

**EFFECT OF BANK CAPITALIZATION ON LIQUIDITY OF
COMMERCIAL BANKS IN KENYA**

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**A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS,
UNIVERSITY OF NAIROBI**

NOVEMBER 2015

DECLARATION

I declare that this is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this project to my family for their unfailing encouragement and love. To my dear husband Thomas, my son Paul and parents Hellen and James for their unwavering support.

ACKNOWLEDGEMENT

I wish to thank most sincerely all those whose contributions have made this project a success. To my supervisor Prof. J. Aduda for his assistance and advice all through making this project a success. To my wonderful family for their moral support. Most of all I thank God for the gift of wisdom and strength to complete this project.

I feel indebted to the management of the Capital Markets Authority and the Central Bank of Kenya who provided the data which without it the project would not have been done.

To my workmates Bonface, Samuel, Angeline, Mueni and Millicent, thank you for holding brief for me during the many times I was away pursuing this noble course.

ABSTRACT

The relationship between a bank's capitalization and liquidity position has important implications for regulatory policies. This is because banks as financial markets' outlet are regarded as one of the important chains in the economy in performing the resource distribution function which exposes it to liquidity risk arising from different terms of assets and liabilities maturity. This study sought to establish the effect of bank capitalization on the liquidity of Commercial banks in Kenya using the annual data of 42 banks for the period 2010 to 2014. The results of panel data regression reveal that bank size, capital asset ratio and the asset quality are positively related to bank liquidity and are all significantly related to bank liquidity. The implication is that better capitalized banks tend to create more liquidity, which supports the 'financial fragility-crowding out' hypothesis. This finding has important policy implications for emerging countries like Kenya as it suggests that bank capital requirements, that is, recapitalization policy, implemented to support financial stability, may enhance the level of liquidity. The financial regulatory body needs to provide appropriate effective measures to adequately enhance transparent accountability in the capitalization process. The study also recommends that bank capitalization should be encouraged in all commercial banks and other financial institutions so that performance can be enhanced. Institutions should endeavor to retain earnings to boost up capital rather than paying exorbitant bonuses. Well-capitalized Institutions have lower financial risk and thus are more likely to survive financial crisis thus, a well-capitalized banking system will ensure financial stability and make the industry more resilient against external shocks and risk.

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LIST OF ABBREVIATIONS

BIS	-	Bank of International Settlements
CBK	-	Central Bank of Kenya
CMA	-	Capital Markets Authority
GOK	-	Government of Kenya
ICT	-	Information and Communication Technology
PwC	-	PricewaterhouseCoppers

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In the last decades global financial markets have become interdependent such that a financial crisis in one part of the world, especially in the developed countries, will have ripple effects in the other countries. Changes in the market have given rise to new risks that have influenced the stability of the financial system. Liquidity management of the banks is one such position that if not well managed, will give rise to the financial crises that was witnessed in the period 2008/2009. Banks as financial markets' outlet are regarded as one of the important chains in the economy in performing the resources distribution function which exposes it to liquidity risk arising from different terms of assets and liabilities maturity (Andre et al, 2001). Through this function, banks create liquidity as they hold illiquid assets and provide cash and demand deposits to the rest of the economy. Therefore, liquidity creation is one of the important functions of banks but it is also a major source of banks' vulnerability to shocks (Berger and Bouwman, 2007). Because banks can be considered as a source of liquidity insurers, they face transformation risk and are exposed to the risk of run on deposits. Consequently, the higher the liquidity creation, the higher the risk for banks to face losses from having to dispose of illiquid assets to meet the liquidity demands of customers. One of the ways to manage the liquidity risk is the increase of the capital base of the banks to be able to take the operational risk that can arise from the deposit demand from the customers. The same liquidity risk is currently being experienced in Greece, where banks are facing liquidity challenges.

Banks make loans that cannot be sold quickly at a high price and at the same time they issue demand deposits that allow depositors to withdraw at any time. This mismatch of liquidity, in which a bank's liabilities are more liquid than its assets, has caused problems for banks when too many depositors attempt to withdraw at once, that is, a bank run occurs. As a result of this risk exposure, banks have followed policies to stop runs and governments have instituted deposit insurance to prevent runs. Liquidity is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses (Basel Committee on Banking Supervision, 2008). The inability of banks to raise liquidity can be attributed to a funding liquidity risk that is caused either by the maturity mismatch between inflows and outflows and/or the sudden and unexpected liquidity needs arising from contingency conditions (Duttweiler, 2009). Liquidity management can be defined as the planning and controlling of cash flow by owner-managers in order to meet their day-to-day commitments (Collis and Jarvis, 2000). The maturity transformation of short-term deposits into long-term loans makes banks inherently vulnerable to liquidity risk (Basel Committee on Banking Supervision, 2008). The market liquidity risk refers to the inability to sell assets at or near the fair value, and in the case of a relevant sale in a small market it can emerge as a price slump (Brunnermeier and Pedersen, 2009).

In the 2015/2016 budget, the Kenyan government has proposed a significant increase in the capital requirement for commercial banks in a bid to make its financial sector competitive, in the hope of taking on banks from South Africa, Nigeria, Angola and Egypt in big ticket business. The National Treasury has proposed to increase the minimum core capital for lenders from \$10.1 million to \$50.54 million in the next three years, a move that is intended to create strong and

stable institutions with the capacity to lend more at lower rates and be able to withstand liquidity challenges. In 2007, Kenya proposed to raise the minimum core capital for banks to \$10.1 million, from \$2.52 million, setting December 31, 2012 as the deadline for all banks to comply. Under the proposed recapitalization programme, Kenyan lenders will be required to increase their shareholders' funds to \$20.21 million by December of 2016, then \$35.38 million by December 2017 and finally \$50.54 million by December 2018. The proposals also recommends the doubling of the paid-up capital for insurance firms conducting general insurance business to \$6.06 million, from \$3.03 million, and an increase for those in the life insurance business to \$4.04 million, up from \$1.51 Million (GOK, 2015).

1.1.1 Bank Capitalization

Bank capitalization refers to the capital base of a firm that is available for the bank to invest and support its operations. Prior to the financial crisis of 2007-2009, the banking sector of many countries had built up excessive on-and off-balance sheet leverage that was accompanied by the gradual erosion of the level and quality of the banks' capital base (Bank of International Settlements (BIS), (2009)). As a result, the banking system was not able to absorb the resulting systemic trading and credit losses nor could it cope with the re-intermediation of large off-balance sheet exposures that had built up in the shadow banking system. To address the lessons of the crisis and the failures it revealed, bank regulators all over the world undertook fundamental reforms of the international prudential framework for the banking sector to strengthen global capital and liquidity regulations with the goal of creating a more resilient banking sector and ensuring overall financial stability (Naceur and Kandil, 2009).

The support of the capital adequacy of commercial banks advances two arguments. On the one hand, capital adequacy is seen as an instrument limiting excessive risk taking of bank owners with limited liability, thus promoting optimal risk sharing between bank owners and depositors (Barrell et al., 2009). On the other hand, capital adequacy regulation is often viewed as a buffer against insolvency crises, limiting the costs of financial distress by reducing the probability of insolvency of banks (Caggiano and Calice. 2011). Thus the general consensus is that banks with higher capital and liquidity buffers are better able to support businesses and households in bad times since buffers enhance the capacity of banks to absorb losses and uphold lending during a downturn. In this regard, the main policy concerns remains as to the consequences of increasing capital requirement on competition in the financial sector. Banks are more likely to incur the costs related to maintaining capital adequacy ratios when they are close to the minimum capital requirement. Hence the bank's level of capitalization is the total risk-based capital ratio for the fiscal prior to the release of the credit agreement (Repullo, 2004).

1.1.2 Liquidity

According to Greuning, and Bratanovic, (2004) banking liquidity represents the capacity of a bank to finance transactions efficiently. The liquidity risk, for a bank, is the expression of the probability of losing the capacity of financing its transactions; it is the probability that the bank cannot honor its obligations to its clients, which include but are not limited to withdrawal of deposits, maturity of other debt, covering additional funding requirements for the loan portfolio and investment. The management of the liquidity risk is important at least for two reasons: primarily an inadequate level of liquidity may lead to the need to attract additional sources of with higher costs thus reducing the profitability of the bank which may ultimately lead to

insolvency; and secondly an excessive liquidity may lead to a decrease of the return on assets and in consequence poor financial performance. A bank has a potential of appropriate liquidity when it's in a position to obtain funds immediately and at a reasonable cost, when these are necessary. In practice, achieving and maintaining optimum liquidity is a real art of bank management.

Bhunja (2010) refers to liquidity as the ability of a firm to meet its short term obligations. Liquidity plays a crucial role in the successful functioning of a business firm. A study of liquidity is of major importance to both the internal and external analysts because of its maturing obligations to suppliers of credit, services and goods. Also, the inability to meet the short term liabilities could affect the company's operations and in many cases it may affect its reputation as well.

1.1.3 Relationship between bank Capitalization and Liquidity

The potential effects of bank capital on liquidity creation raise important issues such as why banks generally have the lowest capital ratios of any industry, and why banks tend to fund loans with demand deposits, creating potentially fragile institutions that are subject to runs. The key policy issues include validating minimum capital requirements that may suppress the liquidity creation process, upholding the prudential supervision and maintaining adequate regulatory actions (Madura and McDaniel, 1989).

Diamond and Dybvig (1993) observe that an important function of banks is to create liquidity, that is, to offer deposits that are more liquid than the assets that they hold. Investors who have a demand for liquidity will prefer to invest via a bank, rather than hold assets directly. They further

point that bank risk may not only affect leverage and inefficiencies, but also may itself be dependent upon leverage and inefficiencies. However, in the banking industry, the management may be induced to offset higher capitalization by taking more risk. The leverage decision is further complicated by the existence of deposit insurance and regulation (Keeley and Furlong, 1989).

Santomero (1988) suggest that increases in bank capital requirements would induce bank risk taking and have perverse effects on bank safety. Madura and McDaniel (1989) show that an increase in loan loss provision has the potential to convey to the market a negative strong signal that is the poor management of banks' loan portfolio. Thus, bad news can weaken investors' confidence so that the bank is more likely to face a financing problem. From the viewpoint of regulators, the more loan loss provisions are held, the more the bank is risky. However, Madura and McDaniel (1989) also recognize the possible positive stock market reaction to loan loss provision announcement. They further demonstrate that that this conclusion depends upon the assumption of a constant cost of funds, and therefore, it ignores the impacts that increased capital would have on reducing the risk exposure of debt holders who would accept lower returns. Hence overall bank returns would be enhanced by increased capital requirements.

1.1.4 Commercial Banks in Kenya

Kenya's financial landscape has considerably changed over the period 2006-2013 and the financial sector has grown in assets, deposits, profitability and products offering. The growth has been mainly underpinned by an industry wide branch network expansion strategy both in Kenya and in East Africa community region as well as automation of a large number of services and a

move towards emphasis on the complex customer needs rather than traditional ‘off-the-shelf’ products. Among these innovations include moving from the traditional decentralized banking to one branch banking that has been enabled by integration of various business functions (PWC, 2012). The CBK annual supervision report emphasizes that the financial institutions will need to cope continuously with changing business environment and a continuous flood of new requirements via a robust ICT platform, while staying sufficiently agile. Consumers will continue to demand individualized services, and to demand them faster than ever (CBK, 2014).

The Central Bank of Kenya makes and enforces rules which govern the minimum capital requirement for Kenyan banks and are based on the international standards developed by the Basel Committee. The CBK has reviewed the minimum capital requirements for commercial banks and mortgage finance institutions with the aim of maintaining a more stable and efficient banking and financial system. According to the Banking Act (2008), every institution was expected to maintain a minimum core capital of at least KES 1 billion (USD 12 million) by 2012; a core capital of not less than 8% of total risk adjusted assets plus risk adjusted off balance sheet items; a core capital of not less than 8% of its total deposit liabilities and a total capital of not less than 12% of its total risk adjusted assets plus risk adjusted off balance sheet items. According to data from Central Bank of Kenya (2013), the country has a total of 43 commercial banks six of which control 50 per cent of the banking business while 21 small banks own a paltry 8.3 per cent of the market. Medium banks — 16 of them — have a market share of 41.7 per cent. The new guidelines introduced a capital conservation buffer of 2.5 per cent above the minimum regulatory core and total capital ratios of 8 per cent and 12 per cent respectively, which became

effective on January 1. This brought the core and total capital ratios to 10.5 per cent and 14.5 per cent respectively, which every bank must maintain at all times

1.2 Research Problem

The financial crisis of the 2007-2009 led to the stringent regulatory measures by the regulators, such as higher capital requirements, as a move towards having a stable and more competitive banking sector (Financial Service Authority, 2009). This is because banks play a critical role in the allocation of society's limited savings among the most productive investments, and they facilitate the efficient allocation of the risks of those investments (Diamond and Dybvig, 1983). However, the financial crisis showed that a breakdown in this process can disrupt economies around the world. The crises further revealed the importance of bank regulations to hedge against high risks attributed to imbalances in banks' balance sheet. Hence, the relationship between banks' capitalizations and risk-taking behaviours is one of the central issues in the banking regulatory policies. Therefore, the minimum capital requirement, which constitutes the core regulatory instrument for the banking industry is based on the premise that increased capital enhances bank safety (Smaghi, 2007).

The important roles of banks in liquidity creation and fostering economic growth has been analyzed by many researchers, presenting agency theories and different opinions on liquidity position of the banks. Gorton and Winton (2000) show how a higher capital ratio may reduce liquidity creation through the crowding out of deposits. They argue that deposits are more effective liquidity hedges for investors than investments in bank equity capital. They further point out that higher capital ratios shift investors' funds from relatively liquid bank deposits to

relatively illiquid bank capital, reducing overall liquidity for investors. On their part, Deep and Schaefer (2004) opine that banks' liquidity is created by financing non-liquid assets with liquid liabilities. However, Berger and Bouwman (2009) on the other hand maintain the idea that banks also create liquidity in non-balance accounts. In the same breath, they define the importance of non-balance accounts such as loans' liabilities and state that the size of the bank influences liquidity creation measures. Smaghi (2007) emphasizes the importance of global macro liquidity, stressing that financial globalization influenced global macro liquidity creation, weighted by high savings of developing countries, which increased the demand for liquid assets, and insufficient production of financial liabilities, because of slow adaptation of technologies in law and finance fields.

The Kenyan banking industry has continued to grow both in terms of new local and foreign entrants, customer and deposit base, regionalization and increased scrutiny from the regulators specifically the Central Bank of Kenya. With the increased level of competition and globalization of the financial services, there is need to make the commercial banks to be able to withstand operational shocks that come from the business activities. One of the ways in which banks face a challenge is the maintenance of optimal liquidity level and capacity to pay the depositors cash when they need it. One of the ways in which banks use to enhance their liquidity is through increasing their capital base. It is out of this that the Central Bank of Kenya, as the regulator, has mandated that all commercial banks to have a core capital of not less than 8% of its total deposit liabilities and a total capital of not less than 12% of its total risk adjusted assets plus risk adjusted off balance sheet items. It is further suggested that by 2018, the commercial banks operating in Kenya will need to have increased their capital base to Ksh 5 Billion. All

these measures are aimed at improving the banks liquidity and in the process safeguard the investor deposit. However, at the time of writing this proposal, this information existed as a proposed bill to be debated and possibly passed by the Kenyan parliament.

Locally, a number of studies have been done on liquidity with various aspects of organizations operations. Locally Maina (2011) researched on the relationship between liquidity and profitability of oil companies in Kenya and found that that liquidity management is not a significant contributor alone on the firm's profitability and there exist other variables that will influence ROA. Kamau et al (2004) analyzed the relationship between capital adequacy and the risk behavior of banks in Kenya using the HHI and CD4 indices to analyze the competitive behavior of the banking sector. Vlaar (2000) analyzed how capital requirements affect the profitability of two banks that compete as Cournot duopolists on a market for loans. The results showed that higher capital requirements impose a higher burden on the inefficient bank than on the efficient one, even though the requirement may only be binding for the efficient bank.

However, the studies above did not estimate the direct relationship between capital requirements and liquidity risk position of the banks. The studies have not centered on the liquidity risk especially risks arising from the asset side. Moreover, liquidity risk may also originate from the very nature of banking; macro factors that are exogenous and financing and operating policies that are endogenous (Ali, 2004). As a result of this gap, the current research will seek to answer the following question: what is the effect of bank capitalization on liquidity creation of commercial banks in Kenya?

1.3 Research Objective

To establish the effect of Bank Capitalization on the liquidity of Commercial Banks in Kenya

1.4 Value of the Study

The understanding of the liquidity creation components adopted by commercial banks in Kenya as well as how it is influenced by the capitalization level of the bank will help policy makers, governments and other stakeholders to design targeted policies and programs that will actively stimulate the growth and sustainability of the commercial banks in the country, as well as help those policy makers to support, encourage, and promote the establishment of appropriate policies to guide the banks capitalization process. Regulatory bodies such as Central Bank of Kenya (CBK), Capital Markets Authority (CMA) and the Kenya Revenue Authority can use the study findings to improve on the framework for regulation.

The study findings will benefit management and staff of commercial banks who will gain insight into how their institutions can effectively manage their liquidity creation process by coming up with appropriate practices. This study will offer an understanding on the importance of adopting a capitalization process in the local commercial banks that will enable them to compete effectively with other banks in the emerging economies. Several practices on liquidity creation process will be discussed for the benefit of the managers. This is because commercial banks need to adapt to the changing needs of the current business set up and requirement of various regulatory bodies, both nationally and measure to the recommended internationally accepted standards. As a result, commercial banks in the country and other affiliated institution will derive great benefit from the study. It is hoped that the findings will be valuable to the academicians,

who may find useful research gaps that may stimulate interest in further research in the future.

Recommendations will be made on possible areas of future studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature relating to bank capitalization and its effect on the liquidity position in the banking system. The literature review has been organized in the following sections. First section covers the theoretical framework underlying the study, types of liquidity risks and finally the effect of liquidity risk on bank performance. The second section covers the management of liquidity risks after with the empirical reviews on the subject matter being covered is discussed

2.2 Theoretical Framework

The major objective of a commercial bank is to create liquidity while remaining financially sound. However, there are a number of dimensions in the way banks concretely manage their liquidity risk. In plain words, there are competing liquidity management theories. Liquidity management theories encompass where it is exactly performed in the organization, how liquidity is measured and monitored, and the measures that banks can take to prevent or tackle liquidity shortages. These competing theories include: The capital buffer theory and the Shiftability theory.

2.2.1 The Capital Buffer Theory

The capital buffer theory as advanced by Diamond and Rajan (1999) aim at banks holding more capital than recommended. Regulations targeting the creation of adequate capital buffers are designed to reduce the procyclical nature of ending by promoting the creation of countercyclical

buffers (Milne & Whalley, 2001). Moreover these regulations are designed to reduce the procyclical nature of lending by promoting the creation of countercyclical buffers (Khawish, 2011).

The capital buffer is the excess capital a bank holds above the minimum capital required. The capital buffer theory implicates that banks with low capital buffers attempt to rebuild an appropriate capital buffer by raising capital and banks with high capital buffers attempt to maintain their capital buffer. More capital tends to absorb adverse shocks and thus reduces the likelihood of failure. Banks raise capital when portfolio risk goes up in order to keep up with their capital buffer as sighted by (Marcus, 1984) which appear to relate to determinant of capital adequacy and performance of commercial banks.

2.2.2 Shiftability Theory

This theory was advanced by Moulton (1915) and posits that a bank's liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. This point of view contends that a bank's liquidity could be enhanced if it always has assets to sell and provided the Central Bank and the discount market stands ready to purchase the asset offered for discount. Thus this theory recognizes and contends that shiftability, marketability or transferability of a bank's assets is a basis for ensuring liquidity (Nwankwo, 1991).

This theory further contends that highly marketable security held by a bank is an excellent source of liquidity. Dodds (1982) contends that to ensure convertibility without delay and appreciable loss, such assets must meet three requisites. Liability Management Theory Liquidity management theory according to Dodds (1982) consists of the activities involved in obtaining funds from depositors and other creditors (from the market especially) and determining the

appropriate mix of funds for a particular bank. This point of view contends that liability management must seek to answer the following questions on how do we obtain funds from depositors? How do we obtain funds from other creditors? What is the appropriate mix of the funds for any bank? Management examines the activities involved in supplementing the liquidity needs of the bank through the use of borrowed funds.

2.2.3 Liquidity Motive Theories

The economics and finance literature analyze possible reasons for firms to hold liquid assets. Keynes (1936) identified three motives on why people demand and prefer liquidity. The transaction motive, here firms hold cash in order to satisfy the cash inflow and cash outflow needs that they have. Cash is held to carry out transactions and demand for liquidity is for transactional motive. The demand for cash is affected by the size of the income, time gaps between the receipts of the income, and the spending patterns of the cash available. The precautionary motive of holding cash serves as an emergency fund for a firm. If expected cash inflows are not received as expected cash held on a precautionary basis could be used to satisfy short-term obligations that the cash inflow may have been bench marked for. Speculative reason for holding cash is creating the ability for a firm to take advantage of special opportunities that if acted upon quickly will favor the firm.

Almeida et al. (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 investments to the firms. The model predicts that financially constrained firms will save a positive fraction of incremental cash flows, while unconstrained firms will not.

Empirical evidence confirms that firms classified as financially constrained save a positive fraction of their cash flows, while firms classified as unconstrained do 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. To the extent that liquid assets other than cash can be liquidated in the event of a cash shortage, they can be seen as substitutes for cash holdings. Consequently, firms with more liquid asset substitutes are expected to hold less cash. It is generally accepted that leverage increases the probability of bankruptcy due to the pressure that rigid amortization plans put on the firm's treasury management. To reduce the probability of experiencing financial distress, firms with higher leverage are expected to hold more cash. On the other hand, to the extent that leverage ratio acts as a proxy for the ability of the firms to issue debt it would be expected that firms with higher leverage (higher ability to raise debt) hold less cash. Thus, the predicted relationship between cash holdings and leverage is ambiguous.

2.3 Determinants of Liquidity Of Commercial Bank

The determinants of banks' liquidity, can be classified into four broad categories. These are the opportunity costs of and shocks to funding, bank characteristics, macroeconomic fundamentals, and moral hazard motives, as discussed below.

2.3.1 Opportunity Cost and Shocks to Funding

The cost of holding liquid assets is compared to the benefits of reducing risks of "running out" (Santomero, 1984) and therefore the size of liquidity buffers should reflect the opportunity cost of holding liquid assets rather than loans. Therefore, the cost of holding liquid assets should relate to the distribution of liquidity shocks that the bank may face, and in particular be

positively related to the volatility of the funding basis as well as the cost of raising additional funds.

Using aggregate time-series data for Thailand, Agénor, Aizenmann and Hoffmaister (2000) find that banks' demand for precautionary reserves- measured as the log of excess reserves over total deposits, is positively related to the penalty rate, proxied by either the discount or the money market rate, as well as to the volatility of the cash to deposit ratio. Dinger (2009) finds in a panel of Eastern European banks that liquidity buffers are negatively related to the real deposit rate but positively related to the interbank rate.

2.3.2 Bank Characteristics

The newer generation of models explaining firms' (including banks') liquidity demand relies on some form of market imperfection to explain why banks cannot raise instantaneous and unlimited amounts of liquidity (financial frictions). The market imperfection is asymmetric information, either in the form of moral hazard (Holmstrom and Tirole, 1998) or adverse selection (Kiyotaki and Moore, 2008). Financially constrained banks would thus tend to hold more liquidity assets.

Several features of bank characteristics affect their ability to raise non-deposit forms of finance. Kiyotaki and Moore (2008) point that bank size affects the liquidity position of a bank in the sense that small banks have more difficulties in accessing capital market and more profitable banks can more readily raise capital and are thus less liquidity constrained. As for the bank ownership structure, they noted that both public banks and foreign banks should be less liquidity-constrained than private and domestic banks, respectively, as public banks may have an implicit

guarantee and foreign banks would have access to support from headquarters. These bank characteristic would affect a banks' precautionary demand for liquidity buffers.

Aspachs, Nier and Tiesset (2005) find that banks' liquidity buffers are related to bank characteristics such as loan growth and the net interest margin, with the coefficients on size and profitability being not significant. Kashyap and Stein (1997) and Kashyap, Rajan and Stein (2002), using a large panel of U.S. banks, find a strong effect of bank size on holdings of liquid assets, with smaller banks being more liquid as they face constraints in accessing capital markets.

2.3.3 Macroeconomic Fundamentals

The bank characteristics and the opportunity cost also have implications for the cyclical behavior of liquidity demand. Aspach, Nier and Tiesset (2005) observe that if capital markets are imperfect, the demand for liquidity should be countercyclical, as banks would hoard liquid assets during recessions and offload them in good times given more opportunities to lend. This suggests that liquidity buffers would be negatively related to measures of the output gap or real GDP growth, credit cycle, and policy interest rates.

The counter-cyclical of liquidity buffers limits the effectiveness of monetary policy in trying to inject liquidity to stimulate the economy in a recession: liquidity buffers would remain stable or increase but credit would not necessarily pick-up (Saxegaard, 2006). Moreover, financial frictions in terms of capital market imperfections should be expected to vary with structural factors such as the degree of financial development and the quality of financial institutions. Aspach, Nier and Tiesset (2005) find that UK banks' liquidity buffers are negatively related to

real GDP growth and the policy rate. Agénor, Aizenmann and Hoffmaister (2000) find that excess reserves are negatively related to the output gap and the policy rate.

2.3.4 Moral Hazard And Safety Nets

In theory, the strength of the financial safety net and in particular the availability of a base lending rate, should reduce the banks' incentives to hold liquidity buffers (Repullo, 2003). Empirical studies of UK and Argentinian banks, where LOLR support is measured as the Fitch support rating and the availability of external credit lines in the context of the currency board, respectively, support this prediction (Aspach, Nier and Thiesset, 2005).

Dollarization or credit and/or deposits reduces the effectiveness of the domestic BLR, as partially dollarized economies are subject to currency and liquidity risk, but the central bank cannot issue foreign currency (Gulde et al., 2004). One would thus expect banks to hold higher liquidity buffers, the higher the degree of deposit dollarization, though the incentives to hold such buffers would diminish in the presence of a large stock of central bank international reserves or external credit lines, as these would be a ready source of dollar liquidity in the case of a run on dollar deposits (Ize, Kiguel and Levy-Yeyati, 2005).

2.4 Empirical Studies

The empirical studies undertaken to analyze the effects of capitalization of banks has focused on the analysis of either cross country or individual countries' banking system. The studies on cross country analysis has mainly focused on developed economies and emerging markets. Boyd and Runkle (1993) argue that there is a relation between bank size and the return on assets and leverage and thus large banks are more profitable but riskier by being highly leveraged. De

Nicoló (2000) reports a positive and significant relationship between bank size and failure probabilities for the United States, Japan, and several European countries. Gorton and Winton (2000) show how a higher capital ratio may reduce liquidity creation through the crowding out of deposits. They argue that deposits are more effective liquidity hedges for investors than investments in bank equity capital. Thus, higher capital ratios shift investors' funds from relatively liquid bank deposits to relatively illiquid bank capital, reducing overall liquidity for investors.

Diamond and Rajan (2001) model a relationship bank that raises funds from investors to provide finance to an entrepreneur. They point out that providers of capital cannot run on the bank, which limits their willingness to provide funds, and hence reduces liquidity creation. Thus, the higher a bank's capital ratio, the less liquidity it will create. Diamond and Rajan's model builds on Calomiris and Kahn's (1991) argument that the ability of uninsured depositors to run on the bank in the event of expected wealth expropriation by bank managers is an important disciplining mechanism. A related idea is proposed by Flannery (1994), who provides a rationale for maturity mismatching that does not focus on liquidity creation.

The study by Demirguc,-Kunt et.al (2003) analyzed the impact of bank regulations as well as other internal determinants including concentration and institutions on bank profit margins. The study analyzes the impact of bank regulations, concentration, and institutions using bank-level data across 72 countries while controlling for a wide array of macroeconomic, financial, and bank-specific traits.

Angelini and Cetorelli (2003) examined the effect of regulatory reform on competition in the Italian banking industry using firm-level balance sheet data for the period 1984-1997. They estimated the Lerner's index as a measure of competitiveness within the banking sector. The study revealed that competitive conditions were relatively unchanged until 1992, however, competition improved substantially thereafter, as signaled by the decline in estimated markups. Concluding that the deregulation process in Italy which culminated with the implementation of the Second Banking Directive in 1993, significantly contributed to improving bank competition and that it may also have been an important determinant of the consolidation process recorded by the Italian credit system during the 1990s.

Barth et.al (2004) used data on bank regulations and supervision in 107 countries to assess the relationship between specific regulatory and supervisory practices and banking-sector development, efficiency, and fragility. The results raise a cautionary flag regarding government policies that rely excessively on direct government supervision and regulation of bank activities.

On the part of single country studies, Naceur and Kandil, (2009) used bank scope data base for 28 banks for the period 1989-2004 to analyze the effects of capital regulations on the performance and stability of banks in Egypt. The study analyzed two measures of performance: cost of intermediation and banks' profitability- measured by return on assets. The findings showed that as the capital adequacy ratio internalizes the risk for shareholders, banks increase the cost of intermediation, which supports higher return on assets and equity pointing out the importance of capital regulation to the performance of banks and financial stability in Egypt.

Bordeleau, Crawford and Graham (2009) reviewed the impact of liquidity on bank profitability for 55 US banks and 10 Canadian banks between the period of 1997 and 2009. The study employed quantitative measures to assess the impact of liquidity on bank profitability. Results from the study suggested that a nonlinear relationship exists, whereby profitability is improved for banks that hold some liquid assets, however, there is a point beyond which holding further liquid assets diminishes a banks' profitability, all else equal. Conceptually, this result is consistent with the idea that funding markets reward a bank, to some extent, for holding liquid assets, thereby reducing its liquidity.

Agoraki et.al (2011) used panel data estimation techniques to analyze the interplay between regulation, competition and bank risk taking behavior in transition countries for the period 1998-2005. In the study which considered regulation as capital requirements, restrictions on banks activities and official supervisory power found that banks with lower market power tend to take on lower credit risk and consequently have lower probability of default. The findings also revealed that capital requirements reduce credit risk, but this effect weakens for banks with sufficient market power.

Adebayo et al (2011) evaluated how effective liquidity management impacts on profitability in commercial banks in Nigeria and how commercial banks can enhance their liquidity and profitability positions . In attempt to achieve the objectives of the study, several findings were made through the analysis of both the structured and unstructured questionnaire on the management of banks and the financial reports of the sampled banks. Quantitative methods of research were applied. The data obtained from primary and secondary sources was statistically

tested through Pearson correlation data analysis and the findings indicated that there is significant relationship between liquidity and profitability.

Maaka (2013) studied the relationship between liquidity risk and performance of commercial banks in Kenya. The objective of the study was to investigate liquidity risks faced by commercial banks in Kenya and establish the relationship between liquidity risk and the performance of banks in Kenya. 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.

2.5 Summary of the Literature Review

A general conclusion drawn from the body of literature above is that research on determinants of capitalization of commercial banks in developing countries has received little attention despite rapid growth in this literature over the years. This is rather unfortunate given the dominance of banking sector in the financial system in these countries including Kenya.

Capital adequacy modeling has not been in the mainstream of econometric research into the financial sector in Kenya. Analysis of the banking sector have so far focused on qualitative assessment of growth trends and sectoral behavior patterns in the industry. Discussion in the above mentioned studies has, for instance, suggested a number of factors that may influence the failure pattern of banks, bank products and management. There have been few models designed on the effect of capitalization rate on the liquidity position of the banks. This study will seek to fill in this gap by establishing the relationship between the capitalization and liquidity of commercial banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets to explain the research design, the population of interest, the basis of sample selection, the type of secondary data used, the sources of data, the techniques of analysis that was used and the data analysis.

3.2 Research Design

This study employed correlation research design. According to Albright et al (2011) a correlation research is a procedure in which subjects' score on two variables are simply measured, without manipulation of any variable, to determine whether there is a relationship. The study used cross-sectional study in which data was gathered just once over the period 2010 to 2014 and as such, a causal study was undertaken in a non-contrived setting with no researcher interference. A cross sectional study was also used to determine the interrelationship between the variables under consideration among the different firms in the study and permitted the researcher to make statistical inference on the broader population and generalize the findings to real life situations and thereby increase the external validity of the study.

3.3 Population of the Study

The population of interest in this study was all the commercial banks in Kenya that have operated between 2010 and 2014. Currently, there are 43 commercial banks operating in Kenya (Appendix I). The reason as to why this industry was chosen was due to the availability and the

reliability of the financial statements in that they are subject to the mandatory audit by internationally recognized audit firms as well as Central Bank of Kenya as regulator. In addition, all the banks have their headquarters in Nairobi and its environs and this made them convenient in terms of time and accessibility to the researcher. Since the number of the respondents is limited, then the study was a census survey.

3.4 Data Collection

Data was collected from annual reports submitted to the NSE and Capital Markets Authority as well as the Central Bank regulatory reports. All the banks in the banking sector that had continually operated between 2010 and 2014 were included to ensure that the sampling frame is current and complete. This period is selected because significant reforms like deregulation, consolidation and recapitalization policies had been undertaken in Kenya. The financial statements that were used include the balance sheet and the income statement. From the balance sheet, the total shareholders' equity, total assets and the liabilities were derived. The non-performing loans were gathered from the income statement.

3.5 Data Analysis

Multiple regression analysis was applied to the data to examine the effect of the various aspects of bank capitalization on the liquidity creation of the banks. The regression model ran from the financial reports of the banks that had been in operation since 2010 and whose annual report were available for the periods. The statement of financial position as well as the statement of financial performance and their notes was studied to get the data for the variables mentioned in the model. At the bank's level, bank size (logarithm of total assets) and bank risk are taken into consideration. This is to examine the difference in the relationship of bank liquidity creation and

bank capital. To control for bank risk, NPA is considered as the total amount of nonperforming loans divided by total assets.

The regression was adapted from the one used by Muritala and Taiwo (2012).

$$\text{Liq} = f(\text{CAPITALIZATION})$$

3.5.1 Analytical Model

The model specifically will take the take the form;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where;

Y - Bank Liquidity

β_0 - Constant value

X_1 - Bank size, logarithm of total assets

X_2 - Capital adequacy

X_3 - Asset quality

ϵ - Error Term

B_i - The regression coefficient or change induced by X_1 , X_2 and X_3 on Y. It determines how much each (X_1 , X_2 and X_3) contributes to Y (Bank liquidity)

The F- test was used to determine the significance of the regression while the coefficient of determination, R^2 , was used to determine how much variation in Y is explained by X. This was done at 95% confidence level and correlation analysis was carried out to find the direction of the relationship between capital structure and the independent variables.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATIONS

4.1 Introduction

This chapter presents the analysis of secondary data. Descriptive and inferential analysis were used. The descriptive analysis helped the study to describe the relevant aspects of the phenomena under consideration and provided detailed information about each relevant variable. For the inferential analysis, the study used the Pearson correlation, the panel data regression analysis and the t-test statistics

4.2 Descriptive Statistics

4.2.1 Bank size (logarithm of total assets)

The researcher sought to investigate trends in Bank size (logarithm of total assets) in commercial banks of Kenya from 2010 to 2014. The results are displayed on table below.

Table 4.1: Size of financial Institutions

Year	Median (000,000)	Minimum (000,000)	Maximum (000,000)	Mean (000,000)	Std deviation
2010	9.31	5.32	10.11	9.88	0.13
2011	10.11	6.44	11.91	10.90	0.54
2012	12.31	9.25	13.15	12.99	1.26

2013	12.41	8.47	11.54	12.33	1.13
2014	13.11	10.43	13.76	13.23	1.21

From the findings, it can be noted that the year 2014 recorded the highest value for the size of financial Institutions as shown by a mean of value of 13.23 while the year 2010 recorded the lowest value for the Size of bank as shown by 9.88. In addition, the values for standard deviation depict variability in the size of financial Institutions during the five-year period with the highest deviation of 1.26 in the year 2012 and the lowest 0.13 in the year 2013. The findings revealed that there has been a significant increase in the size of financial Institutions during the five-year period.

4.2.2 Capital adequacy (Ratio of capital /total assets)

4.2.1 Capital Adequacy Ratio

The researcher sought to investigate trends in capital adequacy (Ratio of capital /total assets) in commercial banks of Kenya from 2010 to 2014. The results are displayed on table below.

Table 4.2: Capital Adequacy Ratio

Year	Ratio of capital to total assets
2010	14.6%
2011	14.7%
2012	15.1%
2013	15.6%.
2014	14.8%

According to the findings the commercial banks system remained well capitalized during 2013 with the sector's core capital and total deposit liability at 15.6%. The capital adequacy was low in 2010, 2011 2014 and 2012 (14.6%, 14.7% 14.8% and 15.1%) respectively.

4.2.4 Asset quality (Non-Performing Loans/Total loans)

The researcher sought to investigate trends in asset quality (Non-Performing Loans/Total loans) in commercial banks of Kenya from 2010 to 2014. The results are displayed on table below.

Table 4.3: Descriptive Statistics on Asset Quality

Years	Total Loans and Advances	Gross Non performing loans	Net Asset Qualities
2010	1189200	51989	0.043718
2011	1190985	52958	0.044466
2012	1330365	61917	0.046541
2013	1578768	81857	0.051849
2014	1940781	108300	0.055802

From the results, the lowest net value for asset qualities was 0.043718 in 2010 while the highest was 0.055802 in 2014. The findings revealed that there has been a significant increase in asset quality during the five-year period.

4.2.3 Bank liquidity ratio (measured by bank's current assets to current liabilities)

The researcher sought to investigate trends in Bank liquidity ratio (measured by bank's current assets to current liabilities) in commercial banks of Kenya from 2010 to 2014. The results are displayed on table below.

Table 4.4: Descriptive Statistics on Liquidity levels

Year	Mean	Std deviation
2010	37.40	0.14
2011	37.00	0.24
2012	41.90	0.16
2013	38.60	0.28
2014	37.70	0.13

Based on the findings it was noted that the year 2012 recorded the highest value in liquidity as shown by a 41.90 percent while the year 2011 recorded the lowest value in liquidity as shown by the value of 37 percent. Further the values for standard deviation depict variability in liquidity during the five-year period with the highest deviation of 0.28 in the year 2013 and the lowest at 0.13 in the year 2014.

4.3 Correlations

The Karl Pearson's product-moment correlation was used to analyse the association between the independent and the dependent variables. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association

between two variables and is denoted by r . The Pearson correlation coefficient, r , can take a range of values from +1 to -1.

A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable

Table 4.5: Correlations

		Liquidity	Bank size	Capital adequacy	Asset quality
Liquidity	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	43			
Bank size	Pearson Correlation	.251*	1		
	Sig. (2-tailed)	.001			
	N	43	43		
Capital adequacy	Pearson Correlation	.217**	.340**	1	
	Sig. (2-tailed)	.004	.003		
	N	43	43	43	
Asset quality	Pearson Correlation	.232**	-.310*	.389**	1
	Sig. (2-tailed)	.003	.028	.007	
	N	43	43	43	43

On the correlation of the study variable, the researcher conducted a Pearson moment correlation. From the finding in the table above, the study found that there was weak positive correlation between liquidity ratio of commercial banks and Bank size as shown by correlation factor of 0.251, this weak relationship was found to be statistically significant as the significant value was 0.002 which is less than 0.05, the study also found weak positive correlation between liquidity ratio of commercial banks and Capital adequacy as shown by correlation coefficient of 0.217, this too was also found to be significant at 0.004 level. The study also found weak positive correlation between liquidity ratio of commercial banks and Asset quality as shown by correlation coefficient of 0.232 at 0.003 level of confidence.

4.4 Regression Analysis

Regression analysis was also performed to examine the relationship between the liquidity ratio of commercial banks and all the independent variables. The following model was adopted for the study.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where;

- Y - Bank liquidity ratio,
- β_0 - Constant value
- X_1 - Bank size, logarithm of total assets
- X_2 - Ratio of capital to total assets
- X_3 - Asset quality (Non-Performing Loans/Total loans)
- ϵ - Error Term

$\beta_1 - \beta_4$ are the regression co-efficient or change introduced in Y by each independent variable μ is the random error term accounting for all other variables that affect credit market performance but not captured in the model.

Table 4.6: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.408 ^a	.166	.168	.123660

Source: Research data, 2015

The adjusted R^2 , also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. The model had an average coefficient of determination (R^2) of 0.166 and which implied that only 16.5% of the variations in liquidity ratios of commercial banks in Kenya are caused by the independent variables understudy (size of the bank, capital adequacy and asset quality).

Table 4.7: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.789	3	0.9297	6.938	.009 ^b
1 Residual	5.213	39	0.134		
Total	2.864	43			

Critical value = 2.697

From the ANOVA statics, the study established that the regression model had a significance level of 0.9% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The calculated

value was greater than the tabulated value ($6.938 > 2.697$) an indication that the size of the bank, capital adequacy and asset quality all have a significant effects on the liquidity ratio of commercial banks in Kenya. The significance value was less than 0.05 indicating that the model was significant.

Table 4.8: Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	0.411	.119		3.454	.000
	Size of the bank	.258	.101	.241	2.554	.002
	Capital adequacy	.246	.107	.236	2.299	.004
	Asset quality	.251	.104	.241	2.413	.003

As per the SPSS generated output as presented in table above, the equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3$) becomes:

$$Y = 0.411 + (0.258X_1) + 0.246X_2 + 0.251X_3$$

From the regression model obtained above, Constant = 0.411, shows that if all the independent variables (size of the bank, capital adequacy and asset quality) all rated as zero, liquidity ratio would rate 0.411. While holding the other factors constant a unit increase in size of the bank led to 0.258 increase in liquidity ratio. A unit increase in capital adequacy while holding the other factors constant would lead to an increase in liquidity ratio of banks by a factor of 0.246, a unit change in asset quality while holding the other factors constant would lead to an increase of

0.251 in growth of liquidity ratios in bank. This implied that size of the bank had the highest influence on liquidity ratio of banks (p - value .002). The analysis was undertaken at 5% significance level. The criteria for comparing whether the predictor variables were significant in the model was through comparing the obtained probability value and $\alpha = 0.05$. If the probability value was less than α , then the predictor variable was significant otherwise it wasn't. All the predictor variables were significant in the model as their probability values were less than $\alpha = 0.05$.

4.5 Summary of the Findings

On descriptive statistics the findings established that the year 2014 recorded the highest value for the size of financial Institutions as shown by a mean of value of 13.23 while the year 2010 recorded the lowest value for the Size of bank as shown by 9.88. The findings suggests that the commercial banks system remained well capitalized during 2013 with the sector's core capital and total deposit liability at 15.6%. From the results, the lowest net value for asset qualities was 0.043718 in 2010 while the highest was 0.055802 in 2014. The findings revealed that there has been a significant increase in asset quality during the five-year period. The descriptive statistics on liquidity showed that the year 2012 recorded the highest value in liquidity, as shown by a 41.90 percent while the years 2011 recorded the lowest value in liquidity as shown by a value of 37 percent.

On the correlation of the study variable, the researcher conducted a Pearson moment correlation. From the finding, it indicated that there was weak positive correlation between the liquidity ratio of commercial banks and bank size as shown by correlation factor of 0.251. This weak relationship was found to be statistically significant as the significant value was 0.002 which is

less than 0.05, the study also found weak positive correlation between the liquidity ratio of commercial banks and capital adequacy as shown by correlation coefficient of 0.217, this too was also found to be significant at 0.004 level. The study also found weak positive correlation between liquidity ratio of commercial banks and Asset quality as shown by correlation coefficient of 0.232 at 0.003 level of confidence.

From the ANOVA statistics, the study established that the regression model had a significance level of 0.9% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. From the regression model obtained above, Constant = 0.411, shows that if all the independent variables (size of the bank, capital adequacy and asset quality) all rated as zero, liquidity ratio would rate 0.411. The criteria for comparing whether the predictor variables were significant in the model was through comparing the obtained probability value and $\alpha = 0.05$. All the predictor variables were significant in the model as their probability values were less than $\alpha = 0.05$. However, the Pearson's product moment coefficient of correlation $r = 0.408$ is low and suggests that the relationship between the variables was positive but weak.

The current findings are in line with Dang (2011) findings that liquidity is a factor that determines the level of bank performance. Liquidity refers to the ability of the bank to fulfill its obligations, mainly of depositors. According to Dang (2011) adequate level of liquidity is positively related with bank profitability. Different scholars use different financial ratio and capital adequacy to measure liquidity. For instance Ilhomovich (2009) used cash to deposit ratio to measure the liquidity level of banks in Malaysia. However, the study conducted in

China and Malaysia found that liquidity level of banks has no relationship with the performances of banks (Said and Tumin, 2011).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the study findings, conclusion and recommendations. The chapter is presented in line with the objective of the study which was to establish the effect capitalization on liquidity of listed commercial banks in Kenya.

5.2 Summary of Findings

5.2.1 Bank size and liquidity

The researcher sought to establish the trends in size of commercial banks in Kenya and how they affect liquidity ratio of the banks. From the findings, it can be noted that the year 2014 recorded the highest value for the size of financial Institutions as shown by a mean of value of 13.23 while the year 2010 recorded the lowest value for the Size of bank as shown by 9.88. In addition, values for standard deviation depicts variability in Size of financial Institutions during the five-year period with the highest deviation of 1.26 in the year 2012 and the lowest 0.13 in the year 2013. The findings revealed that there have been a significant increase in Size of financial Institutions during the five-year period. On the correlation of the study variable, the researcher conducted a Pearson moment correlation. From the finding, the study found that there was weak positive correlation between liquidity ratio of commercial banks and Bank size as shown by correlation factor of 0.251. From the regression model, it was noted that while holding the other factors constant a unit increase in size of the bank led to 0.258 increase in liquidity ratio. Bank size accounts for the existence of economies or diseconomies of scale.

These findings concur with Naceur & Goaid, (2008) who also found a weak relationship between liquidity ratio of commercial banks and Bank size. According to their findings bank size accounts for the existence of economies or diseconomies of scale. Additionally Haron, (1996) suggests that market structure affects firm performance and that if an industry is subject to economies of scale, larger institutions would be more efficient and could provide service at a lower cost (Rasiah, 2010). According to Flamini et al., (2009) profitability increases with increase in size, and decreases as soon as there are diseconomies of scale. Thus, literature has shown that the relationship between the bank size and liquidity can be positive or negative.

5.2.2 Capital Adequacy Ratio and liquidity ratio

The researcher sought to establish the trends in capital adequacy of commercial banks in Kenya and how they affect liquidity ratio of the banks. According to the findings the commercial banks system remained well capitalized during 2013 with the sector's core capital and total deposit liability at 15.6%. The capital adequacy was low 2010, 2011 2014 and 2012 (14.6%, 14.7% 14.8% and 15.1%) respectively. On the correlation of the study variable, the researcher conducted a Pearson moment correlation. The study found a weak positive correlation between the liquidity ratio of commercial banks and capital adequacy as shown by correlation coefficient of 0.217, this too was also found to be significant at 0.004 level. From the regression model obtained, a unit increase in capital adequacy while holding the other factors constant would lead to an increase in liquidity ratio of banks by a factor of 0.246.

This findings are in line with those of Bhunia, (2010) who found that banks capital creates liquidity for the bank due to the fact that deposits are most fragile and prone to bank runs. The current findings contradicts Diamond (2000) who found a negative relationship between bank

liquidity and capitalization. Capital is the amount of own funds available to support the bank's business and act as a buffer in case of adverse situation. Moreover, greater bank capital reduces the chance of distress (Diamond, 2000). However, it is not without drawbacks that it induces a weak demand for liability, the cheapest sources of fund Capital adequacy is the level of capital required by the banks to enable them withstand risks such as credit, market and operational risks they are exposed to in order to absorb the potential losses and protect the bank's debtors. According to Dang (2011), the adequacy of capital is judged on the basis of capital adequacy ratio (CAR). Capital adequacy ratio shows the internal strength of the bank to withstand losses during crisis. Capital adequacy ratio is directly proportional to the resilience of the bank to crisis situations. It has also a direct effect on the profitability of banks by determining its expansion to risky but profitable ventures or areas (Sangmi and Nazir, 2010). The study of Flamini et al. (2009) on the determinants of bank profitability, gives some support to a policy of imposing higher capital requirements in the Sub-Saharan region in order to strengthen their liquidity hence financial stability. In line with this, the recapitalization requirement by the Central Bank is appropriate.

5.2.3 Asset quality and liquidity ratio in commercial banks

The researcher sought to establish the trends in asset quality of commercial banks in Kenya and how they affect liquidity ratio of the banks. From the results, the lowest net value for asset qualities was 0.043718 in 2010 while the highest was 0.055802 in 2014. The findings revealed that there has been a significant increase in asset quality during the five-year period. On the correlation of the study variable, the researcher conducted a Pearson moment correlation. The study also found weak positive correlation between the liquidity ratio of commercial banks and

asset quality as shown by the correlation coefficient of 0.232 at 0.003 level of confidence. . From the regression model obtained a unit change in asset quality while holding the other factors constant would lead to an increase of 0.251 in growth of liquidity ratios in bank.

According to the findings a bank's assets is another bank specific variable that affects the profitability of a bank. The bank assets includes among others current asset, credit portfolio, fixed asset, and other investments. Often a growing asset (size) is related to the age of the bank (Bhunia, 2010). More often than not the loan of a bank is the major asset that generates the major share of the banks income. Loan is the major asset of commercial banks from which they generate income. The quality of loan portfolio determines the profitability of banks. The loan portfolio quality has a direct bearing on bank profitability. The highest risk facing a bank is the losses derived from delinquent loans (Dang, 2011). Thus, non-performing loan ratios are the best proxies for asset quality. Different types of financial ratios are used to study the performances of banks by different scholars. It is the major concern of all commercial banks to keep the amount of non-performing loans to low levels. This is so because high non-performing loan affects the profitability of the bank. Thus, low non-performing loans to total loans ratio is an indicator of the good health of the loan portfolio of a given bank. The lower the ratio the better the bank performance. (Saxegaard, 2006).

5.3 Conclusions

The study objective was meant to examine the effect of capitalization on liquidity of all commercial banks in Kenya. The correlation analysis results indicated that a significant relationship indeed existed between the two variables ($r = 0.408$). However, the Pearson's

product moment coefficient of correlation $r = 0.408$ is low and suggests that the relationship between the variables was positive but weak. Capitalization significantly affected the liquidity prospects of the banks although not much since it gave them more leverage in equal measure. Therefore the researcher concluded that capitalization influences the liquidity of all commercial banks in Kenya.

From the regression model obtained, all the independent variables (size of the bank, capital adequacy and asset quality) all rated as zero, liquidity ratio would rate at 0.411. Therefore it can be concluded that only 41.1% of liquidity ratio variation in banks can be explained by size of the bank, capital adequacy and asset quality. Based on the findings it can be concluded that the size of the bank had the highest influence on liquidity ratio of banks.

The results suggest that well capitalized banks are more profitable. Also, larger banks tend to enjoy economy of scale impacting positively on profitability. Efficient management of bank operations can enhance bank profitability. However, holding assets in a highly liquid form tends to increase income. Banks with poor asset quality and thus high credit risk are less profitable. Moreover, banks are more profitable when the economy is growing. Banks are also able to accurately predict inflation and as result, adjust lending rates accordingly. Finally, banks are more profitable when there is competition leading to efficiency and innovation; a result which fails to support the Structure Conduct Performance (SCP) model.

5.4 Recommendation

Based on the findings the study recommends that efficient and effective liquidity management should be adopted by bank managers to ensure that banks do not become insolvent. Since banks are less profitable when less liquid, bank managers should be encouraged to invest in more liquid assets. This will not only improve bank profitability but it will also enable banks meet their short term obligations as they fall due. It is possible that liquid bank assets are more profitable due of some market inefficiency. Further empirical study will be required to establish this.

The study also recommends that bank capitalization should be encouraged in all commercial banks and other financial institutions so that performance can be enhanced. Institutions should endeavor to retain earnings to boost up capital rather than paying exorbitant bonuses. Well-capitalized institutions have lower financial risk and thus are more likely to survive financial crisis thus, a well-capitalized banking system will ensure financial stability and make the industry more resilient against external shocks and risk.

Based on the findings there has been an increase in bank size since 2010 but however this growth has just a small influence on liquidity ratios. Economy of scale derived from bank size play a crucial role in bank profitability. The benefit of size would reflect in the ability to reach wider markets. The study therefore recommends that banks should be encouraged to look beyond local market and strategically expand their operations to other geographical markets and sectors of the economy. Location of bank branches is strategically paramount if banks must maximise return on investment. The agriculture and agro-processing sector is still a potential market for banks. In conjunction with branch expansion, bank should consider diversification of their product

portfolio. In this way banks can leverage on their assets to offer other ancillary services and maximise returns.

5.4.1 Suggestions for further research

This study explored the effects of capitalization requirements on liquidity of commercial banks in Kenya. The study therefore suggests a similar study should be carried in micro financial institutions, parastatal and NGOs in Kenya. In future research work also, it might be useful to understand the factors that impact on effectiveness of monetary policy of the Central Bank since money supply significantly and negatively relate to bank profitability. This is because the Central bank can have the right policy objectives but certain prevailing factors in the industry can be an impediment to the realization of these objectives.

5.5 Limitations of the Study

A limitation was regarded as any factor that was present and contributed to the researcher getting either inadequate information or if otherwise the response given would have been totally different from what the researcher expected. For this study, the data used was secondary data generated for other purposes hence this may have distorted the findings in this study.

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APPENDIX I: LIST OF COMMERCIAL BANKS

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank
6. CFC Stanbic Bank
7. Chase Bank (Kenya)
8. Citibank
9. Commercial Bank of Africa
10. Consolidated Bank of Kenya
11. Cooperative Bank of Kenya
12. Credit Bank
13. Development Bank of Kenya
14. Diamond Trust Bank
15. Dubai Bank Kenya
16. Ecobank
17. Equatorial Commercial Bank
18. Equity Bank
19. Family Bank
20. Fidelity Commercial Bank Limited
21. Fina Bank
22. First Community Bank
23. Giro Commercial Bank
24. Guardian Bank
25. Gulf African Bank

26. Habib Bank
27. Habib Bank AG Zurich
28. I&M Bank
29. Imperial Bank Kenya
30. Jamii Bora Bank
31. Kenya Commercial Bank
32. K-Rep Bank
33. Middle East Bank Kenya
34. National Bank of Kenya
35. NIC Bank
36. Oriental Commercial Bank
37. Paramount Universal Bank
38. Prime Bank (Kenya)
39. Standard Chartered Kenya
40. Trans National Bank Kenya
41. United Bank for Africa ^[2]
42. Victoria Commercial Bank

Source: Central Bank of Kenya (2014)