital Level, Working Capital Financing and Firm size jointly have a significant relationship with profitability.

5.7 The Central Thesis

Profitability of manufacturing firms in Uganda is partially explained by Working Capital Level, Working Capital Financing and Firm Size.

5.8 Limitations of the Study

Compiling and computing of data for this study was not without challenges that had to be taken into consideration. The study used working capital level as the independent variable and profitability as the dependent variable. The study incorporated the intervening variable and firm characteristics served as the moderator. Among the studies investigated that were accessed, none had considered all the four variables in one study and therefore this study did not have any previous studies to compare with that had exactly similar variables. Studies available for comparison had fewer variables, had there been studies of the same magnitude, the study would have compared or even revealed issues that may have been left out.

Another limiting factor was found in the accessing of the required financial data from manufacturing firms. Some of the manufacturing firms were quite rigid in availing financial statements, as they claimed that such statements were not available for public viewing and as a result the sample was adversely affected. Again some had different sets of financial statements tailored for different purposes for example they could have a set for the Uganda Revenue Authority which would differ from that prepared for bank or lending institutions. To harmonize the study the one prepared for the Uganda Revenue Authority was used since they are more authoritative.

Firms having data for the said five years (2011 – 2015) was very difficult to obtain as firms begin operations at different periods of time. A firm may have the data for five years but when this data is ranging from 2009 – 2013 and important to note, for some reason or the other, some firms that had been sampled did not have all the data for the five years. Some of the firms had sets of data for only four years that could be obtained

while others only sets of data for three years were available. Worse still, while some sampled firms had all sets of data for five years, some key aspects would be found missing such as figures for operating expenses, opening inventory and of Earnings After Tax which figures were very pertinent to the study. In the event firms with serious missing data which could not reasonably be mitigated were left out firms that were considered are those that had all the data that was required. This adversely affected the response rate as some firms were left out.

5.9 Areas for Further Research

In this section, suggestions for further research in areas related to this study are given. In future, it is recommended that an investigation be carried out to address the limitations of the current study. Future researchers could consider carrying out the same study and using the same variables in different countries and preferably countries that are more developed than Uganda for comparative purposes. It would be worthwhile comparing findings of different countries.

Since firm size was not found to be significant in moderating the relationship between working capital level and firm profitability, another moderator like leverage could be used to test this kind of relationship. Variables in this study may be measured differently by different scholars given the importance of the situation at hand. A comparable study could also be made to compare results with a moderator that is different from size that was used in the study.

The study employed ROA (Return on Assets) as the proxy for profitability. Operationalized it as EAT/Total Assets. Further research may be carried out to check how other measures of profitability relate to the variables in this study for example

ROCE (Return on Capital Employed). This could be done to check whether results vary and the cause of the disparity would be investigated. These very variables could also be used in businesses that are not manufacturing like trading enterprises the outcomes of which would be compared with manufacturing firms which the current study dwelt upon.

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APPENDICES

APPENDIX I: RECORDS SURVEY SHEET FOR COLLECTION OF SECONDARY DATA

Sector

.....

Year of establishment

Name of Firm (Optional)

.....

	AMOUNT IN UG SHS				
	2011 '000'	2012 '000'	2013 '000'	2014 '000'	2015 '000'
1. Sales					
2. Cost of sales					
3. Gross profit					
4. Profit before tax and interest					
5. Current assets					
6. Current liabilities					
7. Working capital					
8. Non-current assets					
9. Accounts payable					
10. Accounts receivable					
11. Inventories					
12. cash and bank balances					
13. Return On Assets					
14. Total Assets					

APPENDIX II: LIST OF MANUFACTURING FIRMS IN UGANDA

GRAIN MILLING SECTOR

1. Maganjo Grain Millers Ltd
2. Nsava Poultry & Animal Feeds
3. Muma Feeds Ltd
4. Bakhresa Grain Milling
5. East African Basic Foods Ltd
6. Seba Foods (V) Ltd
7. Kengrow Industries Limited
8. Bazaar Millers

BAKERY AND MANUFACTURE OF OTHER FOOD PRODUCTS

9. Ahmed Raza Foods Industries Ltd
10. Aya Biscuits Group of Companies
11. Bakhresa Grain Milling (U) Ltd
12. Britannia Allied Industries Ltd
13. Hamriss International Ltd
14. Nntake Bakery And Co. Ltd
15. Hariss International Ltd – Plain Biscuits
16. Peanut Research and Processing Centre
17. Kakira Sweets and Confectionary
18. Smooth Ayurvedic Pharmacy Private Ltd
19. Kanoovi Foods Ltd
20. Mayuge
21. Sugar Corporation

PROCESSING OF MEAT, FISH AND DAIRY PRODUCTS

22. Huqdar Guandong Chines Co Ltd
23. Isopack (I) Ltd
24. Kyotera Victoria Fish Net Co. Ltd
25. Amos Dairies Ltd
26. Fidodido Industries Ltd
27. G.B.K. Group of Companies
28. Sameer Agriculture and Livestock Ltd
29. Dematrade Limited (Birungo Dairy Industries)
30. Pearl Dairy Farms Ltd
31. Premier Dairies Ltd
32. Jesa Farm Dairy Limited
33. Hillside Dairy and Agriculture
34. Ponders Limited
35. Maama Omulungi Dairy Limited
36. Rainbow Industries Limited
37. Brookside Ltd
38. Sameer Agriculture and Livestock Ltd

VEGETABLE OIL AND OIL PRODUCTS

39. A.K. Oils & Fats (V) Ltd
40. Al Safa Agro Limited
41. Bidco Uganda Limited
42. Sameer Agriculture and Livestock Ltd
43. Mount Meru Millers (V) Ltd

- 44. Pearl Dairy Farms Limited
- 45. Mukono Industries Limited

PETROLEUM JELLY, COSMETIC & PERSONAL CARE PRODUCTS

- 46. Abbo Chemical Plant Co Ltd
- 47. Abacus
- 48. Rene Pharmacy
- 49. Medisell
- 50. Movit Products Limited
- 51. Mukwano Personal Care Products Ltd
- 52. Uki (U) Ltd
- 53. Nema Company Limited
- 54. Royal Care Cosmetic (V) Limited
- 55. Amagara Skin Care Limited
- 56. Sun Industries Limited
- 57. Nevia Co. Ltd
- 58. Movit Products Limited
- 59. Amagara Skin Care Limited

TEXTILES, LEATHER AND GARMENTS

- 60. Dagen Leather
- 61. Fly World Investment Company Ltd
- 62. Golden Industries Ltd
- 63. Alpha Woolens (V) Ltd
- 64. Beniva Limited
- 65. Chrisan Designs Ltd
- 66. Vision Impex (V) Ltd
- 67. Bata Ltd
- 68. Com foam (U) Ltd
- 69. Euroflex Ltd
- 70. Tuffoam (U) Ltd
- 71. Euroflex Limited

SOAP AND DETERGENTS

- 72. Tasco Industries Limited
- 73. Ask Products Limited
- 74. BPC chemicals
- 75. Sadoline Paints
- 76. Mukwano Industries Ltd
- 77. Bidco Uganda Ltd
- 78. Sino Africa
- 79. Star Pharma
- 80. Mount Products Ltd

WINE, ALCOHOL AND SPIRITS

- 81. 3R International Ltd
- 82. Aarce Distillers Ltd
- 83. Kengrow
- 84. Premier Distillers Ltd
- 85. Nileagro
- 86. Norbrook

87. Max Distillers Limited
88. Four Star Beverages Ltd
89. King Albert Distilleries Ltd
90. Gama Distillers (V) Ltd
91. West Nile Distilled Co. Ltd
92. Ledo (V) Ltd
93. Premier Distillers Ltd
94. Senakiro Distillers Ltd
95. Leading Distillers Ltd
96. Uganda Breweries Ltd

SOFT DRINKS AND BEVERAGES

97. House of Eden (V) Ltd
98. Delight (V) Ltd
99. Britania Allied Industries Ltd
100. Crown Beverages
101. G.B.K Juice Processing Industry (V) Ltd
102. Kazire Health Products Ltd
103. Sameer Agriculture and Livestock Ltd
104. Agro Value Limited
105. Hariss International Limited
106. Sharda Beverages (P) Limited
107. Sai Beverages Limited
108. Orchard Beverages Ltd
109. Ahmed Raza Food Industries Ltd
110. Multilime International Ltd
111. Super Great General Commercial Agencies
112. Senakiro Distillers Limited
113. Orchard Beverages Ltd
114. Harmony Banana Juice Ltd
115. Uga coff
116. Ruwenzori Commodities Ltd
117. Mpanga Growers Tea Factory Ltd
118. Mabale Growers Tea Factory Ltd
119. Igara Growers Tea Factory Ltd
120. Madhrani Group Tea Division Ltd
121. Bridge Commodities Ltd
122. Hema beverages
123. Kiboko Ltd
124. Nakana Coffee Ltd

WOODS, FURNITURE & WOOD PRODUCTS

125. Capital Saw Mills Ltd
126. Africa Polysac
127. Busoga Forestry Co. Ltd
128. Nile Plywoods (U) Limited
129. New vision Ltd
130. Monitor Ltd
131. Transpaper (U) Ltd

ROOFING

132. Steel rolling Ltd
133. Steel Tubes Ltd
134. Tororo Steel Works
135. Uganda Baati
136. Uganda Clays Ltd
137. E.A Roofing Ltd

NATURAL MINERAL WATER

138. NC Beverage Ltd
139. House of Eden (U) Ltd
140. Rwenzori Bottling Co. Ltd
141. Mukwano Industries Ltd
142. Balaji Group (E.A) Ltd
143. Blue Wave Beverages Ltd
144. Hema Beverages Ltd
145. Semliki dairy & Beverages (U) Ltd
146. White Nile Dairies Ltd
147. Bannabikira Industrial Development Ltd
148. Vin View International Ltd
149. Bliss Enterprises (U) Ltd
150. Pure Products Limited
151. Boss Beverage International Limited
152. Sunshine Beverages Co. Ltd
153. Wistemia Limited
154. Wavah Water Limited
155. Tan Industries Limited
156. Aqua Pure Limited
157. Tatgem (U) Limited
158. Best Drinks Industry Limited
159. Forefront Industries Limited
160. Nile Derivative Limited
161. Dalem (U) Limited
162. Ntake Bakery and Co. Ltd
163. Expedito Investments Ltd
164. Joso Investments Ltd
165. (U) Limited
166. Dakshin (U) Limited
167. Miirya Pure Natural water Ltd
168. Malayika Enterprises Ltd
169. Twahir Beverages Ltd

Source: UMA Business Register 2015

Appendix III: Krejcie and Morgan Table

EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENT
1970, 30, 607-610.

DETERMINING SAMPLE SIZE FOR RESEARCH ACTIVITIES

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The ever increasing demand for research has created a need for an efficient method of determining the sample size needed to be representative of a given population. In the article "Small Sample Techniques," the research division of the National Education Association has published a formula for determining sample size. Regrettably a table has not been available for ready, easy reference which could have been constructed using the following formula.

$$s = X^2 NP(1 - P) \div d^2(N - 1) + X^2 P(1 - P).$$

s = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

$$1.96 \times 1.96 = 3.8416$$

N = the population size.

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (.05).

No calculations are needed to use Table 1. For example, one may wish to know the sample size required to be representative of the opinions of 9000 high school teachers relative to merit pay increases. To obtain the required sample size enter Table 1 at $N = 9000$. The sample size representative of the teachers in this example is 368. Table 1 is applicable to any defined population.

The relationship between sample size and total population is illustrated in Figure 1. It should be noted that as the population increases the sample size increases at a diminishing rate and remains relatively constant at slightly more than 380 cases.

REFERENCE

Small-Sample Techniques. *The NEA Research Bulletin*, Vol. 38 (December, 1960), p. 99.

TABLE 1
Table for Determining Sample Size from a Given Population

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size.
S is sample size.