THE RELATIONSHIP BETWEEN WORKING CAPITAL MANAGEMENT AND PROFITABILITY OF LISTED COMPANIES IN THE NAIROBI STOCK EXCHANGE

BY

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DECLARATION

This research project is my original work and has not been presented for a degree award in any other University

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LIST OF ABBREVIATIONS

ACP	-	Average Collection Period
AIMS	-	Alternative Investment Market Segment
APP	-	Average Payment Period
CCC	-	Cash Conversion Cycle
CMA	-	Capital Markets Authority
CR	-	Current Ratio
DR	-	Debt Ratio
FATA	-	Fixed Financial Assets Ratio
GOP	-	Gross Operating Profit
ITD	-	Inventory Turnover in Days
JSE	-	Johannesburg Stock Exchange
LOS	-	Natural Logarithm of Sales
MIMS	-	Main Investment Market Segment
NSE	-	Nairobi Stock Exchange
NTC	-	Net Trading Cycle
OLS	-	Ordinary Least Squares
ROI	-	Return on Investment
SPSS	-	Statistical Package for Social Sciences
WCM	-	Working Capital Management

ABSTRACT

A well designed and implemented working capital management is expected to contribute positively to the creation of shareholders' wealth. The purpose of this study was to determine the empirical relationship between working capital management and firm's profitability. The study used secondary data obtained from annual reports and financial statements of companies listed on the Nairobi Stock Exchange (NSE).

A sample of 24 companies listed on the (NSE) for a period of six (6) years from 2001 – 2006, were studied to determine the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period and cash conversion cycle on the gross operating profitability. Current ratio, size of the firm (measured in terms of natural logarithm of sales), fixed financial assets to total assets ratio and debt ratio were used as control variables

Pearson's correlation and regression analysis (pooled least squares) were used for analysis. The results show that there is a statistical significant negative relationship between variables of working capital management and the profitability of firms except for the average payment period which showed a positive relationship. This means that managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component of working capital management (accounts receivables accounts payables and inventory) at an optimal level

CHAPTER ONE

INTRODUCTION

1.1   Background

1.1.1 Meaning of Working Capital Management

The basic reason for a company's existence is to make a profit. For a product to be sold to make a profit, certain inputs are needed to first make it. Once a product is sold, the proceeds are re-invested into the company to make further products, and make more profits. Herein lies a problem. When a product is produced and sold, ideally the cash against the sale should be received immediately. This does not happen in the real world. There is a time lag between the time that goods are sold and realizing profits. If a company waits until this money comes in, for it to be re-invested and goods are produced again, the entire plant and machinery could be prone to lying idle for long durations. Thus, to ensure smooth operations through this time lag, each company earmarks funds. This is known as working capital for that business entity (Murali, 2000)

Working capital management also known as short-term financial management largely deals with the management and control of current assets and current liabilities. Theoretically, there are two concepts of working capital namely gross working capital (comprising total current assets) and net working capital (i e current assets less current liabilities). Current assets consists of cash in hand, cash in bank and cash in transit, investments (short-term quoted shares of other companies intended for sale), inventories (raw materials, work-in progress and finished goods), accounts receivables and bills receivables and loans and advances given by the company to others. Current liabilities consist of accounts and bills receivables, trade advances (received by the company for supply of goods/services), short-term loans from other sources and provisions for payment of taxes, bad debts to be written-off and fluctuations of exchange rates. However, in practice, the working capital management concerns the management of total current assets and total current liabilities too, which varies depending on the level

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of current assets required. Thus the term net working capital is only an accounting concept, not having much meaning of economic or financial significance (Mathur, 2002).

In fact, working capital management mainly pertains to the management of current assets. But it also involves management of current liabilities because these arise due to the volume and value of the current assets required. It is therefore good sense to keep the level of current assets to the minimal level whereby the level of current liabilities would automatically be low enough hence the interest and opportunity cost too therewith

Working capital management involves the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash

Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on the one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004)

1.1.2 Profitability

Profitability is measured with income and expenses. Income is money generated from the activities of the business. Operating profit is a measure of a company's earning power from ongoing operations, equal to earnings before the deduction of interest payments and income taxes. Measuring profitability is the most important measure of the success of the business. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment

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Profitability is thus the primary goal of all business ventures. Without profitability the business will not survive in the long run. So measuring current and past profitability and projecting future profitability is very important. Gross profit is profit before selling, general and administrative costs, like depreciation and interest; it is the sales less direct cost of goods (or services) sold (COGS) while net profit is the sales of the firm less costs like wages, rent, fuel, raw materials interest on loans and depreciation. Costs such as depreciation and amortization tend to be ambiguous (Mathur, 2002)

1.1.3 Need for Working Capital Management

In a perfect world, working capital assets and liabilities would not be necessary because there would be no uncertainty, no transaction costs, no scheduling costs of production or constraints of technology. The unit costs of producing goods would not change with the amount produced. Firms would borrow and lend at the same interest rates. Capital, labour and product markets would reflect all available information and would be perfectly competitive. In such an ideal business world there would be little need to hold any form of inventory other than a limited amount of goods in process during production. But such an ideal business assumes that demand is exactly known in advance, that suppliers keep to their due dates, production can be smoothed and orders executed directly without costs and delays. There would be no need of holding cash for working capital other than for the initial costs, because it could be possible to make the payment from every receipt of sales. There would also be no need for accounts receivables and payables if customers pay cash immediately and the firm would also make its payments promptly. However, problems of working capital exist because these ideal assumptions are never realistic and therefore working capital levels make a significant part of a firm's investment in assets and these assets have to be financed implying that investments may have benefits as well as costs (Meer-Kooistra and Eije, 2002)

Working capital is required by a business entity in a variety of areas. It is used to maintain inventories of raw materials, spares and stores and also finished as well as semi-finished goods. It finances credit sales (receivables), cash in the bank and in hand, and also short-term loans and advances. The latter category could be to employees, franchises, dealers etc. All these are called current assets and can be converted into cash during a financial year. Together they comprise the gross working capital of a business entity (Murali, 2000).

Importance of working capital management

Working capital management is important due to many reasons. Working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. The top-line (sales) of company might have grown for a company, but the bottom-line (net profit) could have been weighed down by various factors like rising inventory levels, higher accounts receivables, resulting in more borrowings, and hence, higher interest payments (Murali, 2000).

From a shareholder's point of view, the most important aspect is the effective management of working capital by a company. Prudent and effective management of working capital becomes necessary as neither does it come free nor does it come cheap. There is an opportunity cost attached to management of working capital besides the inevitable interest burden that comes due to short term bank borrowings. The cost of working capital can be especially high during times of economic slowdowns as inventories and receivables would rise, bloating the current assets considerably. In addition, current liabilities would not keep pace with current assets, as creditors would shy away in such cases. With wide gap building up between current assets and current liabilities, it becomes more expensive to finance working capital, and the result is a huge hit on the profitability (Murali, 2000).

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Further, piling accounts receivables and inventories also provide another problem to the company- that of affected cash flows. Large cash outflows like dividends and interest payments are liable to get affected due to a fall in cash flows. A lot of companies finance these shortfalls by way of long-term loans which again puts the company in a tight spot, as funds for financing its expansion plans would have been utilized for such activities. This puts further pressure on the company's ability to make profits. In addition, for small companies current liabilities are the principal source of external financing as they do not have access to long-term capital markets. Also large and fast-growing firms make use of current liability financing (Murali, 2000).

More fundamental however, is the effect working capital decisions have on the company risk, return and share price. Adequate level of working capital is therefore vitally important for the survival of any business.

Moreover, effective management and control of the various components of the working capital has been rated as one of the most important and vital functions of financial management in any business due to the following (Mathur, 2002):

Flexibility: Working capital management is highly flexible in nature, so much such that it can very easily be adapted to suit even extreme conditions like rising and falling demands in peak and off peak seasons, buoyant and sluggish economic and market situations. Further, if some inappropriate policy or procedure is detected at a later stage, remedial and right steps can be adopted henceforth

Level of investments in the various components of current assets: Investments in current assets constitute a very substantial percentage (usually more than 50%) of the total investment in most manufacturing firms. The current assets of a typical manufacturing firm accounts for over half of its total assets. For a distribution company, they account for even more. Excessive levels of

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current assets can easily result in a firm realizing a sub-standard return on investment. On the other hand, firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Horne and Wachowicz, 2000).

Criticality: In the early nineties, an empirical study had revealed that most of the Indian companies had reported losses, as per the un-audited financial accounts, of the respective half-year periods. The study further reported that if the companies would have reduced the level of their inventories just by 1 percent, most of the loss making companies would have shown at least some marginal profits. Thus if only one of the components of working capital can make such a dramatic difference, the importance of meticulous management of all the components of the working capital (viz current assets, current liabilities and even a portion of deferred liabilities) can very well be imagined and appreciated.

Quantum of effects and time: Empirical studies and observations have revealed that a major portion of the time of finance managers in most of the companies is devoted (and rightly so) towards the management of the various components of the working capital with a view to maximizing their profitability and the prospects and prosperity therewith.

1.2   Statement of the Problem

A large number of business failures have been attributed to the inability of financial managers to plan and control properly the current assets and current liabilities of their respective firms (Smith, 1973). According to Deloof (2003) the way working capital is managed has a significant impact on profitability of firms. This indicates that there is a certain level of working capital requirement which potentially maximizes returns. Therefore, a key task for the financial manager is to determine the level of working capital which balances risk and return and maximizes shareholders' wealth. Over investing in working capital while it may reduce the firm's illiquidity risk simultaneously reduces profits and therefore

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shareholders wealth. On the other hand, under investing in working capital while it may increase risk of not being able to pay creditors, increases profits through reducing cost of funds tied up in current assets. Thus too much working capital reduces risk and return, too little working capital increases risk and return (Ross, Westerfield and Jaffe, 1996).

Efficient working capital management thus becomes an integral component of the overall corporate strategy to create shareholders' value. How efficient a firm is managing its working capital can be determined by the cash conversion cycle as it encompasses all the three important aspects of working capital management. This indicates that there is a strong relation between the cash conversion cycle of a firm and its profitability. In Kenya, studies have been undertaken focusing different aspects of working capital management. Ngaba (1990) studied the working capital management practices used in the Kenyan secondary schools. Nyakundi (2003) studied the working capital management policies among public companies in Kenya while Ochieng (2006) studied the relationship between working capital of firms listed in the Nairobi Stock Exchange (NSE) and the economic activity in Kenya. However, no study has specifically addressed the pertinent issue. Is there a significant relationship between efficient working capital and the firm's profitability?

The purpose of this study is to establish a relationship that is statistically significant between profitability, the cash conversion cycle and its components for the listed companies in the Nairobi Stock Exchange for the period 2001-2006. To achieve this, the study makes the following testable hypothesis {the null hypothesis H_0 versus the alternative hypothesis H_1}

H_0 There is no relationship between efficient working capital management and profitability of Kenyan firms

H_1 There is a possible positive relationship between efficient working capital management and profitability of Kenyan firms I e firms more efficient (shorter cash conversion cycle) in managing their working capital are expected to report high level of profitability and vice versa

1.3 Objectives of the Study

The study seeks to achieve the following

i   To establish how efficient the firms are in managing their working capital

ii.   To establish the relationship between profitability. the cash conversion cycle and its components for the listed companies in the NSE for the period 2001 2006

1.4 Significance of the Study

The findings of this study will have many benefits Some include the following

1   Companies are faced with the challenge of maintaining optimum working capital levels By carrying out a research on how efficient Kenyan firms are in managing their working capital, the research will identify the optimal working capital levels in terms of creating wealth for the shareholders The results of the research will provide a useful guide on which companies can rely when making working capital management decisions

2   Management consultants can use the results of the research as a guide in advising their clients (companies) on efficient working capital management

3   The research will be useful source material for academicians and students on working capital management

CHAPTER TWO

LITERATURE REVIEW

2.1   The Management of Working Capital

Many surveys have indicated that managers spend considerable time on day-to-day problems that involve working capital decisions. One reason for this is that current assets are short-lived investments that are continually being converted into other asset types (Rao, 1989) With regard to current liabilities, the firm is responsible for paying these obligations on a timely basis. Liquidity for the on-going firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993).

Working capital investments and related short-term finances originate from three main business operations - purchasing, producing and selling. They can be considered as consequences of business operations. However, as much as the operations affect the balances of working capital investments and finances, the later also determine the cost and flexibility with which the operations are performed. Efficient management of working capital investments and related short-term debts can be used to make the purchasing producing and selling operations cheaper and more flexible. In the latter sense they are used as instruments for the management of business operations, which in the mean time create benefits and costs. Therefore, the relevance of working capital investments and short-term debts originate from these benefits and costs Beyond doubt efficient management of both items can enhance the success of firms in generating value (Bosscher, 2002)

The management of working capital is important to the financial health of businesses of all sizes. The amounts invested in working capital are often high in proportion to the total assets employed and so it is vital that these amounts are used in an efficient and effective way. A firm can be very profitable, but if this is not translated into cash from operations within the same operating cycle, the firm

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would need to borrow to support its continued working capital needs. Thus the twin objectives of profitability and liquidity must be synchronized and one should not impinge on the other for long. Investment in current assets is inevitable to ensure delivery of goods and services to the final consumers and a proper management of the same should give the desired impact on either profitability or liquidity. If resources are blocked at the different stages of the supply chain, this will prolong the cash operating cycle. Although this might increase profitability due to increase in sales, it may also adversely affect the profitability if the costs tied up in working capital exceed the benefits of holding more inventory and/or granting more trade credit to customers (Padachi, 2006).

2.2   Historical Perspective of Working Capital Management

Historically, working capital management has passed through different stages, mainly – the control, optimisation and value measurement

Working capital management originally started as a systematic approach of controlling the incoming, outgoing and remaining balances of cash, receivables and inventories. At this stage the main objective was to ensure working capital is not misappropriated for personal benefits of those who are entrusted with its management. To this end both researchers and practitioners developed various control measures over the receipts and collections of cash, receipts and issuance of inventories as well as the increase of receivables through credit sales and decrease of receivables through cash collection (Scherr, 1989)

Under the optimality management phase, the main focus was not only on the physical safety of working capital items but also on the minimisation of related costs and maximisation of related income. At this stage particular models (e g Baumol (1952), miller-Orr (1966), Economic Order quantity (EOQ) (1934) and Just-In Time (JIT) (1822) among others) were developed to ensure that firms do not get problems due to a lack of liquidity or incur too much cost by holding excesses of working capital levels. Under the control and optimality approaches

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the amount of accounting profit is taken as a main measure of managerial
efficiency

Under the value measurement approach, working capital management
concentrated on how to help managers in the creation and measurement of value
without disregarding the above two (control and optimization) objectives
Particularly, the cash flows approach is used as a main tool to measure the value
created by firms (Scherr, 1989).

2.3   The Benefits of Holding Working Capital
Each of the working capital items (i e cash, receivables, inventories and
payables) helps in the management of firms in its own particular way.

2.3.1 Cash
Cash is used to keep the firm liquid so that it is able to pay its obligations when
they fall due for payment and therefore it protects the firm from bankruptcy
(Moyer. Macguigan and Kretlow. 1995) Under-investment in cash bears the
danger of being unable to pay back both short-term and long-term debts when
they fall due Every business also needs adequate levels of cash to maintain
day-to-day operations For instance it needs enough to pay wages and salaries
as they fall due and enough to pay creditors to ensure its supplies

2.3.2 Inventories
The different types of inventories are used to satisfy different purposes (Kaen,
1995) *Raw materials inventories* are used to make production scheduling easier,
to take advantage of price changes and quantity discounts, and to hedge against
supply shortages If raw material inventories were not held, purchases would
have to be made continuously at the rate of production. This would not only
mean high ordering costs and less quantity discounts, but also production
interruptions when raw materials cannot be procured in time. Therefore the firm
has an interest in buying enough raw materials to provide an effective cushion

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between purchases and production (Ben-Horim, 1987) *Work-in-progress inventories* serve to make the production process smoother and more efficient they provide a buffer between the various production processes *Inventories of finished goods* have to be held to provide immediate services to customers and to stabilise production by separating production and sales activities. Most firms cannot produce immediately when customers demand goods Failure to supply products to customers when demanded would mean the loss of sales to competitors Therefore, holding finished goods inventory helps to serve customers on a continuous basis and to meet their fluctuating demands (Scherr, 1989).

The importance and imperative need for effectively managing and controlling all the items of inventory in a company can be judged from the fact that generally these comprise the largest component of the total assets, second only to plant and machinery In terms of percentage of the total assets of a manufacturing company, all these components of inventory taken together generally account for around 25% to 30% of total assets of the company Thus the importance of effectively managing and controlling the inventory of a company can hardly be over-emphasised The objective of inventory management is to make sure that a company or business does not lose sales by having too little inventory and does not loss money by investing in too much inventory (Mathur, 2002)

2.3.3 Accounts receivables

Credit sales are used to attract customers in that it may stimulate sales because it allows customers to assess product quality before paying (Long, Malitz, Ravid 1996) Allowing credit increases sales but it also has costs of managing accounts receivables and the possibility of bad debts

Like the product's price, quality and service, credit granting policy determines the product's attractiveness and affects its sales volume and profit. If credit granting is properly made it can enhance the firm's performance, sales and profitability

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(Moyer. Mcguigan and Kretlow, 1998). According to Kaen (1995), before a firm grants credit to its customers, it has to establish a credit policy, first by establishing the terms of credit sale policies, second by formulating credit standards (used to evaluate individual applicant's credit worthiness) and third to establish accounts receivable collection and control policies

The controlling process is intended to detect deviations from policy and to provide signals of deviations from expectations. Some of the deviations may be due to uncontrollable random external factors but others may be controllable. So, the main objective of credit and accounts receivable control is to give signals when (non-random) deviations in sales, collection expenses, receivables turnover and bad debts occur (Scherr, 1989). Cash flow can be significantly enhanced if the amounts owing to a business are collected faster. Slow payment has a crippling effect on businesses, in particular on small businesses which can least afford it

After a company's investment in plant and machinery and stocks of inventory (mostly in that order), the accounts receivables constitute the third largest and most important item of the assets of the company. Therefore the imperative need of effective monitoring and control of accounts receivable assume a highly important and strategic position in the area of corporate financial management (Mathur 2002)

2.3.4 Accounts payables
Credit purchases create accounts payables. Unlike credit from financial institutions, trade credit does not rely on formal collateral but on trust and reputation (Fafchamps, 1997). Creditors are a vital part of effective cash management and should be managed carefully to enhance the performance and the cash position of a firm. A firm should slow-down cash disbursements and pay creditors as late as it is consistent with maintaining its credit standing with suppliers, so that it can make the most efficient use of the money it already has

Some methods that can be used to slow-down disbursements include control of disbursements and using payable through drafts (Scherr, 1989)

As Cote and Latham (1999) argue, the management of accounts receivables, inventory and accounts payable have tremendous impact on cash flows, which in turn affect the profitability of firms

2.4 The working capital cycle

The working capital cycle consists of the interrelationship of financing, operations and investment functions as shown in Figure 1.
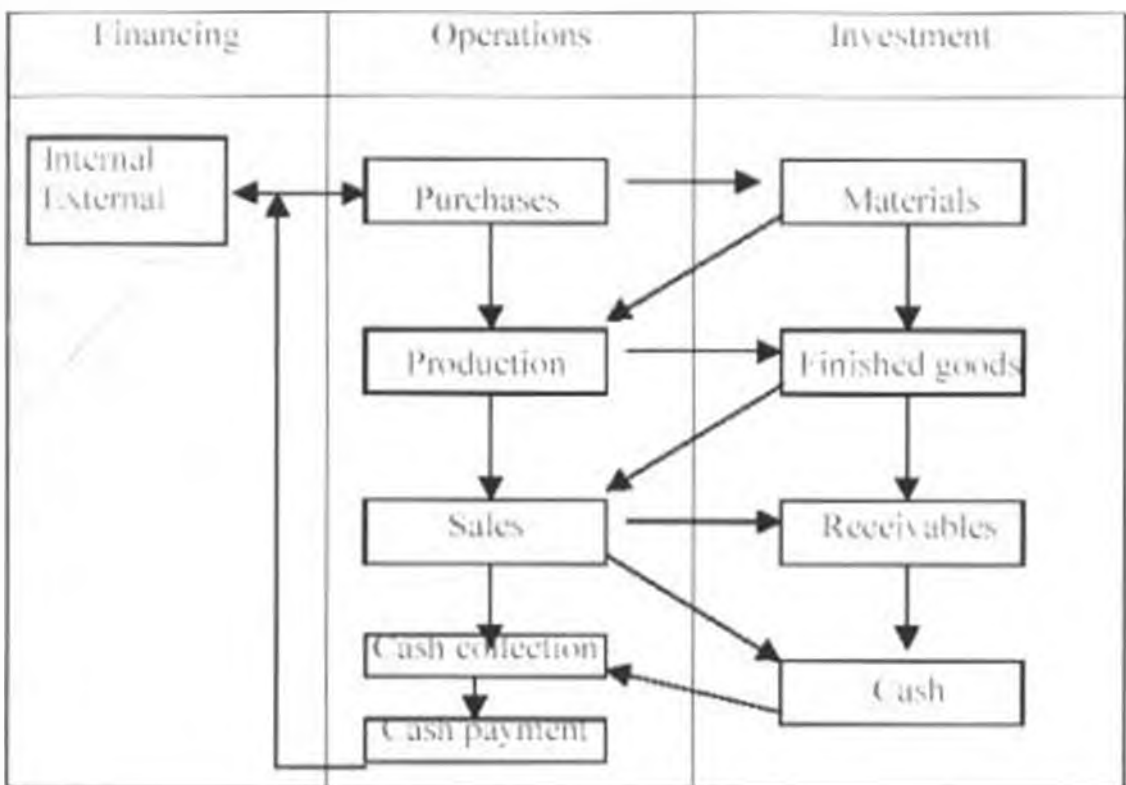
Figure 1   Working capital cycle

Figure 1 explains the functions of working capital management using the working capital financing, operations and investment cycle. The flow starts with cash obtained from internal sources such as collections from operations and retained earnings as well as externally from suppliers of capital (creditors or owners) which is used to finance the purchase of materials. The purchase and cash

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payment operations result in the investment of materials inventory, which is used in the production process. The production operation leads to the investment of finished goods inventory, which is sold either for cash (resulting in investments in cash) or credit, (which results in accounts receivable which will be eventually turned into cash). The cash generated is then used to settle the short-term debts - trade payables, bank loans and unpaid government taxes. Finally, because the ultimate objective of a firm is the creation of cash value to the owners (Rappaport 1986), all or part of this cash is paid to the suppliers of capital in the form of dividends or retained in the firm. This marks the end of a cycle and the start of another.

With the help of the operating cycle method it is possible to estimate and almost ascertain the duration of one operating cycle i.e. time taken by a company in completing one full cycle starting right from the cash to the payment of raw materials and their processing and the final conversion into the finished goods which, after the sales, over again gets converted into cash and when again the next round of operating cycle may start a fresh. The time taken in the completion of the one cycle of operation as a foresaid, is known as the duration of the operating cycle. With the completion of each cycle, the profitability of the company goes up. Thus we may be able to fully comprehend as to how, by making each and every component of the operating cycle cover more mileage during the period say one year, the total number of operating cycle may be maximized and the company's profitability and prospects therewith. Therefore the imperative need and the vital importance of an effective management and control of working capital, in particular, can hardly be over emphasized (Mathur, 2002)

Firms may have an optimal level of working capital that maximizes their value. Large inventory and a generous trade credit policy may lead to high sales. Larger inventory reduces the risk of a stock-out. Trade credit may stimulate sales because it allows customers to assess product quality before paying (Long, Maltiz and Ravid, 1993 and Deloof and Jegers, 1996). Delaying payments to

suppliers allows a firm to assess the quality of bought products, and can be an inexpensive and flexible source of financing for the firm. On the other hand, late payment of invoices can be very costly if the firm is offered a discount for early payment

2.5   The Cash Conversion Cycle

A popular measure of working capital management (WCM) is the cash conversion cycle. i.e. the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer this time lag the larger the investment in working capital (Deloof 2003). A longer cash conversion cycle might increase profitability because it leads to higher sales. However, corporate profitability might also decrease with the cash conversion cycle, if the costs of higher investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customers

The cash conversion cycle can tell you how cash is moving through a company in terms of duration. This ratio is vital because the cycle represents the number of days a firm's cash remains tied up within the operations of the business. The cash conversion cycle simply indicates the duration of time it takes the firm to convert its activities requiring cash into cash returns. Therefore, a downward trend in this cycle is a positive signal while an upward trend is a negative signal. This is because when the cash conversion cycle shortens, cash becomes free for other uses such as investing in new capital. spending on equipment and infrastructure which are geared towards increasing the profitability of the company. On the flip side, when the cash conversion cycle lengthens, cash remains tied up in the firm's core operations, leaving little leeway for other uses of this cash flow thus reducing the company s ability to increase its profits (Kuczmarski, 2002)

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Lazaridis and Tryfonidis (2006) in their study to determine the relationship between working capital management and profitability of listed companies in the Athens Stock Exchange, found out that there is a statistically significance negative relationship between profitability, measured through gross operating profit, and cash conversion cycle.

Padachi (2006) in a study aimed at examining the impact of accounts receivables days inventories days, accounts payable days and cash conversion cycle on return on total assets found out that high investment in inventories and receivables is associated with lower profitability. Trends in working capital management and its impact on firm's performance were examined to identify the causes for any significant differences between the industries for a sample of 58 small manufacturing firms in Mauritius The study examined firms in five industry sub-sectors namely food and beverages, leather garments, paper products, prefabricated metal products and wood furniture The paper product industry sub-sector had the highest scores on the various components of working capital which had a positive impact on its profitability

Eljelly (2004) found out that efficient working capital management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets so as to enhance profitability The relation between profitability and liquidity was examined, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia using correlation and regression analysis The study found that the cash conversion cycle was important as a measure of efficient working capital management The size variable was found to have significant effect on profitability at the industry level The results were stable and had important implications for liquidity management in various Saudi companies as it was clear that there was a negative relationship between profitability and working capital

management indicators such as cash gap and current ratio in the Saudi sample examined

Deloof (2003) in research to determine if working capital management affects profitability of Belgian firms, discussed that most firms had a large amount of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. Using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian firms. On the basis of these results he suggested that managers could create value for their shareholders by reducing the number of days' accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

Ghosh and Maji (2003) in their paper made an attempt to examine the efficiency of working capital management of the Indian cement companies during 1992-1993 to 2001-2002. For measuring the efficiency of working capital management, performance, utilization, and overall efficiency indices were calculated instead of using some common working capital management ratios. Setting industry norms as target-efficiency levels of the individual firms, this paper also tested the speed of achieving that target level of efficiency by an individual firm during the period of study. Findings of the study indicated that the Indian Cement Industry as a whole did not perform remarkably well during this period

Shin and Soenen (1998) in their study on efficiency of working capital management and corporate profitability highlighted that efficient working capital management (WCM) was very important for creating value for the shareholders. The way working capital was managed had a significant impact on both

profitability and liquidity. The relationship between the length of Net Trading Cycle (NTC), corporate profitability and risk adjusted stock return was examined using correlation and regression analysis, by industry and capital intensity. They found a strong negative relationship between lengths of the firm's net trading cycle and its profitability. In addition, shorter net trade cycles were associated with higher risk adjusted stock returns

According to Moyer, Mcguigan and Kretlow (1998), firms have two goals - liquidity and profitability. Many types of costs are related to the excesses and shortages of working capital levels of investment and financing. Managing these costs can increase the profitability of a firm's operations. Firms have to determine the individual and joint impact of the levels of short-term investment and financing on the dual objectives of working capital management. These goals imply that decisions that tend to maximise profitability tend not to maximise the chances of adequate liquidity. Conversely, focusing almost entirely on liquidity will tend to reduce the potential profitability of the firm

Moyer, Mcguigan and Kretlow (1998) argue that, there is an optimal level of working capital investment, which changes with the variability of output and sales that a firm must maintain. For a given level of output or sales there is certain working capital level that results in the highest profit. Other factors that affect the optimality of working capital include the variability of cash flows, the degree of financial leverage and the degree of operating leverage. The issue of profitability and liquidity risk trade-off is based on the argument that short-term investment and financing have opposing effect on liquidity and profitability. Investment in current assets though useful to achieve the objectives of liquidity does not generate as much profit as investing in fixed assets. Financing with current liabilities though cheaper and therefore more profitable, it is risky because it gives less time to pay

In order to minimise liquidity risk and maximise profitability, management can have differing risk attitudes (Horne and Wachowicz, 1998), by comparing the levels of current assets against volume of sales or production. These are called "conservative", "moderate" and 'aggressive'. Nyakundi (2003) conducted a survey of working capital management policies among public companies in Kenya. In his study he sought to establish the current working policies in public companies that follow different working capital policies report significantly different profit levels. He found out that the commonly practiced working capital management policy among the companies in Kenya is the aggressive policy and that there were no significant differences in return on equity among companies that practice different working capital management policies

To solve the problem of profitability and liquidity risk trade off. Smith (1980a) suggests that parallel monthly forecasts of profitability and required borrowing be made. This Smith argues will have the benefit of making trade-offs between profitability and liquidity risk objectives of the firm, estimating the impact of certain working capital policies on profitability and liquidity risk trade-offs and reflecting the uncertainty of the future

Smith and Begemann (1997) emphasized that those who promoted working capital theory shared that profitability and liquidity comprised the salient goals of working capital management. The problem arose because the maximization of the firm's returns could seriously threaten its liquidity, and the pursuit of liquidity had a tendency to dilute returns. This article evaluated the association between traditional and alternative working capital measures and return on investment (ROI), specifically in industrial firms listed on the Johannesburg Stock Exchange (JSE). The problem under investigation was to establish whether the more recently developed alternative working capital concepts showed improved association with return on investment to that of traditional working capital ratios or not. Results indicated that there were no significant differences amongst the years with respect to the independent variables. The results of their stepwise

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regression corroborated that total current liabilities divided by funds flow accounted for most of the variability in return on investment (ROI) The statistical test results showed that a traditional working capital leverage ratio, current liabilities divided by funds flow, displayed the greatest associations with return on investment Well known liquidity concepts such as the current and quick ratios registered insignificant associations whilst only one of the newer working capital concepts, the comprehensive liquidity index, indicated significant associations with return on investment

2.6   Conclusion

In order to develop the framework for this study relevant literature review well established in the developed countries was relied on. It is believed that the experiences in the developed countries can be used as a reference point for the managers in developing countries like Kenya The conceptual approach presented in the literature review help in defining the approach to working capital management particularly to understand the relationships among the factors of working capital management, to design the data collection approaches and analyse the sample developed The expectation of the conceptual framework with regard to the working capital management is that, if there are no constraints efficient working capital management can be applied in increasing sales and decreasing costs thus improving profitability

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   The Population

The population of interest in this study constituted all the companies listed in the NSE for the six years starting from 2001 to 2006 There were 53 listed companies both in the main investment market segment (MIMS) and the alternative investment market segment (AIMS) as at 31st December 2006 as shown in Appendix I The six year period has been chosen in line with past similar studies including Deloof (2003), Padachi (2006) and (Raheman and Nasr 2007), which resulted in reliable results.

3.2   The Sample

The study sample was based on financial statements of the selected Kenyan firms, listed on NSE including firms from different sectors of the economy Because of the specific nature of their activities, firms in financial sector, banking and finance insurance, leasing, business services, renting and other services were excluded from the sample In constituting the sample, the firms with data of the number of day's accounts receivable, number of days inventories, number of days accounts payable and operating income were included in the sample forming a sample size of 24 companies (see Appendix II)

3.3   Data Collection

The study used secondary data obtained from annual reports and financial statements of the sampled firms found at the Capital Markets Authority (CMA) library The information was obtained from both the balance sheet and the income statement of each company A data collection form was designed to record sales, cost of goods sold, total assets, financial assets, accounts receivables, inventories, accounts payable, current assets current liabilities and total debt as shown in Appendix III

The Variables

This research was aimed at investigating the relationship between working capital management and profitability of Kenyan firms listed at the NSE. This was achieved by developing a similar empirical framework used by Shin and Soenen (1998) and subsequently by Deloof (2003) and Lazaridis and Tryfonidis (2006)

Dependent variable

For the purpose of this study, profitability is measured by gross operating profit (GOP) and is used as the dependant variable. It is defined as sales minus cost of goods sold divided by total assets less financial assets

$$\text{Gross operating profit} = \frac{\text{Sales} - \text{Cost of goods sold}}{\text{Total assets} - \text{financial assets}}$$

The choice of this measure was necessitated by the need to associate operating 'success' or 'failure' with an operating ratio and relate this variable with other operating variables (i.e cash conversion cycle).

Explanatory variables

The following efficiency ratios will be used

Average collection period (ACP) used as proxy for the collection policy is an independent variable. It is calculated by dividing account receivable by sales and multiplying the result by 365 (number of days in a year).

$$\text{Average collection period} = \frac{\text{Accounts receivable}}{\text{Sales}} \times 365 \text{ days}$$

Inventory turnover in days (ITD) used as proxy for the inventory policy is also an independent variable. It is calculated by dividing inventory by cost of goods sold and multiplying with 365 days

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Inventory turnover in days $=$ $\dfrac{\text{Inventory}}{\text{Cost of goods sold}}$ x 365 days

Average payment period (APP) used as proxy for the payment policy is also an independent variable. It is calculated by dividing accounts payable by cost of goods and multiplying the result by 365 days (Lazaridis and Tryfonidis (2006))

Average payment period $=$ $\dfrac{\text{Accounts payable}}{\text{Cost of goods sold}}$ x 365 days

The cash conversion cycle (CCC) used as a comprehensive measure of working capital management is another independent variable, and is measured by adding average collection period with inventory turnover in days and deducting average payment period.

Cash conversion cycle $=$ Average collection period $+$ Inventory turnover in days $-$ Average payment period

Control variables

According to Eljelly (2004), the size variable had a significant effect on profitability. In order to account for firm's size and the other variables that may influence profits, current ratio (CR), size, financial assets ratio (FATA) and debt ratio (DR) are included as control variables in the regressions.

Current ratio is a traditional measure of liquidity and calculated by dividing current assets by current liabilities.

Current ratio $=$ $\dfrac{\text{Current assets}}{\text{Current liabilities}}$

Size is represented by the natural logarithm of sales (LOS)

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Fixed financial assets ratio represents shares in other firms intended to contribute to the operations of the firm holding them

$$\text{Financial assets ratio} = \frac{\text{Financial assets}}{\text{Total assets}}$$

Debt ratio used as proxy for leverage is calculated by dividing total debt by total assets

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

All the above variables have relationships that ultimately affect working capital management. It is expected that there is a negative relationship between gross operating profitability and the measures of working capital management (number of days accounts receivable, inventories and accounts payable and cash conversion cycle) This is consistent with the view that the time lag between expenditure for the purchases of raw materials and the collection of sales of finished goods can be too long and that decreasing this time lag increases profitability Appendix IV shows the variables calculated from the raw data obtained from company annual reports and financial statements for all the companies in the sample

This research used panel data regression analysis of cross-sectional and time series data. The pooled regression, also called the constant coefficients model, is one where both intercepts and slopes are constant and the cross-section firm data and time series data are pooled together in a single column assuming that there is no significant cross section or temporal effects
The general form of the model to be used is

$$GOP_{it} = \beta_0 + \sum_{i=1}^{n} \beta_i X_{it} + \varepsilon \tag{1}$$

Where

GOP_{it} - Gross operating profitability of firm i at time t

β_0 - The intercept of equation

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β_i - Coefficients of X_{it} variables

X_{it} - The different independent variables for working capital management of firm i at time t

t - Time = 1, 2, ... 6 years

ε - The error term

Below is the specific model including the specified variables

$$GOP_{it} = \beta_0 + \beta_1 (ACP_{it}) + \beta_2 (ITD_{it}) + \beta_3 (APP_{it}) + \beta_4 (CCC_{it}) + \beta_5 (CR_{it}) + \beta_6 (DR_{it}) + \beta_7 (LOS_{it}) + \beta_8 (FATA_{it}) + \varepsilon \qquad (2)$$

Where

GOP   -   Gross operating profit

ACP   -   Average collection period

ITD   -   Inventory turnover in days

APP   -   Average payment period

CCC   -   Cash conversion cycle

CR   -   Current ratio

DR   -   Debt ratio

LOS   -   Natural logarithm of sales

FATA   -   Fixed financial assets ratio

ε -   The error term

3.4 Data Analysis Techniques

To determine the relationship between working capital management and profitability of listed companies in the NSE, two types of data analysis were used descriptive and quantitative

3.4.1 Descriptive analysis

Descriptive analysis was used to describe the relevant aspects of working capital management which was used to generally indicate how efficiently Kenyan firms manage their working capital. Descriptive statistics like the mean, median and

standard deviation was used to describe the different variables of interest in the study

Statistical Package for Social Sciences (SPSS) computer software was used for the data analysis.

3.4.2 Quantitative analysis

Correlation coefficient was used to examine the degree of association between the different variables including the relationship between cash conversion cycle and profitability

Regression analysis was also used to further investigate the causal relationship between the profitability variable, the working capital management variables and other chosen variables Pooled least squares method was used The choice of this method is because, panel data is more useful in studying the dynamics of adjustment and is better able to identify and measure effects that are simply not detectable in pure cross-sections or pure time - series data. Moreover, many variables can be more accurately measured at the micro level and biases resulting from aggregation over firms or individuals are eliminated

The regression models were tested for significance using the F statistic.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

Data analysis was carried out using both descriptive and quantitative analysis
The results of the analyses were as follows

4.1   Descriptive Statistics

Descriptive analysis shows the average and standard deviation of the different
variables of interest in the study. It also presents the minimum and maximum
values of the variables which help in getting a picture about the maximum and
minimum values a variable can achieve.

Table 1 presents descriptive statistics for the sampled companies for a period of
six years from 2001 to 2006 for a total of 144 firms-year observations The mean
value of the gross operating profit is 56 4% of total assets, and standard
deviation is 55 9% This means that the value of the profitability can deviate from
mean to both sides by 55 9%. The maximum value for the gross operating
profitability is about 300% for a company in a year while the minimum is 1.5%.

Table 1   Descriptive statistics

	N	Mean	Standard Deviation	Minimum	Median	Maximum
ACP	144	45.720	31.289	0.768	41.707	162.182
ITD	144	110 468	77 150	0 156	101 857	348 825
APP	144	56 040	44 573	2 955	40 549	280.726
CCC	144	100 148	70 545	-30 576	93 563	316 354
CR	144	2 218	2 445	0 515	1.641	18 546
LOS	144	14 950	1.334	11 954	14.954	17 782
FATA	144	0 086	0.114	0 000	0 032	0 472
DR	144	0.599	0.493	0 103	0.480	3 786
GOP	144	0 564	0 559	0 015	0 389	3 023

The cash conversion cycle used as a proxy to check the efficiency in managing working capital is on average 100 days and standard deviation is 71 days. Firms receive payment against sales after an average of 46 days and standard deviation is 31 days. The minimum time taken by a company to collect cash from receivables is 0.77 days while the maximum time for this purpose is 162 days. It takes an average of 111 days to sell inventory with standard deviation of 77 days. Here, maximum time taken by a company is 349 days, which is a very large time period to convert inventory into sales. Firms wait an average 56 days to pay their purchases with standard deviation of 45 days. Here, minimum time taken by a company is 3 days and maximum time taken for this purpose is 281 days

To check the size of the firm and its relationship with profitability, natural logarithm of sales is used as a control variable. The mean value of log of sales is 14 95 while the standard deviation is 1 33. The maximum value of log of sales for a company in a year is 17.78 and the minimum is 11 95

In the same way to check the liquidity of the companies, a traditional measure of liquidity (current ratio) is used. The average current ratio for Kenyan firms is 2 22 with a standard deviation of 2 45. The highest current ratio for a company in a particular year is 18 55 times and in the same way the minimum ratio for a company in a year is 0.52

To check the debt financing and its relationship with the profitability the debt ratio is used as a control variable. The results of descriptive statistics show that the average debt ratio for the Kenyan companies is 60% with a standard deviation of 49 3%. The maximum debt financing used by a company is 378 6% which is unusual but may be possible if the equity of the company is in negative. The minimum level of the debt ratio is 10 3%

To check the ratio of fixed financial assets to the total assets of Kenyan firms, the financial assets to total assets ratio is used as a control variable. The mean value for this ratio is 8.6% with a standard deviation of 11.4%. The maximum portion of assets in the form of financial assets for a particular company is 47 2% and the minimum is 0.00

4.2 Quantitative Analysis Results

4.2.1 Pearson's correlation coefficient

Pearson's correlation analysis was used determine the relationship between variables such as those between working capital management and profitability. If efficient working capital management increases profitability, one should expect a negative relationship between the measures of working capital management and profitability variable. There is a negative relationship between gross profitability on the one hand and the measures of working capital management on the other hand. This is consistent with the view that the time lag between expenditure for purchases of raw material and the collection of sales of finished goods can be too long, and that decreasing this time lag increases profitability

Table 2   Pearson correlation coefficients

	ACP	ITD	APP	CCC	CR	LOS	FATA	DR	GOP
ACP	1								
ITD	0.074	1							
APP	0 511	0 398	1						
CCC	0 243	0 872	0 079	1					
CR	0 222	-0 059	-0.179	0 144	1				
LOS	-0 377	-0 276	-0.295	-0.298	-0.246	1			
FATA	-0 094	0 062	-0.227	0.156	0.400	-0.124	1		
DR	0 057	0 047	0.243	-0.065	-0.349	0.088	-0 002	1	
GOP	-0 132	-0.175	0.221	-0.377	-0.207	0.084	-0.117	0.225	1

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Table 2 presents Pearson correlation coefficients at 0.05 level of significance for all variables considered

The correlation results between the average collection period and net operating profitability shows a negative coefficient -0 132 It indicates that if the average collection period increases it will have a negative impact on the profitability and it will decrease Correlation results between inventory turnover in days and the gross operating profitability also indicate the same type of result The correlation coefficient is – 0 175 This also indicates that if the firm takes more time in selling inventory, it will adversely affect its profitability However, correlation results of the accounts payable period indicate a positive coefficient The coefficient is 0 221 This positive relation for accounts payable period means that if the firm delays payment to its suppliers it can use the funds to generate more sales hence increase its profitability

The cash conversion cycle which is a comprehensive measure of working capital management also has a negative coefficient – 0.377 It means that if the firm is able to decrease this time period, it can increase its profitability By analyzing the results we conclude that if the firm is able to reduce these time periods, then the firm is efficient in managing working capital. This efficiency will lead to increasing its profitability

Current ratio is a traditional measure of checking liquidity of the firm In this analysis the current ratio has a significant negative relationship with profitability (measured by gross operating profitability) The coefficient is – 0 207. It indicates that the two objectives of liquidity and profitability have inverse relationships So, the Kenyan firms need to maintain a balance or tradeoff between these two measures

There is a positive association that exists between GOP and LOS (a measure of size) This indicates a positive relationship between size and profitability The coefficient is positive 0 084 It shows that as size of the firm increases, it will

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increase its profitability. The correlation coefficients also display a positive relationship between the average collection period and cash conversion cycle; the correlation coefficient is 0.243. This means that if a firm takes more time to collect cash against the credit sales it will increase its operating or cash conversion cycle. The relationship between inventory turnover in days and the cash conversion cycle is also positive meaning that if the firm takes more time to sell inventory it will lead to increase in the cash conversion cycle as well. The correlation coefficient is positive and is 0.872.

The negative relationships between cash conversion cycle, average collection period and inventory turnover in days with the profitability of companies are consistent with the literature review and have significant effect on the profitability of company (at 0.05 level of significance). The results of correlation analysis indicate that as far as Kenyan firms are concerned, the working capital management strongly affects their profitability.

4.2.2 Regression analysis

For the purpose of identifying the important variables influencing the dependent variable, regression analysis was used. In panel data (pooled) regression, time series and cross-sectional observations are combined and estimated. Several cross-sectional units are observed over a period of time in a panel data setting.

Results of the regression analysis are as follows.

The determinants of gross operating profitability are investigated for all 144 firm-year observations. The results are shown in Tables 3 - 6. A number of different regression coefficients are estimated for selected independent variables.

To determine the impact of accounts collection period on firm's profitability the following model was used.

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$GOP\ it = \beta 0 + \beta_1 (ACP_t) + \beta_2 (LOS_{it}) + \beta_3 (CR_t) + \beta_4 (DR_{it}) + \beta_5 (FATA_{it}) + \varepsilon$ (Eq 4.1)

Table 3: Regression model for average collection period

Predictor	Coefficients	Standard Error	t Stat	P-value
Constant	-0.781	0.593	-1.316	0.190
ACP	-0.001	-0.001	-2.700	0.005
LOS	0.068	0.037	3.858	0.065
CR	-0.005	0.020	-0.249	0.804
DR	-0.531	0.090	-5.925	0.000
FATA	-0.555	0.387	-1.434	0.154

R Square	0.275
Adjusted R Square	0.249

ANOVA

	DF	SS	MS	F	P
Regression	5	12.290	2.458	10.493	0.000
Residual	138	32.326	0.234		
Total	143	44.616			

The results of this regression indicate that the coefficient of accounts receivable is negative and is highly significant at $\acute{a} = 5\%$. It implies that the increase or decrease in accounts receivable will significantly affect profitability of the firm The current ratio has also a negative relationship with profitability but it is not significant

The debt ratio used as a proxy for leverage, shows a significant negative relationship with the dependent variable, which means that, when leverage of the firm increases. it will adversely affect its profitability Similarly log of sales used as proxy for size of a company shows a significant positive relationship with profitability which means that bigger size firms have more profitability compared to firms of smaller size In case of fixed financial assets to total assets ratio, it

also has a negative relation with profitability. It reflects that if this ratio increases the operating profitability will decrease

The adjusted R^2, also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables and is 24.9%. The constant, where the regression line intercepts the y axis, representing the amount the dependent variable y will be when all the independent variables are 0 is -0.781; the probability of the coefficient is significant. The F statistic is used to test the significance of regression model. In the overall, the model is significant as F-statistics is 10.49.

The second regression is run using the inventory turnover in days as an independent variable as a replacement for average collection period. The other variables are the same as they have been in the first regression. The model used is shown below

$$GOP_{it} = \beta_0 + \beta_1 (ITD_{it}) + \beta_2 (LOS_{it}) + \beta_3 (CR_{it}) + \beta_4 (DR_{it}) + \beta_5 (FATA_{it}) + \varepsilon \ (Eq \ 4.2)$$

Table 4: Regression model for inventory turnover in days

Predictor	Coefficients	Standard Error	t Stat	P-value
Constant	-1.331	0.501	-2.657	0.009
ITD	-0.002	0.000	-4.291	0.000
CR	-0.010	0.019	-0.521	0.603
LOS	0.086	0.032	2.717	0.007
FATA	-0.558	0.357	-1.564	0.120
DR	-0.514	0.082	-6.256	0.000

R Square	0.358
Adjusted R Square	0.335

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ANOVA

	DF	SS	MS	F	P
Regression	5	15.994	3.199	15 423	0.000
Residual	138	28 622	0 207		
Total	143	44.616			

The coefficient of intercept constant has a value (-1.331) and is also significant
The coefficient of inventory turnover in days is negative and highly significant at
α = 5%, and implies that the increase or decrease in the inventory turnover in
days, significantly affects profitability of the firm It can be interpreted that if the
inventory takes more time to sell, it will adversely affect profitability All the other
variables are also significantly affecting profitability as in case of in the first
regression (average collection period) Increase in sales has a positive impact on
profitability while all other control variables like current ratio, debt ratio, and
financial assets to total assets have a negative effect on profitability of the firm
The adjusted R^2 is 33.5% The F-statistic has a value of 15 4 which reflects the
highly significance of the model

The third regression is run using the average payment period as an independent
variable as a substitute of inventory turnover in days The other variables are
same as they have been in first and second regression The equation of the
model is

$$GOP_{it} = \beta_0 + \beta_1 (APP_{it}) + \beta_2 (LOS_{it}) + \beta_3 (CR_{it}) + \beta_4 (DR_{it}) + \beta_5 (FATA_{it}) + \varepsilon \quad (Eq\ 4\ 3)$$

Table 5   Regression model for average payment period

	Coefficients	Standard Error	t Stat	P-value
Constant	-1.378	0.537	-2.564	0.011
APP	0.002	0.001	2.573	0.011
CR	-0.010	0.020	-0.507	0.613
LOS	0.096	0.034	2.861	0.005
FATA	-0.759	0.375	-2.023	0.045
DR	-0.477	0.087	-5.496	0.000

R Square	0.306
Adjusted R Square	0.281

ANOVA

	DF	SS	MS	F	P
Regression	5	13.660	2.732	12.179	0.000
Residual	138	30.956	0.224		
Total	143	44.616			

Here, the coefficient of the constant is -1.378 and significant. The result indicates that the coefficient of average payment period is positive (0.02) and it is highly significant at $d = 5\%$, and implies that the increase or decrease in the average payment period, significantly affects profitability of the firm. The positive relationship between the average payment period and profitability may mean that Kenyan firms delay paying their bills as far as is possible and are able to utilize the amounts outstanding to generate more sales hence increasing their profitability. All the other variables are also significantly affecting the profitability. The size of the firm has a positive impact on profitability, and the current ratio has a negative impact on profitability, while other control variables like debt ratio, and financial assets to total assets have a significant negative effect on profitability of the firm. The adjusted R^2 is 28.1%. The F-statistic has a value of 12.179 which reflects the high significance of the model.

In the fourth regression, cash conversion cycle is used as an independent variable instead of average collection period, inventory turnover in days and average payment period It is the comprehensive measure of checking efficiency of working capital management. The other variables are kept the same as they were in the first three regressions The model used is shown herewith

$$GOP \ it = \beta 0 + \beta_1 (CCC_{it}) + \beta_2 (LOSit) + \beta_3 (CR_{it}) + \beta_4 (DR_{it}) + \beta_5 (FATA_{it}) + \varepsilon \ (Eq \ 4 \ 4)$$

Table 6: Regression model for cash conversion cycle

Predictor	Coefficients	Standard Error	t Stat	P-value
Constant	-1 265	0 524	-2 416	0 017
CCC	-0 002	0 001	-2 721	0 007
CR	-0.002	0 019	-0 095	0 924
LOS	0.088	0 033	2.667	0.009
FATA	-0.559	0 370	-1.512	0 133
DR	-0.519	0 085	-6.091	0 000

R Square	0.310
Adjusted R Square	0.285

ANOVA

	DF	SS	MS	F	P
Regression	5	13 827	2 765	12 395	0 000
Residual	138	30.789	0.223		
Total	143	44 616			

Taking the cash conversion cycle as an independent variable, the result indicates that the coefficient of cash conversion cycle is negative (-0.002) and is significant at á = 5% and implies that an increase or decrease in the cash conversion period, significantly affects profitability of the firm All the other variables are also significantly affecting profitability The increase in sales has a positive impact on profitability, current ratio has a negative impact on profitability while other control variables like debt ratio have a significant negative affect on profitability of the

firm. The adjusted R^2 is 28.5%. The value of F-statistic is 12.385, reflecting high significance of the model.

Under the pooled least squares method, we have seen the independent variables in the individual regressions. The individual regression for each variable showed the significant effect on profitability. In general, the results of pooled least squares are indicating the same interpretation that working capital management affects profitability of the firm. If a firm can effectively manage its working capital it can lead to increase in profitability. It is further interpreted that if the firm increases its debt financing, it will lead to decreasing profitability of the firm in terms of financial cost. The size of the firm has a direct positive relationship with profitability of the firm. If the size (measured in terms of log of sales) increases, it will lead to an increase in the profitability of the firm.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Most of the Kenyan firms have large amounts of cash invested in working capital
It can therefore be expected that the way in which working capital is managed
will have a significant impact on profitability of those firms. The study has found a
significant negative relationship between gross operating profitability and the
average collection period, inventory turnover in days and cash conversion cycle
for a sample of Kenyan firms listed on Nairobi Stock Exchange. These results
suggest that managers can create value for their shareholders by reducing the
number of days accounts receivable and inventories to a reasonable minimum
Therefore the study draws the conclusion that there is a significant positive
relationship between efficient working capital management and profitability of
Kenyan firms. Hence the alternative hypothesis (H_1) is accepted and the null
hypothesis (H_0) is rejected

The conclusions are in confirmation with Deloof (2003), Eljelly (2004) Shin and
Soenen (1998) who found a strong negative relationship between the measures
of working capital management including the average collection period, inventory
turnover in days and cash conversion cycle with corporate profitability. However
the study showed different results for the average payment period which was
found to have a positive effect on corporate profitability

5.2 Recommendations

On basis of the above analysis it may be further concluded that these results can
be strengthened if the firms manage their working capital in more efficient ways
If firms properly manage their cash, accounts receivables, inventories and
accounts payables, this will ultimately increase profitability of these companies
Thus firms should take necessary steps in order to improve efficiency in
managing their working capital. Reducing the cash conversion cycle to a

reasonable minimum is one way to create shareholders' value and should be a major concern for financial managers in all companies

5.3 Limitations of the Study

The study was restricted only to companies listed in the Nairobi Stock Exchange and therefore caution should be taken in generalizing the findings of the study The analysis has also been constrained by the sample size which could have affected the results

5.4 Suggestions for Further Research

There is much to be done about working capital in Kenya in future Further research should be conducted on the same topic with different companies and extending the years of the sample The scope of further research may be extended to the working capital components management including cash and marketable securities management Further research can also be undertaken which analyses the different sectors in the economy to determine any significant differences in the management of working capital in the different sectors.

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APPENDICES

Appendix I: Companies listed on the NSE as at 30th December 2006

Main Investments Market Segment (MIMS)

Agriculture

1   Unilever Tea (K) Ltd

2   Rea Vipingo Ltd

3   Sasini Tea & Coffee Ltd

4   Kakuzi Ltd

Commercial and Services

5   Access Kenya Group

6   Marshalls E A Ltd

7   Car & General Ltd

8   Hutchings Biemer Ltd

9   Kenya Airways Ltd

10   CMC Holdings Ltd

11   Uchumi Supermarkets Ltd

12   Nation Media Group Ltd

13   TPS (Serena) Ltd.

14   ScanGroup Ltd

15   Standard Group Ltd

Finance and Investment

16   Barclays Bank of Kenya Ltd

17   CFC Bank Ltd

18   ICDC Investment Company Ltd

19   Kenya Commercial Bank Ltd

20   Kenya Re Insurance Corporation Ltd

21   National Bank of Kenya Ltd

22   Pan Africa Insurance Holdings Co Ltd

23   Diamond Trust Bank of Kenya Ltd

24. Jubilee Insurance Co Ltd

25. Standard Chartered Bank Ltd

26. National Industrial Credit Bank Ltd

27. Equity Bank Ltd

Industrial and Allied

28. Athi River Mining Ltd.

29. BOC Kenya Ltd

30. British American Tobacco Kenya Ltd

31. Carbacid Investments Ltd

32. Olympia Capital Holdings Ltd

33. E A Cables Ltd

34. E A Breweries Ltd

35. Sameer Africa Ltd

36. Kenya Oil Ltd

37. Mumias Sugar Company Ltd

38. Unga Group Ltd

39. Bambun Cement Ltd

40. Crown berger (K) Ltd

41. E A Portland Cement Co Ltd

42. Kenya Power & Lighting Co Ltd

43. Total Kenya Ltd

44. Eveready East Africa Ltd

45. Kengen Ltd

Alternative Investments Markets Segment (AIMS)

46. Baumann and Company Ltd

47. Citytrust Ltd

48. Eaagads Ltd

49. Express Kenya Ltd

50. Kapchorua Tea Co Ltd

51. Kenya Orchards

52. Williamson Tea Kenya Ltd

53. Limuru Tea Co Ltd

Appendix II: List of companies in the sample

1   Athi River Mining Ltd

2   BOC Kenya Ltd

3   BAT Kenya Ltd

4   Carbacid Investments Ltd

5   Crown Berger Ltd

6   EA cables Ltd

7   EA Portland Cement Ltd

8   EA Breweries Ltd

9   Kenol Oil company Ltd

10   Kengen Ltd

11   Mumias Sugar company Ltd

12   Sameer Africa Ltd

13.   Total Kenya Ltd

14   Unga Group Ltd

15.   Kakuzi Ltd

16   Rea Vipigo Plantations Ltd

17   Sasini Ltd

18   CMC Holdings Ltd

19   Kenya Airways Ltd

20   Marshalls (E A) Ltd

21   Nation Media Group Ltd

22   TPS Eastern Africa (Serena) Ltd

23   Express Ltd

24   Williamson Tea Kenya Ltd

Appendix III: Data collection forms

Name of the company _____

Description	Year					
	2006	2005	2004	2003	2002	2001
Sales						
Cost of goods sold						
Total assets						
Financial assets						
Trade receivables						
Inventory						
Trade payables						
Current assets						
Current liabilities						
Non-current liabilities						

Appendix IV: Variables used in the study for each company

Variable	2006	2005	2004	2003	2002	2001
			Year			
Athi River Mining Ltd						
Average Collection Period (ACP)	62 55	60.72	74.13	79 82	76 99	73 44
Inventory Turnover in Days (ITD)	67 35	69 92	107 87	63 49	111 25	112 56
Average Payment Period (APP)	78 24	84 03	141 03	84 66	127 86	92 63
Cash Conversion Cycle (CCC)	51 65	46 61	40 97	58 65	60 38	93 37
Current Ratio (DR)	0 98	2 03	1 04	1 65	1.04	1 65
Size (LOS)	14 77	14 61	14 31	14 03	13 93	13 69
Fixed Financial Assets Ratio (FATA)	0 03	0 04	0 07	0 07	-	-
Debt Ratio (DR)	0 68	0 63	0 49	0 39	0 70	0 48
Profitability (GOP)	0 23	0 24	0 29	0 25	0 25	0 22
BOC Kenya Ltd						
Average Collection Period (ACP)	77 96	85 99	73 22	97 45	111.77	100 87
Inventory Turnover in Days (ITD)	125 31	116 24	164 98	191 46	180 61	166.61
Average Payment Period (APP)	90 18	85 01	88 72	77 25	28 99	36 50
Cash Conversion Cycle (CCC)	113 09	117.21	149 48	211.66	263.40	230 78
Current Ratio (DR)	2 49	3 00	2 98	3 43	3.18	2 70
Size (LOS)	13 92	13 80	13 63	13 50	13 46	13 39
Fixed Financial Assets Ratio (FATA)	-	-	-	-	-	-
Debt Ratio (DR)	0 32	0 26	0 26	0 24	0 26	0 30
Profitability (GOP)	0 46	0 42	0 40	0 38	0 38	0 33
BAT Kenya Ltd						
Average Collection Period (ACP)	3 46	2 71	0 77	3 03	3 68	5 68
Inventory Turnover in Days (ITD)	228 69	227 62	289 25	290 51	300 12	348 83
Average Payment Period (APP)	67 99	19 54	68 99	56 08	55 54	38 15
Cash Conversion Cycle (CCC)	164 16	210 78	221 03	237 46	248 26	316 35
Current Ratio (DR)	1.26	1.51	1 48	1 81	1 83	1 64
Size (LOS)	16 35	16 24	16 10	16 06	16 06	16 15
Fixed Financial Assets Ratio (FATA)	-	-	-	-	-	-
Debt Ratio (DR)	0 72	0 52	0 54	0 45	0 47	0 54
Profitability (GOP)	1 98	1 96	1 85	1 64	1 62	1 77

Variable	2006	2005	2004	2003	2002	2001
			Year			
Carbacid Investments Ltd						
Average Collection Period (ACP)	86 45	71 72	72 43	68 76	58 41	65 46
Inventory Turnover in Days (ITD)	36.58	41 02	38 53	32 42	58 59	63 84
Average Payment Period (APP)	11.48	21.94	47.91	16.14	23.71	21 06
Cash Conversion Cycle (CCC)	111 55	90 80	63 06	85 04	93 29	108 23
Current Ratio (DR)	14 68	10.15	7 41	4 39	18 55	16 40
Size (LOS)	12.67	12.51	12.27	12 30	12 07	11 95
Fixed Financial Assets Ratio (FATA)	0 18	0 19	0 45	0 31	0 32	0 36
Debt Ratio (DR)	0 16	0 18	0 20	0 18	0 13	0 13
Profitability (GOP)	0 23	0 20	0 22	0 27	0 21	0 22
Crown Berger Ltd						
Average Collection Period (ACP)	67 10	68 64	64.73	62 96	54 59	59 95
Inventory Turnover in Days (ITD)	192 47	195 81	200 93	148 91	151 01	178 27
Average Payment Period (APP)	120 48	67 83	68 91	46 54	65 38	68 99
Cash Conversion Cycle (CCC)	139 09	196 62	198 75	165 33	140 22	169 23
Current Ratio (DR)	1 60	1 60	1 72	2 01	2 42	1 90
Size (LOS)	14 34	14 18	14 02	13 96	13 90	13 83
Fixed Financial Assets Ratio (FATA)	0 06	0 07	0 08	0 10	0.09	0.09
Debt Ratio (DR)	0 50	0 49	0 44	0 36	0 35	0 41
Profitability (GOP)	0 42	0 38	0 41	0 51	0 51	0 42
EA cables Ltd						
Average Collection Period (ACP)	78.17	96 15	68 18	56.57	53.37	71 92
Inventory Turnover in Days (ITD)	176 89	164 43	123 36	142 48	122 58	101 03
Average Payment Period (APP)	59 54	163 03	58 54	85 10	70 99	33 37
Cash Conversion Cycle (CCC)	195 53	97 55	133 00	113 95	104 96	139 57
Current Ratio (DR)	1 62	1 78	2 66	3 24	3 82	7 71
Size (LOS)	14 53	13 97	13 62	12 97	12 87	12 79
Fixed Financial Assets Ratio (FATA)	0 06	0 11	-			
Debt Ratio (DR)	0 58	0 44	0 36	0 30	0 26	0 16
Profitability (GOP)	0 40	0 45	0 64	0 39	0 39	0 40

Variable	Year					
	2006	2005	2004	2003	2002	2001
EA Portland Cement Ltd						
Average Collection Period (ACP)	12 54	4 87	7 10	22 32	20.27	18 95
Inventory Turnover in Days (ITD)	48 68	51 08	89 92	88 63	108 61	95 13
Average Payment Period (APP)	41.01	32 50	50 70	45 59	48 28	59 90
Cash Conversion Cycle (CCC)	20 22	23 45	46 32	65 36	80 60	54 19
Current Ratio (DR)	2 49	3 30	2.24	2 42	2 51	2 20
Size (LOS)	15 64	15 50	15 24	15 16	14 98	14 97
Fixed Financial Assets Ratio (FATA)	~	~	~	~	~	~
Debt Ratio (DR)	0 86	0.71	0 76	0 71	0 74	0 74
Profitability (GOP)	0.19	0.21	0 17	0 14	0 13	0 11
EA Breweries Ltd						
Average Collection Period (ACP)	18.48	24 79	22.31	19 85	18 45	19 64
Inventory Turnover in Days (ITD)	187 13	193 35	249 53	245 46	285 10	295 23
Average Payment Period (APP)	58 35	45.79	64.70	63 87	104 53	61 30
Cash Conversion Cycle (CCC)	147.26	172.35	207 14	201 44	199 02	253 57
Current Ratio (DR)	3 23	3 14	2 82	2 45	1 71	1 84
Size (LOS)	16 86	16 77	16 62	16 54	16 49	16 45
Fixed Financial Assets Ratio (FATA)	0 44	0 47	0 22	0 30	0 05	0 00
Debt Ratio (DR)	0 30	0 31	0 27	0 27	0 38	0 33
Profitability (GOP)	1 13	1 31	0 71	0 83	0 54	0 60
Kenol Oil Company Ltd						
Average Collection Period (ACP)	16 49	7 63	6 63	14 54	23 41	29 98
Inventory Turnover in Days (ITD)	7 55	12 65	0 97	1 82	12 76	10 78
Average Payment Period (APP)	10 33	15 53	10 43	23 45	25 71	37 65
Cash Conversion Cycle (CCC)	13 71	4 76	(2 83)	(7 09)	10 46	3 12
Current Ratio (DR)	1 25	1 45	1.51	1.30	1 22	1.30
Size (LOS)	17 65	17 44	17 36	16 63	16 40	16 21
Fixed Financial Assets Ratio (FATA)	0 07	0.08	0 02	0 03	0 05	0 07
Debt Ratio (DR)	1 71	1 02	0 77	0 83	0 86	0 90
Profitability (GOP)	0 52	0 71	1 78	2 30	2 18	2 02

Variable	Year					
	2006	2005	2004	2003	2002	2001
Kengen Ltd						
Average Collection Period (ACP)	29 30	75 91	50 32	6 53	10 05	2 79
Inventory Turnover in Days (ITD)	91 17	137.98	74 47	66 54	60 36	40 06
Average Payment Period (APP)	87 08	51.26	21 29	38 83	18 08	20 26
Cash Conversion Cycle (CCC)	33 39	162 62	103 50	34 25	52 32	22 59
Current Ratio (DR)	2 30	1 91	2.75	2 46	2 80	1 54
Size (LOS)	16 46	16 43	15 99	16 11	16 14	16 42
Fixed Financial Assets Ratio (FATA)	-	0.17	0 17	0 18	-	-
Debt Ratio (DR)	0 47	0 61	0 35	0 33	0 55	0.54
Profitability (GOP)	0 14	0 18	0 05	0 07	0 06	0 04
Mumias Sugar Company Ltd						
Average Collection Period (ACP)	7 77	8 79	29 87	19 21	10 69	9 00
Inventory Turnover in Days (ITD)	33 87	54 81	45 66	71 42	132 52	233 29
Average Payment Period (APP)	19 47	22 37	26 31	23 37	24 03	31 04
Cash Conversion Cycle (CCC)	22 17	41 23	49 22	67 26	119 18	211 25
Current Ratio (DR)	2 21	2.27	1 97	1.37	1 30	1 35
Size (LOS)	16 27	16 13	16 10	15 85	15 88	15.71
Fixed Financial Assets Ratio (FATA)	-	-	-	0 00	0 00	0 00
Debt Ratio (DR)	0 35	0 36	0 41	0 46	0 47	0 48
Profitability (GOP)	0.36	0.40	0 34	0 15	0 19	0 23
Sameer Africa Ltd						
Average Collection Period (ACP)	77.54	64 77	60.69	51.99	43.50	36 43
Inventory Turnover in Days (ITD)	191 74	211.17	184 04	175 78	182 48	213 10
Average Payment Period (APP)	75 10	71.52	61 12	48 51	40 86	65 20
Cash Conversion Cycle (CCC)	194 18	204 41	183 60	179 26	185.12	184.33
Current Ratio (DR)	1 85	2 17	2 30	2 70	3 69	2 83
Size (LOS)	14 97	15 03	15 00	14 75	14 82	14 94
Fixed Financial Assets Ratio (FATA)	0 09	0 07	0.07	0.07	0 07	0 07
Debt Ratio (DR)	0 71	0 54	0 46	0 33	0 26	0 35
Profitability (GOP)	0 43	0 46	0 49	0 37	0 39	0 46

Variable	Year					
	2006	2005	2004	2003	2002	2001
Total Kenya Ltd						
Average Collection Period (ACP)	56 68	28 20	41 31	40 25	67 70	39 55
Inventory Turnover in Days (ITD)	83 86	34 34	45 96	69 38	42 98	61 17
Average Payment Period (APP)	78 65	13 45	29 68	2 96	16 93	30 12
Cash Conversion Cycle (CCC)	61 88	49 08	57 59	106 68	93 75	70 60
Current Ratio (DR)	1.17	1 30	1 38	1 50	1 39	0 91
Size (LOS)	17.33	17.33	17.27	16.74	16.35	16 47
Fixed Financial Assets Ratio (FATA)	-	-	-	0 09	0 12	0 10
Debt Ratio (DR)	0 70	0 57	0 57	0 48	0 44	0 70
Profitability (GOP)	0.47	0 25	0 25	0 27	0 34	0.21
Unga Group Ltd						
Average Collection Period (ACP)	18 18	14 65	22 84	17 05	16 04	8 86
Inventory Turnover in Days (ITD)	46 76	62 47	82 31	49 17	41 40	55 48
Average Payment Period (APP)	21 11	21.35	30 98	29 58	22 22	10 84
Cash Conversion Cycle (CCC)	43.83	55 77	74 18	36 63	35 21	53.50
Current Ratio (DR)	1 41	1 16	1 00	1 01	1 04	0 93
Size (LOS)	15 80	15 84	15 66	15 56	15 52	15 78
Fixed Financial Assets Ratio (FATA)	0 36	0 33	0.28	0 36	0 29	0 26
Debt Ratio (DR)	0 39	0 45	0 53	0 41	0 38	0 46
Profitability (GOP)	0 34	0 35	0 23	0 34	0 35	0 21
Kakuzi Ltd						
Average Collection Period (ACP)	45 74	42 69	20 59	16 07	36 38	29.72
Inventory Turnover in Days (ITD)	25 46	30 93	26 64	27 30	98 69	75 34
Average Payment Period (APP)	34 51	40 24	11 89	12 63	37 89	34 24
Cash Conversion Cycle (CCC)	36 68	33 37	35 34	30.73	97 18	70 83
Current Ratio (DR)	0 66	0.52	0 64	0 53	1 00	0 77
Size (LOS)	14 15	13 92	14 17	14 18	13 89	14 04
Fixed Financial Assets Ratio (FATA)	0.01	0 01	-	-	-	-
Debt Ratio (DR)	0 74	0 80	0 59	0.68	0 46	0 49
Profitability (GOP)	0 20	0 11	0 19	0.13	0 07	0 04

Variable	Year					
	2006	2005	2004	2003	2002	2001
Rea Vipigo Plantations Ltd						
Average Collection Period (ACP)	3 64	4 01	3 14	6 48	7 59	9 55
Inventory Turnover in Days (ITD)	116 65	187 56	155 81	148 29	129 77	148 51
Average Payment Period (APP)	21 66	26 15	31.84	25 19	29 39	37 31
Cash Conversion Cycle (CCC)	98 63	165 42	127 10	129 58	107 97	120 76
Current Ratio (DR)	1.54	1 63	1 58	1 46	1 57	1 21
Size (LOS)	13.98	13 91	13 68	13 49	13 41	13 30
Fixed Financial Assets Ratio (FATA)	0 19	0 21	0 22	0 26	0 36	0 38
Debt Ratio (DR)	0 39	0 41	0 44	0 47	0 57	0 68
Profitability (GOP)	0 62	0 68	0 53	0 51	0.66	0 57
Sasini Ltd						
Average Collection Period (ACP)	20 51	13 49	19 18	25 00	28 98	17 36
Inventory Turnover in Days (ITD)	71 74	51 91	56 01	54 78	76 29	97 82
Average Payment Period (APP)	19 68	18 38	14 33	7 34	18 14	11 21
Cash Conversion Cycle (CCC)	72.57	47 04	60 87	72.44	87.12	103.97
Current Ratio (DR)	1 97	1 98	2 66	2 66	1 87	2 59
Size (LOS)	14 05	13 74	13 85	13 66	13 65	13 68
Fixed Financial Assets Ratio (FATA)	-	-	-	0 01	0 01	0 03
Debt Ratio (DR)	0 21	0 19	0 20	0 25	0 13	0 10
Profitability (GOP)	0 09	0 05	0 08	0 07	0 08	0 14
CMC Holdings Ltd						
Average Collection Period (ACP)	85 46	91 29	99 35	97 10	88 10	87 35
Inventory Turnover in Days (ITD)	200 92	192 42	189 80	248 58	200 05	200 65
Average Payment Period (APP)	174 77	125 24	117 02	148 26	140 67	123 36
Cash Conversion Cycle (CCC)	111 61	158 47	172 12	197 41	147 49	164 63
Current Ratio (DR)	1.57	1 48	1 53	1.57	1.64	1 58
Size (LOS)	15 81	15 73	15 62	15 32	15 33	15 26
Fixed Financial Assets Ratio (FATA)	0 03	0 02	0 02	0 03	0 03	0 03
Debt Ratio (DR)	1 08	1 18	1 12	1 08	0 92	0 87
Profitability (GOP)	0 42	0 43	0 40	0 39	0 45	0 45

			Year			
Variable	2006	2005	2004	2003	2002	2001
Kenya Airways Ltd						
Average Collection Period (ACP)	32 66	31 34	31 96	30 45	42 11	68 74
Inventory Turnover in Days (ITD)	8 23	11 25	14 63	16 14	18 12	17 74
Average Payment Period (APP)	32 00	26 46	28 62	22 07	9.38	13 89
Cash Conversion Cycle (CCC)	8 89	16 13	17 97	24 52	50 85	72 58
Current Ratio (DR)	1 13	0 90	0 87	1 06	1 23	1 60
Size (LOS)	17 78	17 56	17 23	17 13	17 04	16 93
Fixed Financial Assets Ratio (FATA)	0 01	0 01	0 01	0 04	0 03	-
Debt Ratio (DR)	0 75	0 72	0 71	0 68	0.65	0 66
Profitability (GOP)	0 25	0.30	0 31	0.31	0.31	0 26
Marshalls (E.A.) Ltd						
Average Collection Period (ACP)	67.70	55 50	68 37	60 74	72 92	72 34
Inventory Turnover in Days (ITD)	93 06	174 89	164 12	122 00	161 17	142 44
Average Payment Period (APP)	76 65	88 08	61 36	76 88	87 66	63 45
Cash Conversion Cycle (CCC)	184 11	142 32	171.14	105 86	146 43	151 33
Current Ratio (DR)	1 23	1.21	0 82	0 80	0 79	0 76
Size (LOS)	14.08	14 05	14 06	14 32	14 17	14 21
Fixed Financial Assets Ratio (FATA)	0.13	0.13	0 27	0 30	0.17	0.14
Debt Ratio (DR)	1.58	1 50	3 26	3 79	2 42	2 29
Profitability (GOP)	0 86	0 85	2 09	3 02	1 38	1 28
Nation Media Group Ltd						
Average Collection Period (ACP)	66 92	67 71	65 27	47 74	57 84	64 32
Inventory Turnover in Days (ITD)	143 45	116 37	125 91	108 49	100.93	102 82
Average Payment Period (APP)	85 36	88 11	107 17	152 44	122 32	109 46
Cash Conversion Cycle (CCC)	125 01	95 97	84 01	3 80	36 44	57 68
Current Ratio (DR)	2 23	2 05	1 71	2 01	1.72	1 74
Size (LOS)	15 66	15 54	15 40	15 31	15 23	15 08
Fixed Financial Assets Ratio (FATA)	0 05	0 12	0.12	0 11	0 13	0.17
Debt Ratio (DR)	0 47	0.37	0 42	0 41	0.54	0 38
Profitability (GOP)	1.34	1 48	1 45	1.41	1 50	1 43

Variable	Year					
	2006	2005	2004	2003	2002	2001
TPS Eastern Africa (Serena) Ltd						
Average Collection Period (ACP)	95 47	39 74	47 38	162 18	139 70	88 37
Inventory Turnover in Days (ITD)	121 85	102 69	112 89	139 01	132 81	121 87
Average Payment Period (APP)	163.81	137.74	136 93	144 83	280 73	118 82
Cash Conversion Cycle (CCC)	53 52	4 68	23 33	156 37	(8 21)	91 41
Current Ratio (DR)	1 32	2 27	1 10	1 11	1.08	1.05
Size (LOS)	14 26	14 49	14 33	14 01	14 19	14 20
Fixed Financial Assets Ratio (FATA)	0 01	0 01	0 01	0 01	0 01	0 01
Debt Ratio (DR)	0 70	0 58	0 88	0 72	0 78	0.74
Profitability (GOP)	0 81	0 81	0.95	0 70	0.82	0 80
Express Ltd						
Average Collection Period (ACP)	67 33	39 88	31 68	31 64	38 88	35 81
Inventory Turnover in Days (ITD)	5 29	4 43	2 27	0 20	0 16	0 16
Average Payment Period (APP)	103.19	53 43	27.25	28 41	30 98	23 62
Cash Conversion Cycle (CCC)	(30 58)	(9 12)	6 71	3 42	8 06	12 34
Current Ratio (DR)	0 65	0 68	0 57	0 69	0 71	0 69
Size (LOS)	13 62	13 87	14 38	15 19	15 20	15 10
Fixed Financial Assets Ratio (FATA)	0 01	0 01	0 01	0 02	0 02	0 02
Debt Ratio (DR)	0 58	0 59	0 67	0 99	0 91	0 84
Profitability (GOP)	0 39	0 43	0.46	0.77	0 61	0 67
Williamson Tea Kenya Ltd						
Average Collection Period (ACP)	47 65	72 69	74 00	79 31	57 79	36 48
Inventory Turnover in Days (ITD)	38 86	69 26	89 92	64 84	51 41	103 89
Average Payment Period (APP)	11 66	11 84	9.11	15 99	13 81	21 39
Cash Conversion Cycle (CCC)	74 85	130 10	154 82	128 16	95 39	118 98
Current Ratio (DR)	2 49	2 92	3.11	2 58	2 42	2 15
Size (LOS)	13 80	14 00	13 66	13 64	13 83	14 04
Fixed Financial Assets Ratio (FATA)	0 12	0 09	0 12	0.12	0.13	0 12
Debt Ratio (DR)	0 27	0 27	0 27	0 28	0 29	0 29
Profitability (GOP)	0 02	0 08	0 06	0 08	0 09	0 20