

**EFFECT OF LIQUIDITY MANAGEMENT ON PROFITABILITY
OF CEMENT MANUFACTURING FIRMS IN KENYA**

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DECLARATION

This research project is my original work and has not been submitted for examination to any other University.

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This project has been submitted with my authority as the university supervisor.

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DEDICATION

This project is dedicated to my family and friends who gave me moral support and encouragement when I was pursuing my studies.

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ABBREVIATIONS AND ACRONYMS

AP	Accounts Payable
AR	Accounts Receivable
CCC	Cash Conversion Cycle
KAM	Kenya Association of Manufacturers
RCP	Receivables collection period
ROA	Return On Assets
ROE	Return on Equity
SME's	Small and Medium Enterprises

ABSTRACT

Liquidity management describes the effort of the investors or managers to reduce liquidity risk exposure to enhance profitability of the firm. This study was carried out on the effect of liquidity management on profitability of cement manufacturing firms in Kenya. A descriptive approach was used in trying to establish the relationship between liquidity management on profitability of cement manufacturing firms. The study adopted a descriptive approach in trying to find out the effect of liquidity management on the profitability of cement manufacturing firms in Kenya. The study did a census survey since it involved all the seven cement manufacturing firms in Kenya. Data was obtained from secondary sources; financial statements. The collected data was analyzed using SPSS and presented in tables. The results of the regression analysis showed that there was a significant relationship between the relationship between liquidity management and profitability. Correlation analysis also shows a moderate positive relationship between liquidity management and profitability. The limitation of this study was that the annual financial statements are prepared under the fundamental assumptions and concepts which are subjective and therefore they are not be uniformly applied especially in terms of provisions and estimates. The study recommends for a comparative study that can be carried out to establish whether liquidity management affects profitability in other sectors like the public sector.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In order to achieve profitability, the firm must maintain its liquidity; this is because failure to meet its obligation on time results in bad credit rating by short term creditors. This leads to loss of value of good will in the market which may eventually lead to poor performance of the firm (Bhavet, 2011). A firm that maintains and implements financial management policies seeks to effectively manage their liquidity levels to ensure a proper balance in their working capital components.

Firms that maintain adequate liquidity levels are able to meet their short term obligations without affecting profitability. Padachi & Kesseven (2006), stated that the concern of business owners and managers all over the world is to devise a strategy of managing their day to day operations in order to meet their obligations as they fall due and increase profitability and shareholder's wealth. Efficient liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of the inability to meet due short-term obligations, on one hand, and avoids excessive investment in these assets, on the other (Padachi & Howorth, 2008).

Liquidity management is important for every organization that seeks to pay current obligations on business, the payment obligations include operating and financial expenses that are short term but maturing in the long term. To maintain their profitability, most firms manage their liquidity to meet their short term and long-term obligations which are essential in achieving profitability. Efficient management of

liquidity is an integrated part of overall finance management; it contributes towards consolidation of short term solvency position. The management of the firm should generate sufficient liquid fund to ensure that their daily operating expenses are catered for.

A firm's liquidity and profitability position and the balance between both are challenging decisions to a manager while conducting firm day to day operations. Liquidity is a precondition to ensure that firms are able to meet their short-term obligations and their continued flow can be guaranteed from a profitable venture. The importance of cash as an indicator of continuing financial health should not be surprising in view of its crucial role within the business. This requires that business must be run both efficiently and profitably. An asset-liability mismatch may occur which may increase firm's profitability in the short run but at a risk of its insolvency (Eljelly, 2004).

1.1.1 Liquidity Management

Peterson & Rajan (1997) noted that liquidity management describes the effort of the investors or managers to reduce liquidity risk exposure. It implies conversion of assets into cash during the normal course of business and to have regular uninterrupted flow of cash. The concept of liquidity in companies has two dimensions; quantitative and qualitative. The quantitative aspect includes the quantum, structure and utilization of liquid assets. The qualitative aspect emphasizes upon the ability of a firm to meet all present and potential demands on cash in a manner that minimize cost and maximize the value of the business.

Raheman et al, (2007) reckons that liquidity plays a significant role in the successful functioning of the business. A firm should ensure that it does not suffer from lack-of or excess liquidity to meet its short-term obligations (Raheman & Mohamed, 2007).The liquidity of a company is measured with the use of some financial ratios known as liquidity ratios. This group of ratios measures the ability of the firm to meet its current obligations (Liabilities). The most common ratios which indicate the extent of liquidity or lack of it are; Receivable Collection Period (RCP), Cash Flow Ratio and Operating Cash Flow Ratio.

The cash conversion cycle (CCC) is one of the measures of management effectiveness. It measures how long a firm will be deprived of cash if it increases its investment in resources in order to expand customer sales. It is thus a measure of the liquidity risk entailed by growth. However, shortening the CCC creates its own risks: while a firm could even achieve a negative CCC by collecting from customers before paying suppliers, a policy of strict collections and lax payments is not always sustainable. The CCC does this by following the cash as it is first converted into inventory and accounts payable (AP), through sales and accounts receivable (AR), and then back into cash. Generally, the lower this number is the better for the company. Although it should be combined with other metrics such as return on equity and return on assets, it can be especially useful for comparing close competitors, because the company with the lowest CCC is often the one with the best management (Brennan, Maksimovic & Zechner, 2003).

1.1.2 Profitability of the Firm

Penman (2007) defines profitability as the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It measures

management efficiency in the use of organizational resources in adding value to the business. Profitability may be regarded as a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit. Profitability is 'the ability of a given investment to earn a return from its use (Srivastava & Srivastava, 2006). Profit maximization is said to be the main objective of all firms. In a competitive marketplace, a business owner must learn to achieve a satisfactory level of profitability. Increasing profitability involves determining which areas of a financial strategy are working and which ones need improvement.

The management of any firm is charged with a responsibility of making the right decisions that would maximize the returns of an organization. In reality, firms do have profits targets, and sometimes they pay managers for reaching them, but the goals of firms are broader than profits alone. Chandra (2002) argues that every firm is most concerned with its profitability. One of the most frequently used tools of financial ratio analysis is profitability ratios which are used to determine the company's bottom line and its return to its investors. Profitability measures are important to managers and owners of a manufacturing firm since they show the overall efficiency and performance of a manufacturing firm. Profitability ratios can be divided into two types namely margin and returns (Petersen & Kumar 2010).

Maheshwari (2001) defined profitability as the final measure of economic success achieved by a company in relation to the capital invested. This economic success is determined by the magnitude of the net profit accounting. To achieve an appropriate return over the amount of risk accepted by the shareholders is the main objective of companies operating in capitalist economies. After all, profit is the propulsive element of any investments in different projects. The assessment of profitability is usually

done through the ROA (Return on Assets) equals to Net Income divided by Total Assets and ROE (Return on Equity) is equal to Net Income divided by Equity, which is the ultimate measure of economic success.

1.1.3 Liquidity Management and Profitability

Liquidity management is determined by how well a firm manages its working capital components. The extent to which working capital management influences on financial performance of the trading firms show a strong significant relationship between the components of working capital management and profitability of a firm (Bhunia 2010). Liquidity or profitability and the balance between both are challenging decisions while conducting a firm day to day operation. Liquidity is a precondition to ensure that firms are able to meet their short-term obligations and their continued flow can be guaranteed from a profitable venture.

Arnold (2008) points out that holding cash also provides some advantages, such as providing the payment for expenses like salaries, materials and taxes. Due to the fact that future cash flows are uncertain, holding cash gives a safety margin for eventual downturns. The ownership of cash guarantees the undertaking of highly profitable investments that demands immediate payment. Thus it is an important task for the financial manager to achieve appropriate balance between liquidity and profitability when making key investment decisions.

Peterson & Rajan (1997) argue that the greater the amount of funds invested in current assets, the lower the profitability, and by the same time the less risky is the working capital strategy. In this situation, the returns are lower in the case of a greater financial slack in comparison to a less liquid working capital structure. Similarly, a

smaller amount of net working capital, while sacrificing the safety margin of the company by raising its insolvency's risk, positively contributes to the achievement of larger return rates since it restricts the volume of funds tied up in assets of lower profitability. This risk-return ratio behaves in a way that no change in liquidity occurs without the consequence of an opposite move in profitability. This way each company should choose an amount of net working capital that better fits its risk accessibility and profit margins (Falope & Olubanjo, 2009).

1.1.4 Cement Manufacturing Firms in Kenya

In Kenya there are seven cement manufacturing firms namely: Bamburi Cement, Athi River Mining, Rhino Cement Foundation, East African Portland Cement Company, Mombasa Cement, Savanna Cement and National Cement Company (KAM, 2013). To achieve profitability, cement manufacturing firms aim at maintaining an adequate amount of liquidity to meet their daily obligations. However, liquidity in excess of what is adequately required by the firms to finance their operations may be counter-productive. The liquidity requirement of firms differs depending on the circumstances of the firm since the liquidity needs of most cement manufacturing firms are basically influenced by the nature of their business (Mathuva 2010).

Trading and financial firms generally have a low investment in fixed assets but require a large investment in working capital. Retail stores, for example, must carry large stocks of a variety of merchandise to satisfy the varied demand of their customers. Some cement manufacturing firms and other construction firms also have to invest substantially in working capital but only a nominal amount in fixed assets (Padachi 2006). Cement firms liquidity and financial position is reflected in return on equity, which also contains the effect of financial leverage. Appropriate return allows

the self-financing of business operations through the retained portion of net profit. Cement manufacturing firms that report high profits are more likely to enhance the liquidity and marketability that promotes proper growth and future profitability. Thus the optimal level for liquidity of cement firms would be obtained by a trade-offs between the low return of current assets and the benefit of minimizing the need for external finance (Mathuva 2010).

1.2 Research Problem

One of the major reasons that may cause liquidation is illiquidity and inability to make adequate profit. These are some of the basic ingredient of measuring the “going concern” of an establishment. For these reasons companies are developing various strategies to improve their liquidity position (Deloof 2003). Strategies which can be adapted within the firm to improve liquidity and cashflows concern the management of working capital, areas which are usually neglected in times of favourable business conditions. Liquidity level should not fall below minimum requirement as it will lead to the inability of the organization to meet short term obligation that are due (Lamberg & Valming, 2009).

The management of cement manufacturing firms in Kenya should strive to properly maintain their liquidity through low cash conversion cycle. Cement firms that exhibit longer cash conversion cycle may have negative effect on the liquidity of the firms because cash will be tied in raw material, inventory or account receivable. Managers can create value for their shareholders by reducing the number of days of accounts receivable and inventories to a reasonable minimum level. Proper management of liquidity position enables most cement manufacturing firms to gain a sustainable competitive advantage by means of effective and efficient utilization of the resources

for example reduction in costs of operation (Lazaridis & Dimitrios, 2006). Cement manufacturing firms wishing to gain profitability should maintain a proper net working capital whereby the firm's current assets exceed its current liabilities. If the firm fails to keep a satisfactory level of working capital, it might probably become insolvent. The current assets of any cement manufacturing firm must be at a level that can cover the liabilities at reasonable margin of safety (Mathuva 2010).

Chakraborty (2008) evaluated the relationship between working capital and profitability of Indian pharmaceutical companies. The study found a significant positive relationship between the working capital components and profitability of the pharmaceutical firms. Singh & Pandey (2008) carried out a study on the relationship between working capital management and profitability for Hindalco Industries Limited laying more focus on steel companies in India. The results revealed that there was a positive correlation between working capital management and profitability. Singh (2008) conducted a study on the relationship between working capital management and profitability of manufacturing firms in Europe. A survey of 100 manufacturing firms was conducted and secondary data sources from financial statements of these firms were used. It was concluded that there was a positive relationship between working capital components and profitability of manufacturing firms in Kenya. These studies did not show the relationship between liquidity and profitability on cement manufacturing firms.

Karani (2014) carried out a study to investigate the effect of liquidity management on profitability of commercial banks in Kenya. The study found out that there is a positive relationship between profitability and liquidity management of commercial banks in Kenya. In his study, Kimondo (2014) investigated the relationship between

liquidity and profitability of nonfinancial companies listed in the NSE. The findings established a weak positive relationship between liquidity and profitability among the listed nonfinancial companies in Kenya. Ombworo (2014) conducted a study on the effects of liquidity and profitability of SME's in Kenya. It was concluded that there was a negative relationship between liquidity and profitability of SME's in Kenya. It is evident that most local studies that have tested the relationship between liquidity and profitability have limited themselves on SME's and the nonfinancial sector; they do not show the relationship between liquidity and profitability of cement manufacturing firms. This study therefore sought to determine the effect of liquidity management on profitability of cement manufacturing firms in Kenya by answering the question: What is the effect of liquidity management on profitability of cement manufacturing firms in Kenya?

1.3 Objective of the Study

The objective of this study was to determine the effect of liquidity management on profitability of cement manufacturing firms in Kenya.

1.4 Value of the Study

The findings of the study will enable cement manufacturing firms to effectively implement liquidity management practices that will enable the firms to derive maximum benefits in managing working capital components to boost profitability.

This study hopes to enlighten manufacturers and policy makers in setting appropriate policies and procedures that will improve profits in manufacturing firms in Kenya by reducing the risk of corporate failure and significantly improve their chances of survival.

This research work aims to contribute to the literature on the relationship between liquidity management and corporate profitability and also focuses on Kenyan cement firms where limited research has been conducted on such firms recently.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section provides the theoretical framework of the study, it also provides the determinants of profitability, the empirical review of scholars locally and globally and the summary of the literature review.

2.2 Theoretical Framework

This study is informed by five theories namely: Cash Conversion Cycle Model, Miller-Orr Model and Free Cash Flow Theory. These theories provide theoretical evidence of various arguments by different scholars and researchers in relation to liquidity management and profitability.

2.2.1 Cash Conversion Cycle Model

Richards & Laughlin (1980) posit that according to this model, cash conversion cycle looks at the length of time that the firm makes payments and the time it receives cash flows. The key words used when refereeing to this model are: inventory conversion period, this is the period needed to convert raw materials into finished products then sell those goods. Receivables collection period is the average time period which is needed to convert the firm's debtors into cash. On the other hand, payables deferral period is the average length of time in between the purchase of materials and labor as well as the payment of cash for them (Jose, Lancaster & Stevens, 1996).

According to Lyroudi & Lazaridis (2000) the significance of this model is that it aims to change the policies that relate to credit purchase and credit sales. The standard of payment of credit purchase or getting cash from the debtors can be changed on the

basis of reports of cash conversion cycle. If the cash conversion cycle indicates that the firm has a good liquidity position, past credit policies can be maintained. Its objective is to study the cash flow of the business.

Sooner (1993) argues that the cash flow statement and the cash conversion cycle helps in analyzing the cash flow analysis. The cash conversion cycle readings may be compared among different firms in the same line of business in order to evaluate the quality of cash management. The cash conversion cycle (CCC) is one of the measures of management effectiveness. It measures how fast firms can convert cash on hand to more cash on hand. This model achieves this by following the cash as it is first converted into inventory and accounts payable (AP), through sales and debtors then back into liquid cash, the lower the number the better for the firm. Although it should be combined with other metrics (such as return on equity and return on assets), it can be especially useful for comparing close competitors, since the firm with the lowest CCC has better management in most cases (Sooner 1993).

Jose et al. (1996) argues that a shorter cash conversion cycle enhances the firm's profitability. However, the firm has to exercise caution to avert negative effects on the firm's operations. The cash conversion cycle can be made shorter by reducing the inventory conversion period and debtors' collection period by lengthening the payable deferral period.

2.2.2 Miller-Orr Model

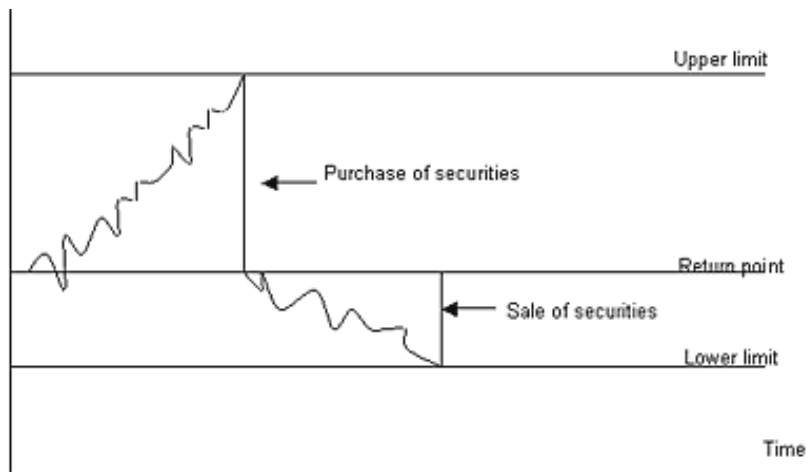
The model was developed by Miller & Orr (1996), to address a limitation of Baumol (1952) model which provides that the cash flows should not fluctuate. According to this model, most firm do not use their cash flows uniformly and thus do not predict

their daily cash inflows and outflows. Mille-Orr Model assists them by allowing daily cash flow variation. Miller & Orr (1998) further indicate that under the model; the firm allows the cash balance to vary between the upper control limit and the lower control limit, making a purchase and sale of marketable securities when one of the limits is reached.

Prasanna (2008) indicate that the assumption of this model is that the net cash flows are normally distributed with a zero value of mean and a standard deviation. This model provides two key control limits the upper control limit and the lower control limit as well as a return point. When the company's cash limit changes randomly and then touches the upper limit, the organization buys sufficient marketable securities to come to a normal level of cash balance. That is the return point.

According to Maness & Zietlow (1993) if the firm's cash flows wander and touch the lower limit, it sells sufficient marketable securities to bring the cash balance back to the normal level that is the return point. This model appreciates the fact that the cash flows are uncertain. Mullins & Richard (1998) explain that the advantage of this model is that it can be adjusted for seasonal trends through designing of cash flow distribution. The relevance of this model is that it assumes that firms set a lower limit on cash holdings based on the likelihood of cash short fall and the willingness of a firm to tolerate the risk of a short fall. However, the upper limit is set by applying the model.

Figure 2.1 Cash Movement between the Two Limits



To determine the distance between the upper and the lower limits (called Z), it depends on the following factors namely: the transaction costs (c); the interest rate, (i); and the standard deviation (s) of net cash flow. The formula for calculating the distance between the upper and lower control limits is (called Z) is as: $\text{Upper Limit} = \text{Lower Limit} + 3Z$ and the $\text{Return Point} = \text{Lower Limit} + Z$. The net effect is that the firms hold the average cash balance equal to: $\text{Average Cash Balance} = \text{Lower Limit} + 4/3Z$.

2.2.3 Free Cash Flow Theory

This theory was postulated by Myers (2001), this theory is framed for matured firms that are prone to over invest. It says that high debt levels will increase value, despite the threat of financial distress, when a firm's operating cash flow significantly exceeds its profitable investment opportunities. Thus, the profit earning capacity increases the value of the firm despite the threat of financial distress. Firms with a positive free cash flow use this cash flow to lower their debt ratio. Firms with a negative free cash flow increase their debt ratio to respond to the lack of internal

funds. The percentage adjustment is smaller for firms with relatively more debt than for firms with relatively low debt (Mehran, 1992).

Capital structure is an area that is unresolved with scope to be looked into, though there are many theoretical and empirical works. The work of Modigliani & Miller (1963) analyzed in detail the impact of tax benefit on determining the capital structure of a firm. The trade-off theory focused on the impact of other external factors on neutralizing the benefits of use of debt and suggested an optimal CS to trade-off between benefits and cost involved in using debt capital.

Jensen & Meckling (1976) pointed out the agency cost involved in conflict of interest between the managers and the shareholders which leads to finance investment opportunities through outside fund. Myers (1984) suggested a hierarchy for funding the Capital structure. His pecking order theory suits to large size firms with considerably high profit. The signaling theory was pioneered by Donaldson (1961) and further developed by Myers & Majluf (1984) and others portrayed the bad signal that the firm would confer if they issue equity capital instead of debt capital which forces the firm to issue debt capital. All these works analyzed in detail the role played by debt capital in determining the optimal capital structure to enable the firm to increase their Profit and thereby improve the value of the firm however, still determinants of optimal capital structure remains an unresolved puzzle.

2.3 Determinants of Profitability

Determinants of profitability are essential components that drive a firm towards achieving profits. The variables that have been used in this study in an attempt to determine the profitability of a firm are as follows: growth of the firm, size of the firm, market share, free cash flow and physical investment.

2.3.1 Growth of the Firm

Growth of the firm is a determinant of profitability and is attributable to increase in net assets. Firms are a collection of a certain number of resources that provide the means to successfully take advantage of those opportunities and grow (Barney, 1991). Large firms' exhibit higher growth compared to small firms because they have a high asset base and thus can commit huge investments that are profitable.

Rapid growing firms are more likely to enhance their profitability. Firms that experience high growth rates record high sales turnover which is essential for growth and expansion of the business. Growth of firms is characterized by increased reduction of costs and high returns on investments. If there is an increase in total assets then it means it has high growth and it tends to be more profitable. We measure growth as a percentage increase in total assets. Thus we expect positive relationship between growth rate and profitability of firm (Sebastian, 2010).

2.3.2 Size of the Firm

The other determinant of financial performance is the size of the firm. Large firms are more likely to manage their working capitals more efficiently than small firms. Most large firms enjoy economies of scale and thus are able to minimize their costs and

improve on their financial performance (Obiakor & Okwu, 2011). Size of a firm is measured by the sales volume of a firm.

The proxy used for calculating the size of the firm is the log of net sales. Many authors: Pandey (2005) in their research studies have found out a negative relation between size of firm and its leverage as there is more transparency about large firms which reduces the undervaluation of new equity issue and encourages the firms to finance through their equity (Vijayakumar, 2011). If the size of the firm increases profitability also increases therefore large sized firms tend to be more profitable. This means that a positive relationship is expected between the size of the firm and profitability (Pandey, 2005).

2.3.3 Market Share

Growth in the market share highly contributes to the profitability of a firm. The connection between market share and profitability has been recognized by corporate executives and consultants, and it is clearly demonstrated in the results of a project undertaken by the Marketing Science Institute on the Profit Impact of Market Strategies (PIMS). Deloof (2003) explain that economies of scale is one of the most obvious rationale for the high rate of return enjoyed by large-scale businesses such that they have achieved economies of scale in procurement, manufacturing, marketing, and other cost components (Chakraborty, 2008).

Chakraborty (2008) noted that with regard to product quality the price of getting market share, in analogy to the prices in perfect markets for investment goods must be expected to adjust so that one does make a long term profit on investment in market share. This means that the higher the returns from having a high market share are counter balanced by a corresponding high price paid earlier to get the market share.

Larger firms have been shown to have higher survival rates, Since size and economies of scale are related (Porter, 2001), and growth is necessary to achieve size, then growth could be argued to be a positive indicator of future profitability. Firms that exhibit high growth in a new market may also have profitability advantages, as early access to distribution channels and exclusive contracts with suppliers and buyers might create a favorable cost structure.

2.3.4 Free Cash Flow

Free cash flow is a determinant of profitability. Free cash flow is a measure of how much cash a firm generates after accounting for capital expenditures such as buildings or equipment. Maintaining suitable amount of liquidity within the firms is fundamental for the smooth operations of firms. Managers have a propensity to hold large percentage of firm assets in the form of cash and cash equivalents in order to reinvest on other physical assets, payments to stockholders and to keep cash inside the firm.

Free cash flow is a cash flow available for resource providers after paying all expenses and requirements of business which are necessary for keeping it into operating form. Proper management of working capital components enables the firms to hold excess free cash flows which can in turn be investment in profitable investments to generate profits for the firm (Pandey, 2005).

2.3.5 Physical Investment

Owolabi, Obiakor & Okwu (2011), noted that physical investment is the current product set aside during a given period to be used for future production, in other words an addition to the stock of capital goods. Foreign investors should borrow funds to make physical investments since they consume a lot of capital to invest. The

cost of borrowing is relatively cheaper compared to other sources of financing physical investments thus enables the investor to benefit from such investments since their returns are higher compared to the cost of financing physical investments.

Physical capital investment is expected to affect profitability positively since it expands production, aiming at improving sales, cash flow and profit-generating abilities. Using data available in financial statements and assuming that the majority of new investment is materialized through the increase of fixed assets, this variable is calculated as the growth rate of gross fixed assets in two consecutive years (Padachi, 2006).

2.3.6 Liquidity

According to Padachi (2006) liquidity of the firm is a key determinant of the firm's profitability. Liquidity risk can be measured by two main methods: liquidity gap and liquidity ratios. The liquidity gap is the difference between assets and liabilities at both present and future dates. Liquidity is the amount of capital that is available for investment and spending. Capital includes cash, credit and equity. Most of the capital is credit rather than cash. That's because the large financial institutions that do most investments prefer using borrowed money (Owolabi et al, 2011).

At any time, a positive gap between assets and liabilities is equivalent to a deficit. Liquidity ratios are various balance sheet ratios which should identify main liquidity trends. These ratios reflect the fact that firm should be sure that appropriate, low cost funding is available in a short time. This might involve holding a portfolio of assets than can be easily sold cash reserves, minimum required reserves or government securities (Padachi et al. 2008).

2.4 Review of Empirical Studies

Eljelly (2004) evaluated the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 45 joint stock companies in Saudi Arabia. The study used a descriptive survey and secondary data source for five years was obtained. A regression model was used to show the relationship between the variables. The study found a significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio. This relationship is more evident in firms with high current ratios and longer cash conversion cycles. At the industry level, however, the study found that the cash conversion cycle or the cash gap is of more importance as a measure of liquidity than current ratio that affects profitability.

Garcia & Martinez (2007) studied the effects of working capital management on the profitability of a sample of 25 small and medium sized Spanish firms. The study used a survey and secondary data source for five years was obtained. The study used both primary and secondary data sources and correlation analysis was used to show the relationship between the variables. The results of the study found that there was a positive relationship between working capital management and profitability of the firms.

Chakraborty (2008) evaluated the relationship between working capital and profitability of Indian pharmaceutical companies. The study used a descriptive survey to establish whether the variables correlate. Secondary data sources were used for five years from the financial statements of these pharmaceutical firms. A regression model was used to show the relationship between the variables. The study found a significant

positive relationship between the working capital components and profitability of the pharmaceutical firms.

Singh and Pandey (2008) carried out a study on the relationship between working capital management and profitability for Hindalco Industries Limited laying more focus on steel companies in India. The study used a cross-sectional survey design whereby secondary sources of data were obtained from the financial statements of Hindalco firms. The study adopted descriptive statistics for analysis; the results revealed that there was a positive correlation between working capital management and profitability.

Singh (2008) conducted a study on the relationship between working capital management and profitability of manufacturing firms in Europe. A survey of 100 manufacturing firms was conducted and secondary data sources from financial statements of these firms were used. The researcher did a cross-sectional study for these firms and the data was analyzed using descriptive statistics. It was concluded that there was a positive relationship between working capital components and profitability of manufacturing firms in Kenya.

Maina (2011) examined the relationship between liquidity management and profitability of the Oil companies in Kenya. The study covered the period 2007- 2010. A regression model was developed to determine the relationship between the dependent variable (Profitability of the firms) and independent variables (liquidity position). The independent variable used in the model consisted of Current ration, quick ratio, cash conversion cycle, while leverage and the age of the firm were used as control variables. The results of the study showed a weak relationship between liquidity and profitability. The study concluded that liquidity management is not a

significant contributor alone of the firm's profitability and there exist other variables that will influence ROA.

Wambu (2013) sought to establish the relationship between the profitability and the liquidity of commercial banks in Kenya. The population of the study was comprised of all 44 commercial banks in Kenya operating in the years 2008 to 2012. For a bank to qualify it needed to have been in operation during the whole period of the study and therefore institutions that merged or were not in operation in the whole period of study were eliminated. The study used secondary data obtained from audited financial statements of the banks for five years and a regression model was used for data analysis. The study used secondary data collection of the return on assets, to measure profitability and CBK liquidity ratio and current ratio to measure liquidity in each year. The study found out that there was an inverse relationship between profitability and liquidity of commercial banks in Kenya.

Karani (2014) carried out a study to investigate the effect of liquidity management on profitability of commercial banks in Kenya. The population of the study comprised of all 44 commercial banks in Kenya operating in the years 2009 to 2013. The study involved secondary data collection of the return on assets to measure profitability, Cash and cash equivalent to measure liquidity, Capital ratio and Deposit ratio as profitability determinants during a specific year. The study used secondary data obtained from audited financial statements of the banks at the end of the years of study. The study used descriptive statistics and regression analysis to establish the relationship between the study variables. The response rate was 63% that is a total 27 out of 40 that satisfied the data collection criteria. The study found out that there is a

positive relationship between profitability and liquidity management of commercial banks in Kenya.

In his study, Kimondo (2014) investigated the relationship between liquidity and profitability of nonfinancial companies listed in the NSE. The study used a descriptive survey. The study covered 39 listed nonfinancial companies in NSE Kenya. Secondary data sources for five years between (2009-2013) were used. Correlation and regression analysis were employed to establish the relationship between liquidity and profitability. The ROA was used as proxy for company's profitability and the company's liquidity was measured using the current ratio, quick ratio and the absolute liquid ratio. Findings established a significant weak positive relationship between liquidity and profitability with a Spearman correlation coefficient of 0.398 and R² of 15.9% among the listed nonfinancial companies in Kenya.

Ombworo (2014) conducted a study on the effects of liquidity and profitability of SME's in Kenya. He conducted a descriptive survey to establish the relationship between the variables. The study used secondary data from financial statements for a period of five years. He did conduct a stratified sampling of 90 SME's operating around Nairobi area. Data was analyzed using a regression model to show the relationship between the independent and dependent variables. It was concluded that there was a negative relationship between liquidity and profitability of SME's in Kenya.

2.5 Summary of the Literature Review

From the literature review, liquidity might expose the firm into financial losses when the firm fails to maintain a proper match between assets and liabilities. It is therefore important for firms to balance between liquidity through implementing proper financial management practices in investing and risk management (Bhunia, 2010). Liquidity requirement of a firm depends on the peculiar nature of the firm and there is no specific rule on determining the optimal level of liquidity that a firm can maintain in order to ensure positive impact on its profitability. Researchers such Karani (2014) Kimondo (2014) and Ombworo (2014) have concluded that there is a weak positive relationship between liquidity and profitability in SME's and in the financial sectors. The limitation of these studies is that they did not investigate the relationship between the variables in cement manufacturing firms in Kenya. This study therefore seeks to answer the question: What is the effect of liquidity management on profitability of cement manufacturing firms in Kenya?

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This part discusses the methodology that was used in investigating the effect of liquidity management on profitability of cement manufacturing firms in Kenya. It gave a plan of the target population, the sample size and the sampling techniques that were used, the data collection techniques and tools as well as the techniques that was used to analyze the data that was collected.

3.2 Research Design

This study adopted a descriptive survey of cement manufacturing firms in Kenya. The main reason for selecting descriptive research design is because it provides a knowledge base about a phenomenon that will provide assistance in the refinement of the statement of the problem, construction of the hypothesis, data collection and analysis procedures (Singh & Nath, 2010). It aided in the establishment of a relationship between variables. Kothari (2004) explain that the “research design focuses on the structure of an enquiry, which leads to the minimization of the chance of drawing the wrong casual inferences from the data”.

3.3 Population

Population refers to an entire group of individuals, events or objects having common characteristics that can be observed and measured (Yin, 2003). In reference to the Kenya Association of Manufacturers (KAM, 2014) there are seven cement manufacturing firms licensed to work and operate in Kenya. A census approach was used; it involved seven cement manufacturing firms in Kenya namely: Bamburi

Cement Limited, Rhino Cement Foundation, East African Portland Cement Company, Athi River Mining Limited, Savannah Cement Limited, National Cement Company Limited and Mombasa Cement Limited.

3.4 Data Collection

The study used secondary data since the nature of the data is quantitative. Data collection is gathering empirical evidence in order to gain new insights about a situation and answer questions that prompt undertaking of the research (Kothari, 2004). The data was collected from audited financial statements of cement manufacturing firms in Kenya for a period of ten (10) years from 2005-2014. This period was considered appropriate for determining the extent to which liquidity management impacts on profitability of cement manufacturing firms in Kenya. The study used 70 data points that was obtained by multiplying 7 cement manufacturing firms and 10 years.

3.5 Data Analysis

Mugenda & Mugenda (2005) explain that data should be cleaned, coded and properly analyzed in order to obtain a meaningful report. The data collected was sorted and organized before capturing it in Statistical Packages for Social Sciences (SPSS) for analysis. To get the correct measurements for analysis, profitability (dependent variable) was measured using profitability ratio (return on capital employed). Liquidity management (independent variable) was measured using liquidity ratio (acid test ratio and current ratio) whereas inventory turnover, size of the firm and receivable turnover were used as control variables.

3.5.1 Analytical Model

To achieve the objective of this study, a multiple regression model was used to establish the effect of liquidity management on the profitability of cement manufacturing firms in Kenya.

The model shown below was adopted from Peterson & Rajan (1997) and Maina (2011).

The study aimed at establishing the effect of liquidity management on profitability of cement manufacturing firms in Kenya as shown below:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

Y= Profitability was measured using profitability ratio: Return on asset (net income divided by total assets).

a =Y-intercept

b₁, b₂, b₃, b₄, b₅ are the regression coefficients/parameters

Liquidity Management was measured using liquidity ratio

X₁= Quick ratio was computed by (current assets- Inventory-prepayments) / Current liabilities. The study ignored the prepayment while computing the quick ratio because it cannot be accurately determined from the financial statements.

X₂=Current ratio was determined by dividing current assets by current liabilities

Control variables used included:

X₃=Inventory turnover ratio is an efficiency ratio that shows how effectively inventory was managed by comparing cost of goods sold with average inventory for a period. It was determined by dividing cost of goods sold by average inventory.

X_4 is the size of the firm which was measured using asset turnover ratio which is net sales divided by average total assets.

X_5 = Receivable turnover ratio is an activity ratio which measures the effectiveness of a firm in extending credit as well as collecting debts. It was measured using credit sales divided by average accounts receivable.

b = Slope of the regression, it measures the unit change in Y associated with a unit change in X

ϵ is the Error term within a confidence interval of 5%

3.5.2 Tests of Significance

T-test was used to test the hypothesis that liquidity management impacts on the profitability of cement manufacturing firms. In this test, the null hypothesis assumed there is no relationship between liquidity management and profitability of cement manufacturing firms. The alternative hypothesis assumed that there was a relationship between liquidity management and profitability of cement manufacturing firms. This was verified by the regression results. The level of significance was expressed using p-values from the tests of coefficients. If the p-value(s) is more than 5% then the null hypothesis is true since this meant that there was no statistically significant relationship between liquidity management and profitability. Similarly, if the p-value was less than 5% then the alternative hypothesis was considered true since this meant that there was a positive relationship between the variables.

The study used a two tailed test using a significance level of 0.05. This meant that .025 is in each tail of the distribution of the test statistic. The researcher used a two-tailed test to test the possibility of the relationship in both directions that is whether

there existed a positive or negative relationship between liquidity management and profitability.

Coefficient of determination (R^2) was used to provide a measure of how well observed outcomes were replicated by the model, as the proportion of total variation of outcomes explained by the model. The correlation coefficient (R) varied from -1 to +1. A -1 indicates perfect negative correlation, and +1 indicates perfect positive correlation. The tests were performed at 95% degree of confidence.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis and findings of the study as set out in the research objective and research methodology. The study findings are presented below on the effect of liquidity management and profitability of cement manufacturing firms in Kenya. The study used secondary data that was obtained from financial statements of all the seven (7) cement manufacturing firms in Kenya.

4.2 Descriptive Statistics

Descriptive statistics has been used to show quantitative relationship between the study variables. The table below shows the mean, median, minimum, and maximum and standard deviation values. The results are as shown below:

Table 4.1: Summary of Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Quick Ratio	70	1	3	1.73	.395
Current ratio	70	0	3	1.15	.791
Inventory Turnover (Estimate)	70	1	2	1.48	.150
Asset Turnover	70	0	5	0.35	.780
Receivable Turnover	70	0	2	1.70	.365
ROA	70	0	1	0.19	.270
Valid N (listwise)	70				

Source: research findings

Notes: ROA – Return on Assets; QR; Quick Ratio; CR; Current Ratio; IT; Inventory Turnover; AT; Assets Turnover; RI; Receivable Turnover

From the above findings, the mean score of quick ratio is 1.73 of the total assets; with a standard deviation is 0.395. The current ratio of cement manufacturing firms was

found to be a mean value of 1.15 with a standard deviation of 0.791. This implies that cement manufacturing firms are able to meet their short-term obligations on time. Both the current and quick ratios conform to the standard conventional rule of 2:1 and 1:1.

The mean score for inventory turnover of cement manufacturing firms was found to be 1.48 with a standard deviation of 0.150. This signifies that it took the manufacturing companies 1.48 times to sell the entire inventory of cement manufactured.

The results also revealed that the manufacturing firms' receivable turnover was good with a mean value of 1.70 while the standard deviation was 0.365. This implies that cement manufacturing firms were able to extend credit and collect their outstanding debts fairly as per the credit terms.

4.3 Correlation Analysis

To determine the strength of the relationship between the variables correlation analysis was used. Correlation is denoted as r , and it can take a range of values from -1 to +1. A value of 0 denotes that there is no association between the two variables. A value greater than 0 indicate a positive association, that is, as the value of one variables increases so does the value of the other variables. A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases (Cohen, 2003). Pearson's Correlation Coefficient was used and the results are presented in the table 4.2 below:

Table 4.2: Correlation between the variables of the study

		ROA	QR	CR	IT	AT	RT
ROA	Pearson Correlation	1	.546	.626**	.508**	.820*	.524
	Sig. (2-tailed)		.006	.001	.003	.047	.039
	N	70	70	70	70	70	70
QR	Pearson Correlation	.546	1	.760**	.893**	.272	.536
	Sig. (2-tailed)	.006		.000	.000	.061	.029
	N	70	70	70	70	70	70
CR	Pearson Correlation	.626**	.760**	1	.714**	.144	.607
	Sig. (2-tailed)	.001	.000		.000	.331	.045
	N	70	70	70	70	70	70
IT	Pearson Correlation	.508**	.893**	.714**	1	.296*	.456
	Sig. (2-tailed)	.003	.000	.000		.041	0.041
	N	70	70	70	70	70	70
AT	Pearson Correlation	.820*	.272	.144	.296*	1	.955
	Sig. (2-tailed)	.047	.061	.331	.041		.000
	N	70	70	70	70	70	70
RT	Pearson Correlation	.524*	.536	.607*	.955*		1
	Sig. (2-tailed)	.039	.029	.045	.000		
	N	70	70	70	70	70	70

Source: Research findings

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

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

The results of the correlation analysis on Table 4.2 shows that return on asset was positively related to quick ratio with a Pearson's Correlation Coefficient of $r = 0.546$ and that at a level of significance of 0.006. It is statistically significant as p value is less than 0.05 at 95% level confidence. The results also show that there was a positive correlation between return on asset and current ratio with a Pearson's Correlation Coefficient of $r = 0.626$ and a level of significance of 0.001 (statistically significance).

The results further reveal that that return on asset has a positive relation with inventory turnover with a Pearson's Correlation Coefficient of 0.508 and 0.03 level of coefficient. The results again show that return on asset has a positive relation with asset turnover with a Pearson's Correlation Coefficient of 0.820 and 0.047 level of coefficient. The results also show that return on asset is positively related to receivable turnover with a Pearson correlation of 0.524 and 0.039 level of significance.

The results show that quick ratio is positively related to current ratio with a Pearson Correlation of 0.760 at significance level of 0.000. The results indicate that quick ratio is positively related to inventory turnover as the Pearson Correlation was 0.893 with a coefficient significance level of 0.000. The findings established that quick ratio is positively related to asset turnover with a Pearson Correlation of 0.272 at a 0.061 level of significance. The study further revealed that current ratio inventory turnover with a Pearson Correlation of 0.714 and a coefficient significance level of 0.000.

According to the results, inventory turnover is positively related to asset turnover and receivable turnover (Pearson Correlation of 0.296 at 0.041 level of significance) and (Pearson Correlation of 0.456 with coefficient significance level of 0.041). The study finally shows that asset turnover is positively related to receivable turnover with a

Pearson Correlation of 0.955 at 0.000 level of significance. The significance values tell us that the probability of the correlation being a fluke is very low; hence the study can have confidence that the relationship between the variables is genuine. This therefore implies that liquidity management contributes positively to profitability at the manufacturing firms.

4.4 Regression Analysis and Hypothesis Testing

The study further carried out multiple regression analysis to establish the statistical significance relationship between the independent variable, liquidity management and the dependent variable, the firms' profitability. According to Green and Salkind (2003) regression analysis is a statistics process of estimating the relationship between variables. It helps in generating equation that describes the statistical relationship between one or more predictor variables and the response variable. The regression analysis results were presented using regression model summary tables, analysis of variance (ANOVA) table and beta coefficient tables. The results are shown in table 4.3 below:

Table 4.3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.974 ^a	.949	.946	.68474

Source: Research findings

a. Predictors: (Constant), Return on Assets; Quick Ratio; Current Ratio; Inventory Turnover; Assets Turnover; Receivable Turnover

On the above table, coefficient of determination is 0.949 which implied that 94.9% of the variation in profitability was explained by return on assets; quick ratio; current ratio; inventory turnover; assets turnover and receivable turnover. This implied that there existed a strong positive relationship between the independent variables and dependent variable. The remaining 5.1% can be explained by other variables not included in the study. R square and adjusted R square is high; therefore this implies that there is a high variation that can be explained by the model.

4.4.1 Analysis of Variance

An analysis of variance was used to test whether the overall regression model is a good fit for the data. The findings are as shown below in table 4.4:

Table 4.4: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	483.049	4	120.762	257.565	.000 ^b
	Residual	25.787	55	.469		
	Total	508.836	59			

Source: Research findings

a. Dependent Variable: ROA

b. Predictors: (Constant), receivable Turnover, Asset Turnover, Quick Ratio, Current Ratio, Inventory turnover

ANOVA results for regression coefficients in the above table showed that the significance of the F statistics is 0.000 which is less than 0.05. This implied that there was a significant relationship between receivable turnover, asset turnover, quick ratio, current ratio and inventory turnover hence the regression model is a good fit of the

data. This coincides with the hypothesis of the study which predicted a positive relationship between liquidity management and profitability.

4.4.2 Model of Coefficients

The study did the test of coefficient to determine the direction of the relationship between liquidity management and profitability of cement firms. The results obtained are provided in table 4.5 below:

Table 4.5 Regression Equation Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.084	2.623		1.557	.125
Quick Ratio	1.031	.063	.507	16.282	.000
Current Ratio	.667	.042	.498	16.059	.000
Inventory Turnover	1.001	.057	.615	17.496	.000
Receivable Turnover	.118	.104	.138	11.131	.022
Asset Turnover	.928	.044	.726	21.197	.000

Source: Research findings

a. Dependent Variable: ROA

$$\text{Fitted model } Y = 4.084 + 1.031X_1 + 0.667X_2 + 1.001X_3 + 0.118X_4 + 0.928X_5 + e$$

The Beta Coefficients in the regression show that all the tested variables (receivable turnover, asset turnover, quick ratio, current ratio, inventory turnover) had positive

relationship with ROA. The findings show that all the variables tested were statistically significant with p-values less than 0.05. The regression model results obtained shows that there exists a direct positive relationship between all the variables.

$X_1 = 1.031$ which implied that a unit change in the quick ratio resulted into a 1.031 change in profitability.

$X_2 = 0.667$ this implied that one unit change in current ratio result into a 0.667 change in profitability.

$X_3 = 1.001$; implied that one unit change in inventory turnover will result into a 1.001 change in the profitability.

$0.118X_4$; implied that one unit change in receivable turnover will result into a 0.118 change in the firms' profitability.

$0.928X_5$; implied that one unit change in asset turnover will result into a 0.928 change in the profitability of the firms.

4.5 Discussion of Research Findings

From the descriptive results, the mean score of quick ratio is 1.73 of the total assets; with a standard deviation is 0.395. The current ratio of cement manufacturing firms was found to be a mean value of 1.15 with a standard deviation of 0.791. Both the current and quick ratios conform to the standard conventional rule of 2:1 and 1:1. The mean score for inventory turnover of cement manufacturing firms was found to be 1.48 with a standard deviation of 0.150. This signifies that it took the manufacturing companies 1.48 times to sell the entire inventory of cement manufactured.

The results also revealed that the manufacturing firms' receivable turnover was good with a mean value of 1.70 while the standard deviation was 0.365. This implies that cement manufacturing firms were able to extend credit and collect their outstanding debts fairly as per the credit terms. The results implied that the management of cement manufacturing firms was using its assets efficiently to generate their earnings.

The results of the correlation analysis shows that return on asset was positively related to quick ratio with a Pearson's Correlation Coefficient of $r = 0.546$ and that at a level of significance of 0.006. It is statistically significant as p value is less than 0.05 at 95% level confidence. The results also show that there was a positive correlation between return on asset and current ratio with a Pearson's Correlation Coefficient of $r = 0.626$ and a level of significance of 0.001 (statistically significance).

The results further reveal that that return on asset has a positive relation with inventory turnover with a Pearson's Correlation Coefficient of 0.508 and 0.03 level of coefficient. The results again show that return on asset has a positive relation with asset turnover with a Pearson's Correlation Coefficient of 0.820 and 0.047 level of coefficient. The results also show that return on asset is positively related to receivable turnover with a Pearson correlation of 0.524 and 0.039 level of significance. These findings support a study by Kimondo (2014) which found that there exist a positive relationship between liquidity and profitability of nonfinancial companies listed in the NSE.

The results of the regression analysis discovered that there was a positive relationship between liquidity management and profitability. The p-values of all variables obtained from the regression results were less than 5% (0.05); this means that the relationship between the variables is statistically significant. These findings are

coherent with a study conducted by Karani (2014) who concluded that there was a positive relationship between profitability and liquidity management of commercial banks in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussions drawn from the data findings analyzed and presented in the chapter four. The chapter is organized into summary of findings, conclusions, recommendations and areas for further research.

5.2 Summary of Findings

The study established that return on asset was positively related to quick ratio with a Pearson's Correlation Coefficient of $r = 0.546$ and that at a level of significance of 0.006. It is statistically significant as p value is less than 0.05 at 95% level confidence. The results also show that there was a positive correlation between return on asset and current ratio with a Pearson's Correlation Coefficient of $r = 0.626$ and a level of significance of 0.001. The results further reveal that that return on asset has a positive relation with inventory turnover with a Pearson's Correlation Coefficient of 0.508 and 0.03 level of coefficient. The results again show that return on asset has a positive relation with asset turnover with a Pearson's Correlation Coefficient of 0.820 and 0.047 level of coefficient. The results also show that return on asset is positively related to receivable turnover with a Pearson correlation of 0.524 and 0.039 level of significance.

The results of the regression analysis established that there was a positive relationship between liquidity management and profitability as the p-values of all variables obtained from the regression results were less than 5% (0.05); this means that the relationship between the variables is statistically significant. To confirm the hypothesis of the study, regression analysis and hypothesis testing were carried out.

The results obtained showed that there was a positive relationship between liquidity management and profitability. The independent variables of the study were found to contribute to 94.9% in explaining the variation in the profitability of cement manufacturing firms in Kenya.

5.3 Conclusion

The above findings conclude that both current and quick ratios conformed to the standard conventional rule of 2:1 and 1:1 respectively. This implies that most cement manufacturing firms are able to maintain liquidity levels that can meet their short-term obligations.

Correlation analysis was found to have strong correlation between liquidity management and profitability of cement manufacturing firms. These results are consistent with the hypothesis of this study which was the existence of a positive relationship between liquidity management and profitability of cement manufacturing firms in Kenya.

The regression results concluded that the independent variables of the study contributed to 94.9% in explaining the variation in the profitability of cement manufacturing firms in Kenya. This shows that the model is a satisfactory predictor in explaining the relationship between liquidity management and profitability of cement manufacturing firms.

5.4 Recommendations

The study recommends sound practices in ensuring proper management of current assets in order to meet short term and long-term financial obligations of the firm. The efficient management of liquidity is an integrated part of overall financial

management and has a bearing on the objective of the consolidation of short-term solvency position to achieve this. Firms should effectively manage their liquidity position in a manner that it generates adequate liquid fund. The extent to which liquidity can be gained will naturally depend upon the magnitude of the sales.

The study also recommends that firms should enhance cash and liquidity management. This can also mean that corporates can independently address their working capital needs, thus decreasing dependency on external sources of funding. For example, effective cash concentration and pooling can allow corporates to address short-term funding needs internally, which means they can save money on expensive sources of stopgap liquidity, such as overdrafts.

The study recommends that firms should maintain adequate inventory to guard against the possibility of not being able to meet the demand for their products. Adequate inventory therefore provides a cushion against being out of stock. If the firms have to be competitive they must sell their goods to the customers on credit. This way an adequate level of working capital is absolutely necessary to achieve more sales and hence boost the liquidity position of the firm.

The study recommends that the firms should have a reliable supplier to ensure that goods are supplied and delivered on time to meet the needs of the customer. This will improve sales and ensure equilibrium between liquidity and profitability.

From the above findings, the study recommends that policy makers for example Kenya association of manufacturers should come up with policies that ensure cement manufacturing firms maintain a proper balance between their liquidity position and profitability. This is essential in ensuring that the firms are able to meet all the

financial obligations on time in order to effectively carry out their business successfully.

5.5 Limitations of the Study

The annual financial statements used in this study are also prepared under the fundamental assumptions and concepts which are subjective and therefore not be uniformly applied especially in terms of provisions and estimates. This calls for another study to be carried out to find out whether similar results will be obtained.

The financial statements are reaffirmed in the preceding years meaning that material misstatements of firms' performance can create a window of opportunity for prior year's adjustments and this may not be brought to the attention of the public. This means the pattern depicted may affect the relationship established.

The study limited itself to five independent variables namely: quick ratio, inventory turnover, receivable turnover, asset turnover and current ratio. It is important to note that there other macro-economic variables that affect profitability of firms. Therefore, it would be beneficial to incorporate more independent variables in future and determine whether the results are consistent and thus draw conclusion based on facts.

The study was also limited to scope due to time and funding constraints. It would have been appropriate to study more companies in the manufacturing sector other than cement companies in order to have detailed information and comparative analysis. This is important in identifying unique features which may assist the researcher to draw plausible conclusions.

The secondary data obtained from the cement manufacturing firms may not meet the exact expectations of the researcher. Secondary data may not provide current information because it is based on past information which may not be a true reflection of the current needs of the study. Therefore, the results of such a study could be exposed to bias and assumptions and thus may not be accurate and reliable in decision making.

5.6 Suggestions for Further Research

A comparative study can be carried out to establish whether the liquidity management affects profitability and to what extent. The public sector could be the most probable area of interest because little focus on these two main variables (liquidity and profitability) has been made so far. This will provide a basis for comparison to provide concrete facts upon which reliable and plausible conclusions can be made and hence find out whether there are areas of commonalities or unique factors.

Moreover, it could be a good idea to investigate the influence of various factors such as government regulations or any other factors either as independent or moderating variables that can ensure having a proper match between assets and liabilities.

Future researchers could be interested in investigating other factors for example macroeconomic variables that have a strong bearing on profitability of cement manufacturing firms among other firms. This will provide additional information on the implication of these changes and how they impact on profitability and the liquidity position of the firm.

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**APPENDIX I: SECONDARY DATA FOR CEMENT
MANUFACTURING FIRMS: (2005-2014)**

Bamburi cement	Quick Ratio	Current ratio	Inventory Turnover (Estimate)	Asset Turnover	Receivable Turnover	ROA
2005	1.27	1.025	28	0.041	72	0.064
2006	1.56	2.183	30	0.137	82	0.058
2007	1.56	1.191	32	0.144	75	0.056
2008	1.29	0.238	25	4.340	85	0.098
2009	1.49	1.896	25	0.105	90	0.007
2010	1.94	0.127	42	0.241	70	0.069
2011	1.45	0.053	28	0.141	74	0.077
2012	1.76	1.053	26		85	0.085
2013	1.95	2.651	27	0.562	80	0.087
2014	1.97	2.646	29	0.094	82	0.295
Rhino Cement						
2005	1.23	1.181	29	0.562	92	0.045
2006	1.26	1.068	35	0.079	87	0.035
2007	2.28	1.268	28	0.053	90	0.036
2008	2.26	1.965	42	0.028	92	0.052
2009	2.34	2.494	38	0.061	60	0.026
2010	1.43	2.085	32	0.268	45	0.202
2011	0.67	0.434	32	0.045	65	0.086
2012	0.77	1.026	36	0.095	90	0.066
2013	0.85	2.149	43	0.009	60	0.081
2014	0.72	1.112	41	0.089	61	
E.A Cement						
2005	1.78	0.949	30	0.451	62	0.018

2006	1.5	1.032	43	0.739	90	0.083
2007	2.78	0.981	45	0.689	94	0.153
2008	2.68	0.912	35	0.385	90	0.013
2009	2.39	1.193	20	0.278	91	0.113
2010	1.73	2.231	25	0.294	92	0.318
2011	1.94	1.896	25	0.265	61	0.038
2012	2.16	3.128	28	0.201	59	0.039
2013	1.23	1.053	19	0.168	31	0.117
2014	2.33	1.67	19	0.387	32	-0.294
Athi-River						
2005	1.75	1.567	25	0.016	33	0.169
2006	1.92	0.635	20	0.048	62	0.987
2007	1.46	1.345	29	0.269	61	0.019
2008	1.67	0.730	25	0.047	30	0.084
2009	1.42	0.671	20	0.159	31	0.154
2010	1.61	0.183	36	0.058	90	0.285
2011	1.41	0.186	18	0.135	91	0.562
2012	1.76	0.245	17	0.602	92	0.018
2013	2.06	0.895	37	0.042	95	0.039
2014	1.03	0.931	27	0.067	35	0.0452
Savanna Cement						
2005	1.98	0.195	36	0.788	32	-0.256
2006	2.01	0.735	27	0.224	65	0.299
2007	1.68	0.319	37	0.176	89	0.374
2008	1.72	0.445	37	0.098	91	0.496
2009	1.81	0.573	36	0.628	90	0.523
2010	1.92	0.135	43	0.605	92	0.567
2011	1.82	0.256	43	0.145	63	0.352

2012	1.92	0.371	44	0.496	61	0.445
2013	1.91	0.438	43	0.254	60	0.367
2014	1.81	0.389	33	0.458	31	0.546
National Cement						
2005	1.54	1.962	44	0.046	32	0.997
2006	1.62	0.638	33	0.099	93	0.456
2007	1.56	1.389	43	0.409	92	0.194
2008	1.61	1.126	33	0.195	90	0.083
2009	1.67	3.195	32	0.0842	61	0.148
2010	2.00	0.945	31	0.351	60	0.156
2011	1.56	0.910	22	0.098	31	0.057
2012	1.91	1.343	23	0.056	32	0.049
2013	1.98	0.444	34	0.251	32	0.059
2014	1.61	0.734	35	0.054	30	0.056
Mombasa Cement						
2005	1.67	0.485	36	0.048	45	1.431
2006	1.87	1.231	39	0.268	30	0.056
2007	1.97	1.091	35	0.045	28	0.098
2008	1.66	1.25	35	0.159	45	0.046
2009	1.78	2.09	37	0.058	30	0.035
2010	1.72	1.079	35	0.345	30	0.048
2011	1.73	1.023	37	0.036	30	0.045
2012	2.10	1.056	39	0.014	91	0.345
2013	1.98	2.225	35	0.061	30	0.049
2014	1.54	0.091	33	0.025	45	0.564