THE EFFECT OF WORKING CAPITAL ON FINANCIAL PERFORMANCE OF MANUFACTURING FIRMS IN NAIROBI COUNTY

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, UNIVERSITY OF NAIROBI

OCTOBER 2014
DECLARATION

I the undersigned do declare that this Research Project is my original work and has never been presented for a degree in any other university.

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D61/60544/2013

This Research Project has been submitted for examination with my approval as the University Supervisor.

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ACKNOWLEDGEMENTS

This Research project is a product of many people’s efforts. My sincere gratitude goes to all who contributed towards the completion of this project. I will forever be grateful. I especially want to thank my supervisor, Mr. Herick Ondigo for his unreserved guidance through this project. My sincere gratitude for his constant advice and constructive criticism this project has been completed.

Finally, I thank the Almighty God for the life and strength he gave me. His protection has seen me through trying moments.
DEDICATION

I dedicate this research to my friends and family for their support, prayers and selfless assistance that this was possible. I will forever remain indebted to you all.
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<tr>
<td>ACP</td>
<td>Average Collection Period</td>
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<td>APP</td>
<td>Average Payment Period</td>
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<td>ASE</td>
<td>Athens Stock Exchange</td>
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<td>CCC</td>
<td>Cash Conversion Cycle</td>
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<td>DIO</td>
<td>Days Inventory Outstanding</td>
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<td>DSO</td>
<td>Days Sales Outstanding</td>
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<td>FS</td>
<td>Firms Size</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>ICP</td>
<td>Inventory Conversion Period</td>
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<td>NSE</td>
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<td>NTC</td>
<td>Net-Trade Cycle</td>
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<td>ROA</td>
<td>Return on Assets</td>
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<td>ROE</td>
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<td>SMEs</td>
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ABSTRACT

The objective of the study was to assess the effect of working capital on financial performance of manufacturing firms in Nairobi County. Business success depends heavily on the ability of financial managers to effectively manage the components of working capital. Efficient working capital management includes planning and controlling of current liabilities and assets in a way it avoids excessive investments. This study was conducted using descriptive research design to determine the frequency of occurrence or extent to which the variables were related. Stratified random sampling method was used to select 43 manufacturing firms from a population of 424 manufacturing firms in the 12 sectors as categorized by Kenya Association of Manufacturers in Nairobi County. The researcher relied on secondary data from audited financial statements to obtain data relating to the research question. The data was analyzed through the use of regression analysis and correlation analysis. The correlation Coefficient and Coefficient of determination were used to test whether the expected values of quantitative variable with several pre-defined groups differed from each other. The study found that there is a significant effect of working capital management on financial performance of manufacturing firms in Nairobi County. The study recommends that there should be proper credit management in manufacturing firms to avoid over investment in accounts receivables. The study also recommends proper inventory management to avoid overstocking which could negatively affect financial performance. The study further recommends policies governing leverage so as to allow manufacturing firms capture opportunities in the market while maintaining an optimal level of leverage.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Working capital is a measurement used to describe the differential between current assets and current liabilities, in other words assets that are expected to turn into cash in the near future versus liabilities that require prompt cash payment. The quality of working capital is determined by the nature of the assets and the length of time required turning those assets into cash. Positive working capital is necessary for a firm in order to be able to continue its daily operations in terms of sufficient funds to satisfy short-term debts and upcoming operational expenses (Brigham & Houston, 2007).

Working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on one hand and avoiding excessive investment in these assets on the other hand (Eljelly, 2004). The main goal of WCM is to reach and keep an optimized balance between each component of working capital (Gitman, 2009). Business success heavily depends on the ability of executives to effectively manage receivables, inventory and payables (Fielbeck and Krueger, 2005). Firms can reduce their financing costs and/or increase the firms funds available for expansion projects by minimizing the amount of investment tied up in current assets. Most financial manager’s time and effort are allocated in bringing non optimal levels of current assets and liabilities back towards optimal levels (Lamberson, 1995).
1.1.1 Working Capital

Efficient working capital management includes planning and controlling of current liabilities and assets in a way it avoids excessive investments in current assets and prevents from working with few current assets insufficient to fulfill responsibilities. The amount of working capital a firm should carry depends on its sales volume, its need for gross circulating capital relative to its sales volume and the stability of its operations. A firm’s rate of profit can be increased by economizing on the use of working capital. However, this will result in increased risks for the firm in terms of short-term financial risks (Guerard et al., 2007). According to Guerard et al. (2007), firms with stable and predictable cash receipts, current assets that are marketable, stable in value or short-term and liquid, or have low amounts of long-term debt can minimize its working capital requirements. On the contrary, firms with irregular and unpredictable cash flows and cash receipts, slow-moving inventories, fluctuating market prices, or firms that by the nature of their business are exposed to high credit risks have higher working capital needs (Guerard et al., 2007).

According to Vahid, Mohsen and Mohammadreza (2012) working capital management plays a significant role in determining success or failure of firm in business performance due to its effect on firm’s profitability as well on liquidity. Business success depends heavily on the ability of financial managers to effectively manage the components of working capital (Filbeck & Krueger, 2005). A firm may adopt an aggressive or a conservative working capital management policy to achieve this goal.
1.1.2 Financial Performance

Financial performance is the measure of how well a firm is generating value to its owners and is an important aspect in WCM. Some of the proxies of measuring financial performance include after tax profits, Return on Assets, Return on Equity and Earnings per share. Financial performance can be measured in terms of profitability which refers to the potential of a venture to be financially successful (Eljelly, 2004). This may be assessed before entering into business or it may be used to analyze a venture that is currently operating. There are three basic situations that can describe a business financial situation. It can be profitable, it can break even or it can operate at a loss. In most cases an organization goal is to make profit.

The main objective of every firm is maximizing profits but preserving liquidity is an important objective too. The problem is that increasing profits at the expense of liquidity bring serious problem to the firm and as such there must be a tradeoff between the two objectives. If we do not care about profits we cannot survive in the long run on the other hand if we do not care about liquidity we may face the problems of insolvency or bankruptcy. It’s not always easy to find out which are the right decisions that would maximize profits. For instance short run profits can be easily bumped up by avoiding maintenance and discretionary costs. Deloof (2003) measures profitability by gross operating income, which is defined as sales minus cash cost of goods sold, and this is divided by total assets minus financial assets.
For the purpose of this study, Return on Assets which is a major ratio that indicates profitability will be used. It measures the ability of management to generate income by utilizing the company assets at its disposal. In other words it shows how efficiently the resources of the manufacturing firms are used to generate the income. It further indicates the efficiency of management of a company in generating net income from all the institutions assets (Khrawish, 2011).

1.1.3 Effect of Working Capital on Financial Performance

According to Casey (1997), it is no longer sufficient to only manage hard costs, but timing of production, speed of production and payments will also be crucial to manage. What Casey is referring to could be described as focusing improvements on speeding up cash flows and utilize working capital more efficiently. In line with Casey’s (1997) statement, Jose et al. (1996) conclude that there is significant statistical evidence for an inverse relationship between return on assets, in other words profitability, and aggressive liquidity management corresponding to a fast Cash Conversion Cycle (CCC) for manufacturing companies. Hence, a faster cash flow was proven to be related to higher profitability.

According to Jose et al. (1996) there is a distinct relationship between profitability and CCC but put further emphasis on avoiding sub optimization and improved CCC for one firm on the behalf of other value chain members. They stress that CCC should be determined strategically from a supply chain perspective. They further believe that squeezing suppliers and buyers on better payment terms for the focal company only
yields short term returns. In a long term profit perspective this moves focus from Days Sales Outstanding (DSO) and Days Purchases Outstanding (DPO) to Days Inventory Outstanding (DIO). Efficient WCM is necessary for achieving both liquidity and profitability of a company. A poor and inefficient WCM leads to tie up of funds in idle assets reduces the liquidity and profitability of a company (Reddy and Kameswari, 2004).

1.1.4 Manufacturing Firms in Nairobi County

According to Kenya Economic Report 2013, the manufacturing Sector in Kenya constitutes 70% of the industrial Sector contribution to Gross Domestic Product (GDP) with building, construction, mining and quarrying contributing the remaining 30 percent. The Kenya Vision 2030 identifies the manufacturing sector as one of the key drivers in the economic pillar for realizing a sustained annual GDP growth of 10 percent geared to make Kenya a middle income country by the year 2030.

According to the Kenya Association of Manufacturers, there are 685 established manufacturing firms where 424 are located in Nairobi. The firms are categorized into twelve sectors (Appendix1) based on the products they are engaged in. The performance of the manufacturing sector according to the Kenya Economic report 2013 in terms of contribution to GDP has remained below the medium term plan and Vision 2030 targets. This has been attributed to challenges facing the sector which include low value addition, limited diversification, and high costs of production and influx of counterfeits.
1.2 Research Problem

Efficient management of Working Capital is fundamental part of overall corporate strategy in creating shareholder value. Firms try to keep an optimal level of working capital that maximizes value (Afza & Nazir, 2007). Indeed in present day operating business environment, WCM has become one of the most important issues in organizations where many managers are struggling to identify the basic working capital drivers and an optimal level of Working Capital that will facilitate the firm’s ability to meet its short term obligations when they fall due.

Several studies have been conducted both locally and abroad on how various elements impact on profitability. The effectiveness of working capital management can have significant impact on both the liquidity and profitability of a company (Shin & Soenen, 1998). For the liquidity, lacking working capital can account for inefficiencies in company’s operations when it is not able to pay off its obligations. On the other hand, without sufficient working capital the company will not either be able to provide goods and services required by customers due to lack of money to buy materials for producing goods. The company’s profitability can be compromised as a result. In addition, Lamberson (1995) showed that working capital management is of importance in managing financial aspect of a company. Many financial managers are finding it difficult to identify the important drivers of working capital management that can enhance their company profitability. Most of researchers find a strong negative cause-and-effect relationship between number of days inventories, number of days accounts receivable and cash conversion cycle with and the corporate profitability (Shin and Soenen, 1998;
Deloof, 2003; Raheman & Nars 2007); and a positive relationship between number of days accounts payable with the corporate profitability (Lazaridis & Tryfonidis, 2006). In contrast, there are few researchers provided different results.

On the other hand, Mathuva (2009), examined the influence of Working Capital Management components on corporate profitability by sampling 30 firms listed in the Nairobi Stock Exchange for the period 1993 -2008. His findings were similar to Raheman and Nasr (2007), when he concluded that there existed a highly significant negative relationship between the time it took for firms to collect cash from their customers and profitability. However he differed with Raheman and Nasr (2007) when he concluded that there exists highly significant positive relationship between the period taken to convert the inventories into sales, the time taken to pay creditors and profitability.

It’s the conflict between the findings of Mathuva (2009), and Raheman and Nasr (2007) that motivates the researcher to carry out this study on the effect of working capital on financial Performance. Local studies on working capital management in manufacturing sector have been based on those listed in Nairobi Securities Exchange which is only 4 percent of manufacturing firms leaving out 96 percent of firms in Nairobi which are private firms this study addressed. This study sought to bridge the gap by answering the following research question: What is the effect of working capital on financial performance of manufacturing firms in Nairobi County?
1.3 Research Objective

To assess the effect of working capital on financial performance of manufacturing firms in Nairobi County.

1.4 Value of the Study

The study will contribute to the theory of finance by find out which working capital metrics and drivers affect financial performance the most. It will further give suggestions on areas related to the study which require further research.

The study will be of interest to the Kenya Association of Manufacturers in that they will know extent to which each working capital metric affects profitability. This will be useful insight to take into account when lobbying on behalf of their members for working capital related policies by the government.

This study will give insight to management of manufacturing firms whose main objective is maximizing the shareholders wealth. It will enable the managers to identify and concentrate on the metrics of working capital which affect financial performance most.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter provides information from publications on topic related to the research problem. The researcher examines what various scholars and authors have said about WCM on financial performance. This chapter is divided into two: theories of working capital and empirical review.

2.2 Theoretical Review

There are various theories that support the significance of Working capital. Some of the most important theories under WCM include:

2.2.1 Transaction Costs Theory on Working Capital

Williamson’s (1985) theory deals with the theoretical concept of transaction costs as well as its implications for managing working capital operations and levels. According to Williamson (1985) a transaction occurs if a good or service is transferred across a technologically separable interface and can occur within the firm or outside the firm. Firms exist because there are transaction costs of using the price mechanism in the market (Williamson, 1985). In order to manage transaction costs firms have to design management of value chain approaches that efficiently reduce the costs of asset specific transactions.
In most developing countries, listed firms play the most fundamental role in facilitating transactions in capital markets. Of the main role of listed companies is providing economic returns to the investors. For a firm to be in a position to do so, it must be profitable and also exhibit a healthy liquidity position (Weston & Copeland, 1988). For our purpose of Working Capital Management the relevant situation is the asset specificity created due to dedicating assets to a transaction, which refers to the nature of investment the parties must make with the investment in mind. Cash is needed to satisfy the transaction motive, the need to have cash on hand to pay bills. Transaction related needs come from collection activities of the firm. The disbursement of cash includes the payment of wages and salaries, trade debts, taxes and dividends. An asset is transaction specific if it cannot be applied to alternative use without significant reduction in its value. In case asset specificity the partners to the transaction become dependent of each other. In order to minimize the potential loss firms have to incur costs which Williamson, 1985 categorizes as contact costs, cost of contract and costs of control.

2.2.2 Value Chain Theory

Porter’s (1985), value chain theory considers a firm as composed of discrete but related internal and external activities including aspects like receivables management, cash management, payables management and inventory management. This theory provides a method of breaking down these value creating chain of activities in strategically relevant activities in order to understand the behavior of costs and the sources of differentiation for the firm to remain competitive.
A firm’s success depends on how efficiently it manages its internal and external activities, which Porter (1985) divides into primary and support activities. According to Porter, primary activities are the activities involved in the products physical creation, sale, transfer and after sales service. Porter divides a firm’s primary activities into inbound logistics, operations, outbound logistics, marketing / sales and after sale services. Support activities according to Porter are activities that help primary activities and each other.

This theory is relevant to this study since working capital levels and operations are affected by the primary activities. Companies are increasing their focus on working capital management because they are being challenged to improve their financial metrics. This pressure is driving companies not only to reconsider their business strategies but also to implement appropriate supporting technology platforms – in an attempt to improve control over spending, reduce transaction processing costs, optimize inventory strategies, enable better access to financing and make more proactive use of company’s assets. Working capital restrictions and payment delays to analyze trade-offs between financial and operational metrics. Kouvelis and Zhao (2011) study a retailer’s ordering and supplier’s price setting decisions when the retailer is financially constrained. These works yield valuable insights to how and finance and operations interact, but they do not explicitly address the ambition of a cooperative approach to financing a supply chain.
2.2.3 The shareholder Value Network Model

Rappaport’s (1986) theory on shareholder value network is adapted because it explains the linkage between the corporate objective of value creation and its value drivers. He argues that to be effective, management must be guided by a set of principles that can be applied to decision making in various situations. To this effect he developed financial management approaches and principles applicable for the management of working capital. The most important approaches are the principles of shareholder value creation and the cash flow approach to decision making. The objective of shareholder value creation according to Rappaport is because owners of firms hire managers to act in order to maximize their wealth by generating profits. Therefore the creation of shareholder value creation becomes a basic approach to formulate and evaluate firm’s objectives. The value drivers are the variables that create value and are taken as the building blocks by which firms create products valuable to their buyers. Rappaport’s shareholder value network depicts the essential link between corporate objective and the basic value drivers such as working capital investment, fixed capital investment, cost of capital and value growth duration.

The additional credit that is realized by the longer payment term reduces the buyer’s working capital requirement. This is associated with increased financial efficiency as it implies that less capital is needed to run a firm’s. Identifying the value and the level of risk of solving operational underinvestment problems quantitatively is, however, by no means straightforward. New models are needed to provide insights in how operational
decisions are impacted by financing decisions in reverse factoring applications and vice versa.

2.3 Determinants of Financial Performance of Manufacturing Firms

The major determinants of manufacturing firms’ financial performance include the firm growth, leverage and firm size.

2.3.1 Growth

According to Macmillan and Day (1987) when firms work on large scale and rapidly enter the market these firms realize high profits due to the high and rapid growth of the business. It is also worth noting that high growth does not always mean that a company is performing well. Similarly low growth also does not mean that the company is performing poorly (Chandler and Baucus, 1996). Growth firms have more avenues to invest their funds and are likely to stay profitable than firms with little or no growth. Companies with high growth options might exhibit shorter Cash Conversion Cycle (Emery, 1987). It therefore follows that manufacturing firms with high growth aspects can increase their profitability by reinvesting their funds often.

2.3.2 Leverage

Leverage is expected to affect a firm’s profitability negatively. This may be explained by the suggestion that highly levered firms are softer competitors that will curtail investments (Myers 2003). So their insufficient power of competition may lead to decreases in profitability. Increase or the cost of capital decrease initially within a reasonable limit level of debt after which further increase in leverage reduces the value of
the firm or increases the cost of capital. Thus an optimum capital structure exists and it occurs when the market value of the firm is maximum and the cost of capital is minimum.

Modigliani and Miller (1958) challenged the traditional view as to the effect of leverage on the cost of capital. They developed a behavioral justification support for the net operating income approach without taxes, the cost of capital and market value remains constant throughout all degrees of leverage.

2.3.3 Firm Size

Large firms are more likely to exploit economies of scale and enjoy higher negotiation power over their clients and suppliers (Serrasqueiro and Nunes, 2008). In addition they face less difficulty in getting credit for investments, have pool of qualified human capital and may achieve greater strategic diversification (Yang and Chen, 2009). Small firms on the other hand due to limitations of scale face inefficiencies in transformation of inputs into outputs which gives rise to unparalleled competitive disadvantage relative to those operating in large scale (Winters, 2005).

2.4 Empirical Review

Many researchers in the past have studied the relationship between working capital management and profitability of various firms and they have provided evidence to support their findings.
2.4.1 International Evidence

Shin and Soenen (1998) researched the relationship between working capital management and value creation for shareholders. The standard measure of working capital management was the cash conversion cycle but in their study they used net-trade cycle (NTC) as a measure of working capital management. They used a sample of 58,985 firms in the period 1975 – 1994 where they found a strong negative relationship between the length of the firms’ NTC and their profitability. Based on their findings they suggested that one possible way to create shareholder value was to reduce the firms’ NTC. To test the relationship between working capital management and corporate profitability, Deloof (2003) used a sample of 1,009 large Belgian non-financial firms for the period 1992 – 1996. By using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian firms. Based on the study results, he suggested that managers can increase corporate profitability by reducing the number of days accounts receivable and inventories.

Lazaridis and Tryfonidis (2006) investigated the relationship between corporate profitability and working capital management. They used a sample of 131 companies listed in the Athens Stock Exchange (ASE) for the period of 2001-2004. The results of their research showed that there was statistical significance between profitability, measured through gross operating profit, and the cash conversion cycle. Moreover managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component to an optimum level.
Raheman and Nasr (2007) took a sample of Pakistani Firms listed on the Karachi Stock Exchange between 1999 – 2004, to study the effect of different variables of working capital management such as, the average collection period, inventory turnover in days, average payment period, cash conversion cycle and current ratio, on the net operating profitability. They recognized that most of these firms had large amounts of cash invested in working capital and as such management of the working capital had a significant impact on their profitability. They concluded that there was a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for these firms. Their findings suggested that managers could create value for their shareholders by reducing the number of days accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability was consistent with the view that less profitable firms wait longer to pay their bills. They further concluded that if the firms managed their working capital in more efficient ways this would ultimately increase profitability of their companies.

Dong and Su (2010) based their study on secondary data collected from listed firms in Vietnam stock market for the period of 2006-2008. They investigated the relationship existing between profitability, the cash conversion cycle and its components for listed firms in Vietnam stock market. Their finding shows that there is a strong negative relationship between profitability, measured through gross operating profit, and the cash conversion cycle. This means that as the cash conversion cycle increases, it will lead to declining of profitability of firm. As such the managers could create a positive value for
the shareholders by handling the adequate cash conversion cycle and keeping each different component to an optimum level.

Sharma and Kumar (2011) carried a study to determine the effect of WCM on profitability of Indian firms. A sample of 263 non financial firms listed on the Bombay Stock Exchange was used. Data was collected for the period 2002 to 2008. The data was analyzed using multiple regressions. The study found a positive relation between WCM and firms Profitability, although the relationship between CCC and ROA was not statistically significant. The study also found that accounts receivables are also positively related to ROA and that accounts payables are negatively related to ROA. The results also imply that Indian firms can increase profitability by increasing Cash Conversion Cycle.

Kaddumi and Ramadhan (2012), conducted a study to assess the effect of WCM on the performance of Jordanian Industrial Corporations listed at Amman Stock Exchange. They explained that there is a negative relationship of accounts collection period and average age of inventory with profitability. This implies that handling proper inventory and shortening the debtors collection period will increase the profitability. On the other hand they found positive relationship between average payment period and profitability implying that increase of payment period increase profitability.

Almazari (2013), investigated the relationship between WCM and firms profitability of Saudi Cement Manufacturing companies. A sample of eight out of the thirteen cement
companies was used and data collected for a five year period (2008-2012). Linear regression was used to analyze the data. The study found out that there is a high degree of association between WCM and profitability.

2.3.2 Local Evidence

Kiprono (2004) studied the relationship between cash flows and earnings performance measures for companies listed in the Nairobi Stock Exchange (NSE). His objective was to determine the relationship between return on assets (ROA), return on equity (ROE), and return on net assets (RONA) against the cash flows of firms. To achieve this, regression analysis was employed on thirty companies listed at the NSE. The companies were picked randomly and were analyzed for the five year period between 1998 and 2003. He concluded that there is a positive or direct association between cash flows from operating activities and all the return performance indicators. The results also showed that there is a negative or indirect association between cash flow from financing and investing activities and returns performance indicators. On overall, there is a weak relationship between cash flows and performance indicators. However, he noted that it is important to determine the impact of firm size in cash flow and earnings performance indicators.

Mathuva (2009) examined the influence of working capital management components on corporate profitability by sampling 30 firms listed on the Nairobi Stock Exchange for the period 1993 – 2008. He concluded that there existed a highly significant negative relationship between the time it took for firms to collect cash from their customers and
profitability. This meant that more profitable firms took the shortest time to collect cash from their customers. This finding was similar to that of Raheman and Nasr (2007). However, he differed with Raheman and Nasr (2007) when he further concluded that there existed a highly significant positive relationship between the period taken to convert inventories into sales, the time taken to pay creditors and profitability. This implied that the longer a firm took to pay its creditors the more profitable it was. Firms were therefore capable of gaining sustainable competitive advantage by means of effective and efficient utilization of their resource through a careful reduction of the cash conversion cycle to its minimum and in so doing the profitability of the firms would be expected to increase.

Soimo (2010) studied the relationship between WCM and profitability of State Owned Commercial Enterprises in Kenya. He took a sample of 23 firms for a period of 5 years from 2005 to 2009. He analysed his data using simple linear regression model to establish the relationship between WCM and profitability. He found that organizations operating in the same industry operating on a shorter Cash Conversion Cycle than their peers were able to report better returns.

Kamula (2011) carried a study to establish the relationship between Working Capital Management and Profitability of Cement companies in Kenya. The population of interest was all cement companies operating in Kenya as at 30-12-10. The study incorporated data for five years (2006-2010). Spearman’s Correlation analysis was used to establish the relationship between Working Capital Management and Profitability. The finding of
the study was that there is a negative relationship between WCM and profitability variables.

Runyora (2012) studied the relationship between Working Capital Management and Profitability of the Oil Industry in Kenya. A sample of 30 Oil Companies was considered for the period between 2007 and 2011. The research design used was cross sectional study. Regression analysis was used to determine the relationship between WCM and profitability. The Chi Square test, a non parametric test was used to test the goodness of fit, test the significance of association between the two attributes and test significance of population variance. The study established that most of the Oil firms profits were attributable to WCM.

Wanjiku (2013) studied the effect of Working Capital Management practices on the Financial Performance of Small and Medium Enterprises in Kenya. Her objectives were to establish the WCM practices and the effect of WCM practices on Financial Performance of SMEs in Kenya. A sample of 100 SMEs for the period of two years (2009-2010) was used. Eighty nine responses received. The study employed a regression analysis and the Pearson’s Correlation analysis to test the significance of the relationship between Working Capital Management and Financial Performance of SMEs in Kenya. She found that most of the SMEs have not established a formal Working Capital Management policy. However some SMEs carry out informal WCM as was revealed by responses in regard to WCM components. The study established that SMEs who have adopted WCM showed improvement in Return on Assets. The study concluded that there
is a significant positive relationship between financial performance and WCM of SMEs in Kenya.

2.5 Summary of Literature Review

A theoretical review indicates that there are costs related to Management of Working Capital which should be minimized. Williamson (1985) argue that efficiently reducing transaction costs create value. This is useful in relating the management of working capital operations and levels to the approaches of transaction cost management. Porter’s (1985) value chain model helps us find answers to the issue of value drivers. The theory indicates that working capital falls under primary activities which create value. The Value network model shows that managers should adopt approaches that create value to the firm while managing working capital.

Empirical evidence concurs with the theory in that Working Capital Management affects profitability. Most of the local evidence in the manufacturing industry is on the listed companies which are 4 percent leaving out the 96 percent private firms which this study will seek to address.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods to be employed to provide answers to the research objective as stated in chapter one. The following aspects of research methodology are discussed: research design, population of interest, sampling design, and data collection procedures and data analysis.

3.2 Research Design

Research design refers to the method used to carry out the research (Mugenda and Mugenda, 2003). This study was conducted using descriptive research design. Descriptive research is one in which quantitative data is collected and analyzed in order to describe a phenomenon in its current trend, current events and linkages between different factors at the current time. Descriptive research portrays an accurate profile of persons, events or situation (Robson, 2002). This design was appropriate in that based on the study objective, there was need to establish the effect of working capital the independent variable on financial performance the dependent variable.

3.3 Population

According to Cooper and Schindler (2006) a population is defined as the total collection of elements the researcher wishes to make inferences. The population of the study comprised of 424 manufacturing firms in Nairobi according to the Kenya Association of Manufacturers spread in 12 sectors (Appendix 1).
3.4 Sampling

Stratified random sampling method as described in Cooper and Schindler (2006) was used to select 43 manufacturing firms, since the population in different manufacturing firms was heterogeneous implying that simple random sample was unrepresentative. According to Cooper and Schindler (2006) every sample must have non zero probability of selection. Taking a non-zero probability of selection of 0.101 the sample size was as follows:

\[
0.101 = \text{Sample Size} \quad \text{giving a sample of 43 firms.}
\]

Table 3.1: Sample Size

<table>
<thead>
<tr>
<th>S/no</th>
<th>Sector</th>
<th>No of Firms</th>
<th>Percentage in Sector</th>
<th>Number to Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Building, Construction and Mining</td>
<td>17</td>
<td>4.01</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Food, Beverages and Tobacco</td>
<td>81</td>
<td>19.10</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Energy, Electrical and Electronics</td>
<td>38</td>
<td>8.96</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Plastics and Rubber</td>
<td>51</td>
<td>12.03</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Chemical and Allied</td>
<td>50</td>
<td>11.79</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Textile and Apparels</td>
<td>24</td>
<td>5.66</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Timber, Wood products and Furniture</td>
<td>13</td>
<td>3.07</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Pharmaceutical and Medical Equipment</td>
<td>20</td>
<td>4.72</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Metal and Allied</td>
<td>46</td>
<td>10.85</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>Leather Products and Footwear</td>
<td>8</td>
<td>1.89</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Motor Vehicle Assembly &amp; Accessories</td>
<td>25</td>
<td>5.90</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Paper and Paperboard</td>
<td>51</td>
<td>12.03</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>424</strong></td>
<td><strong>100</strong></td>
<td><strong>43</strong></td>
</tr>
</tbody>
</table>

Source: Researcher
3.5 Data Collection

The researcher relied on secondary data. Data on manufacturing firms Financial Performance and working capital were obtained from audited financial statements covering the years 2009-2013. Relevant figures for calculating Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage were used in final analysis of their effect on financial performance.

3.6 Data Analysis

The researcher ensured that key information was captured from documented sources for the period under study. The data collected was analyzed through the use of regression analysis and correlation analysis.

3.6.1 Analytical Model

The regression model below was used to determine the relationship will be of the form

$$Y_{it} = \beta_0 + \sum \beta_i X_{it} + \epsilon$$

Where,

- $Y$ = Dependent Variable at time $t$, for firm $i$
- $X_{it}$ = Independent/ Control variables for WCM of firm $i$ at time $t$
- $\beta_0$ = the constant
- $\beta_i$ = the regression coefficient or change included in $Y$ by each $X$
- $\epsilon$ = error term

The specific model is:

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{APP}_{it} + \beta_2 \text{ICP}_{it} + \beta_3 \text{ACP}_{it} + \beta_4 \text{CCC}_{it} + \beta_5 \text{FS}_{it} + \beta_6 \text{L}_{it} + \epsilon$$

Where

- ROA = Return on Assets
APP = Average Payment Period  
ICP = Inventory Conversion Period  
ACP = Average Collection Period  
CCC = Cash Conversion Cycle  
FS = Firms Size  
L = Leverage

### Table 3.2: Operationalization of the Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FINANCIAL PERFORMANCE</strong></td>
<td>Return on Assets = [\frac{\text{Net income}}{\text{Total assets}}]</td>
</tr>
<tr>
<td>Financial Performance as measured by Return on Assets</td>
<td></td>
</tr>
<tr>
<td><strong>WORKING CAPITAL</strong></td>
<td></td>
</tr>
<tr>
<td>Accounts Collection Period</td>
<td>[\frac{\text{Average Trade Receivables} \times 365 \text{ days}}{\text{Annual Credit Sales}}]</td>
</tr>
<tr>
<td>Accounts Payment Period</td>
<td>[\frac{\text{Average Trade Payables} \times 365 \text{ days}}{\text{Annual Credit Purchases}}]</td>
</tr>
<tr>
<td>Inventory Conversion Period</td>
<td>[\frac{\text{Average Inventory} \times 365 \text{ days}}{\text{Cost of Sales}}]</td>
</tr>
<tr>
<td>Cash Conversion Cycle</td>
<td>Accounts Payment Period - Accounts Collection Period</td>
</tr>
<tr>
<td><strong>CONTROL VARIABLE</strong></td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>Natural logarithm of total assets</td>
</tr>
<tr>
<td>Leverage</td>
<td>[\frac{\text{Earnings Before Interest And Taxes}}{\text{Earnings Before Interest And Taxes} - \text{Interest}}]</td>
</tr>
</tbody>
</table>

*Source: Researcher*
3.6.2 Test of Significance

Coefficient of Correlation (R) was used to establish the relationship between financial performance the dependent variable and the various metrics of working capital as the independent variables. Coefficient of Determination (R²) was used to measure the total variation of dependent variable return on assets the performance indicator that was accounted for by the variation in the independent variables. t–test was used to test the significance of WCM variables as predictors of Financial Performance of manufacturing firms. The significance of the overall model explaining performance through the independent variables was measured by F test.
CHAPTER FOUR
DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction
In this chapter, the study provided two types of data analysis; namely descriptive analysis and inferential analysis. The descriptive analysis helps the study to describe the relevant aspects of the phenomena under consideration and provide detailed information about each relevant variable. For the inferential analysis, the study used the Pearson correlation, the panel data regression analysis and the t-test statistics. While the Pearson correlation measures the degree of association between variables under consideration, the regression estimates the relationship between working capital management and firm’s financial performance. Furthermore, in examining if the working capital management is significantly different from that of firms financial performance.

Secondary data on 43 manufacturing companies was considered in the analysis. The study provided two types of data analysis; namely descriptive analysis and inferential analysis. In descriptive statistics mean, standard deviation, minimum and maximum of the sample characteristic variables were determined. The study also carried out inferential statistics to determine in depth relationship between the variables i.e. correlation, regression and tested the hypothesis using Pearson correlation coefficient.
4.2 Descriptive Statistics

The study collected data on profit after tax, book value of assets, total current liabilities, total liabilities, total assets, total current assets, annual sales, debt ratio and equity ratio. These variables were used to measure the ROA and financial policies of the manufacturing firms.

Table 4.1: Statistics for Various Measures of Working Capital Management and Financial Performance

<table>
<thead>
<tr>
<th>Measures of Working Capital Management and Profitability</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sales</td>
<td>9761333</td>
<td>18826666</td>
<td>13671295.46</td>
<td>3413666.127</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>825392</td>
<td>9584952</td>
<td>3099100.33</td>
<td>3392148.635</td>
</tr>
<tr>
<td>Total assets/Book Value of Assets</td>
<td>10212167</td>
<td>29480041</td>
<td>15843975.74</td>
<td>7594166.749</td>
</tr>
<tr>
<td>Total current liabilities</td>
<td>3161021</td>
<td>5775954</td>
<td>4641065.44</td>
<td>1072933.952</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>7867468</td>
<td>22214501</td>
<td>13712588.98</td>
<td>5322461.991</td>
</tr>
<tr>
<td>Debt</td>
<td>843935</td>
<td>3998469</td>
<td>1731723.68</td>
<td>1224434.406</td>
</tr>
<tr>
<td>Equity</td>
<td>5083536</td>
<td>8463858</td>
<td>7115899.99</td>
<td>1396717.365</td>
</tr>
</tbody>
</table>

Source: Research Findings

From the descriptive statistics of the various measures of working capital management and profitability, the total sales was KShs. 13671295.46 millions with a deviation of 3413666.127 where the minimum was KShs. 9761333 millions and the maximum was KShs.18826666 millions, average profit after tax for the period between year 2009 and year 2013 was KShs. 3099100.33 millions, average total assets or book value of assets was KShs.15843975.74 millions, the average current liabilities were worth KShs.4641065.44 millions, average total liabilities were KShs.13712588.98 millions,
average debts were worth KShs.1,731,723.68 million, while average equity was KShs. 7115899.99 millions.

Table 4.2: Average Working Capital Management and Financial Performance

<table>
<thead>
<tr>
<th>Variables</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sales</td>
<td>9761332.72</td>
<td>12246979.78</td>
<td>14880009.83</td>
<td>15644365.11</td>
<td>18826665.61</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>825391.50</td>
<td>1482609.67</td>
<td>9584952.28</td>
<td>12397200.56</td>
<td>4137368.47</td>
</tr>
<tr>
<td>Total assets/BVA</td>
<td>10344914.33</td>
<td>12219740.67</td>
<td>12749975.61</td>
<td>20057015.50</td>
<td>29480041.11</td>
</tr>
<tr>
<td>Total current liabilities</td>
<td>5629974.44</td>
<td>3161021.33</td>
<td>3551174.39</td>
<td>4786315.56</td>
<td>4941953.28</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>7867468.44</td>
<td>12751396.22</td>
<td>14191276.89</td>
<td>16605287.39</td>
<td>22214500.67</td>
</tr>
<tr>
<td>Debt</td>
<td>843935.17</td>
<td>957632.56</td>
<td>1423631.78</td>
<td>2228208.56</td>
<td>3998469.17</td>
</tr>
<tr>
<td>Equity</td>
<td>5083536.28</td>
<td>7489041.22</td>
<td>8082580.11</td>
<td>7910269.11</td>
<td>8463858.17</td>
</tr>
</tbody>
</table>

Source: Research Findings

The yearly results show that year 2013 recorded the highest average in total sales, profit after tax, total assets/BVA, total current liabilities, total liabilities, equity and debt with a general upward trend observed. The results in the table above show that profitability after tax across the 43 manufacturing firms was highest in 2013 (average 4137368.47) and lowest in 2009 (average 825391.50). Total assets recorded the highest average in the firms during year 2013 (average KShs. 18826665.61 millions) and the lowest average were recorded in year 2009 with an average of KShs. 9761332.72 millions. Other variables showed the same general increase from year 2009 to year 2013 such as the highest average total assets/BVA was KShs. 29480041.11 millions in year 2013 while the
lowest was KShs. 10344914.33 millions, the highest average total current liabilities was recorded in year 2013 with a measure of KShs.4941953.28 millions, and the lowest was 5629974.44 millions, the highest total liabilities were in 2013 as shown by KShs. 22214500.67 millions, while 2009 recorded the lowest total liabilities of KShs. 7867468.44 millions. The highest debt was in year 2013 worth KShs. 3998469.17 millions as compared to the lowest measure of KShs. 843935.17 millions in 2009, whereas the highest average equity was KShs. 8463858.17 millions recorded in year 2013 and the lowest was KShs. 5083536.28 millions in 2009. These findings seem to indicate that these ratios are time-variant.

Table 4.3: Summary Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Assets</td>
<td>-1.429</td>
<td>2.157</td>
<td>0.246</td>
<td>0.293</td>
</tr>
<tr>
<td>Average Payment Period</td>
<td>8.055</td>
<td>595.292</td>
<td>107.30</td>
<td>97.230</td>
</tr>
<tr>
<td>Inventory Conversion Period</td>
<td>0.001</td>
<td>112.83</td>
<td>29.16</td>
<td>28.003</td>
</tr>
<tr>
<td>Average Collection Period</td>
<td>0.042</td>
<td>4.847</td>
<td>39.7</td>
<td>0.399</td>
</tr>
<tr>
<td>Cash Conversion Cycle</td>
<td>390.561</td>
<td>190.209</td>
<td>28.78</td>
<td>76.945</td>
</tr>
<tr>
<td>Firm Size</td>
<td>4.55</td>
<td>4.93</td>
<td>3.0896</td>
<td>6.183</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.353</td>
<td>0.437</td>
<td>0.112</td>
<td>0.105</td>
</tr>
</tbody>
</table>

Source: Research Findings

The study first found it necessary to evaluate the performance of the firm’s financial performance variables, working capital and control variables under consideration i.e. Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash
Conversion Cycle, Firms Size, Leverage, Return on Assets. Their mean, standard deviation, minimum and maximum values were determined as indicated in Table 4.3.

The above table 4.3 shows the results of summary statistics of all the taken variables in the analysis. It provides the information about number of observation included and mean its dispersion and variability in the data. From the findings inventory Conversion Period and average payment period is averagely 29.16 days and 107.30 days respectively, cash conversion period had a mean of 28.78, leverage 0.112, average collection period 39.7, Firms size 3.0896 and the overall return on assets recorded a mean of 0.246.

**4.3 Correlation Analysis**
In this section, the study measured the degree of association between the working capital management and the financial performance (Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage and Return on Assets). From the prior statement in the previous chapters, a positive relationship is expected between the working capital management and firm’s financial performance. Table 4.4 presents the correlation coefficients for all the variables considered in this study.
Table 4.4: Pearson Correlation Analysis

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>Accounts Collection Period</th>
<th>Accounts Payment Period</th>
<th>Inventory Conversion Period</th>
<th>Cash Conversion Cycle</th>
<th>Firm Size</th>
<th>Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts Collection Period</td>
<td>.236</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts Payment Period</td>
<td>.352</td>
<td>.118</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory Conversion Period</td>
<td>.467</td>
<td>.128</td>
<td>.247</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Conversion Cycle</td>
<td>.307</td>
<td>.254</td>
<td>.254</td>
<td>.380</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>.334</td>
<td>.276</td>
<td>.353</td>
<td>.432</td>
<td>.178</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>.255</td>
<td>.232</td>
<td>.312</td>
<td>.132</td>
<td>.144</td>
<td>.188</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Source: Research Findings

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

Table 4.4 displays the correlation analysis among the Firms’ financial performance and working capital variables. The result shows that firms’ financial performance variable Return on Assets is significantly correlated to firms size with positive correlation of 0.334 and Inventory Conversion Period with positive correlation of 0.467. Firms’ Return on Assets is found to have a weak positive correlation to all the working capital variables.
4.4 Regression Analysis
The researcher conducted a multivariate linear regression analysis so as to determine whether there exists a relationship between the working capital management and financial performance of manufacturing firms listed at the Kenya Association of Manufacturers (KAM). The regression equation is therefore:

Table 4.5: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.894</td>
<td>.799</td>
<td>.694</td>
</tr>
</tbody>
</table>

Source: Research Findings

Predictors: (Constant), Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage

Dependent Variable: Return on Assets.

ANOVA was carried out to determine whether there are significant differences between two or more groups of means at a selected probability level. ANOVA findings (P-value of 0.00) in Table 4.5 show that there is correlation between the predictor’s variables (Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage) and response variable (Return on Assets).
### Table 4.6: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Regression</td>
<td>93.144</td>
<td>4</td>
<td>23.286</td>
<td>79.730</td>
</tr>
<tr>
<td>Residual</td>
<td>53.739</td>
<td>154</td>
<td>.292</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>146.883</td>
<td>158</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source: Research Findings**

a. Predictors: (Constant), Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage

b. Dependent Variable: Return on Assets

An F ratio is calculated which represents the variance between the groups, divided by the variance within the groups. A large F ratio indicates that there is more variability between the groups (caused by the independent variable) than there is within each group, referred to as the error term (Cooper & Schindler, 2011). A significant F test indicates that the null hypothesis can be rejected.

### Table 4.7: Regression Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>(Constant)</td>
<td>16.369</td>
<td>4.542</td>
<td>3.604</td>
<td>0.001</td>
</tr>
<tr>
<td>Average Payment Period (in Days)</td>
<td>0.321</td>
<td>0.332</td>
<td>0.076</td>
<td>1.256</td>
</tr>
<tr>
<td>Inventory Conversion period (in Days)</td>
<td>0.231</td>
<td>0.65</td>
<td>0.002</td>
<td>1.532</td>
</tr>
<tr>
<td>Average collection period</td>
<td>0.633</td>
<td>0.263</td>
<td>0.033</td>
<td>1.412</td>
</tr>
<tr>
<td>Cash Conversion period</td>
<td>0.553</td>
<td>0.273</td>
<td>0.063</td>
<td>1.599</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.093</td>
<td>0.137</td>
<td>0.223</td>
<td>2.681</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.535</td>
<td>0.0231</td>
<td>0.283</td>
<td>2.834</td>
</tr>
</tbody>
</table>

**Source: Research Findings**
ROA_{it} = 16.369 + 0.321\text{APP}_{it} + 0.231\text{ICP}_{it} + 0.633\text{ACP}_{it} + 0.553\text{CCC}_{it} + 0.093\text{FS}_{it} + 0.535\text{L}_{it} + \epsilon

According to the regression equation established, if Average Payment Period (in Days), Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage are rated zero then Return on assets will be 16.369. The Standardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable. The t and Sig (p) values give a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable. At 5% level of significance and 95% level of confidence, Average Payment Period had a 0.022 level of significance, Inventory Conversion Period had a 0.001 level of significance, Firm Size with a value of .0049, Leverage with a p value of .0042, Average collection period had a 0.003 level of significance, Cash Conversion period had a 0.0053 level of significance, this indicate that all the values were significant since their p values were less than 0.05.

4.3 Interpretation of the Findings

The study results found the relationship between financial performance variables and working capital and control variables under consideration i.e. Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, Leverage, Return on Assets this is shown in table 4.3. There is a significant, positive relationship between working capital and financial performance of
manufacturing firms in Nairobi. Therefore basing on these findings the study rejects the null hypothesis that there is no relationship between working capital and financial performance of manufacturing firms in Nairobi and accepts the alternative hypothesis that there exists a relationship between working capital and financial performance of manufacturing firms in Nairobi County. It provides the information about number of observation included and mean its dispersion and variability in the data. From the findings inventory Conversion Period and average payment period is averagely 29.16 days and 107.30 days respectively, cash conversion period had a mean of 28.78, leverage 0.112, average collection period 39.7, Firms size 3.0896 and the overall return on assets recorded a mean of 0.246. The results are supported by a study done by Shin & Soenen, (1998) that concludes the effectiveness of working capital management can have significant impact on both the liquidity and profitability of a company.

Table 4.4 and Table 4.5 shows the correlation analysis between the predictor’s variables (Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage) and response variable (Return on Assets). The result shows that firms’ financial performance variable Return on Assets is significantly correlated to firm’s size with positive correlation of 0.334 and Inventory Conversion Period with positive correlation of 0.467. Firms’ Return on Assets is found to have a weak positive correlation to all the working capital variables. This is supported by a number of studies; Uyar (2009) researched the relationship between cash conversion cycle with firm size and profitability of 166 firms listed on the Istanbul Stock Exchange (ISE) for the year 2007. Firm size measured by total assets and sales revenue, and
profitability is measured by return on assets and return on equity. A positive relationship between number of days accounts payable with the corporate profitability (Lazaridis & Tryfonidis, 2006). Wanjiku (2013) studied the effect of Working Capital Management practices on the Financial Performance of Small and Medium Enterprises in Kenya. Pearson’s Correlation analysis to test the significance of the relationship between Working Capital Management and Financial Performance of SMEs in Kenya. The study concluded that there is a significant positive relationship between financial performance and WCM of SMEs in Kenya.

According to the regression equation established, if Average Payment Period (in Days), Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage are rated zero then Return on assets will be 16.369. The t and Sig (p) values give a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable. Turning to empirical literature on working capital management, there are limited published studies researching the effects of working capital management on firm’s performance in Turkey. Şamiloğlu and Demirgüneş (2008) used a sample consisting of Istanbul Stock Exchange (ISE) listed manufacturing firms period 1998-2007. They analyzed 5,843 Firm / quarter data by using multiple regression model. Empirical findings of the study show that accounts receivables period, inventory period and leverage affect firm profitability negatively; while growth (in sales) affects firm profitability positively. Runyora (2012) studied the relationship between Working Capital Management and Profitability of the Oil Industry in Kenya.
The Chi Square test, a non parametric test was used to test the goodness of fit, test the significance of association between the two attributes and test significance of population variance. Wanjiku (2013) studied the effect of Working Capital Management practices on the Financial Performance of Small and Medium Enterprises in Kenya. The study employed a regression analysis to test the significance of the relationship between Working Capital Management and Financial Performance of SMEs in Kenya. The study established that SMEs who have adopted WCM showed improvement in Return on Assets. The study concluded that there is a significant positive relationship between financial performance and WCM of SMEs in Kenya.
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction
This chapter summarizes the study and makes conclusion based on the results. The implications from the findings and areas for further research are also presented. This section presents the findings from the study in comparison to what other scholars have said as noted under literature review.

5.2 Summary
The study provided two types of data analysis; namely descriptive analysis and inferential analysis. The descriptive analysis helps the study to describe the relevant aspects of the phenomena under consideration and provide detailed information about each relevant variable. For the inferential analysis, the study used the Pearson correlation, the panel data regression analysis. The study first evaluated the performance of the financial performance variables under consideration i.e. Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, and Leverage, and Return on Assets. Their mean, standard deviation, minimum and maximum values were determined.

The findings showed that inventory conversion period and average payment period is averagely 29.16 days and 107.30 days respectively, cash conversion period had a mean of 28.78, average collection period 39.7 days, firms’ size 3.0896, leverage 0.112 and the overall return on assets recorded a mean of 0.246.
The study further measured the degree of association between the working capital management and the firms’ financial performance (Average Payment Period, Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Firms Size, Leverage and Return on assets) will increase financial performance of listed firms.

The result showed that firms’ financial performance variable Return on Assets has significantly affected by account payment period with positive correlation of 0.352, Firms size with positive correlation of 0.334 and Inventory Conversion Period with positive correlation of 0.467. It was also found that other variables had a weak correlation.

From testing if working capital management have a relationship with firm’s financial performance, the Pearson correlation coefficient and p-value of 0.000 shows a weak significant, positive relationship between working capital management and financial performance of manufacturing firms in Nairobi. Therefore basing on these findings the study rejects the null hypothesis that there is no relationship between working capital management and financial performance of manufacturing firms in Nairobi and accepts the alternative hypothesis that there exists a relationship between working capital management and financial performance of manufacturing firms in Nairobi.

5.3 Conclusion

The study has investigated the relationship between working capital firms’ financial performance for manufacturing firms in Nairobi listed in Kenya Association of Manufacturers. Data have been analyzed by applying both descriptive and inferential
statistics for the time period of 2009 to 2013. It was found that inventory conversion period has negative relationship with Return on Assets which means that company’s financial performance can be increased by reducing inventory in days. Average Payment Period was found to have a significant positive association with Return on Assets, indicating that if time period of supplier’s payment is increased then overall firm’s financial performance also improves. Lastly Firms size is positively associated with ROA.

5.4 Recommendations for Policy

The study recommends that there should be proper credit management in manufacturing firms to avoid over investment in accounts receivables. Collection policies should be reviewed in order to make the cash conversion cycle shorter for efficient working capital while keeping in view the intensity of competition. The study also recommends proper inventory management to avoid overstocking which could negatively affect financial performance. While coming up with inventory related policies and computerizing inventory management systems the policy makers should take into account economic conditions, persistent rise in prices and seasonal variations of demand and supply. The study further recommends policies governing leverage so as to allow manufacturing firms capture opportunities in the market while maintaining an optimal level of leverage.

5.5 Limitations of the Study

The population of the study comprised of manufacturing firms which are not listed in the Nairobi Securities exchange and involved collection of data which some firms considered
sensitive and confidential information. The researcher had to convince them that the purpose of information is for academic research only and may not be used for any other intentions.

Working capital keeps on changing from period to period depending on prevailing economic conditions and products demand in market. The findings may therefore not reflect the true effect of working capital on financial performance of manufacturing companies for the period considered.

The findings of this study may not also be generalized to all manufacturing companies but can be used as a reference to manufacturing companies in developing countries since they face similar challenges due to the same prevailing economic situations as opposed to manufacturing companies in developed countries.

5.6 Suggestions for Further Research

There is need for a more comprehensive sector wise study on the relationship between working Capital and financial performance among manufacturing firms in Kenya. This could be necessary since the various sectors are uniquely constituted.

Another study is also recommended taking into account macroeconomic factors such as inflation and prevailing interest rates which would be more representative of the real business environment.
Another area to focus on for further research is the financing of working capital and how firms can optimize the capital mix to ensure maximum liquidity. Optimal financing of working capital can improve liquidity and also reduce potential risk exposures and effectively decrease a firm’s interest liability and make it easier for financing.
REFERENCES


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80. Wrigley Company (EA) ltd

Sector: Building, Construction and Mining (17)
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82. Karsan Murji & Company Limited
83. Bamburi Cement
84. Bamburi Special Products Ltd
85. Flamingo Tiles Kenya ltd
86. Kenbro Industries Ltd
87. Kenya Builders & Concrete Ltd
88. Manson Hart Kenya Ltd
89. Mombasa Cement Ltd
90. Karsan Murji & Co ltd
91. International Energy Technik ltd
92. Glenn Investments
93. Savannah Cement
94. ARM Cement
95. Orbit Enterprises ltd
96. Saj Ceramics ltd
97. Vallem Construction ltd

Sector: Chemical and Allied (50)
98. Anffi Kenya Ltd
99. Basco Product (K) Ltd
100. Bayer East Africa Ltd
101. Carbacid (CO2) ltd
102. Beiersdorf East Africa ltd
103. Blue Ring Products Ltd
104. BOC Kenya Limited
105. Buyline Industries Limited
106. Canon Chemicals ltd
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108. Kamili Packers ltd
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110. Maroo Polymers Ltd
111. Chemicals & Solvents E.A. Ltd
112. Chryystal Africa Ltd
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116. Continental Products Ltd
117. Canon Chemicals ltd
118. Cooper K-Brands Ltd
119. Ever ready Batteries ltd
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122. Kel Chemicals Limited
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124. Ken Nat Ink & Chemical Ltd
125. Magadi Soda Company Ltd
126. Maroo Polymers Ltd
127. Match Masters Ltd
128. MEA ltd
129. Metroxide Africa ltd
130. Osho Chemicals ltd
131. PZ Cussons Ltd
132. Polychem East Africa
133. Rickitt Benekiser EA ltd
134. Revolution Stores ltd
135. Rok Industries ltd
136. Rumorth Group of Companies Ltd
137. Synergy
138. Synresins ltd
139. Soweco Paints ltd
140. Soilex Prosolve ltd
141. Startegic Industries ltd
142. Super Brite ltd
143. Sygenta EA ltd
144. Twiga Chemical Industries Ltd
145. Uniliver East and Southern Africa
146. Vitafoam Products Ltd
147. Westminster Paints and Resins ltd

Sector: Plastics and Rubber (51)
148. ACME Containers Ltd
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150. Betatrad (K) Ltd
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152. Brush Manufacturers Ltd
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154. Complast Industries Limited
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**Sector: Textile and Apparels (24)**

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**Sector: Timber, Wood Products and Furniture (13)**

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242. Laboratory & Allied Limited
243. Manhar Brothers (K) Ltd
244. Madivet Products Ltd
245. Dawa Limited
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247. Elys Chemical Industries
248. Gesto Pharmaceutical Ltd
249. Glaxo Smithkline Kenya Ltd
250. KAM Industries Ltd
251. Pharm Access Africa Limited
252. Pharmaceutical Manufacturing Co.
253. Regals Pharmaceuticals
254. Osschemie (K) Ltd
255. Universal Corporation Limited

Sector: Motor Vehicle and Accessories (25)
256. Auto Ancillaries Ltd
257. Varsani Bakelinings Ltd
258. Bhachu Industries Ltd
259. Chui Auto Spring Industries Ltd
260. Toyota East Africa Ltd
261. Alamadar Trading Co Ltd
262. Associated battery Manufacturers
263. Auto Industries ltd
264. Banbros ltd
265. Impala Glass Industries
266. Kenya Coach Industries
267. Master fabricators ltd
268. Sohansons ltd
269. Kenya Vehicle Manufacturers Limited
270. Labh Singh Harnam Singh Ltd
271. Mann Manufacturing Co. Ltd
272. Megh Cushion industries Ltd
273. Mutsimoto Motor Company Ltd
274. BMG Holdings
275. Choda Fabricators
276. Chui Autospring industries
277. General Motors
278. Foton EA Ltd
279. Varsani Bakelinings ltd
280. Unifitters Kenya

Sector: Paper and Paperboard (51)
281. Allpack Industries ltd
282. Bags & Balers Manufacturers (K) Ltd
283. Brand Printers
284. Euro Packaging Ltd
285. Cempack Ltd
286. Chandaria Industries Limited
287. Colour Labels Ltd
288. Colour Packaging Ltd
289. Colour Print Ltd
290. Kenya Stationers Ltd
291. Kim-Fay East Africa Ltd
292. Franciscal Kolbe Press
293. Manipal International Printing Press Ltd
294. Mfundi paper
295. Paper House of Kenya Ltd
296. Paperbags Limited
297. Press Master Ltd
298. Printing Services Ltd
299. Printpak Ltd
300. Printwell Industries Ltd
301. Punchlines Ltd
302. Stallion Stationery Manufacturers
303. Taws Limited
304. Tetra pack ltd
305. D.L. Patel Press (Kenya) Limited
306. Dodhia Packaging Limited
307. East Africa Packaging Industries Ltd
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309. East Africa Packaging Industries Ltd
310. Elite Offset Ltd
311. Ellams Products Ltd
312. English Press Limited
313. General Printers Limited
314. Graphics & Allied Ltd
315. Guaca Stationers Ltd
316. Kartasi Industries Ltd
317. Kenafric Diaries Manufacturers Ltd
318. Fortune Printers & Stationers Ltd
319. Kenya Litho Limited
320. Nation Media Group
321. Palmy Enterprises
322. Kul Graphics Ltd
323. Label Converters
324. Modern Lithographic (K) Ltd
325. Standard Group
326. Ramco Printing Works Ltd
327. Sintel Security Print Securities
328. Statpack Industries Ltd
329. Twiga Stationers & Printers
330. United Bags Manufacturers
331. Vakharia International Paper Mills

Sector: Leather Products and Footwear (8)
332. Alpharama Ltd
333. Bata Shoe Co. (K) Ltd
334. New Market Leather Factory Ltd
335. C & P Shoe Industries Ltd
336. CP Shoes
337. Dogbones Ltd
338. East Africa Tanners (K) Ltd
339. Leather Industries of Kenya Limited

Sector: Energy, Electrical and Electronics (38)
340. Amedo Centre Kenya Ltd
341. Asa Abloy East Africa Ltd
342. Asano International
343. Aucma Digital Technology Africa Ltd
344. Avery (East Africa) Ltd
345. Baumann Engineering Limited
346. Centurion Systems Limited
347. Daima Energy Services
348. Digitech East Africa Limited
349. Manufacturers & Suppliers (K) Ltd
350. Marshall Fowler (Engineers) Ltd
351. Mecer East Africa Ltd
352. Metsec Ltd
353. Modulec Engineering Systems Ltd
354. Mustek East Africa
355. Nationwide Electrical Industries
356. Optimum Lubricants Ltd
357. PCTL Automation Ltd
358. Pentagon Agencies
359. East African Cables Ltd
360. Holman Brothers (E.A.) Ltd
361. Iberafrica Power (EA) Ltd
362. International Energy Technik Ltd
363. Protel Studios
364. Solimpex Africa
365. Kenya Power & Lighting Co. Ltd
366. Kenwest Cables Ltd
367. Kenya Shell Ltd
368. Libya Oil Kenya Limited
369. Power Technics Ltd
370. Reliable Electricals Engineers Ltd
371. Powerex lubricants
372. Socabelec East Africa
373. Sollatek Electronics (Kenya) Limited
374. Specialised Power Systems Ltd
375. Synergy-Pro
376. Vivo Energy Kenya
377. Virtual City Ltd

Sector: Metal and Allied (45)
378. Allied Metal Services Ltd
379. Athi River Steel Plant
380. Alloy Street Castings Ltd
381. Apex Street Ltd Rolling Mill Division
382. ASL Ltd
383. ASP Company Ltd
384. East Africa Foundry Works (K)
Ltd
385. East African Glassware mart
386. Tech Construct
387. Friendship Container Manufacturers
388. General Aluminum Fabricators Ltd
389. Gopitech (Kenya) Ltd
390. Heavy Engineering Ltd
391. Insteel Limited
392. Metal Crown Limited
393. Morris & Co. Limited
394. Nails & Steel Products Ltd
395. Orbit Engineering Ltd
396. Rolmil Kenya Ltd
397. Richfield Engineering ltd
398. Sandvik Kenya Ltd
399. Sheffield Steel Systems Ltd
400. Ashut Engineering Ltd
401. Corrugated Sheets ltd
402. City Engineering Works Ltd
403. Crystal Industries Ltd
404. Davis & Shirtliff Ltd
405. Devki Steel Mills Ltd
406. Doshi Enterprises
407. Iron Art ltd
408. Kalu Works ltd
409. Techno Steel Industries
410. Kens Metal Industries Ltd
411. Khetshi Dharamshi & Co. Ltd
412. Marvel Lifestyle
413. Napro Industries Limited
414. Specialized Engineer Co. (EA) Ltd
415. Steel Structures Limited
416. Steelmakers Ltd
417. Steelwool (Africa) Ltd
418. Tononoka Steel Ltd
419. Welding Alloys Ltd
420. Siya Industries ltd
421. Viking Industries Ltd
422. Warren Enterprises Ltd

### APPENDIX II: DATA COLLECTION FORM I

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<th>Name of company</th>
<th>Credit sales</th>
<th>Purchases</th>
<th>Cost of sales</th>
<th>Earnings before interest and tax</th>
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<th>Net income</th>
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## APPENDIX III: DATA COLLECTION FORM 2

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<th>Name of company</th>
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<th>Closing trade receivable</th>
<th>Opening trade payables</th>
<th>Closing trade payables</th>
<th>Opening inventory</th>
<th>Closing inventory</th>
<th>Current assets</th>
<th>Fixed assets</th>
<th>Current liabilities</th>
<th>Non-current liabilities</th>
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