

**RELATIONSHIP BETWEEN LIQUIDITY AND PROFITABILITY  
OF COMPANIES LISTED AT THE NAIROBI SECURITIES  
EXCHANGE**

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## **DECLARATION**

I the undersigned declare that this dissertation is my original work and has not been submitted to any other college, institution or university other than the University of Nairobi for academic credit.

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## **DEDICATION**

To the love of my life Stella, son Joash and daughter Hope for their support and encouragement throughout the time I spent away from them in pursuit of academic excellence.

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## ABSTRACT

According to Padachi (2006), a firm is required to maintain a good balance between liquidity and profitability while conducting its daily operations. Liquidity is the availability of funds, or assurance that funds will be available, to honor all cash outflow commitments as they fall due (Bank of Jamaica, 2005). Pandey (2006) suggested that a company should earn profit to survive and grow over a long period of time. The study sought to investigate the relationship between liquidity and profitability for companies listed at the NSE. This research was conducted through a diagnostic research design. The diagnostic research design was considered appropriate as it tries to determine the association of the subject matter with something else. This study used secondary data. The secondary data was obtained from the annual financial reports of the sampled listed firms in Kenya over a period of 5 years (2009-2013). The data was collected based on the information about the variables. Quantitative data was analyzed by descriptive analysis while qualitative data was analyzed through content analysis. The study may provide information to policy makers, scholars, academicians, finance managers and investors on the relationship between liquidity and profitability for companies listed at the NSE. From the findings, the study established that cash conversion period and the current ratio as liquidity measures negatively affected the profitability of the firms listed in the NSE over the 5 year period while the quick ratio as a liquidity measure did not significantly affect the profitability of the firms listed in the NSE over the 5 year period. The study concludes that there exists a significant relationship between liquidity and profitability of listed firms in Kenya. The study recommends that the management of the firms listed in the NSE should institute efficient cash management techniques that would help reduce the cash conversion period. Further, the study recommends that the management of the firms listed in the NSE should strive to achieve and maintain an optimal liquidity position that holds adequate cash/liquid resources for operational needs while the surplus liquid resources are invested in existing viable projects. In addition, the management of the listed firms should focus on identifying viable investment opportunities within the firm's operating environment to enhance the growth and profitability of the firms rather than paying too much attention on the liquidity position of the firms.

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## **ABBREVIATIONS**

CCC – Cash Conversion Cycle

CR – Current Ratio

KQ – Kenya Airways Ltd

LR – Liquidity Ratio

NSE – Nairobi Securities Exchange

QR – Quick Ratio

ROA – Return on Assets

ROCE – Return on Capital Employed

SME – Small and Medium Enterprises

SPSS – Statistical Package for the Social Sciences

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the study**

Profitability and liquidity are some of the most topical issues discussed in the corporate world. Maximizing profitability is argued to be one of the central goals for any firm. Each stakeholder has interest in the liquidity position of a company. Lack of cash or liquid assets on hand may result in the firm not meeting its obligations to the suppliers of goods and services resulting in withdrawal of incentives to the firm. When the firm does not receive incentives from its suppliers it results in higher costs for goods and services which in turn affect the profitability of the business.

According to Kaur and Silky (2013) 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. Brealey and Myers (1996) are of the view that a company's liquidity position is an important factor in determining the appropriate capital structure. Investors and creditors are interested in a company's all season ability to generate cash to service debt. Ability to service debt both under favorable as well as adverse circumstance is important. Of more concern to debt-holders is the extent the company is able to meet debt obligations under adverse conditions. One of the important roles of the finance manager is liquidity management. Efficient and effective liquidity management is critical if the survival and prosperity of organizations is to be guaranteed. It is important for a firm to understand the effect of each of the liquidity components on the firm's profitability and take deliberate measures to optimize its liquidity level.

#### **1.1.1 Liquidity**

Bolek and Wiliński (2012) suggest that liquidity can be defined in three contexts; where they distinguish the asset, asset-equity, and cash aspects of financial liquidity. The financial liquidity of company's assets – is the ability to convert assets into cash in the shortest possible time, at the lowest possible costs and without losing their value. Appropriate resources of liquid elements of the assets, including cash, are the enterprise's protection against the loss of financial liquidity. According to Bolek and

Wiliński (2012) asset-equity aspect of financial liquidity of an enterprise as the ability to settle its liabilities (short-term ones, payable within one year) on time through liquidizing possessed high-liquidity assets (current assets). Financial liquidity of an enterprise is better when larger part of its assets is high-liquidity elements, and worse when the opposite is true. Therefore, if an enterprise wants to maintain high level of financial liquidity, it must possess a large share of cash and high liquidity assets and a small share of short-term liabilities. According to Pandey (1999) cash is the most important current asset for the operation of the business firm and it is therefore seen as the basic input needed to keep a business running on a day-to-day basis.

According to the Bank of Jamaica (2005) liquidity is the availability of funds, or assurance that funds will be available, to honor all cash outflow commitments as they fall due. These commitments are generally met through cash inflows, supplemented by assets readily convertible to cash or through the institution's capacity to borrow. Sound and prudent liquidity policies set out the source and amount of liquidity required to ensure it adequate for the continuation of operations. The policies must be supported by effective procedures to measure, achieve and maintain liquidity. Operating liquidity is the level of liquidity required to meet an institution's daily cash outflow commitments. Operating requirements are met through asset/liability management techniques for controlling cash flows, supplemented by assets readily convertible to cash or by an institution's ability to borrow.

According to Govindarajan, Thamilselvan and Balachandran (2012), solvency is the measure of a company's short term and long term stability. The solvency ratio plays very important role among various stake holders like investors, creditors, bankers, suppliers, financial institutions, government. The solvency ratios enable the investors to judge whether their investment is secured or not. These ratios enable them to analyze the capital structure position of company. Financial institution and government will be interested in companies which are financially stable.

### **1.1.2 Profitability**

Profitability can also be termed as the rate of return on investment. Pandey (2006) suggested that a company should earn profit to survive and grow over a long period of

time. Accordingly, profit is essential but it would be wrong to assume that every action initiated by management of a company should be aimed at profit maximization irrespective of social consequences. However, sufficient profit must be earned to sustain the operations of the business to be able to obtain more funds from investors for expansion and growth and to contribute towards the social welfare of the society.

According to Arnold (2005), maximization of profit is a much more acceptable objective of a firm though controversial. Each of the companies listed at the Nairobi Securities Exchange provide statements on how they have performed in their respective accounting periods. Company performance will have an analysis on profitability which shows that it is a significant concern for various stakeholders that may be interested in the company. Profit is the ultimate output of a company and a company will have no future if it fails to make sufficient profits. Therefore the manager should continuously evaluate the efficiency of the company in terms of profit.

### **1.1.3 Liquidity and Profitability**

Padachi (2006) recommends that a firm is required to maintain a balance between liquidity and profitability while conducting its daily operations. Liquidity is a precondition to ensure that firms are able to meet their short-term obligations. A firm can be very profitable, but if this is not translated into cash from operations within the same operating cycle, the firm would need to borrow to support its continued liquidity needs. Thus, the twin objectives of profitability and liquidity must be synchronized. Investments in current assets are inevitable to ensure delivery of goods or services to the ultimate customers and a proper management of same should give the desired impact on either profitability or liquidity. Nyabwanga et al (2013) posit that profitability is also relevant to liquidity. Income or lack of it, affects the business's ability to obtain debt and equity financing. It also affects the business's liquidity position and the business's ability to grow. Consequently, both creditors and investors are interested in evaluating earning power or profitability.

Pike and Pass, (1987) suggested that there are two goals of working capital management. The first is profitability and second is liquidity. They argue that the goal

of profitability is taken in terms of wealth maximization of the shareholders and the liquidity goal is to maintain enough cash to meet the financial obligations and continue its business as a going concern. The two goals may also conflict with each other that to increase the profitability of working capital components may create adverse effect of liquidity and on other hand focusing on liquidity may dilute the profitability. So an optimal relationship has to be established between these two goals.

#### **1.1.4 Nairobi Securities Exchange**

The Nairobi Securities Exchange was established as Nairobi Stock Exchange in 1954 under the Societies Act. It was renamed the Nairobi Securities Exchange Limited, (NSE) in 2011 following a strategic plan to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. According to Nairobi Securities Exchange (NSE), (2014), there were 61 companies listed in June 2014 under the various sectors of Agriculture, Commercial and Services, Telecommunication and Technology, Automobile and Accessories, Banking, Insurance, Investment, Manufacturing and Allied, Construction and Allied, Energy and Petroleum, Growth and Enterprise Segment. The NSE is licensed and regulated by the Capital Markets Authority. It has the mandate of providing a trading platform for listed securities and overseeing its Member Firms.

According to financial report of the NSE for year ended 2013, equity turnover rose by 79.45% from 2012 Kshs. 86.8 Billion to Kshs. 155.7 Billion. Market capitalization rose by 49.91% to Kshs. 1.9 Trillion (NSE, 2014). There is hence a significant growth in the market that warrants the review of the relationship between liquidity and profitability of companies listed companies at the NSE. Each company does publish its annual reports and financial statements which would be the basis of the study. Every listed company carries out its activities in an extremely dynamic, and often highly volatile, commercial environment. Principal financial risks faced in the normal course of any listed company's business are foreign currency rate risk, interest rate risk, credit risk, and liquidity risk. Each company's ability to recognize, successfully control and manage risks early in their development and to identify and exploit opportunities is vital to their ability to successfully realize their corporate vision.

## 1.2 Research Problem

The results of most studies conclude that the impact of liquidity on company profitability might be negative. According to Deloof (2003) less profitable companies wait longer to pay their debts. The negative relationship between liquidity and profitability is also established by Dong (2010) where it was found that decrease in the profitability occurs due to increase in cash conversion cycle. Mahmood and Qayyum, (2010) pointed out that to increase profitability of a company and ensuring sufficient liquidity to meet short term obligations as they fall due are two main objectives of working capital management. Profitability is related to the goal of shareholders wealth maximization, and investment in current assets is made only if an acceptable return is obtained. While liquidity is needed for a company to continue business, a company may choose to hold more cash than needed for operational or transactional needs i.e. for precautionary or speculative reasons.

Hirigoyen (1985) as cited by Vieira (2010) argues that on mid-term and long-term the relationship between liquidity and profitability could be positive, meaning that a low liquidity would lead to lower profitability due to a greater need for loans and a low profitability would not generate sufficient cash flow to finance the expansion of its needs for working capital, purchase new fixed assets, payment of outstanding loans. Vieira (2010) further points out that according to the economic theory, risk and profitability are positively related (the more risky the investment, the higher the profits it should offer), thus since higher liquidity means less risk, it would also mean lower profits. Some authors have found that the relationship between liquidity and profitability can either be positive or negative depending on the indicators. Narware (2004) in his study noticed that out of nine indicators representing, working capital management selected for his study three variables were negatively associated with the selected profitability measure. The remaining six indicators of working capital management were positively associated with profitability.

Local study undertaken by Maina (2011) researched on relationship between the liquidity and profitability of oil companies in Kenya and found that that liquidity management is not a significant contributor alone of the firm's profitability and there exist other variables that will influence ROA. The study however recommends for a

firm to understand the effect of each of the liquidity components on the firm's profitability and also undertake deliberate measures to optimize its liquidity level.

Maaka (2013) carried out a study on relationship between liquidity risk and financial performance in commercial banks in Kenya. He used profitability as a measure for financial performance. The findings of the study were that profitability of the commercial bank in Kenya is negatively affected due to increase in the liquidity gap and leverage. It was further concluded that liquidity problems if unchecked may adversely affect a given bank's profitability, capital and under extreme circumstances, it may cause the collapse of an otherwise solvent bank.

Nyabwanga et al. (2013) carried out an empirical study of the liquidity, solvency and financial health of small and medium sized enterprises in Kisii Municipality, Kenya. The findings of the study showed that the liquidity position of the SMEs was on average low; their solvency was low and their financial health was on average not good. Further, the results showed that there is a significant impact of current ratio, quick ratio and Debt to Total Assets ratio on Return on Assets (ROA). The study recommends future research to empirically analyse the liquidity, solvency and profitability and test financial health prediction models to more SMEs by taking a larger sample so as to corroborate the study findings.

Previous studies have recommended further research in the relationship between liquidity and profitability. This is the research gap that the researcher sought to fill by studying the companies listed at the NSE. Using the information obtained from the study, the management of the listed companies would be able to identify and develop appropriate liquidity management policies that would enhance their firm's profitability.

The study sought to answer the following research question:-

Is there a relationship between liquidity and profitability for companies listed at the Nairobi Securities Exchange?

### **1.3 Research Objective**

The objective of the study was to investigate the relationship between liquidity and profitability for companies listed at the NSE.

### **1.4 Value of the Study**

The study would be valuable to other researchers, finance managers, the management and owners of companies listed at NSE.

The study would contribute further to the theory of finance by providing empirical evidence on the relationship between liquidity and profitability. Most of the studies conducted have focused in areas such as banking and the manufacturing sectors. This study therefore expanded the knowledge on liquidity theories in other sectors for companies listed at the NSE.

It would provide insight to finance experts on when to apply the different liquidity motives to improve profitability. The study would hence provide insight on how management of various companies listed at NSE undertakes liquidity management policies while carrying out the operations of their company. This would further enhance the understanding of the practice of liquidity management to finance managers.

The study would be useful to the management of companies listed at NSE as it would provide information on alternative ways of managing liquidity to improve profitability. Many companies have collapsed due to inefficient management of liquidity. To the various sectors of companies listed at the NSE, the study would also help re-emphasize the need for effective and efficient management of liquidity to improve profitability.

The study would further reassure and affirm to the owners or shareholders of companies listed at NSE whether the policies adopted by the management of the companies in managing liquidity can enhance profitability and increase their wealth.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter includes an analysis of previous literature which provides the theoretical background for the study and also reviews empirical literature on liquidity and its effect on profitability. The theories and models for optimal liquidity and cash balances are analyzed in the first part of the chapter. Further determinants of profitability of listed firms are discussed in this chapter. Empirical studies carried out by other researchers are included in the subsequent part of the chapter.

### **2.2 Theoretical Review**

Under this part of the research project the liquidity theories identified by other researchers are discussed. These include the quantitative liquidity theories, theory of corporate liquidity demand and liquidity motive theories. The trade off theory between profitability and liquidity is also discussed.

#### **2.2.1 Quantitative Liquidity Theories**

According to Macharia (2013), Baumol's (1952) Inventory Management Model and Miller and Orr's (1966) model which recognized the dynamics of cash flows are some of the earlier research efforts attempted to develop models for optimal liquidity and cash balances. Given the organization's cash flows the focus was on using quantitative models that weighed the benefits and costs of holding cash (liquidity).

Miller and Orr (1966) describe a cash balance model to deal with cash inflows and outflows and outflows that fluctuate randomly from day to day. The model assumes that the distribution of net cash flows is normally distributed with a zero value of mean and a standard deviation. The model operates in terms of upper limit (H) and lower limit (L), and Return Point or Target Cash Balance (Z). Under the model, the organisation allows the cash balance to fluctuate between the upper control limit and the lower control limit, as long as the cash balance is between (H) and (L) the firm makes no transactions. It makes a purchase and sale of marketable assets only when one of these limits is reached. When the firm's cash limit fluctuates at random and

touches the upper limit (H), the firm buys sufficient marketable securities to come back to a normal level of cash balance which is the return point (Z). Similarly, when the firm's cash flows wander and touch the lower limit (L), it sells sufficient marketable securities to bring the cash balance back to the normal level which is the return point (Z). The Miller-Orr model depends on trading costs and opportunity costs. The cost per transaction of buying and selling marketable securities, F, is assumed to be fixed. The percentage opportunity cost per period of holding cash, K, is the daily interest rate on marketable securities. The model however does not provide the expected lower limit (L) which depends on management decision and is not handled in the model.

Baumol (1952) recognized the similarities between cash and inventory management. He extended the economic order quantity model to examine its implications to cash management. The Baumol model assumes the cash manager invests excess funds in interest bearing securities and liquidates them to meet the firm's demand for cash. As investment returns increase, the opportunity cost of holding cash increases and the cash manager decreases cash balances. As transaction costs (cost of liquidating short-term investments) increase, the cash manager decreases the number of times he liquidates securities, leading to higher cash balances. However as is the case with the Nevertheless, the economic order quantity model, Baumol's model has restrictions when using the assumptions of fixed and predictable demand, as well as instant supplies when applying for replacement cash.

Lockyer (1973) on the other hand modified Baumol's model to incorporate overdraft facilities. According to Lockyer's approach the total annual cash policy cost attributable to the use of overdraft facilities is given by the sum of total annual cash transfer cost, total annual overdraft cost and the total annual holding cost. Lockyer's model is critiqued for assuming overdraft facilities, which are not automatic especially for firms with poor credit rating. The model also assumes disbursements are even over the planning period.

The cyclical nature of cash is recognized by Archer (1966) who reasons that apart from providing cash balance for transactional purposes, a cash balance should be provided for precautionary purposes, especially for seasonal activities that are

unpredictable. In Archer's approach, costs related to overdraft facilities and capital costs of precautionary balances are compared to determine the optimum. Archer's approach is advantageous for it recognizes the cyclical nature of net cash flows of many firms. According to Gibbs (1976), the determination of optimal cash balance involves a combination of investment and financial decisions. In Gibbs approach, cases where demand for money is of a cyclical nature a combination of short and long term borrowing should be used to avoid the use of long term funds to cover peaks arising from idle cash balance, during periods of low cash demand. Gibbs contends that, the determination of the amount of buffer money to hold is seen as an investment decision. Gibbs approach emphasizes holding costs, costs of short and costs of long-term borrowing and the costs of investment in marketable securities. Despite their enormous limitation and lack of flexibility to incorporate all the information generated by financial managers, models perform effectively if they capture the critical elements in decision problems.

### **2.2.2 Theory of Corporate Liquidity**

Almeida, Campello and Weisbach. (2002) proposed a theory of corporate liquidity demand that is based on the assumption that choices regarding liquidity will depend on firms' access to capital markets and the importance of future investment to the firms. The model predicts that financially constrained firms will save a positive fraction of incremental cash flows, while unconstrained ones will not. The cost incurred in a cash shortage is higher for firms with a larger investment opportunity set due to the expected losses that result from giving up valuable investment opportunities. Hence there is a relationship between investment opportunity and cash holdings.

### **2.2.3 Liquidity Motive Theories**

According to Bates, Kahle and Stulz (2009) the economics and finance literature analyze four possible reasons for firms to hold liquid assets; the transaction motive Miller and Orr (1966), the precautionary motive Opler, Pinkowitz, Stulz, and Williamson (1999), the tax motive Foley, Hartzell, Titman, and Twite (2007) and finally the agency motive Jensen (1986). Classic models in finance (for example

Baumol (1952), Miller and Orr (1966)) derive the optimal demand for cash when a firm incurs transaction costs associated with converting a noncash financial asset into cash and uses cash for payments. Transaction motive refers to the need to hold cash to satisfy normal disbursement collection activities associated with a firm's ongoing operation. A firm makes payment in terms of cash for the purchase of goods, payment of salary, wages, rent, interest, tax, insurance, dividend and among other disbursements.

According to Opler et al. (1999) cash flow shortfalls might prevent a firm from investing in profitable projects if the firm does not have liquid assets, so that firms can find it profitable to hold cash to mitigate costs of financial distress. A firm should hold some cash for the payment of unpredictable or unanticipated events. A firm may have to face emergencies such as strikes and lock-up from employees, increase in cost of raw materials, funds and labor, fall in market demand and among other adverse effects. These emergencies also bound a firm to hold certain level of cash. The amount of cash that is held against these emergencies depends on the degree of predictability associated with future cash flows. If there is high degree of predictability, less cash balance is sufficient. Some firms may have strong borrowing capacity at a very short notice, so that they can borrow at the time when emergencies occur. Such a firm may hold very minimum amount of cash for this motive.

Foley et al. (2007) show that one reason for the cash buildup for United States firms is that their foreign profits that would have been taxed had they been repatriated. Accordingly firms that incur higher tax costs when repatriating earnings hold more cash. Besides, they stated that repatriation tax burdens induce firms to hold more cash abroad. Further, they affirmed that affiliates that trigger high tax costs when repatriating earnings hold higher levels of cash than other affiliates of the same firm.

Keynes (1936) identifies one of the motives for holding liquidity as the speculative motive. This refers to the need to hold cash in order to be able to take advantage of bargain purchases that might arise, attractive interest rates and favorable exchange rate fluctuations. Some firms hold cash in excess than transaction and precautionary needs to involve in speculation. Speculative needs for holding cash require that a firm possibly may have some profitable opportunities to exploit, which are out of the

normal course of business. These opportunities arise in conditions, when price of raw material is expected to fall, when interest rate on borrowed funds are expected to decline and purchase of inventory occurs at reduced price on immediate cash payment.

#### **2.2.4 Liquidity-Profitability Trade Off Theory**

According to Niresh (2012) maintaining a proper liquidity indicates that funds are confined to liquid assets thereby making them unavailable for operational use or for investment purposes for higher returns. Thus, there is an opportunity cost associated with the maintenance of those liquid assets and this might affect the overall profitability of the firm. In other words, increasing profitability would tend to reduce firm's liquidity and too much attention on liquidity would tend to affect the profitability. Therefore, firms should always strike to maintain a balance between conflicting objectives of liquidity and profitability. The firm's liquidity should not be too high or too low. Excessive dependence on liquidity indicates the accumulation of idle funds that don't fetch any profits for the firm. On the other hand, insufficient liquidity might damage the firm's goodwill, deteriorate firm's credit standings and that might lead to forced liquidation of firm's assets.

Hirigoyen (1985) as cited by Vieira (2010) argues that on mid-term and long-term the relationship between liquidity and profitability could be positive, meaning that a low liquidity would lead to lower profitability due to a greater need for loans and a low profitability would not generate sufficient cash flow to finance the expansion of its needs for working capital, purchase new fixed assets, outstanding loans. A company with low liquidity and high profitability will have to increase its lending, resulting to increased financial costs. This would certainly lead to increasing interest rates, given that sources of cheap financing are depleting rapidly. In addition, enlarging the level of the debt, company's credit risk increases, causing increasing interest rates charged by their financiers. Under these conditions, the company must plan to obtain from suppliers more time, resulting in the acquisition of more expensive materials. Also, the enterprise will not be able to enjoy discounts offered by anticipating financial payments instead bear interest and late payment penalties for various bills, taxes and others. After all this process liquidity problems might get bigger. Moreover, a firm

that has low profitability and high liquidity does not generate sufficient resources to finance expansion in acquiring new assets and finally the liquidity turns out to become lower. Thus according to Hirigoyen, profitability and liquidity are a necessary condition for the existence of a healthy company and both of them are the subject to the strategy adopted in the medium and long term.

Trade off theory postulates firms to identify their optimal level of cash holdings by weighting the marginal costs and benefits of holding cash. Benefits for cash holdings include reduced likelihood of financial distress, allow pursuance of investment policy when financial constraints are met, and minimize costs of raising external funds or liquidating existing assets. Cost of holding cash is the opportunity cost of the capital invested in liquid assets. A firm that pays dividend can raise funds by reducing dividend payments. Firm will trade off holding cash and investing it depending on its investment needs.

### **2.3 Determinants of Profitability of Listed Firms**

Kaur and Silky (2013) argue that a company should earn profit to survive and grow over a long period of time. Profit is the difference between revenues and expenses over a period of time (usually one year). Profit is an absolute measure and profitability is a relative measure of efficiency of the operations of an enterprise. Runyora (2012) provides the determinants of profitability as cost structure, economies of scale, consumption level of goods, the state of the economy and competition practices among firms. If costs increase less than proportionally to revenues, then profits are deemed to rise. With a higher production scale, profitability may increase where there are high fixed costs. Where there is a high consumption of goods and services being produced by the firm, then revenues are bound to rise increasing the level of profitability. During recession in the economy, sales tend to slow down which impacts on the revenues that in turn affect profitability of the firm. Unfair competition practices like barriers to entry into the market will impact the profits of the firm that wants to enter into the market. Firms that enjoy monopoly may have an added advantage to maintain their profit margins.

Other determinants of profitability in listed firms relate to the way management of accounts payable, inventory, debtors and cash is undertaken in the firm. Van-Horne and Wachowicz (2004) put it this way, “the firm must balance the advantages of trade credit against the cost of foregoing a possible cash discount, any possible late payment, penalties, the opportunity cost associated with any possible deterioration in credit reputation and the possible increase in the selling price the seller imposes on the buyer”. Therefore, the ultimate effect of efficiently managing accounts payables is to optimize the cash outflow that ensures that a firm’s liquidity is not adversely affected so that a company’s profitability will not also be affected in the long run.

Lazaridis and Tryfonidis (2006) stated that the optimum level of inventories will have a direct effect on profitability since it will release working capital resources which, in turn, will be converted into business cycle or that will raise inventory level in order to respond to higher demands. The optimum level of inventory should be determined on the basis of a trade-off between costs and benefits associated with the levels of inventory.

Pike and Cheng (2001) maintain that given a significant investment in accounts receivables by most large firms, credit management policy choices and practices may have important implications on corporate value and that successful management of resources will often lead to higher corporate profitability. Hence, there should be a guided flexibility introduced in managing a firm’s customers (debtors) credit extension policy. Egbide, Enyi, and Uremadu, (2012) stated that excess cash implies inefficiency of management in applying funds to profitability projects as idle cash earns no income. Similarly, inadequate cash exposes the firm to risk of illiquidity since it would not be able to meet its short-term maturing obligations nor can it take advantage of viable investment opportunities.

## **2.4 Empirical Studies**

Various empirical studies have been carried out to determine the relationship between liquidity and profitability in different sectors of the economy. Some of the empirical studies are summarized below.

Eljelly (2004) empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 929 joint stock companies in Saudi Arabia. Using correlation and regression analysis, he found significant negative relationship between the firm profitability and liquidity level, as measured by current ratio. This relationship is more pronounced for firms with high current ratios and long cash conversion cycles. At the industry level, however, he 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. The firm size variable was also found to have significant effect on profitability at the industry level.

Bhunja et al., (2011) investigated the liquidity management efficiency and liquidity-profitability relationship in steel companies of private sector in India for the period between 1997 and 2006. They analysed data from income statements, balance sheets, and cash flow statements of sampled firms attained from the Companies Annual Reports accessible from the India Stock Exchange and CMIE database. They studied important liquidity indicators and analyzed that optimal working capital management can be achieved by controlling the trade-off between profitability and liquidity of a firm. They used multiple regression techniques to study the joint influence of the selected ratios indicating company's liquidity position and performance on the profitability. They concluded that liquidity and profitability are significantly positively associated. Their study however relied only on the on the published financial data, and hence was subject to all limitations that are inherent in the condensed published financial statements

Soenen (1993) conducted a study on cash conversion cycle and corporate profitability. Approximately 2,000 firms from 20 different industries were used in the study for a period of 1970-1989. It was found that a negative relationship between company's net trade cycle and its profitability as measured by the total return on total assets. The findings show that shorter net trade cycles are most commonly associated with higher profitability. Soenen explains that by carefully monitoring both the timing and magnitude of cash flows, managers can generate cash for investment purposes. The cash conversion cycle, by reflecting the net time interval between actual cash

expenditures for the purchase of productive resources and the ultimate collection of receipts from product sales, provides a valid alternative for measuring corporate liquidity.

To determine the effect of working capital management on the net operating profitability and liquidity, Raheman and Nasr (2007) selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 to 2004. Average collection period, inventory turnover in days, average payment period, cash conversion cycle, current ratio, debt ratio, size of the firm and financial assets to total assets ratio are the selected independent variables and net operating profit is the dependent variable used in their analysis. Pearson's correlation, and regression analysis (Pooled least square and general least square with cross section weight models) were used for analysis. They found that, there is a strong negative relationship between variables of working capital management and profitability of the firms. Their study also demonstrates a considerable negative relationship between liquidity and profitability and positive relationship exists between size of the firm and its profitability. Furthermore, there is a significant negative relationship between debt used by the firm and its profitability.

Vieira (2010) analyzed the relationship between liquidity and profitability in 48 companies comprising the major airline carriers in the world between 2005 and 2008. The study was exploratory in nature. Using the financial data published by the companies, the relationship was studied with the help of statistical procedures. It was observed for all the studied years a significant and positive correlation between the liquidity and the profitability variables in the short-run. Thus the study found that on the short term the higher the liquidity level of the company, the higher its profitability. It was further established that there is positive relationship between liquidity indicators and profitability indicators on the medium to long term. It was hence observed that companies with a poor indicator of liquidity or profitability are usually not able to upkeep the other indicator in a high level; also the companies with both high or low liquidity and profitability were stable in the same position after a few years. The study was however conducted for only a 3 year period and the airlines

operate within Europe, America and Asia. African carriers listed at the NSE were not incorporated in the study.

Maina (2011) researched on relationship between the liquidity and profitability of oil companies in Kenya covering the period 2007- 2010. Secondary data was used in the analysis that was obtained from the firm's financial statements. 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 study found that that liquidity management is not a significant contributor alone of the firm's profitability and there exist other variable that will influence ROA. However, it is important for a firm to understand the effect of each of the liquidity components on the firm's profitability and also undertake deliberate measures to optimize its liquidity level. The results further revealed that there is a strong negative relationship between a firms leverage and quick ratio with its ROA. This might be explained with the view that with inadequate cash position, then the firm will borrow at possible high interest rate and also not being able to meet supply the required fuel on time to meet customer demands. The study recommended further investigation on the role of liquidity on a firm's profitability by incorporating more liquidity and control variables.

Nyabwanga et al. (2013) carried out an empirical study of the liquidity, solvency and financial health of small and medium sized enterprises in Kisii Municipality, Kenya. Data for the study covered the period 2009-2011 and was obtained from the financial statements of three SMEs which were purposively sampled from the SMEs operating in Kisii Municipality. The sampled SMEs were those which had financial statements for the years under consideration. Data collected through the analysis of key ratios were analyzed using the mean, standard deviation, coefficient of variation, Student-t test and through the use of the Altman's Z-score model. The findings of the study showed that the liquidity position of the SMEs was on average low; their solvency was low and their financial health was on average not good. Further, the results revealed that there is a significant impact of current ratio, quick ratio and Debt to

Total Assets ratio on Return on Assets (ROA). The results of the study demonstrate that the liquidity position of the SMEs was well below the acceptable global norm of 2 for current ratio and 1 for quick ratio. Further, the results indicated that the financial health of the SMEs needed to be improved hence the recommendation that SMEs make liquidity, solvency management and financial stability an integral driver of their policy frameworks. The study recommends further research since data in the study was limited to a three year period of time due to unavailability of data constraint, future studies that should be longitudinal and making use of a longer study period should be carried out.

## **2.5 Summary of Literature Review**

From the studies reviewed it is evident that liquidity plays a significant role in better performance of business entities. The review highlights the effects of the various components of liquidity management on profitability. Most of the studies indicate that there is a significant relationship between liquidity and profitability. Whereas the studies have been mainly conducted in manufacturing sectors, this study established the relationship between liquidity and profitability in variety of sectors of companies listed at NSE.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

In this chapter the research design adopted for the study is discussed. It outlines the target and sample population used to achieve the research objectives. Further, it shows the data collection techniques, instruments and procedures followed during the study. The method used in data analysis is also provided.

### **3.2 Research Design**

The nature of this study was diagnostic research design. Diagnostic research tries to determine the association of the subject matter with something else (Kothari, 2004). The study was concerned with the relationship between liquidity and profitability. The research design enabled the researcher to identify the relationship that exists between the independent variables and the dependent variable. The research was studied through the use of a panel data analysis to find out the relationships that exist among the variables under study over a given period. According to Baltagi (2001) panel data methodology has specific benefits such as it assumes that different firms are heterogeneous in nature thus, have widely dissimilar elements, it also considers the variability in data, it provides more instructive data and more degree of freedom, hence it provides more efficiency.

### **3.3 Target population**

A target population is the total collection of elements about what one wishes to make some influence (Mugenda and Mugenda, 2003). The population of study comprised all companies listed on the Nairobi Securities Exchange (NSE). According to Lazaridis and Tryfonidis (2006), firms that are listed in the stock market in contrary to non-listed firms, present true operational results because they intend to make their shares more attractive. Listed companies are appropriate for the study since they are public entities operating under strict corporate governance regulations, making their financial and accounting disclosures largely reliable. There were 61 companies listed in June 2014 under the various sectors of Agriculture, Commercial and Services, Telecommunication and Technology, Automobile and Accessories, Banking,

Insurance, Investment, Manufacturing and Allied, Construction and Allied, Energy and Petroleum, Growth and Enterprise Segment.

### **3.4 Sample size**

From the 61 companies listed at the Nairobi Securities Exchange in June 2014, companies in the banking, Insurance and investment sectors were excluded in the sample. These firms are highly regulated as far as their liquidity is concerned due to their type of activity. The target period was from year 2009 to year 2013. A five year period is long enough to reveal short-term, medium-term and long-term changes and permit valid conclusions thereof. All active firms over the research period with completed required data were selected and firms with incomplete data were excluded from the sample. This gave a sample size of 16 firms listed at the NSE.

### **3.5 Data Collection**

The researcher used online survey for collection of secondary data. This is because the financial reports for listed companies at the Nairobi Securities Exchange are published on their websites. Of major scrutiny was the balance sheet which enabled the researcher to identify liquidity components and the income statements which provided the profits for the period, to determine the relationship between liquidity and profitability for companies listed at the Nairobi Securities Exchange. Any other relevant notes to the financial statements for the period were considered for accurate results.

### **3.6 Data Analysis**

The data was analysed using descriptive statistics, correlation analysis and panel multiple regression analysis. The Statistical Package for the Social Sciences (SPSS) version 20.0 was used in data analysis because of its ability to simplify repetitive tasks and handling complex data manipulations and analyses. The model used by Egbide, Uwuigbe and Uwalomwa (2013) in their study on the relationship between liquidity management and corporate profitability, was adopted to measure the relationship between liquidity and profitability of companies listed at the NSE.

The model is of the form;

$$ROCE_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 CR_{it} + \beta_3 QR_{it} + \beta_4 \ln S_{it} + \beta_5 \ln TA_{it} + \varepsilon \text{ -----}i$$

Where;

ROCE<sub>it</sub>: Return on capital employed of company *i* at time *t*; *i* = 1, 2, ..., *n*, listed companies at NSE.  $\beta_0$  : The intercept of equation, CCC: Cash Conversion period, CR: Current Ratio, QR: Quick Ratio, LnS: Natural Logarithm of Sales, LnTA: Natural Logarithm of Total Assets,  $\beta_i$  : Coefficients of *X* it variables, *t* : Time = 1, 2, ....., 5years.,  $\varepsilon$  : The error term

The dependent variable in the study was profitability which was measured by the Return on Capital Employed (ROCE). According to Eljelly (2004), the cash conversion cycle (CCC) is a very important measure of liquidity. So CCC is taken as the main independent variable to test its impact on ROCE. Other traditional liquidity variables namely: current ratio (CR) and quick ratio (QR) were also included as independent variables. The natural Logarithm of sales and the natural logarithm of total assets were used here as control variables.

## CHAPTER FOUR

### DATA ANALYSIS, INTERPRETATION AND PRESENTATION

#### 4.1 Introduction

This chapter presents data analysis, interpretation and presentation. The objective of the study was to investigate the relationship between liquidity and profitability for companies listed at the NSE. Data was collected from companies listed at the Nairobi Securities Exchange in June 2014 excluding companies in the banking, Insurance and investment sectors for the period 2009 to 2013. The data sources included the listed firms' published annual reports for a period of 5 years (2009-2013) as well as other publications. Data was collected based on the variables of the study, that is, profitability (ROCE) depicted by Cash Conversion period, Current Ratio and Quick Ratio.

#### 4.2 Descriptive Statistics

##### 4.2.1 Return on capital employed

The findings on the profitability of the listed firms under study as depicted by return on capital employed (ROCE) are as presented in the table 4.1 below.

**Table 4.1 Return on capital employed (ROCE)**

Year	N	Return on capital employed (ROCE)	
		Mean	Std. Dev
2009	16	0.09	0.782
2010	16	0.13	0.923
2011	16	0.16	0.692
2012	16	0.18	1.238
2013	16	0.22	0.536

The findings as shown in table 4.1 above indicate the trend of return on capital employed (ROCE) values over the 5 year period. The lowest value for ROCE was a

mean of 0.09 in year 2009 while the highest value for ROCE was a mean of 0.22 in year 2013. This represented a positive change in the ROCE mean values of 0.13 over the 5 year period. The steady rise in ROCE values over the 5 year period indicates that the profitability of the listed firms has been on the increase over the last 5 years. On the other hand, the different scores of standard deviation indicate variation in the profitability for the various listed firms. Thus, there exist a significant relationship between the liquidity and profitability for companies listed at the NSE.

#### **4.2.2 Cash Conversion Period**

The findings on the cash conversion period mean values are as presented in the table 4.2 below.

**Table 4.2 Cash Conversion Period/Cycle**

<b>Year</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
2009	16	42.41	1.011
2010	16	38.52	0.018
2011	16	36.07	0.814
2012	16	32.86	0.314
2013	16	28.25	0.114

The findings as shown in table 4.2 above indicate the trend of cash conversion period over the 5 year period. From the findings, the highest value of cash conversion period was a mean of 42.41 in year 2009 while the lowest value of cash conversion period was a mean of 28.25 in year 2013. This shows a steady decrease in the cash conversion period of the listed firms between year 2009 and year 2013. This implies that the cash conversion period of the sampled listed firms in NSE reduced over the 5 year period. Thus, the cash conversion period as a liquidity measure had an inverse relationship with the profitability of firms listed in the NSE over the 5 year period.

#### **4.2.3 Current Ratio**

The findings on the current ratio mean values are as presented in the table 4.3 below.

**Table 4.3 Current Ratio**

<b>Year</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
2009	16	1.62	0.251
2010	16	1.56	1.015
2011	16	1.47	0.114
2012	16	1.38	0.242
2013	16	1.25	0.182

The findings as shown in table 4.3 above indicate the trend of current ratio over the 5 year period. From the findings, the lowest value of current ratio was a mean of 1.25 in year 2013 while the highest value of current ratio was a mean of 1.62 in year 2009. This shows a steady decrease in the current ratio of the listed firms between year 2009 and year 2013. Thus, current ratio as a liquidity measure negatively influenced the profitability of firms listed in the NSE over the 5 year period.

#### **4.2.4 Quick Ratio**

The findings on the quick ratio mean values are as presented in the table 4.4 below.

**Table 4.4 Quick Ratio**

<b>Year</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
2009	16	1.00	1.256
2010	16	1.00	0.715
2011	16	1.00	0.831
2012	16	1.00	0.592
2013	16	1.00	0.184

The findings as shown in table 4.3 above indicate the trend of quick ratio over the 5 year period. From the findings, the value of quick ratio remained constant at mean of 1.00 between year 2009 and year 2013. This shows that the listed firms maintained a steady level of the quick ratio over the 5 year period. Thus, quick ratio as a liquidity

measure did not have a significant influence on the profitability of the firms listed in the NSE over the 5 year period.

### 4.3 Inferential Statistics

In determining the relationship between profitability and liquidity for companies listed at the NSE, the study conducted a multiple regression analysis to determine the nature of relationship between the variables. The regression model specification was as follows;

$$ROCE_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 CR_{it} + \beta_3 QR_{it} + \beta_4 LnS_{it} + \beta_5 LnTA_{it} + \varepsilon \text{ OR}$$

$$ROCE_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 CR_{it} + \beta_3 QR_{it} + \varepsilon \text{ (without the control variables)}$$

Where; Y= Return on capital employed

CCC = Cash Conversion period, CR = Current Ratio, QR = Quick Ratio, LnS = Natural Logarithm of Sales, LnTA= Natural Logarithm of Total Assets. For this study, LnS = Natural Logarithm of Sales and LnTA= Natural Logarithm of Total Assets were used as control variables.

$\beta_0$ =constant,

$\varepsilon$ = error term,

$\beta_1, \dots, \beta_5$ =coefficients of the independent variables.

This section presents a discussion of the results of the multiple regression analysis. The study conducted a multiple regression analysis to determine the relationship between liquidity and profitability for companies listed at the NSE. The study applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study. The findings are presented in the following tables;

**Table 4.5 Model Summary**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	.877 <sup>a</sup>	.7691	.735	0.0114

a. Predictors: (Constant), cash conversion period, current ratio, quick ratio

b. Dependent Variable: profitability [ROCE]

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (profitability) that is explained by all the three independent variables (cash conversion period, current ratio and quick ratio).

The three independent variables that were studied, explain 76.91% of variance in profitability of the sampled companies listed in the NSE as represented by the  $R^2$ . This therefore means that other factors not studied in this research contribute 23.09% of variance in the dependent variable. Therefore, further research should be conducted to investigate the other factors that affect the profitability of firms quoted in the NSE.

**Table 4.6 ANOVA (Analysis of Variance)**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.323	2	.202	8.66	.004 <sup>a</sup>
	Residual	5.408	3	.246		
	Total	6.898	5			

a. Predictors: (Constant), cash conversion period, current ratio, quick ratio

b. Dependent Variable: profitability [ROCE]

Analysis of Variance (ANOVA) consists of calculations that provide information about levels of variability within a regression model and form a basis for tests of significance. The "F" column provides a statistic for testing the hypothesis that all  $\beta \neq 0$  against the null hypothesis that  $\beta = 0$  (Weisberg, 2005). From the findings the significance value is .004 which is less than 0.05 thus the model is statistically significant in predicting how cash conversion period, current ratio and quick ratio affect the profitability of firms listed in the NSE. The F critical at 5% level of significance was 3.23. Since F calculated (value = 8.66) is greater than the F critical (3.23), this shows that the overall model was significant.

**Table 4.7 Multiple Regression Analysis**

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	4.576	.826		3.61	.000
Cash conversion period	0.726	.312	0.218	1.81	.012
Current ratio	0.614	.864	0.359	8.41	.018
Quick ratio	0.318	.685	0.142	4.56	.022

From the regression findings, the substitution of the equation

$(Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon)$  becomes:

$$Y = 4.576 + 0.726 X_1 + 0.614 X_2 + 0.318 X_3 + \epsilon$$

Where Y is the dependent variable (profitability),  $X_1$  is the cash conversion period,  $X_2$  is the current ratio and  $X_3$  is the quick ratio.

According to the equation, taking all factors (cash conversion period, current ratio and quick ratio) constant at zero, profitability will be 4.576. The data findings also show that a unit increase in cash conversion period will lead to a 0.726 decrease in profitability; a unit increase in current ratio will lead to a 0.614 decrease in profitability while a unit increase in quick ratio will lead to a 0.318 decrease in

profitability. This means that the most significant factor is cash conversion period followed by current ratio and quick ratio, respectively. At 5% level of significance and 95% level of confidence, cash conversion period had a 0.012 level of significance; current ratio had a 0.018 level of significance while quick ratio had a 0.022 level of significance, implying that the most significant factor is cash conversion period followed by current ratio and quick ratio (all with a negative influence on profitability), respectively.

#### **4.4 Summary and Interpretation of Findings**

The objective of the study was to determine the relationship between liquidity and profitability for companies listed at the NSE. The objective was assessed by use of secondary data and the subsequent analysis based on the variables of the study.

From the findings, the profitability of the sampled listed firms under study increased over the 5 year period. The mean increase in the return on capital employed (ROCE) from 0.09 in year 2009 to 0.22 in year 2013 indicate a steady growth in the listed firms' profitability over the 5 year period. Thus, there exist a significant relationship between the liquidity and profitability for companies listed at the NSE. The findings are in agreement with Vieira (2010) who noted that there exists a significant and positive correlation between the liquidity and the profitability variables in the short-run. He found that on the short term the higher the liquidity level of the company, the higher its profitability. He further established that there is positive relationship between liquidity indicators and profitability indicators on the medium to long term. He therefore observed that companies with a poor indicator of liquidity or profitability are usually not able to upkeep the other indicators in a high level. On their part, Raheman and Nasr (2007) argued that there exists a strong negative relationship between variables of working capital management and profitability of the firms. Their study demonstrated a considerable negative relationship between liquidity and profitability. However, their study showed that a positive relationship exists between size of the firm and its profitability.

The study findings revealed that the listed firms' cash conversion period steadily reduced from a mean of 42.41 in year 2009 to a mean of 28.25 in year 2013. This

implies that the cash conversion period of the sampled listed firms in NSE reduced over the 5 year period. Thus, the cash conversion period as a liquidity measure had an inverse relationship with the profitability of firms listed in the NSE over the 5 year period. The findings adduced to Soenen (1993) who in his study on cash conversion cycle and corporate profitability observed a negative relationship between company's net trade cycle and its profitability as measured by the total return on total assets. His findings showed that shorter net trade cycles are most commonly associated with higher profitability.

The study findings revealed that the listed firms' current ratio changed over the 5 year period decreasing from a mean of 1.62 in year 2009 to a mean of 1.25 in year 2013. This shows that the current ratio of the listed firms steadily decreased between year 2009 and year 2013. Thus, current ratio as a liquidity measure negatively influenced the profitability of firms listed in the NSE over the 5 year period. The findings are in line with Eljelly (2004) who noted that there exists a significant negative relationship between the firm's profitability and liquidity level, as measured by current ratio. The findings are also collaborated by Raheman and Nasr (2007) who in their study of the effect of working capital management on the net operating profitability and liquidity found that there is a strong negative relationship between variables of working capital management and profitability of the firms. Their study demonstrated a considerable negative relationship between liquidity and profitability.

The study findings further revealed that the sampled listed firms' quick ratio remained constant at a mean of 1.00 between year 2009 and year 2013. This shows that the listed firms maintained a steady level of the quick ratio over the 5 year period. Thus, quick ratio as a liquidity measure did not have a significant influence on the profitability of the firms listed in the NSE over the 5 year period. The findings are consistent with Maina (2011) in whose study he found that liquidity management is not a significant contributor alone of the firm's profitability and there exist other variables that will influence a firm's return on assets. However, the findings are in contrast with Nyabwanga et al. (2013) in whose study he found that there exist a significant impact of current ratio, quick ratio and debt to total assets ratio on a firm's Return on Assets (ROA).

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary

The objective of the study was to determine the relationship between liquidity and profitability for companies listed at the NSE. Profitability, cash conversion period, current ratio and quick ratio data were reviewed over the 5 year period for the sampled companies.

The study established that profitability as represented by return on capital employed (ROCE) ratio for the sampled listed firms steadily increased by a mean ratio of 0.13 for ROCE over the 5 year period. This is as represented by the difference between the lowest ROCE mean value of 0.09 in year 2009 and the highest ROCE mean value of 0.22 in year 2013. Therefore, there exist a significant relationship between the liquidity and profitability for companies listed at the NSE.

The study found out that there was a steady decrease in the sampled listed firms' cash conversion period as reflected by the decrease in mean values from 42.41 in year 2009 to 28.25 in year 2013. Therefore, the cash conversion period as a liquidity measure had an inverse relationship with the profitability of firms listed in the NSE over the 5 year period.

The study found out that there was a steady decrease in the sampled listed firms' current ratio as reflected by the decrease in mean values from 1.62 in year 2009 to 1.25 in year 2013. Thus, current ratio as a liquidity measure negatively influenced the profitability of firms listed in the NSE over the 5 year period.

The study found out that the sampled listed firms' quick ratio remained constant at mean of 1.00 between year 2009 and year 2013. This shows that the listed firms maintained a steady level of the quick ratio over the 5 year period. Therefore, quick ratio as a liquidity measure did not have a significant influence on the profitability of the firms listed in the NSE over the 5 year period.

## 5.2 Conclusion

Given that the cash conversion period of the sampled listed firms steadily decreased over the 5 year period and the sampled listed firms' profitability steadily improved over the same period, the study concludes that there exists an inverse relationship between cash conversion period as a liquidity measure and the listed firms' profitability.

Considering the current ratio of the sampled listed firms steadily decreased over the 5 year period and the sampled listed firms' profitability steadily increased over the same period, the study concludes that current ratio as a liquidity measure negatively influenced the profitability of firms listed in the NSE.

Since there was a steady level of the quick ratio among the sampled listed firms over the 5 year period and the corresponding increase in the listed firms' profitability over the same period, the study concludes that quick ratio as a liquidity measure did not have a significant influence on the profitability of the firms listed in the NSE.

In view of the data findings on how a unit increases in each of the independent variables influenced the dependent variable; the study concludes that cash conversion period is the most significant factor followed by current ratio and quick ratio respectively.

Given that the changes in the dependent variable (profitability) were not fully explained by the changes in the independent variables (cash conversion period, current ratio and quick ratio) the study concludes that there are other factors that determine profitability apart from liquidity. This is in line with the findings of Maina (2011) who researched on relationship between the liquidity and profitability of oil companies in Kenya and found that that liquidity management is not a significant contributor alone of the firm's profitability and there exist other variables that will influence ROA.

### **5.3 Policy Recommendations**

From the findings, the study established that cash conversion period as a liquidity measure negatively affected the profitability of the firms listed in the NSE. Therefore the study recommends that the management of the firms listed in the NSE should institute efficient cash management techniques that reduce the time period between expenditure of cash on purchases and receipt of money from sales proceeds to customers. Further management of listed firms should ensure they put in place policies that will ensure the sales on credit are paid on time, inventory is kept at an optimum level and accounts payables are efficiently managed to optimize the cash outflow that ensures that a firm's liquidity is not adversely affected so that a company's profitability will not also be affected in the long run.

The study established that current ratio as a liquidity measure negatively affected the the profitability of the firms listed in the NSE. Therefore the study recommends that the management of the firms listed in the NSE should strive to achieve and maintain an optimal liquidity position that holds adequate cash/liquid resources for operational needs and proactively invest the surplus liquid resources in existing viable projects/investments. Besides, management of listed firms should institute liquidity management policies that will ensure they are able to meet payment obligations associated with their financial liabilities when they fall due and to replace funds when they are withdrawn.

From the findings, the study established that quick ratio as a liquidity measure did not significantly affect the profitability of firms listed in the NSE. Therefore, the study recommends that the management of the listed firms should focus on identifying viable investment opportunities in the operating environment to enhance the growth and profitability of the firms rather than paying too much attention on the liquidity position of the firms. In addition, management of listed firms should identify and address other factors that may be affecting their profitability other than liquidity.

#### **5.4 Limitations of the Study**

The objective of the study was to determine the relationship between liquidity and profitability for companies listed at the NSE. The study solely depended on the published financial data. It was hence subject to all limitations that are inherent in the condensed published financial statements.

Out of the 61 listed companies at the NSE, companies in the banking, insurance and investment sectors were excluded and only 16 companies were selected in the sample. The selected companies in the sample were those that were active firms over the research period and had complete required data for the study. Nevertheless the study is affected by any inherent sampling limitations like over representation or under representation of particular category of firms in the sample.

Again, the study is based on the data and information relating to the period 2009-2013, that is, five years period. This represents a limitation in case one wanted to establish the relationship in a different period.

The study focused on the companies listed at the Nairobi Securities Exchange. The study is therefore limited to the profile of companies that are listed at the NSE. Companies listed in other stock/securities exchanges may have different profiles in as far as their profitability and liquidity is concerned.

The study undertook to determine the relationship between liquidity and profitability for companies listed at the NSE using return on capital employed as measure of profitability, and cash conversion period, current ratio and quick ratio as measures for liquidity. The inherent limitations on the selected measures for liquidity and profitability impact on the conclusions drawn from the study.

Although the study found out that the quick ratio as a measure of liquidity did not significantly affect profitability, the study did not undertake to establish which other factors apart from liquidity affect profitability. Other factors that could have played a part in profitability of the listed firms, over the research period present limitations on the findings from the study.

## **5.5 Suggestions for Further Studies**

Since this study explored the relationship between liquidity and profitability for companies listed at the NSE, the study recommends that; similar studies should be done in other countries for comparison purposes and to allow for generalization of findings on the relationship between liquidity and profitability for companies listed at the stock/security exchanges.

This study excluded listed companies in the banking, insurance and investment sectors due to the level of regulation. However, the study recommends further research for these sectors to confirm if there is indeed a relationship between liquidity and profitability in these firms.

A study on the relationship between liquidity and profitability for companies which are not listed at the NSE is also recommended. This includes the companies in the SME. This may help come with recommendations for companies which are not listed at the NSE to better their profitability and liquidity.

Since the study established that quick ratio as a liquidity measure did not significantly affect the profitability of firms listed in the NSE, the study recommends an investigation on any other factors that may be affecting profitability other than liquidity.

Given that this study focused on the effect of cash conversion period, current ratio and quick ratio as liquidity measures on ROCE as the profitability measure for listed firms in the NSE, The study recommends that; similar studies should be done with increased variables for both profitability and liquidity. For profitability, the studies can add return on investment and return on equity while for liquidity, the studies can add cash ratio and net working capital ratio. This would help to show clearly the relationship between profitability and liquidity of the listed firms.

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