

# **EFFECT OF WORKING CAPITAL MANAGEMENT PRACTICES ON A FIRM'S PROFITABILITY: A CASE OF MANUFACTURING FIRMS LISTED IN NAIROBI SECURITIES EXCHANGE**

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## **Abstract**

*Working capital management is vital for the business survival and thus a factor towards the overall aim of profitability. This study analyzed the effect of working capital management practices on the profitability of the manufacturing companies. The objective of the study was: to establish the effect of working capital management practices on the profitability of manufacturing firms listed at the NSE. This study employed a correlation research design. The population of the study comprised all manufacturing firms listed under manufacturing and agricultural sectors at the Nairobi Securities Exchange. Data for this study was collected from the annual published financial statements for the years 2008-2013. Pearson correlation coefficient was used to test the correlation between independent variables and the dependent variable of profitability. Multiple simple regression was used to test the effect of individual working capital management practice. The results of the study revealed that there was a significant correlation between the independent variables of Payables period, Receivable period and Inventory Period and profitability of the studied units. Payable period contributed the highest*

*to profitability with a beta of .283 (28%) compared with other variables of working capital of Receivables period with beta of .231 (23%) and inventory period beta at .134 (13%). From this study, it was recommended that manufacturing firms should keep the payable period and inventory at the minimum while delaying on settling of accounts payables for them to gain meaningful profitability. The study concluded that working capital management practices significantly affect the profitability of manufacturing firms.*

*Keywords: Working Capital Management, Profitability, Manufacturing Firms, NSE Kenya*

## **INTRODUCTION**

Working capital management concerns primarily with the management of current assets and by extension the current liabilities of a business. Literatures of corporate finance have mostly centred on financial decisions that are long-term in nature, this comprises mainly on company valuation, investment decisions, dividend policies and capital structure (Afza & Nazir, 2007). The short-term assets of a business are the current assets. They are those assets whose lifespan are expected to be determined within one financial / accounting year. The short-term assets and liabilities are indeed important components of total assets, hence need to be carefully analyzed (Afza & Nasir, 2007). Because of their importance a careful and systematic investigation of these assets is quite necessary since they play a vital role in the profitability of firms, its risk and value (Smith, 1980). Additionally, in this period when competition by companies globally erodes prices, they equally needs cash for expansion both overseas and internally, margins are low with the ever-increasing need to invest in new products and technologies and also pay down debt, shifting attention to working capital management as a source of internal financing of cash provides a formidable managerial tool. Efficient and effective working capital management is therefore considered a true competitive advantage (Ching, Novazzi & Gerab, 2011).

Working capital is the stock stored that has a conversion or resale value in order to gain profit. It represents the largest cost of a firm especially the manufacturing firms. In normal circumstances, working capital consists of about 30% - 40% of a firm's total investment (Nzioki, Cheluget, Abutho and Nthiwa, 2013). Investment in working capital to a large extent determines the returns earned by a firm. Nevertheless, excessive levels of current assets can easily result in a firm realizing a substandard return on investment while firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Van Horne and Wachowicz, 2000). As a result, working capital management is a very important component of

corporate finance as it directly affects the liquidity and profitability of a firm. It centres on current assets and current liabilities of a firm. For one thing, the current assets of a typical manufacturing firm accounts for over half of its total assets (Mohamed and Abdul, 2007).

Working Capital Management is therefore a sensitive area in the field of financial management (Joshi, 1994). It concerns the decision of the amount and composition of current assets and the financing of these assets. It involves planning and control of current assets and current liabilities in a manner to strike a balance between liquidity and profitability. Harris (2005) pointed out that working capital management is a simple and straightforward concept of ensuring the ability of the firm to fund the difference between the short term assets and short term liabilities. The ultimate objective of any firm is to maximize shareholders wealth and maximizing shareholders wealth can be achieved by a firm maximizing its profit. A firm that wishes to maximize profit must strike a balance between current assets and current liabilities and hence keeping abreast of the liquidity and profitability trade-off. Preserving liquidity and profitability of the firm is an important objective as increasing profit at the expense of liquidity can bring serious problems to the firm and vice-versa. Working capital management is considered to be a very important element to analyse the firm's performance while conducting day to day operations. There are chances of imbalance of current assets and current liability during the life cycle of a firm and profitability will be affected if this occurs. This is why the study on working capital and firm's profitability has drawn scholars' attention in recent times.

Kenya's manufacturing sector is among the key productive sectors identified for economic growth and development because of its immense potential for wealth, employment creation and poverty alleviation. In addition, the sector will continue to provide impetus towards achievement of Millennium Development Goals (MDGs) both in the medium and long term particularly goal one on Eradication of extreme Poverty and hunger and goal eight on Global Partnerships for Development. Policy makers in Kenya recognize the importance of the manufacturing sector for long-term economic development. Indeed, the growth targets for manufacturing stated by the government in its Vision 2030 document are ambitious and require rapidly increasing investment levels, eventually reaching levels above 30% of GDP (Kenya, 2007 cited by Bigsten, Collier, Dercon, Gauthier, Fafchamps, Gunning, Isaksson, Oduro, Oostendorp, Pattillo, Söderbom, Teal and Zeufack, 2010).

It is the fourth biggest sector after agriculture, transport and communication, and wholesale and retail trade. It contributed about 10.1 per cent of Kenya's GDP serving both the local market and exports to the East African region. The sector, which is dominated by subsidiaries of multi-national corporations, contributed approximately 18% of the Gross Domestic Product (GDP) in 2009. The sector makes an important contribution to the Kenyan

economy and currently employs 254,000 people, which represents 13% of total employment with an additional 1.4 million people employed in the informal side of the industry. The sector is mainly agro-based and characterized by relatively low value addition, employment, and capacity utilization and export volumes partly due to weak linkages to other sectors. The intermediate and capital goods industries are also relatively underdeveloped, implying that Kenya's manufacturing sector is highly import dependent. However, opportunity for growth exists with the rollout of common tariff under the newly integrated EAC custom union, because Kenya's manufacturing sector is the largest in the region.

Although manufacturing is usually a small sector in African economies, in terms of share of total output or employment, growth of this sector has long been considered crucial for economic development. This special interest in manufacturing stems from the belief that the sector is a potential engine of modernization, a creator of skilled jobs, and a generator of positive spillover effects (Tybout, 2000).

Empirical evidence related to working capital management and profitability has substantiated the fact that managers can create value for shareholders by shortening the cash conversion cycle to the shortest rational amount of time (Nazir and Afza (2009), Deloof (2003), Lazaridis and Tryfonidis (2006) and Raheman and Nasr (2007). The objective of this study is to investigate the effect of working capital management practices, as measured through the cash, receivables, and inventory and payables management practices on manufacturing firms' profitability listed in NSE.

### **Statement of the Problem**

Working capital management (WCM) is important especially with the current global financial crisis in order to ensure smooth day to day running of business and to deal with uncertainties that characterize future business occurrences. Working Capital Management is an important corporate financial decision since it directly affects the liquidity and profitability of the firm. Working capital management efficiency is vital especially for manufacturing firms, where a major part of assets is composed of current assets (Van Horne and Wachowicz, 2000). Sen *et al.* (2011) argues that management of working capital is a significant component of improving profitability and competitiveness of firms. Consequently, working capital represents a larger composition of investment given that it contributes to the success of the business. Nzioki *et al.* (2013) argues that working capital majorly contributes over 40% of the firm's investment. In this connection, Arunkumar and Radha (2013) argue that specific research studies exclusively on the impact of WCM on profitability of manufacturing firms are scanty, especially for the case of developing countries. Keeping this in view and the wider recognition of the potential contribution

of the manufacturing sector to the economy of developing countries like Kenya, this paper tries to identify the effect of various factors of working capital management on profitability of manufacturing firms in Kenya.

### **Objectives of the Study**

The main objective of this study was to find out the effect of working capital management practices on the profitability of manufacturing firms listed at the Nairobi Securities Exchange.

### **Specific Objectives**

- i) To establish the effect of receivables period on firm's profitability.
- ii) To establish the effect of Inventory period on firm's profitability.
- iii) To establish the effect of payables period on the firm's profitability
- iv) To find the effect of working capital practices on the firm's profitability.

### **Research Hypotheses**

**H<sub>1</sub>**: Receivables Period has no significant effect on the firm's profitability

**H<sub>2</sub>**: Inventory period has no significant effect on the firm's profitability

**H<sub>3</sub>**: Payables period has no significant effect on the firm's profitability

**H<sub>4</sub>**: Working capital practices has no significant effect on the firm's profitability.

### **Justification of the Study**

Working capital management has attracted increased attention in both emerging and industrialized markets due to the important role that it plays in the administration of businesses. This is because WCM provides mechanisms for a company to pursue its day to day operations and the shareholders' interests by ensuring effective monitoring and encouraging efficient use of the firm's resources. Thus, this study sought to bridge the knowledge gap on the effect of working capital management on the profitability of manufacturing firms listed at NSE. In addition, this study considered individual drivers of working capital management. Furthermore, this study is valuable to the management of manufacturing firms top policy makers as it will assist in the knowing of how to manage the WC in order that they operate optimally and efficiently. The study would also be beneficial to shareholders who are required to recognize the role that WCM performs in the management of firms' resources. Finally, the results of the study would add knowledge to the existing literature and it act as a catalyst for future studies aimed at investigating issues related to working capital management and firm's profitability.

## **Scope of the Study**

All the manufacturing firms that have been continuously listed at the NSE from 2008-2013 were used in this study. The annual financial reports of the firms covering the seven year period were analyzed in order to obtain information on working capital management and profitability. Firms that were suspended, engaged partly and did not engage in active trading during the period will not be analyzed because their annual reports may not be available.

## **Limitations of the study**

This study only examined the effect of working capital management on the profitability of manufacturing firms listed in NSE. The proposed study was subject to a number of limitations. The study was confined to five years data only, i.e. from 2008–2013, therefore, a detailed analysis covering a lengthy period, which may give slightly different results has not been made. The study was based on secondary data collected from the website of the NSE and the websites of sample companies; therefore the quality of the study depends purely upon the accuracy, reliability and quality of the secondary data source. Approximation, and relative measures with respect to the data source might impact the results. The study was based on fourteen (14) companies of the manufacturing and allied and also the agricultural Industry in Kenya, that are also drawn from the companies listed in NSE. Therefore, the accuracy of results was purely based on the data of sample units. If one takes more sample units the results may go slightly differently.

## **LITERATURE REVIEW**

### **The Concept of Working Capital**

Working capital is an important tool for growth and profitability of manufacturing firms and all corporations in general. If the levels of working capital are not enough, it could lead to shortages and problems with the day-to-day operations (Horne and Wachowicz, 2000). Working capital is also called net working capital and is defined as current assets less current liabilities (Hillier *et al.*, 2010).

Working Capital (WC) is commonly used for the capital required for day-to-day working in a business concern, such as for purchasing raw material, for meeting day-to-day expenditure on salaries, wages, rents rates, advertising and the like. But, still there is much disagreement among various authorities (Financiers, accountants, businessmen and economists) as to the exact meaning of the term working capital. It is defined as “the excess of current assets over current liabilities and provisions”. However, as per accounting terminology, it is the difference between the inflow and outflow of funds. In Arnold (2008) working capital is defined as it

includes “stocks of materials, fuels, semi-finished goods including work-in-progress and finished goods and by-products; cash in hand and bank and the algebraic sum of various creditors as represented by outstanding factory payments e.g. rent, wages, interest and dividend; purchase of goods and services; short-term loans and advances and sundry debtors comprising amounts due to the factory on account of sale of goods and services and advances towards tax payments”.

Sources of working capital are fixed (shares, debentures, public deposits, ploughing back of profits and loans from financial institutions) or variable (commercial and indigenous banks).

Shashi and Sharma (2005) Gupta and Sharma (2005) explained four principles of working capital; principle of risk variation refers to an ability of a firm to maintain sufficient current assets to pay for its obligations, principle of equity position is the amount of working capital invested in each component and should be adequately justified by a firm's equity position. The principle of cost of capital emphasizes the different sources of finance and each source has a different cost of capital. Finally the principle of maturity payment means that a firm should make every attempt to relate maturities of payments to its flow of internally created funds. Maintenance of adequate working capital is an essential condition for efficient financial management because it offers huge cash opportunities that could be released with sustainability within a relative short period of time. Indeed, the four main problem areas of working capital management are inventory, receivables, cash and working finance. Working capital can be financed from internal as well as external sources (Fereira and Vilela, 2004). Companies have increasingly been relying on short-term funds particularly short-term bank credit and trade credit (Gupta and Sharma, 2005). Working capital ratios are useful tools in appraising the financial strength and immediate solvency of a firm.

In summary, working capital means the funds (capital) available and used for day to day operations of an enterprise. It consists broadly of that portion of assets of a business which are used in or related to its current operations. Further, it refers to funds which are used during an accounting period to generate a current income of a type which is consistent with major purpose of a firm existence.

### **Working Capital Management**

Decisions relating to working capital and short-term financing are referred to as working capital management. It involves managing relationships between a firm's short-term assets and its short-term liabilities. Its goal is to ensure that a firm is able to continue its operations and that it

has sufficient cash flow to satisfy both maturing and short-term debts, and upcoming operational expenses. Working capital decisions are based on cash flows and profitability.

Working capital management is a very important component of corporate finance because it directly affects the liquidity, profitability and growth of a business and is important to the financial health of businesses of all sizes as the amounts invested in working capital are often high in proportion to the total assets employed (Atrill, 2006). It involves the planning and controlling of current assets and liabilities in a manner that eliminates the risk of inability to meet short-term obligations and avoid excessive investments in these assets (Lamberson, 1995). This management of short-term assets is as important as the management of long-term financial assets, since it directly contributes to the maximization of a business's profitability, liquidity and total performance.

Working capital management involves managing short-term assets and short-term liabilities in a way that provides balance between eliminating potential inability to cope with short-term debts and avoiding unnecessary holdings in these assets (Eljelly 2004; Mohamad and Saad, 2010). Previous research has documented that working capital management influences a firm's profitability (Wang, 2002; Deloof, 2003; Eljelly, 2004 and Lazaridis and Tryfonidis, 2006).

Johnson and Soenen (2003) reported that efficient working capital management is one of the crucial characteristics of financially flourishing firms. Most of the empirical research into the relationship between working capital management and profitability has confirmed the notion that reducing current assets in comparison to total assets reduces working capital investment; therefore, it would positively affect the firm's profitability. Therefore, working capital management deals with the act of planning, organizing and controlling the components of working capital (current asset and liability) like cash, bank balance, inventory, receivables, payables, overdraft and short-term loans (Paramasivan and Subramanian, 2009).

As established by several researchers (Padachi, 2006; Kotut, 2003) efficient management of working capital is pivotal to the health and performance of all business enterprises hence their view that firms should employ the use of efficient working capital management practices as a strategy of improving their value. The investigation on the working capital management is focused on four constructs: cash management practices, receivables management practices, inventory management practices and management of current liabilities.

### ***Receivables Management Practices***

A company accrues accounts receivables when it sells its goods on credit. Depending on the payment terms, the company might receive cash in weeks or even months. A company can

manage its accounts receivables by credit management, meaning that the decision regarding terms of sale, credit analysis and decision and collection policy have to be made. Fabozzi and Peterson (2003) mentioned that when a firm allows customers to pay for goods and services at a later date, it creates accounts receivable or refers to trade credit. Account receivables (trade credit) also have opportunity cost associated with them, because company can't invest this money elsewhere until and unless it collects its receivables.

Provision of trade credit is normally used by businesses as a marketing strategy to expand or maintain sales (Pandey, 2004). Efficient receivables management augmented by a shortened creditor's collection period, low levels of bad debts and a sound credit policy often improves the businesses' ability to attract new customers and accordingly increase profitability hence the need for a sound credit policy that will ensure that Business enterprises value is optimized (Ross *et al.*, 2008). Costs of cash discounts, losses of bad debts and costs of managing credit and credit collections constitute the carrying costs associated with granting a credit which increase when the amount of receivables granted are increased. Lost sales resulting from not granting credit constitute the opportunity cost which decrease when the amounts of receivables are increased. Firms that are efficient in receivables management should determine their optimal credit which minimizes the total costs of granting credit (Ross *et al.*, 2008).

Michalski (2007) in his study, observed that an increase in the level of accounts receivables in a firm increases both the net working capital and the costs of holding and managing accounts receivables and both lead to a decrease in the value of the firm. A study by Lazaridis and Dimitrios (2005) found out that firms which pursue increase in their accounts receivables to an optimal level increase their profitability resulting from increased sales and market share. A study by Juan and Martinez (2002) emphasized that firms can create value by reducing their number of days of accounts receivable, thus confirmed the finding of Deloof (2003) who established that the length of receivables collection period has a negative effect on a firm's performance. A study by Sushma and Bhupesh (2007) also affirmed that, putting in place a sound credit policy ensures proper debt collection procedures and is pivotal in improving efficiency in receivables management hence the performance of firms.

The proxy commonly used to measure the receivables is receivable period (RP). It measures the average number of days that accounts receivable are outstanding. It measures the average number of days between sending invoices to customers and collecting payments from them. To calculate this ratio, the average accounts receivable are divided by the average daily sales in the period. The lower the accounts receivable period ratio the more liquid is the

firm. Deloof, (2003) found that firms can increase their profitability by reducing the debtors' collection period.

The management of accounts receivable is largely determined by the business's credit policy. The investment in accounts receivable, debtors, as with all investment decisions, must earn a rate of return in excess of the required rate of return. Major risks that arise from granting credit include bad debts and debtor delinquency, because they reduce the returns from the investment in accounts receivable, and if inadequately monitored can impact severely on the business's financial performance (Brigham, et al. 1999, Gitman, 1997, Hampton and Wagner, 1989, Scherr, 1989, Gallinger and Healey, 1987, Kallberg and Parkinson, 1984).

Credit policy and collection policy have to be actively managed because they affect the timing of cash inflows, sales, profits and accounts receivable risks (Gitman, 1997, Schmidt, 1996, Chambers and Lacey, 1994, Moss and Stine, 1993, Hill and Sartoris, 1992, Gallinger and Healey, 1987, Richards and Laughlin, 1980). Any changes in credit and collection policy have a direct impact on the average outstanding accounts receivable balance maintained relative to a business's annual sales (Moss and Stine, 1993, Richards and Laughlin, 1980). Thus a business should take special efforts to monitor both credit granting and credit collection processes (Chang, et al. 1995, Back, 1988).

Credit policy involves three factors: the credit selection, credit standards, and credit terms. Credit selection concerns the decision of whether or not to grant credit and if so, how much credit to extend. This is done by means of categorizing customers by both risk factors, common attributes, establishing standards, evaluating risks and selecting appropriate responsibilities (Schmidt, 1996, Gallinger and Healey, 1987). As credit decisions have an impact on cash flows the first stage is to establish credit control to assess creditworthiness of customers, prior to making a credit sale (Back, 1988). To determine who should receive credit, granting credit requires consideration of the debtor's creditworthiness (Gitman, 1997, Scherr, 1989, Kalleberg and Parkinson, 1984).

Credit standards are the minimum level of creditworthiness which a potential debtor would need to score in order to qualify for the granting of credit (Gitman, 1997). In the normal course of business credit standards are periodically modified. Key variables that need to be considered when tightening or relaxing credit standards include the impact on sales volume, the investment in account receivable, the cost of recovering monies due, and bad debts. A relaxation of credit standards would be expected to stimulate sales volumes, and vice versa if credit standards are tightened (Gitman, 1997). The granting of more liberal terms has the potential to create a larger and less liquid investment in receivables (Moss and, Stine, 1993, Richards and Laughlin, 1980). Unless sales increase at least proportionally to the increase in

receivables, deterioration in liquidity will be reflected in lower receivables turnover and a more extended collection period (Richards and Laughlin, 1980).

Credit terms specify the debtor's repayment schedule and comprise issues such as the cash discount, the cash discount period, and the credit period. Any changes in these three variables may affect sales, the investment in account receivable, bad debts and profits. For example a decision to increase the cash discount should be evaluated by comparing the profit increases attributable to the added sales, the reduction in accounts receivable investment and the reduction in bad debts to the cost of the discount. On the other hand a decision to decrease the cash discount should be evaluated by comparing the profit decreases attributable to the added sales, the increase in accounts receivable investment and the increase in bad debts to the cost of the discount (Gitman, 1997).

Once credit has been granted, and credit sales have been made, accounts receivable has to be collected. The goal of collection management's goal is to ensure that payments are received according to schedule, otherwise a greater investment in accounts receivable will be needed. If receipts from accounts receivable can be speeded up, without prejudicing sales or customer goodwill, less capital will be needed to fund accounts receivable, and less money will be spent on recovery, because of administration, investigation, collection and bad debt costs (Gitman, 1997, Chang, et al. 1995).

In order to achieve satisfactory performance by debtors, several tactics have been suggested. These include adding finance charges for late payment (Cheatham, 1989), providing incentives for early payment (Gitman, 1997, Moss and Stine, 1993), shortening the credit period contractually (Moss and Stine, 1993, Cheatham, 1989), or trading only for cash, discounting or factoring accounts receivable to speed up the cash inflows (Cheatham, 1989), outsourcing accounts receivable (Herridge, 1996, Williams, 1995, Berry, 1995), analyzing payment patterns (Mooney and Pittman, 1996, Scherr, 1989, Gallinger and Healey, 1987), using the Markov Chain Analysis, ad hoc scoring, simple probability, linear discriminant and sequential decision system (Gallinger and Healey, 1987, Kallinger and Parkinson, 1984), monitoring days sales outstanding and aging schedules, using balance fractions, payment proportions and variance analysis (Kallinger and Parkinson, 1984). These tactics need to be implemented carefully otherwise sales volumes could be negatively affected (Gitman, 1997, Back, 1988).

It is important to note that accounts receivable management and inventory management is closely linked in that account receivable are inventories that have been sold yet have not generated cash inflows.

### ***Inventory Management Practices***

Inventory is one of the important current assets. Depending on the type of industry the company is active in; the inventories may consist of different things (raw materials, work in process and finished goods). Managing and optimizing inventories levels are tedious tasks which require balancing between sales and tied-up-capital. In case the inventory levels are too low, the company might miss out on sales when demand rises or might not be able to deliver goods on time. On the other hand, too much inventory ties up capital that can be used elsewhere more effectively.

Inventory management refers to an optimum investment in inventories. It should neither be too low to effect the production adversely nor too high to block the funds unnecessarily. Excess investment in inventories is unprofitable for the business and both excess and inadequate investments in inventories are not desirable (Fabozzi and Peterson, 2003). Hence, the firm should operate within the two danger points. Additionally, proper inventory management requires close coordination among the sales, purchasing, production, and finance departments. The sales/marketing department is generally the first to spot changes in demand. These changes must be worked into the company's purchasing and manufacturing schedules, and the financial manager must arrange any financing needed to support the inventory buildup. Lack of coordination among departments, poor sales forecasts, or both, can lead to disaster (Brigham and Houston, 2003). In general, the purpose of inventory management is to determine and maintain the optimum level of firm's investment on inventory. At the same time, it helps to hold the costs of ordering and carrying inventories to the lowest possible level. Ross *et al.*, (2008) observed the Economic Order Quantity model as one of the approaches of determining the optimal inventory level takes into account the inventory carrying costs, inventory shortage costs and total costs helps in the determination of the appropriate inventory levels to hold.

Maintaining optimal inventory levels reduces the cost of possible interruptions or of loss of business due to the scarcity of products, reduces supply costs and protects against price fluctuations. The inventory conversion period has a negative effect on a business's performance. For instance, shortening the inventory conversion period could increase stock out costs of inventory which results in losing sales opportunities and leads to poor performance (Deloof, 2003). Managers of firms should therefore keep their inventory to an optimum level since mismanagement of inventory will lead to tying up excess capital at the expense of profitable operations (Lazaridis and Dimitrios, 2005).

Stock holding period (SHP) or Inventory Days, or Days Inventory Outstanding (DIO), measures how quickly stocks flow in a brewery firm from production to sale. It is an excellent measure of how efficiently a company is managing its inventory (Christopher, 2009). The

trade-off comes in deciding how little cash is tied up in inventory while still meeting the needs of the customer.

A variety of approaches exist for the management of inventory to reduce the investment in inventory. These include outsourcing inventory (Cheatham, 1989), accurate inventory forecasting (Maness 1994, Cheatham, 1989), incentive schemes (Maness. 1994, Cheatham, 1989), budgeting (Gitman, 1997), the ABC system (Oitman, 1997), Economic Order Quantity (Oitman, 1997, Scherr, 1989, Kallberg and Parkinson, 1984), MRP (Materials Requirements Planning), MRPII (Manufacturing Resources Planning) (Cheatham 1989), and TIT (Just-in-time) (Gitman, 1997, Chang, et al. 1995, Maness, 1994, Moss and Stine, 1993, Corbett and Bayly, 1991, Cheatham, 1989, Dougherty, 1988) are some of the approaches that can reduce the inventory turnover, reduce the level of inventory and improve cash flows (Gitman, 1997, Weston and Brigham, 1992, Kamath, 1989, Asch and Kaye, 1989).

### ***Payables Management Practices***

Account payables (AP) are the opposite of account receivables, instead of giving a credit on a sale, a firm receives a credit. Hampton and Wagner (1989) explain account payables as follows: 'When a firm makes a purchase on credit, it incurs an obligation to pay for the goods according to the terms given by the seller. Until the cash is paid for the goods the obligation to pay is recorded in accounts payables'. Account payables can be seen as a short term loan, or in other words, a source of funding.

The primary goal for an account payable (AP) is to ensure on-time, accurate payments in compliance with internal controls, tax requirements and other regulations. AP is responsible for paying invoices that have been validated, approved and coded for proper (timely) recording. Raheman and Nasr (2007) state that delaying payment of accounts payable to suppliers allows firms to access the quality of bough products and can be inexpensive and flexible source of financing. On the other hand, delaying of such payables can be expensive if a firm is offered a discount for the early payment.

The measurable way of measuring AP is by payable period (APP) which compares creditors with the total credit purchases. It signifies the credit period enjoyed by the firm in paying creditors. Accounts payable include both sundry creditors and bills payable. The longer the period the more advantageous for the firm as such fund can be put to other uses. However, longer accounts holding period can erode a firm's credit worthiness.

There are numerous approaches discussed in the literature that management can consider when managing accounts payable. Some of these include outsourcing accounts payable (Williams, 1995, Berry, 1995), using purchasing cards (Entenman, 1995), setting up

disbursement systems (Hill and Sartoris, 1992), scheduling accounts payable (Richards and Laughlin, 1980), aging accounts payable (Richards and Laughlin, 1980), forecasting accounts payable, budgeting, monitoring accounts payable-to-purchases ratio, evaluating the number of days purchases outstanding in payables, monitoring the aging schedule (Scherr, 1989, Gallinger and Healey, 1987), analyzing payment patterns and variances (Gallinger and Healey, 1987), and sequential approach and the integer-programming approach of structuring current liabilities (Scherr, 1989) .

### ***Working Capital Management and Approaches***

Management of working capital refers to management of current assets and current liabilities (Raheman and Nasr, 2007). Working capital management ensures sufficient cash flow to meet short-term debts. The concepts of working capital management are gross working capital, net working capital and net operating capital. Working capital management is of great importance to the financial health of the firm because current assets represent a large portion of total assets and also the largest portion of most financial managers' time is devoted to the day-to-day internal operations of the firm which fall under working capital. Working capital management therefore involves determining the optimal financing strategies or policies for financing the working capital needs (Afza and Nazir, 2007).

In practice, working capital management approach (WCMA) has become one of the most important issues in the organizations where company executives identify the basic working capital drivers and an appropriate level of working capital (Lamberson, 1995). Indeed, companies can minimize risk and improve the overall performance by understanding the role and drivers of working capital management. However, an appropriate approach is desired (Hall, 2002). Many studies have analyzed the financial ratios as a part of working capital management; however, few of them have discussed the working capital approaches in specific (Afzar and Nazir, 2009). Weinraub and Visscher (1998) discussed the issue of aggressive and conservative working capital management approaches by using quarterly data for the period 1984-93 of the US firms. Their study considered 10 diverse industry groups to examine the relationship between their aggressive/conservative working capital approaches. Their study concluded that the industries had distinctive and significantly different working capital management approaches. The study also showed a high and significant negative correlation between industry asset and liability policies and found that when relatively aggressive working capital asset policies are followed, they are balanced by relatively conservative working capital financial policies. In literature, there is a long debate on the risk/return trade-off among different working capital Approaches (Moyer *et al.*, 2005). More aggressive working capital policies are

associated with higher return and risk, while conservative working capital policies are associated with lower risk and return (Weinraub and Visscher, 1998). Afza and Nazir (2007) investigated the relationship between the aggressive and conservative working capital policies for 17 industrial groups and a large sample of 263 public limited companies listed on Karachi Stock Exchange (KSE) using cross-sectional data for the period 1998-2003. The study found significant differences among their working capital investment and financing policies across different industries. Moreover, rank order correlation confirmed that these significant differences were remarkably stable over the six-year study period. Finally, ordinary least regression analysis found a negative relationship between the profitability measures of firms and the degree of aggressiveness of working capital investment and financing policies.

### **Theoretical Review on Working Capital Management**

Working capital management techniques utilized by business managers aids them in effectively managing working capital. Techniques such as intersection of carrying costs and shortage cost, working capital financing policy, cash budgeting , EOQ and JIT are applied to manage different components of working capital like cash, inventories, debtors and accounts payables. This study has adopted four theories namely: agency cost of free cash flow theory, the trade-off model, the Keynesian liquidity preference theory and the aggressive theory.

#### ***Trade-Off Model***

Trade-off model demonstrates that firms decide their optimal level of cash holding by comparing the marginal cost and benefits of holding cash. Large investment in current assets under certainty would mean low rate of return on assets (ROA) of the firm, as excess investments in current assets will not earn enough return. A smaller investment in current assets, on the other hand, would mean interrupted production and sales, because of frequent stock-outs and inability to pay to its creditors in time due to restrictive policy. Various studies attempted to examine the relationship between working capital management and financial performance which embodied liquidity as a component and profitability (Deloof, 2003; Raheman and Nasr, 2007). The ultimate objective of any firm is to maximize profit. At the same time, preserving liquidity of the firm is an important objective too. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm (Shin and Soenen, 1998).

Therefore, there must be a trade-off between these two objectives of firms. One objective should not be fulfilled at the cost of the other since both are important. If we do not care about profit, we cannot survive for a longer period. On the other hand, if we do not care about liquidity, we may face the problem of insolvency or bankruptcy. The firm must decide about the levels of

current assets to be carried for which a firm's technology and production policy, sales and demand condition, operating efficiency is taken into consideration in the policy decision. It may follow a conservative risk-return trade-off. The rank correlation of liquidity and profitability are said to be inversely related to each other. It implies that as the liquidity increases and profitability decreases (Pandey, 2010). More aggressive working capital approaches are associated with higher return and higher risk while conservative working capital approaches are concerned with lower risk and lower return (Carpenter and Johnson, 1983).

### ***Keynesian Liquidity Preference Theory***

Another theory underpinning the study of working capital management approaches is Keynesian liquidity preference theory by economist John Keynes in 1936. The theory argues that when all other things are kept constant, investors prefer liquid investments to illiquid ones and will always demand a premium for investments that have longer maturity periods. According to this theory people hold cash or inventory for transaction, speculative, precaution, and compensation motives. The need for working capital to run the day-to-day business activities cannot be ignored. Entities have to invest enough of available funds in current assets for the success of its operations (Pandey, 2010).

### ***Aggressive Theory***

This theory is applied where the firm plans to take high risk and where short term funds are used to a very high degree to finance current and fixed assets. This approach is characterized by low interest rates. However, it's important to note that that the risk associated with short term debt is higher than long term debt. This applies mostly to companies/ firms operating in a stable economy and is quite certain about future cash flows. A company with an aggressive working capital policy offers short credit periods to customers, holds minimal inventory and has a small amount of cash in hand. This policy increases the risk of defaulting due to the fact that a company might face lack of resources to meet short term liabilities but also give a high return as it's associated with high risk

### ***Agency Cost of Free Cash Flow Theory***

Agency cost of free cash flow theory brings out the fact that organizations suffer agency costs as a result of free cash flow. This theory was put forth by Michael Jensen in 1986. It argues that managers are always tempted to pile up cash under their controls and make investment decisions which might not be in the best interest of shareholders. Corporate managers are the agents of shareholders, a relationship fraught weighed down by conflicting interests. Free cash

flow is cash in excess of that required to fund all projects that have positive net present values when discounted at relevant cost of capital (Jensen, 1986). Efficient working capital management is essential in order to avoid situations whereby managers mismanage the resources of the organization for their own interests.

### ***Firm's Profitability***

Profit is the primary objective of a business (Nimalathasan, 2009). Profit means an absolute measure of earning capacity. Profit is defined by Iyer (1995) as “excess of return over outlay”. In point of view of the heavy investment which is necessary for the success of most enterprises, Profit in the accounting sense tends to become a long term objective which measures not only the success of the product, but also of the development of the market for it (Nishanthini and Nimalathasan, 2013). It is determined by matching revenue against cost associated with it. Only those costs are placed against revenue, which have contribution in the generation of such revenue. An enterprise should earn profits to survive and grow over a long period of time. Nimalathasan (2009) mentioned that the profit is the primary objective of a business, which measures not only the success of a product, but also of the development of the market for it. Further profit is the report card of the past, the inventive gold star for the future.

Profitability is defined as “the ability of given investment to earn a return from its use’ and is the relative measure of earning capacity (Nimalathasan, 2009). It provides evidence concerning the earnings potential of a company and how effectively a firm is being managed. If the firm fails to make profit, Capital invested is eroded and if this situation prolongs the enterprise ultimately ceases to exist. The word profitability is composed of two words profit and ability. The word profit has already been defined but the meaning of profit differs according to the use and purpose of the enterprise to earn the profits (Nishanthini and Nimalathasan, 2013). Thus the word profitability may be defined as the ability of given investment to earn a return from its use. Profitability ratios measure the firm’s ability to generate profits and central investment to security analysis, shareholders, and investors. It is the primary measure of the overall success of enterprise (Nishanthini and Nimalathasan, 2013).

Velampy and Nimalthasan (2007) pointed out that sales are positively associated with profitability ratios except return on investment, and numbers of depositors are negatively correlated with the profitability ratios except return equity, likewise number of advances to the return on investment, and return on average assets in Bank of Ceylon. Sexton and Kasarda (2000) found that firm profitability was correlated with sustainable growth.

Gross Operating Profit ratio (GOP) is used as the measure of Profitability of the firm as it has been used by several researchers. According to (Nishanthini and Nimalathasan, 2013),

GOP depicts the purchasing efficiency of an enterprise. The higher the gross profit ratio, the better the purchasing efficiency of the enterprise and also a high ratio of gross profits to sales is a sign of good management as it implies that the cost of production of the firm is relatively low. But a relationship low gross margin is definitely a danger signal. Lazaridis and Tryfonidis (2006), confers that GOP can be used as a determinant of firm's profitability.

Mathias (2012) argues that more attention should be given to GOP, because this measure is more reliable in studying the effect of WCM on a firm's profitability. There are several reasons for this higher reliability; the first reason is that it measures only the performance of the operating activities of a firm. This is because the measurement of the gross operating profit, which is sales minus costs of goods sold, excludes taxes, interest costs, depreciation and amortization (Lazaridis and Tryfonidis, 2006 and Gill et al., 2010). The second reason is also based on the fact that this measurement focuses on the operational performance. This is because it excludes the income gained through the financial activities by firms'; this is done through the exclusion of fixed financial assets, which are deducted from the total assets. GOP is calculated as follows (Lazaridis & Tryfonidis, 2006 and Deloof, 2003):

### **Determinants of Profitability**

Firm profitability and its determinants are a well addressed research topic in the field of industrial organization. Modern literature provides two schools of competing models of firm profitability (Andreas, 2009) which are Firm effect model and structure-conduct-performance (SCP). The structure-conduct-performance (SCP) model postulates that the degree of concentration in an industry determines firm behaviour and profitability while the fundamental assumption in firm effect models is that firms are heterogeneous within an industry. A higher concentration enables collusion between firms which can lead to higher profits. Firm effect models argue that differences in firm-level characteristics, such as efficiency level, organizational structure or quality of management, exist, persist and cause differences in profitability (Andreas, 2009).

Profitability of firms is determined by both internal and external factors. Internal determinants of profitability are firm specific while the external factors are industry related. Internal factors of size, liquidity, leverage and financial assets of the firm have been found to have a major impact on profitability other than WCM (Khawaja *et al.*, 2013).

### **Empirical Studies on Working Capital Management and Firm's Profitability**

There are a number studies that assessed working capital management from the perspective of both developing and developed nations. 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 a period of 1992-1996. By using correlation and regression tests, he found 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 suggests that managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories. Narasimhan and Murty (2001) stress on the need for many industries to improve their return on capital employed by focusing on some critical areas such as cost containment, reducing investment in working capital and improving working capital efficiency.

Ghosh and Maji (2003) attempted to examine the efficiency of working capital management of Indian cement companies during 1992 - 93 to 2001 - 2002. They calculated three index values; performance index, utilization index, and overall efficiency index to measure the efficiency of working capital management, instead of using some common working capital management ratios. By using regression analysis and industry norms as a target efficiency level of individual firms, Ghosh and Maji (2003) tested the speed of achieving that target level of efficiency by individual firms during the period of study and found that some of the sample firms successfully improved efficiency during these years.

Lyrودي and Lazaridis, (2000) used Greek food industry to examine the cash conversion cycle (CCC) as a liquidity indicator of the firms and tried to determine its relationship with the current and the quick ratios. Hence, the main objective of the study was to investigate the implications of the CCC in terms of profitability, in-debtness and firm size. The results of their study indicate study showed that there is significant positive relationship between the cash conversion cycle and the traditional liquidity measures of current and quick ratios. The cash conversion cycle also positively related to the return on assets and the net profit margin but had no linear relationship with the leverage ratios. Conversely, the current and quick ratios had negative relationship with the debt to equity ratio, and a positive with the times interest earned ratio. Finally, the study concluded as there is no difference between the liquidity ratios of large and small firms. In the same country, Lazaridis and Tryfonidis (2006) investigated the relationship between working capital management and corporate profitability of listed company in the Athens Stock Exchange. They conducted a penal study by using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001–2004. The result from regression analysis showed that, there is statistically significant relationship between profitability, measured through gross operating profit, and the cash conversion cycle and its components (accounts receivables, accounts payables, and inventory). Based on the results, they concluded that

managers could create value for shareholders by correctly handling the cash conversion cycle and keeping each different component to an optimum level.

Padachi (2006) in his study used return on total assets as a measure of profitability and the relation between working capital management and corporate profitability, which is investigated for a sample of 58 small manufacturing firms, using panel data analysis for the period 1998 – 2003. The regression result of his study indicates that high investment in inventories and receivables is associated with lower profitability. The key variables used in the analysis are inventories days, accounts receivables days, accounts payable days and cash conversion cycle. His study also reveals significant relationship between working capital management and profitability has been found in previous empirical work. An analysis of the liquidity, profitability and operational efficiency of the five industries shows significant changes and how best practices in the paper industry have contributed to performance. The findings also reveal an increasing trend in the short-term component of working capital financing.

Raheman and Nasr (2007) studied the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms. They selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of six years from 1999 - 2004 and found a strong negative relationship between variables of working capital management and profitability of the firm. They found that as the cash conversion cycle increases, it leads to decreasing profitability of the firm and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level.

Afza and Nazir (2009) made an attempt to investigate the traditional relationship between working capital management policies and a firm's profitability for a sample of 204 non-financial firms listed on Karachi Stock Exchange (KSE) for the period 1998-2005. The survey study found significant different among their working capital requirements and financing policies across different industries. Moreover, regression result found a negative relationship between the profitability of firms and degree of aggressiveness of working capital investment and financing policies. They suggested that managers could increase value if they adopt a conservative approach towards working capital investment and working capital financing policies.

Falope and Ajilore (2009) used a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found 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 a sample of fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working capital management between large and small firms.

Amargit *et al.*, (2010) investigated the relationship between the working capital management and the firms' profitability for a sample of 88 American manufacturing companies listed on the New York Stock Exchange for the period of 3 years from 2005- 2007. They were primarily sought to extend Lazaridis and Tryfonidis's (2006) findings by testing with the same hypothesis. They found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. The study concluded that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level.

Dong (2010) reported that the firms' profitability and liquidity are affected by working capital management in his analysis. Pooled data are selected for carrying out the research for the era of 2006-2008 for assessing the companies listed in stock market of Vietnam. He focused on the variables that include profitability, conversion cycle and its related elements and the relationship that exists between them. From his research it was found that the relationships among these variables are strongly negative. This denote that decrease in the profitability occur due to increase in cash conversion cycle. It is also found that if the number of days of account receivable and inventories are diminished then the profitability will increase numbers of days of accounts receivable and inventories.

Mohammad and Noriza (2010) worked on crafting the relationship between Working Capital Management (WCM) and performance of firms. For their analysis they chose the Malaysian listed companies. They administered the perspective of market valuation and profitability. They used total of 172 listed companies from the databases of Bloomberg. They randomly selected five year data (2003-2007). They applied two different techniques for analyzing the data that are multiple regression and correlations. They found that there is a negative relationship between working capital variables and the firm's performance.

Khawaja *et al.* (2013), using panel data from 332 manufacturing firms listed on respective stock Exchanges in Asia including China, Japan, India, Pakistan, Bangladesh, Iran and Korea, found out that working capital management directly impacts the firm's profitability. The study used multiple regression analysis and Pearson's correlation and collected secondary data for the period 2006-2010.

Akoto *et al.*, (2013) analyzed the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used data collected

from annual reports of all the 13 listed manufacturing firms in Ghana covering the period from 2005 – 2009. Using panel data methodology and regression analysis, the study found a significant negative relationship between profitability and accounts receivable days. The study suggests that managers can create value for their shareholders by creating incentives to reduce their accounts receivables to 30 days. It is further recommended that, enactments of local laws that protect indigenous firms' and restrict the activities of importers are eminent to promote increased demand for locally manufactured goods.

In Kenya, Ouma (2001) studied cash management approaches employed by companies quoted at the NSE. From a sample of 27 companies, her findings indicated that quoted companies apply specific policies in the management of their cash balances and plan for the cash balances. Nyakundi (2003) studied working capital management policies among the public companies in Kenya. From a sample of 30 companies quoted at the NSE covering a period from 1998 – 2002, he conclude that most companies practiced the aggressive WCM policies. From a simple regression analysis he found no relationship between the WCM policies and return on equity (ROE).

Ochieng (2006) carried out a study on firms' quoted at the NSE over the last 20 years on the relationship between working capital and the economic activities in Kenya. The objective of the study was to explain how the changes in economic activities affect changes in working capital by firms listed at the NSE. The findings revealed that the liquidity of small firms as measured by the current and quick ratios increased slightly during economic slowdown. The study also showed that liquidity positions reacted differently to various economic indicators of inflation and lending rates. With lending rates, the study found that it indeed did affect the amount of working capital for the firms and this further showed that during times of economic contraction, working capital positions improved.

Mathuva (2009) studied the impact of WCM on the performance of almost 30 firms listed at the NSE and the data was taken from 1993 – 2008. From the study, he concluded that receivables period and firms' performance was negatively related. This depicts that firms that are more profitable enjoys less time period for the collection of cash from the customers compared to the ones that are less profitable. Secondly, there was a positive relationship between inventory period and firms' profitability. The interpretation comes out as that firms which take more time to keep inventory reduces the cost of disruption in the process of production thus business losses due to insufficiency in the goods. This leads to decreases in operating costs of the firm. He also found out that the relationship between the payables period and profitability of the sampled firms was positive, meaning that the longer the lagging of payments to creditors, the higher the profitability.

Mutungi (2010) carried out a study on the relationship between working capital management and financial performance of oil marketing firms in Kenya. The study objective was to establish the working capital management policies among oil marketing firms and to examine the relationship to profitability. From the correlation analysis, the study concluded existence of aggressive working capital policy in the oil sector.

Nyabwanga *et al.*, (2012) assessed the effect of working capital management practices on the financial performance of SSEs in Kisii south district. A sample of 113 firms comprising 72 trading and 41 manufacturing was used. Pearson's correlation coefficient and multiple regression analysis techniques were used to analyze the data. Consequently, the findings of the study were that working capital management practices were low amongst SSEs as majority had not adopted formal working capital management routines and their financial performance was on a low average. The study also revealed that SSE financial performance was positively related to efficiency of cash, receivables and inventory management.

Gakure *et al.* (2012) analyzed the relationship between working capital management and performance of 15 manufacturing firms. They used secondary data from a sample of 18 companies at the NSE. A regression model was used to establish the relationship between the dependent and independent variables. Pearson's correlation was also used. The results indicated that there was a strong negative relationship between firm's performance and liquidity of the firm. The study found that there was a negative coefficient between receivable period, payment period and inventory period and profitability while the CCC found to be positively correlated with profitability.

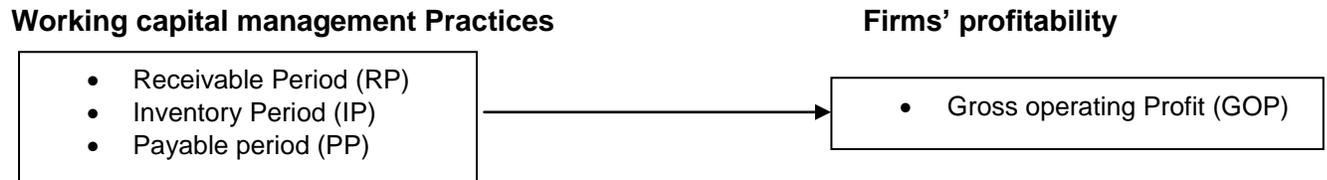
Omesa *et al.*, (2013) examined the relationship between working capital management and corporate performance of manufacturing firms listed at the NSE. A sample of 20 manufacturing companies whose data for 5 years from 2001 – 2011 were selected. Principal components analysis (PCA) was used due to simplicity and its capacity of extracting relevant information from confusing data sets. From the results of PCA and multiple regressions, working capital proxies CCC, ACP, CLTA, NSCA and FATA were significantly correlated with ROE. Further, ACP was found to be negatively related with ROE.

### **Conceptual Framework**

Based on the literature the following conceptual framework has been adopted (Figure 1). The independent variable of the study adopted three practices of working capital. These practices are inventory, receivables and payables period. The dependent variable of the study is the gross operating profit ratio which was calculated by the dividing GOP with the sales of the manufacturing firms. According to (Nishanthini and Nimalathan, 2013), GOP depicts the

purchasing efficiency of an enterprise. The higher the gross profit ratio, the better the purchasing efficiency of the enterprise and also a high ratio of gross profits to sales is a sign of good management as it implies that the cost of production of the firm is relatively low. But a relationship low gross margin is definitely a danger signal. Lazaridis and Tryfonidis (2006), confers that GOP can be used as a determinant of firm's profitability.

Figure 1: Conceptual Framework



## RESEARCH METHODOLOGY

### Research Design

This study adopted a correlation research design. This is because correlation research is concerned with studying a problem in order to explain the relationship between variables. Kothari (2008) noted that correlation research tries to examine the relationship among variables without necessarily trying to establish if one variable causes the other. The study was a census because it targeted all the manufacturing firms listed at the NSE. The data was analysed using a linear regression model and a one way ANOVA at 95% degree of confidence.

### Target Population

The target population for this study comprised all companies which are listed at the NSE under the manufacturing and allied and agricultural sector by June 2013. According to CMA (2013) 9 manufacturing companies and 7 agricultural firms were listed at the NSE by the end of June 2013 (see appendix 2). These companies will comprise the population of the study.

### Sample Size and Sampling Procedure

Purposive sampling design was used in this study. Gill and Johnson (2010) observe that purposive sampling enables a researcher to select samples that would yield the most comprehensive understanding of the subject matter. Firms that were listed at the NSE and were engaged in active trading throughout the five year period (2008-2013) were selected to constitute the sample and with published financial results for up-to the financial year 2012-2013. Fourteen(14) companies were listed at the NSE between 2008-2013 and had the latest

financial statements published under the manufacturing and agricultural sector following the suspension of A. Baumann CO Kenya hence they have not been in active business thus missing data (see appendix 2). These manufacturing companies formed the sample of the study.

### Data Collection

Data on working capital management practices and profitability were collected mainly from the secondary sources. Annual published financial statements for the 2012-2013 year were used for this study. The data were gathered using data collection sheets (appendix 1). Data on working capital management practices consisted of inventory period, receivable period and payment period. The reason for choosing these variables is that most of researchers (Deloof, 2003; Garcia-Teruel & Martinez-Solano, 2007; Jose *et al.*, 1996; Nazir & Afza, 2009; Raheman & Nasr, 2007; Huang *et al.* (2009); and Shin & Soenen, 1998) have used these to calculate the relationship between WCM and profitability in various markets. On the other hand, data on profitability included Gross operating Profit (GOP). According to (Nishanthini and Nimalathasan, 2013), GOP depicts the purchasing efficiency of an enterprise. The higher the gross profit ratio, the better the purchasing efficiency of the enterprise and also a high ratio of gross profits to sales is a sign of good management as it implies that the cost of production of the firm is relatively low. But a relationship low gross margin is definitely a danger signal. Lazaridis and Tryfonidis (2006), confers that GOP can be used as a determinant of firm's profitability.

### Data Analysis

Pearson's correlation coefficient was used to determine the correlation between the working capital management practices (receivables period, inventory period and payables period) and profitability (GOP) and to test the research hypotheses. Two-tailed test were carried out to test the significance of the research variables at 95% level of significance. Regression analysis was used in order to test the effect of the working capital management practices on the profitability. The regression model adopted by the research is as follows: involving the working capital management practices as independent variables and GOP as the dependent variable:

$$G.O.Pit = \beta_0 + \beta_1 (RP) + \beta_2 (IP) + \beta_3 (PP) + e$$

Where: GOP Gross operating profit of manufacturing firms

RP Receivable period

IP inventory period

PP Payable period

e Error term

$\beta_0 - \beta_3$  coefficients of the independent variables

The analysis was done using Statistical Product and Service Solutions (SPSS) in order to determine whether the WCM practices (inventory period, payable period and receivable period) has effect on the profitability of the manufacturing firms.

## RESULTS AND DISCUSSIONS

### Descriptive Analysis

Descriptive analysis presents the mean, standard deviation, minimum and maximum values of the profitability and all the working capital components involved in the study. Table 4.1 gives the descriptive statistics for the main variables used in this study. The descriptive analysis of all the variables in the study was sourced using SPSS software.

Table 1: Descriptive Statistics for Working Capital Practices and Profitability for Manufacturing Firms'

	Minimum	Maximum	Mean	Std. Deviation
Receivable Period (RP)	15	210	84.75	52.192
Payables Period (PP)	11	295	105.14	73.988
Inventory Period (IP)	24	204	90.50	52.916
GOP	.06	.64	.3614	.17832

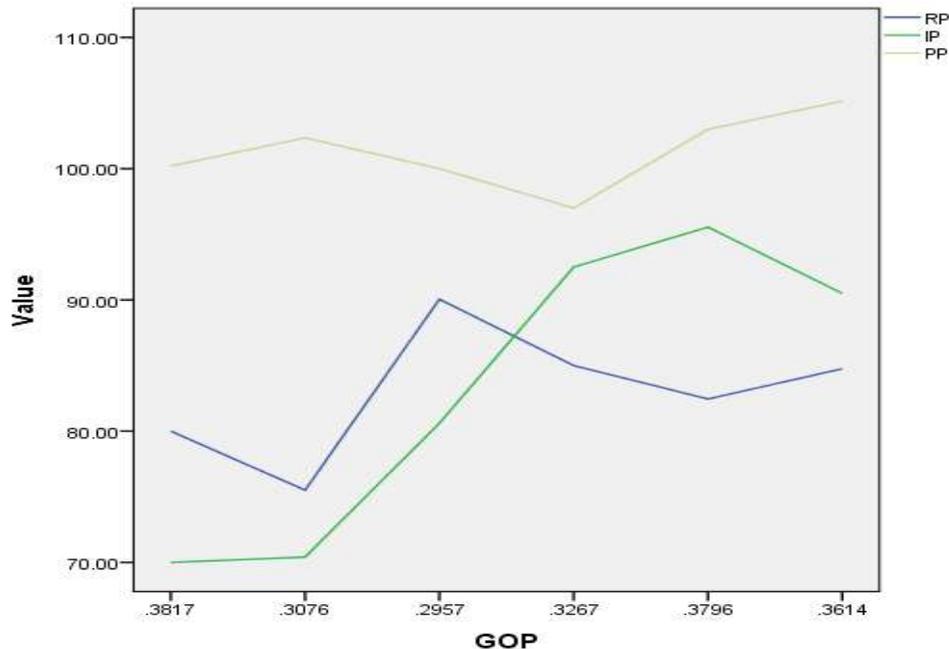
From table 1, the data shows that the profitability for the manufacturing firms ranges from 0.06 to 0.64 with a mean of .36 and a standard deviation of .18. The GOP is the ratio of gross profit to the sales of the manufacturing firms'. Therefore the study considered the GOP ratio as a measure of profitability because previous studies have found it to be reliable and the data on this measure of profitability was reliably assessed in the reported financial statements of the manufacturing firms. RP has a minimum of 15 days and a maximum of 210 days with a mean of 84.75 days. This means that the credit period that manufacturing firms extend to its creditors for a period of 84 days thus must find efficient working capital policy.

Furthermore, from table 1, the study also finds that Payment Period (PP) has a range of 11 to 295 days with a mean of 105 days, meaning that manufacturing firms' takes longer period to pay off their debts thus holds more cash in order to enable them to run other functions. This is also advantages to the manufacturing because study has shown that the longer the payment period, the business would be able to meet other short term obligations.

Inventory Period (IP) ranges between 24 and 204 days with a mean of 90.5 days. This indicates that the minimum amount of days the manufacturing firms' takes to convert their inventory is 24 and some take up to 204 days. In addition, the trends of working capital

management practices for the study period were conducted in order to show its variation compared to profitability and the results are shown in figure 2.

Figure 2: Working capital practices and GOP trends for the manufacturing firms for the period 2008 – 2013



From the figure 2, the results shows working capital management practices values on the x axis and profitability of manufacturing firms for the five years from 2008- 2013. Payables period is high than the other aspects of working capital management. This indicates that manufacturing firms takes a longer period to settle their creditors thus have more cash within themselves for other profitable investments. Receivable period on the other is higher than inventory period thus manufacturing firms takes a shorter time to collect their debts from debtors thus allows them to invest on other investment. This therefore allows them to have a higher disposable income leading to higher profitability. Figure 4.1, further show that inventory period is lower at a certain years and higher on other period compared to receivables period. Therefore, the results thus show that inventory period at times contributes to the profitability significantly when it is managed properly.

### Correlation Analysis and Hypotheses Test

Correlation analysis was undertaken in order to test the relationship between the various variables involved in the study and also to test the research hypotheses. This analysis helped to

establish the nature of the relationship that exists between the variables of the study. In the interpretation of the correlation between variables, the absolute value was used whereas the sign only indicate the nature of relationship whether positively or negatively correlated.

### ***Receivable Period and Profitability of Manufacturing Firms***

The first objective of the study was to establish whether there was no significant relationship between receivable period and GOP of the manufacturing firms listed and the results are discussed in the Table 2. According to the results, RP is negatively correlated with the GOP with r- value of -.154, at  $p=0.05$  indicating that companies should be collecting their receivables' within a short span of time in order for them to realize increased profits. This means that the efficient receivable period of manufacturing companies explains about 15% of GOP in the said firms. In addition the results show that they are significant at 95% level of significance.

Table 2: Correlation Matrix for Receivable Period and Profitability of Manufacturing Firms'

		Receivables period	Gross profit ratio
Receivables Period	Pearson Correlation (r)	1	-.154
	Sig. (2-tailed)		.002
Gross Profit Ratio	Pearson Correlation		1
	Sig. (2-tailed)		
	N	14	14

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

Hypothesis 1, of the study hypothesized that receivable period has no significant effect on the profitability. According to the results in Table 2, the p-value of RP is .002, which less than the traditional .05 of two-tailed analysis meaning that RP has a significant effect on Profitability thus the study rejects the null hypothesis. The r of -.154 indicates that its square show how the predictor of profitability in this case RP, will affect the GOP of the manufacturing firms.

These findings mean that firms early in collecting their receivables earn higher profits as compared to firms recovering receivables late. These findings are in line with those of previous studies, Hyder et al. (2007) who investigated the dependence of profitability on working capital management of manufacturing firms listed on respective stock exchanges in Asia including China, Japan, India, Pakistan, Bangladesh, Iran and Korea and established a significant negative relationship between receivable period and firm's profitability. Raheman and Nasr (2007) also established that most of the firms invest huge amount of cash in their working capital, thus profitability was inversely related to receivable collection period. Deloof (2003) used a sample of 1,009 large Belgian non-financial firms for a period of 1992-1996. By using

correlation and regression tests, he found significant negative relationship between gross operating income and the number of days accounts receivable. Based on the study results, he suggests that managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories. Akoto et al, (2013) analyzed the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used data collected from annual reports of all the 13 listed manufacturing firms in Ghana covering the period from 2005 – 2009. Using panel data methodology and regression analysis, the study found a significant negative relationship between profitability and accounts receivable days. The study suggests that managers can create value for their shareholders by creating incentives to reduce their accounts receivables to 30 days. Mathuva (2009) studied the impact of WCM on the performance of almost 30 firms listed at the NSE and the data was taken from 1993 – 2008. From the study, he concluded that receivables period and firms' performance was negatively related. This depicts that firms that are more profitable enjoys less time period for the collection of cash from the customers compared to the ones that are less profitable.

### ***Inventory Period and the Profitability of Manufacturing Firms***

The study in trying to find the effect of IP on the profitability of the manufacturing firms hypothesized that IP has no significant effect on GOP. According to the results in Table 3, there is a negative correlation between IP and GOP. This means that in order for profitability to be achieved, the inventory period must be shorter. This ensures that the time taken to convert inventory to cash is shorter thus the managers will have enough resources to allocate to other short term obligations.

Table 3: Correlation Matrix between Inventory Period and Profitability of Manufacturing Firms'

		Inventory period	Gross profit ratio
Inventory Period	Pearson Correlation	1	-.107
	Sig. (2-tailed)		.004
Gross Profit Ratio	Pearson Correlation		1
	Sig. (2-tailed)		

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

Secondly, according to the results in Table 3, the study concludes that at 95% level of significance, IP has a significant effect on GOP thus the null hypothesis is rejected, given that  $r = -.107$  and  $p$ -value of .004 which is less than .05. This means that Firms with high inventory period earn low profits as compared to firms with low inventory turnover in days.

Previous researches predicted negative relationship between ICP and firms profitability. The results of this research are in line with the previous findings. The findings indicate that Inventory conversion period has an inverse relationship with firms' profitability i.e. when the ICP days increase the profitability of firm decreases and vice versa. These results complied with those from studies by Raheman and Nasr (2007), Deloof (2003), Garcia-Teruel and Martinez-Solano (2007) and Falope and Ajilore (2009) who found negative relationship between ICP and profitability of firms. The relationship in this study is significant because for every one day decrease of ICP the increase in profit was 0.12 percent.

This means that maintaining high inventory levels reduces the cost of possible interruptions in the production process and the loss of business due to scarcity of products. Maintaining high levels of inventories also helps in reducing the cost of supplying the products and protects the firm against price fluctuations as a result of adverse macroeconomic factors as observed by Blinder and Maccirri (1991). However, the results of this study are inconsistent with the results of the studies conducted by Padachi (2006), Garcia-Teruel and Martinez-Solano (2007), Deloof (2003), Raheman and Nasr (2007) and Raheman, Afza, Qayyum, & Bodla (2010) in their respective analysis of the relationship between profitability and number of days of inventory. Mathuva (2009) studied the impact of WCM on the performance of almost 30 firms listed at the NSE and the data was taken from 1993 – 2008. From the study, he found out that there was a positive relationship between inventory period and firms' profitability. The interpretation comes out as that firms which take more time to keep inventory reduces the cost of disruption in the process of production thus business losses due to insufficiency in the goods. This leads to decreases in operating costs of the firm.

### ***Effect of Payable Period on Profitability***

According to the results obtained between the PP and GOP, there is a negative correlation between the variables. The PP R-value is -.234 and a p-value of .002 meaning that PP has a significant impact on GOP.

Table 4: Correlation Matrix between Payables Period and Profitability of Manufacturing Firms'

	Inventory period	Gross profit ratio
Inventory Period	Pearson Correlation	1
	Sig. (2-tailed)	-.234
Gross Profit Ratio	Pearson Correlation	1
	Sig. (2-tailed)	.002
	N	14

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

Hypothesis 3 (H<sub>3</sub>) of the study, stated that PP has no significant effect on the profitability. According to the results in table 4, it shows that there is a significant relationship between PP and GOP, therefore the null hypothesis is rejected at 95% level of significance. Further to the above observation, the firms that delay their payables tend to have higher profits compared to those that settle their payable accounts faster because they tend to have much disposable funds that can be utilized elsewhere. This suggests that, an increase in the number of day's accounts payable by 1 day is associated with an increase in profitability. Contrary to DeLoof (2003), Raheman and Nasr (2007), Sharma and Kumar (2011) and Padachi (2006), this finding holds that more profitable firms wait longer to pay their bills. This implies that they withhold their payment to suppliers so as to take advantage of the cash available for their working capital needs. Lazaridis and Tryfonidis (2006) found that there was positive relationship between payment period and profitability; this means profitable firms delay their payments. Ramachandran and Janakirama (2006), in their analysis of the relationship between working capital management efficiency and Earnings before Interest and Taxes (EBIT) also found that there was a positive relation between payable period and EBIT, indicating that profitable firms delay their payables. In contrast, Falope and Ajilore (2009) found a significant negative relationship between net operating profit and the average payment period, implying that companies with short payment period are unprofitable. The inverse relationship could be explained by the discounts enjoyed by the firms by paying the suppliers in time, thus reducing the cost of production.

### Regression Analysis for Working Capital Practices on Profitability

Correlation analysis revealed that the variables of working capital management and profitability are correlated. Therefore, regression analysis was calculated in order to establish which variable of working capital management has a higher impact on profitability of the manufacturing firms and to test the overall objective of working capital management practices on the profitability.

Table 5: Regression Model Summary

Model Summary <sup>b</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.323 <sup>a</sup>	.104	-.164	.19241	.104	.389	3	10	.0001	2.272

a. Predictors: (Constant), IP, PP, RP

b. Dependent Variable: GOP

The results in Table 5, shows a model summary of the regression analysis. It shows that working capital management practices has an  $r^2$  value of .104, meaning that they contribute to about 10% on the profitability. However in order to arrive at an accurate interpretation, due to small sample size, it's advisable to use the adjusted  $r^2$ . Therefore, working capital management practices contributes to about 16% of variation on profitability of the manufacturing firms listed at the NSE. Based on the findings of the study, working capital management practices has a significant on profitability thus hypothesis 4 is rejected.

These study findings are in line with the previous studies which found out almost the same range of adjusted  $r^2$ . According to Padachi 2006, while carrying a study on the Trends in Working Capital Management and its Impact on Firms' Performance of Mauritian Small Manufacturing Firms using regression analysis the adjusted R-squared was found to explain 14% of the variation in profitability. Ifran 2012, studying the impact of working capital management on the performance of the firm using a sample of 253 non-financial listed companies of Karachi Stock Exchange (KSE), Pakistan found out that the value of R-square 0.122 shows that only 12.2% of the change in ROE was explained by the independent variables. Shin and Soenen (1998) argued that the negative relation between profits and the working capital practices as measured by cash conversion cycle could be explained by the market power or the market share, i.e., a shorter CCC because of bargaining power by the suppliers and/or the customers as well as higher profitability due to market dominance.

Table 6: Regression Coefficients

		Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.407	.130		3.122	.011		
	RP	.001	.001	.231	.705	.002	.838	1.193
	PP	-.001	.001	-.283	-.899	.01	.905	1.105
	IP	.000	.001	-.134	-.425	.004	.900	1.111

a. Dependent Variable: GOP

According to table 6, individual effect of working capital management practices to profitability is measured as shown by the column for standardized coefficients. Therefore, according to the results PP has a greater effect on the profitability with a beta ( $\beta$ ) value of .283. This means that it contributes to about 28.3% to profitability. Consequently, RP has a  $\beta$  value of .231 thus contributes about 23% to profitability. Inventory period (IP), has the least effect on the profitability with a beta ( $\beta$ ) of -.134. Further, according to previous studies VIF has been used to

measure the multicollinearity among the predictors in the regression model and VIF value for all the predictors is less than 5. This shows that there was no multicollinearity among the independent variables.

Regression model summary:

$$G.O.Pit = .407 + .001(RP) + .0005(IPit) - .001(PP) + e$$

## SUMMARY

The results of the research show that in the studied companies there is a significant relation between working capital management practices and profitability. Firstly, the objective of the study sought to find out the effect of receivables on the profitability of the manufacturing firms. Based on the findings of the study, there was a positive relationship between receivables period and profitability of the firms studied.

Secondly, the study hypothesized that inventory period had no significant effect on the profitability of manufacturing firms. The objective was to seek the effect of inventory period on the profitability. From the study finding, inventory period was found to have a negative relationship with profitability based on the correlation analysis. Therefore inventory period has an effect on the profitability.

Thirdly, the objective of the study sought to find out the effect of payables period on the profitability and hypothesized that payables period had no significant effect on the profitability of firms'. From the findings of the study, there was a negative relationship between payables period and profitability. This means that payables period has an effect on the profitability.

Fourthly, the study sought to find out the effect of working capital practices on the profitability of the firms' and regression analysis was undertaken. It also hypothesized that there was no significance between working capital management practices and profitability. From the findings, it was found that working capital management practices has an influence on the profitability of the manufacturing firms.

## CONCLUSIONS

Considering the result of the research, company main aim must be efficient working capital management which in turn will improve the performance. Since inefficient working capital management practices, the company will have to be provided financially out of the company. It causes expenses increase and value decrease in the company. In general, the following practices makes working capital management efficient; By means of reduce inventory period by processing them and quick sale of the products. By decreasing receivable period by speeding

receivables reception, slowing company's payments, this operation continues up to the time that doesn't cause expense increase and sale.

On the other hand, firms should collect receivables as soon as possible because it is better to receive inflows sooner than later. Gross operating profit on the other hand it is negatively correlated with the cash conversion cycle. This means that by shortening CCC, firms' profitability improves. The longer the CCC, the more the firm must invest in working capital. The study therefore concludes that there is a relationship between the various components of working capital indicating that effective working capital management has a great impact on profitability.

Working capital management is the most important decisions in knowledge of financial management. The ability of corporate for long term activity related to this subject that financial managers apply optimum management for working capital management. The managers of manufacturing firms can create balance between corporate profitability and liquidity and get optimum working capital management. This study findings lead to the conclusion that components of working capital influences profitability of manufacturing firms listed at the NSE. These Results indicate that there is significant relationship between corporate performance and components of working capital (net liquidity balance).

## **RECOMMENDATIONS**

Based on the results of the study, managers should focus on efficient working capital practices in order to ensure the profitability and availability of cash for the day to day running of the business. Firstly, managers should ensure a shorter receivables period in order to reduce the time taken by the creditors in clearing their bills. This will ensure that the business has sufficient cash at its disposal for use on other day to day activities of the entity.

Secondly, the managers should also ensure that the period of converting inventory to cash should be shorter and adequate for them to ensure efficient running of the business. In addition they will reduce the amount invested in stocks that might lie idle for longer periods of time thus tying up capital that might have been used on other profitable ventures that would increase the shareholder equity. Thirdly, the managers should ensure that they delay payments to their suppliers in order to free enough cash for other investments.

## **AREAS FOR FURTHER STUDIES**

The following are some of the areas that further research may be focused:

- a) Similar study on the impact of other determinants of profitability other than the working capital, these factors include size of the firm, leverage and liquidity.

- b) A study on the impact of external factors on working capital management in manufacturing companies.
- c) Similar study with an extended scope to cover other components of working capital management including cash and marketable securities.

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