THE EFFECT OF LIQUIDITY ON PROFITABILITY OF COMMERCIAL BANKS IN KENYA

JEREMIAH NJOROGE MUIRURI

D61/79114/2012

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF BUSINESS ADMINISTRATION,

UNIVERSITY OF NAIROBI

NOVEMBER 2017

DECLARATION

I declare that this research project is my original work and has not been submitted for examination in any other university.

Signed…………………………………… Date……………….................

JEREMIAH NJOROGE MUIRURI

D61/79114/2012

This research project has been submitted for examination with my approval as university supervisor.

Signature ………………………………… Date …………………………

DR.HERICK ONDIGO

LECTURER, DEPARTMENT OF FINANCE AND ACCOUNTING

SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

ACKNOWLEDGEMENTS

While undertaking this study, i have received a lot of support from a lot of people in the banking sector in terms of guidance and data collection. I would like to thank them all most sincerely and may God bless you.

I want to thank God for the good health, strength and sound mind that he has given me in completing this course.

I also would like to sincerely thank my supervisor Dr.Ondigo for his valuable time, positive criticism, suggestions in making this project.

DEDICATION

To my wife Zipporah and our children, Anne and David, for your understanding, prayers encouragement and support.

To my father Muiruri and my mother Alice for your financial, moral support and guidance throughout the years.

God bless you all.

TABLE OF CONTENT

LIST OF TABLES

LIST OF ABBREVIATIONS

ASL-Asset Liability Management

CBK -Central Bank of Kenya

CBN - Central Bank of Nigeria

CBR- Central Bank Rate

EFT-Electronic Fund Transfer

GDP- Gross Domestic Product

LTD –Limited

NBE-National Bank of Ethiopia

NIM- Net Interest Margin

NSE-Nairobi Securities Exchange

ROA - Return on Asset

ROE - Return on Equity

RONA-Return on Net Asset

RTGS-Remittance Transfer Gross Settlement

USA-United States of America

WC - Working Capital

ABSTRACT

The essence of the research is to affirm the effect of liquidity on profitability of commercial banks in Kenya. Financial managers find themselves in a predicament of whether to invest in high liquidity risk assets which are long term in nature and have a high return or invest in short term assets with low liquidity risks and low earnings. The population study is composed of 43 banks operating from the period 2011 to 2016.Banks that have operated for the whole period will qualify to be included in the population study. Banks that merged or were not in operation for the whole period of study will not be included. The research used audited financial statements of Kenyan commercial banks as secondary data. Liquidity ratio, deposit to asset ratio and capital ratio are the factors that measured liquidity while the profitability variable was measured by return on assets. The research used regression analysis and descriptive statistics to demonstrate the relationship between the two variables. Response rate was 79% which represents a total of 35 banks out of a total of 43 that satisfied the data criterion. The research results showed that the association linking liquidity and profitability variables in commercial banks of Kenya was positive over the six years period of study. Recommendations from the study are that bank finance managers must have an efficient level between the levels of liquid assets and long-term assets to strengthen each other and maintain sufficient liquidity and ensure profitability in the short and long term period of the bank. The regulator, CBK, should maintain the liquidity requirement and place strong mechanisms to ensure that it is adhered to by the banks.

CHAPTER ONE

INTRODUCTION

1.1Background of the Study

Liquidity and profitability are the most important aspect of a firm which gives us complete information of how a business is performing. Although shareholder maximization of wealth still remains the main objective of any firm, preserving the liquidity of a firm is equally an important objective, hence it should balance among the different interest objectives. The most important aspect when it comes to liquidity management is to have liquidity balancing well with profitability. Raheman and Nasr (2007) stated that the nature of a company is usually determined by its liquidity requirement and there is no law in estimating the right amount of liquidity that a company can have for it to have good effect on its profits. Liquidity ratio is one of the financial performance measures used by companies to gauge their performance. Liquidity ratio simply provides important information regarding the firm's ability to pay its expenses.

The difference between income and expenses is profitability and it is vital for commercial banks. A bank must be efficient in its operations and in order to get enough earnings. Profitability is measured by ratios, which are return on assets, return on equity, and net interest margin that boils down the extensive quantities of financial data and to make an informative decision concerning the company's profitability (Velnampy & Niresh, 2012). For commercial banks, liquidity is when depositors can access their deposits and creditors can access loans easily. Basically, profitability and liquidity can be used to gauge commercial banks and also all profit oriented organizations (Eljelly 2004).Companies with a good going concern and good profits, remain liquid because of excellent management of their liquidity situation(Jose et al., 1996).

The banking industry is vital in Kenya and Sub-Saharan Africa economies as it plays the role of creating financial instruments for investors that gives a variety of opportunities for risk management and transfer of resources. It also plays the role of mobilizing deposits and lending the deposits in the form of loans or making investments which require large amount of capital. The hurdles of poor liquidity management in Kenyan banks was brought in the limelight when Imperial Bank Ltd and Dubai bank Ltd were put under receivership in the year of 2015.CBK's move was necessary because of the liquidity issues which were plaguing the two banks .CBK also placed Chase bank Ltd under receivership due to liquidity issues in the first quarter of 2016(Central Bank of Kenya CBK, 2015).

1.1.1 Liquidity

Liquidity as a term, is usually used in many ways. Bank liquidity is how capable a bank is in retaining enough funds to meet its maturing obligations (Greuning & Bratanovic, 2004). How easily one can convert an asset into cash often describes the asset's liquidity (Berger & Bouwman, 2008).According to Greuning & Bratanovic (2004), liquidity management mitigates two kinds of risks; the first one being that low liquidity levels will lead to attracting other sources of deposits which are expensive and will reduce profitability hence leading to insolvency. The second risk is having high levels of liquidity which will reduce return on assets and eventually lead to low profitability.

Commercial banks are profitable due cheap money from their depositors. Depositors will lend the money to the bank at a low interest rate because the banks will be able to let them access the funds and transact at frequent intervals, hence protecting their liquidity position and wealth. If the banks don't fulfil their obligation to the depositors, the depositors will take back their cheap funds and the banks' profits will dwindle.

A firm should ensure that its liquidity is enough in order to cater for its short-term requirements. Liquidity should be studied with great importance due to its influence on the daily operations of business by both internal and external analysts (Brigham & Gapenski, 1994).The overall goal in liquidity management is to get an efficient balance between profitability and liquidity (Nahum et al.,2007).

1.1.2 Profitability

Profitability shows the capability of a firm in earning income on its assets. Athanasoglou et al. (2006) indicated that a bank's profitability is determined by factors which are, firm management decisions and other policy measures set up by the bank i.e. the level of liquidity, amount of capital and level of expenditure. Factors which are external and related to the industry are stock market development, ownership, concentration of the market and other macroeconomic factors.

Return on asset and return on equity are among the most highly recommended determinants of bank efficiency and performance according to various research concerning bank profitability and efficiency performance (Erins, 2013). Bourke (1989) emphasized that external and internal factors influenced profitability of commercial banks. The internal factors are net income over the total assets, capital and reserves.

Internal factors such as capital structure, deposit mobilized, staff expenditure, liquidity ratios, operating expenditure, investments, asset portfolio mix and loans influence profitability as mentioned in the various research done by Rasiah(Rasiah et al., 2010).The external factors that he mentioned are firm size, rate of interest, regulations, market growth and market share.Gul et al. (2011) mentioned inflation and GDP as external elements and capital, loans, deposits and bank size as the internal elements determining profitability of banks.

1.1.3 The Effect of Liquidity on Profitability

How a bank deals with its expense, funding of loans and making debt payments using only liquid assets, determines its level of liquidity. A bank should have a liquidity level that makes it meet emergency expenses by not selling its assets. Liquidity management is mainly regulating the level of liquidity without disrupting the profits made by the banks (Central Bank of Nigeria CBN, 2012).

Profitability and liquidity are very vital in the corporate world. A sufficient level of liquidity is vital for the firm's profitability. Hence, firms have to get the best liquidity level in order to ensure excellent returns. The essence of managing liquidity is to get an optimum level between the two variables (Raherman et al., 2017). The degree of managing liquidity will be influenced by the complexity of activities and nature of the bank as well as it characteristics and size. A risk management decisional structure, a strategy on funding and operation procedures, a list of exposures to liquidity risk and steps to be taken for planning liquidities in case of a crisis situation, have to be included in a bank policy concerning management of liquidity (Greuning & Brajovic,2004).

Eljelly (2004), suggested that liquidity and profitability are excellent measures of the performance and health of all firms which are profit oriented. These two measures are vital to the stakeholders and shareholders who have everything to lose in case of bank closure. Olagunju, Adeyanju, & Oluwayinka, (2011) stated that one of the most important areas of monetary policy implementation is liquidity management while economic management, another area of monetary policy, involves advocating for consistent growth of the economy. Liquidity management is placed upon to maintain a macroeconomic stability to even out the unexpected up and downs in the liquidity growth of the banking system.

1.1.4 Commercial Banks in Kenya

Banking industry as at the last quarter of 2015 consisted of CBK, which is the authority regulating the banks, forty three banking institutions (one mortgage finance company, forty two commercial banks). Out of the forty three banking institutions, forty are owned privately while the government of Kenya has majority stake in three banks (CBK, 2015).

According to the 2015 CBK banking supervision report, the banking sector was stable and had a growth of 9.2 percent. The banking sectors' balance sheet stood at Ksh3.5 trillion. This was an improvement from Ksh 3.2 trillion in the previous year. Gross loans stood at Ksh. 2,165.3 billion in December 2015 compared to Ksh. 1,940.78 billion in December 2014, a percent growth of 11.57. Increase in demand for credit from different economic sectors contributed to the increase in the loan book.

Customer deposits as at December 2015 was Ksh2.49 trillion, a jump from Ksh 2.29 trillion in the previous year. Increase in deposit mobilization by the banks through mobile platforms at lower costs, contributed greatly to the increase in customer deposits. The average liquidity ratio increased to 38.3 percent in 2015 from the previous year average of 37.7 percent. Total liquid assets and total short-term liabilities grew by 13 and 12 per cent respectively.

Bank branches were 1523 in 2015, an increase of 80 branches from the previous year. There was an increase in bank branches in 19 counties compared to 28 counties in 2014.The reduction in the increase of physical bank branches is partly due to embracing of new channels of service delivery such as internet banking, mobile banking and agency banking. Stiff competition among banks has led to the use of technology in creating cost effective channels that offer financial services and ensure efficiency.

Central Bank of Kenya placed two banks, Imperial Bank Limited and Dubai Bank Limited, in receivership in the year 2015 despite the banking sector stability that year. This action taken by CBK was necessary to protect the depositors, creditors and the public from financial loss (CBK, 2015).

1.2 Research Problem

Economic resource allocation is a role in which commercial banks play a major part in, within countries. They move funds from depositors to investors and that can only be done if they are operating sufficiently and profitably. The main players in the Kenyan financial sector are commercial banks and they have reported high growth over recent years. Regardless of the growth, there has been stiff competition from within. Two banks, namely Imperial and Dubai bank, were put under receivership in the year 2015 by the Central bank of Kenya due to liquidity and capital problems (CBK, 2015).

Therefore, for the banks to remain relevant and survive, the need to understand the effects of internal factors such as liquidity management which they can play to their gain to maximize returns. The best liquidity level is decided by the policies put in by management and executed in a financial organization to avoid credit risks (Myers & Majluf, 2004).Various research, international and local have been conducted in regards to this study in different countries.

Bank of Canada (2010) in its working paper "The Impact of Liquidity on Bank Profitability in Canada", observed that liquidity was an important element during the 2008-2009 financial crisis. Government securities and cash have a low return and holding them becomes a cost to the bank. According to research done by Osborne, Fuertes, and Milne (2012), higher liquidity reduces profitability since it is costly for banks to hold it. However, as per the trade-off theory, bank's risk

is reduced by high liquidity and therefore, the hedge is recommended to reimburse investors in case of bankruptcy.

Loo (2007) did a research locally on approaches to management of liquidity and its impact on earnings by Kenyan banks. The research involved all banks in operation in the year 1995 to 2004. The results of the study was that liquidity management approaches adapted determined greatly the profits made by Kenyan commercial banks. Profitability of commercial bank is expected to be affected by the liquidity level.

There was a study done by Maaka (2013) to calculate the impact of liquidity risk on the performance of commercial banks in Kenya. The results of the study was a negative relationship between the two variables which is contradictory to the positive results from studies done by Njihia (2005), Kamoyo (2006) and Loo (2007). My study will aim to give an unequivocal result and clear the contradictory and confusing conclusions derived from the local studies stated above.

The above international and local researches shows that studies have been done by researchers on liquidity from various perspectives and in different environment but not in the context of commercial bank of Kenya using recent data. Studies done on commercial banks in Kenya have also not been clear and thorough on the liquidity management policies implemented by the banks and their relationship to profitability and these are the research gaps that i intend to address in this study. The research intends to satisfy the research gap by asking this question; is there any major impact of liquidity on profitability of commercial banks in Kenya?

1.3 Research Objective

To establish the effect of liquidity on the profitability of commercial banks in Kenya.

1.4 Value of the study.

The research is going to reaffirm the effects of deposits, treasury bills and effects of cash balances on earnings of Kenyan banks and recommend policies that will be aimed at concluding the profitability problem. The competitive situation in the banking environment is very high. For a commercial bank to survive, it must be up to date on its liquidity and profitability situations as both elements can destroy or make it successful in the future. The study is mainly concentrated on the bank's ability to manage liquidity and maximize its value. A reduction of profitability gives an implication of weak liquidity management strategies and this study will assist management to get information on the important aspects which will be looked at critically to make decisions for excellent results on liquidity and profitability.

The major objective in regards to this study is to look into the Kenyan commercial banks' liquid management policies in regards to credit, capital adequacy and deposit portfolio, identify the basic causes of liquidity problems as a result of these policies and recommend appropriate measures to solve such problems. The major beneficiaries will be all the commercial banks in Kenya who will overhaul their liquidity management policies and strategy in line with the results and recommendations reached at the end of this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The essence of chapter two is to show the various literature reviews both local and international pertaining to the effect of liquidity management on bank profits that have been conducted and their findings. The reviews are both theoretical and empirical.

2.2 Theoretical Review

This study will give attention to the following four theories namely Liability management theory, Anticipated income theory, Shiftability theory and Commercial loan theory. These four theories will give evidence on the correlation between profitability and liquidity in banks and all profit oriented firms.

2.2.1 Liability Management Theory

This theory emerged in the 1960s when interest rates started to become increasingly turbulent. The theory states that banks can achieve their liquidity target by sourcing in the market for more funds to satisfy loan demand and deposit withdrawal. The need for having liquid assets which was the norm, was no longer required. Bank will meet their needs by borrowing from central banks, raising capital funds by issue of shares or short term borrowing from other banks. Banks in the U.S.A rely on liquidity from Euro dollar market, federal funds market or sale of loan participation certificates.

Liability management theory states that banks will meet their liquidity needs by issuing liabilities to potential investors (Diamond & Rajan, 2001).Liability and liquidity management go hand in

hand .They are vital measures that help the management board in making vital decisions that ultimately lead to maximization of shareholders' wealth. Asset liability management is basically managing all things that pertains to the balance sheet and it involves measuring the risk in credit, liquidity, interest rates and currency and making decisions based on those measures in regards to asset and liability structure to ensure maximization of interest earnings. The main aim of asset liability management is to manage risk in such a way that income volatility is maintained. The major objective of the theory is marching the assets and the liabilities (State Bank of Pakistan SBP, 2010).The relevance of this theory in regards to this study is that banks can be able to borrow from outside sources to maintain their liquidity and ensure maximization of their profits. This ensures the safety and soundness of financial institutions and institutional compensation by mitigating interest risks.

2.2.2 Anticipated Income Theory

This theory stipulates that banks should plan term loan liquidation from the anticipated borrower's income. A term loan is a loan given for a period of more than one year but does not exceed five years. This theory was developed by Prochanov in 1944.Many restrictions are imposed on the borrower while giving out the term loans and are issued against the hypothecation of stock, machinery and immovable property.

The loans issued by the banks will be repaid from the future income of the borrower in installments. The theory leads banks towards self-liquidating commitments and adopting a ladder effect in investment portfolio (Nwankwo, 1992). The theory is relevant to this study in that, even when some of the loans are on long term basis, the loans can be sold in case of a liquidity crisis and the cash obtained from the sale will help the bank in averting insolvency and remain a profitable going concern. The theory ensures that three major objectives are satisfied, that is, there is enough

liquidity for the company, the loans given out are safe and the bank will enjoy profitability throughout its period.

2.2.3 Shiftability Theory

This theory was created by Moulton in 1939.The theory states that a bank can be able to keep a certain level of assets that can be transferred to the other banks for cash without incurring any substantial loss, or the discount market stands and central bank are willing to buy the asset for a discount. An asset that is shiftable is one that is transferred quickly without incurring any capital loss when there is an immediate requirement for liquidity (Ibe, 2013).This theory is sound since banks are now accepting assets such as treasury bills, and bills of exchange, debentures and shares of blue chip companies from other banks and this has greatly encouraged term lending between banks.

The theory has its weakness.Shiftabilty of assets depends upon the economic circumstances .For example, in times of depression, the debentures or shares may lose value and other banks might not be willing to accept these instruments. Hence the bank will not be able to obtain the liquidity it urgently requires. Another weakness is when all banks want to shift their assets at the same time. This will be a disaster for both the borrower and lender. If a bank tries to liquidate its assets to other banks when there is a run on the bank, it will cause adverse effects on the entire banking system. When Chase bank experienced a bank run in the year 2016, it had borrowed a significant amount through overnight lending between banks. It affected the liquidity of other banks for a while and central bank of Kenya had to chip in and contain the situation.

The relevance of this theory to the study is that it recognizes the side of the balance sheet composed of liabilities which can help the bank to source for liquidity and avoid liquidity risk. Transferability of bank assets helps a great deal in ensuring that liquidity risks in banks in mitigated and the ability to make profits is sustained in the short and long term period.

2.2.4Commercial Loan Theory

This theory assumes that banks must give out only the short term self-liquidating productive loans to customers to avoid the risk of running short of funds. It is assumed that when self-liquidating assets of the bank are repaid, liquidity will be provided for sufficiently (Ibe 2013).

Hence, the bank has to keep a big portion of its asset portfolio in terms of liquid asset and cash for it to be able to lend the short term loans and remain profitable. The problem of striking a balance between maintaining a high level of liquidity and also maximizing profits comes in.If the liquidity is very high, profits will dwindle and if the banks disregard the liquidity aspect, it could be a recipe for disaster. Furthermore, banks are under the rules of the regulating authority, which is the central bank in Kenya, and there is a restriction on the amount of the earning assets that a bank can obtain (Brunnermeier 2009).

This theory is relevant to this study by stating that banks should offer short term self-liquidating loans in order to ensure their liquidity and profitability. Under this theory, customers had to pay all their bank loans within the year (Merris 1979). This doctrine was applied by the American banks, adopted from the Real Bill Doctrine in England in the 1830s.It worked for the American banks and averted a liquidity crisis from the 1830s up until the 1920s when the thought of self-liquidating loans began to lose credibility (Merris1979).Many bankers in the 1920s found out that the theory did not prevent bank runs, and bank closures. The theory has its downside. It does not take into consideration the consistency of core deposits. Banks can be able to lend loans with long term duration using the

core deposits and hence, they will still be liquid. The assumptions that the short term loans will be paid on time and in full is not usually the case in times of recession and depression. Banks in the United States of America for a certain time followed this theory to the letter and they could not be able to finance real estate, purchasing of plant and equipment and land purchases and this led to the development of competing financial institutions to care for the needs not met by the banks.

2.3 Determinants of Commercial Banks Profitability

A commercial bank is one type of bank that deals with selling basic investment instruments, receiving deposits and offering business loans. The term commercial bank in the United States of America was used to separate it from other banks known as investment bank since both banks had different banking regulations. After the implementation of the 1933 Glass-Steagall act in the USA, commercial banks could only engage in banking activities. Investments banks were confined to activities in relation to the capital market. This act was repealed in the 1999.

Commercial banks engage in various activities; issuing overdrafts, banker's cheque, bank drafts, performance bonds, installment loans, EFT, RTGS, internet and mobile banking, merchant banking, cash management and treasury. A commercial bank's profitability success depends on the competitive advantage that it has .Competitive advantage is achieved with how a company responds to external opportunities, technological advancements, change in the economy and threats from competition. If the bank exploits an opportunity to its advantage and responds to threats in a timely manner then, it will possess a competitive advantage. There are both internal and external factors determining the earning ability in banks.

The internal factors occur due to decisions made by management and policies initiated at the highest level. The various internal factors are; how efficient the bank is in maintaining and

controlling their operation expenses, the structure of their deposits, is it more of fixed deposits or current deposit. The composition of its assets into current and non-current assets is also a major internal factor. The degree of dependence on debt and liquidity management is another factor. Their debt to equity ratio is also an important internal factor. They maybe financing their projects using debt or capital financing and this will determine how much they retain as profits.

The external factors affecting commercial bank profitability are inflation, interest rates and GDP growth. The effect of inflation on the bank's profits will depend with whether the inflation was unanticipated or anticipated. The economic activities of a country are measured by GDP growth. If the economic growth is high, then banks will give out more loans at higher returns and also improve their asset quality. The relationship between GDP and profitability of banks is positive as stated by (Pasiouras & Kosmidou, 2007). Samuelson (1945) did a study and found out that the correlation between commercial bank profits and interest rates is positive.

2.3.1 Capital Efficiency

Berger (1995) stated that banks which have adequate capitalization have a lower probability of experiencing bankruptcy, which ultimately minimizes their cost of funding and the correlation between bank profits and capitalization is positive. Higher profits translates to higher capital. There is evidence that was provided by Short (1979) which showed that big banks basically tend to raise capital which is less expensive, hence producing higher profits than smaller banks. The composition of capital, which included retained earnings, shareholders fund and reserves affected the profitability of banks due to its effects on risk and leverage.

2.3.2 Bank Size

The size of the bank determines whether it can take advantage of economies of scale. Large size banks give out greater loans, have more product diversification and easier access to asset market that may not be available to smaller banks. The correlation between largeness of a bank and the profits it creates is positive as revealed by (Akhavein et al., 1997). Athanasoglou et al. (2006) said that the impact of the size of the bank will be positive to a given point. After that point, there is a negative relationship due to elements such as period when the study is conducted and the country where the sample is selected. However, Noulas (1997), Berger (1987) and Athanasoglou et al. (2006) did a study and suggested that few savings in terms of costs are achieved due to bank size. The amount of assets that a bank has mainly determines the size of the bank.

2.3.3 Deposits

Commercial banks rely heavily on deposits in order to finance their loans being given to customers since they are the cheapest source of funding for loans to be given out to customers and investments. The relationship between growth in deposits and increase in profitability is positive as explored by (Baum, Caglayan, Schafer, & Talavera, 2008).It should be noted that if deposits are growing at a fast rate but the loan portfolio is declining, then the profits will decline since the deposits are fixed and attract a high interest. The higher a percentage the bank transforms deposits into loans, the higher the profits.

2.3.4 Liquidity Risk

When a bank cannot satisfy customer demand, then it is experiencing a liquidity risk. When banks hold a lot of money in their reserve, they are safe and can be able to fulfil their customers' demands but this will affect their profits. If the bank decides to invest in long term loans, their profits will

increase considerably but the bank resources will be put at risk and it may not meet demand of depositors and new borrowers. The liquidity of the bank is measured by using the following ratios; LOANTA ratio which is total loans over total assets. When the ratio rises, bank profitability increases but the liquidity risk also increases. LOANDEP ratio is Loans over deposits. When the banks transforms more of their deposits to loans, the higher is the profitability and liquidity risk for the bank (Flamini et al., 2009).

2.3.5 Interest Rates

Samuelson (1945) stated that the banking system is greatly assisted by high interest rates and commercial banks will make more earnings than other types of banks, for example, savings banks. Interest rates is an important external factor that determines earnings of banks and the correlation between interest rates and bank performance is positive (Bourke, 1989).In Kenya, the 2015 Banking (Amendment) bill was enacted into law in the year 2016 it put a cap on lending rates at 4.0% above the CBR.This has impacted negatively on the financial results of most Kenyan banks who have resulted in reduction of their workforce considerably and shutting down branches that are not breaking even. Banks have been forced to tighten credit conditions so as to price risk within the cap and align their portfolio away from risky segments (KBA 2017). The interest capping law has not only affected banks, but other industries in the country. In February of 2017, the Nairobi Securities Exchange (NSE) recorded a 40 profit drop. The reasons are a drop-in equity turnover and the law on interest rates capping.

2.4 Empirical Review

In this section we are going to look at the studies that have been conducted in regards to Liquidity management and profitability of commercial banks .The studies will be international and local.

2.4.1 International Evidence

There was a study done by Bourke (1989) that was to establish the correlation between bank profitability and liquid assets for North American banks, Europe and Australia for 10 yrs. Econometric framework was used as an equation in the presentation. Profitability was the dependent variable and it was regressed against a set of control variables and liquid assets with a nonlinear expression. Liquid assets were included as a control variable in this study and there was no definite line on the estimated parameter. What we learn from the study is that a company that experiences high profitability and low liquidity will have to borrow more money, which will lead to high costs. The interest rates will increase since the cheap source of money will have been exhausted. When their debt is increased, their credit risk also increases leading to a higher interest rate being charged by their financier. The study showed that liquidity and profitability are essential conditions for healthy existence of the company and both should be held in high esteem when strategizing for the short and long term success of the company.

Berger (1995) did a statistical relationship between profits and capital for 50 US banks over the period of 7 years using multiple regression analysis. He found out that the correlation between capital and return on equity was positive which was contrary to what someone should expect in perfect market situations. According to Berger, the results were consistent to 'expected bankruptcy cost hypothesis'. The findings imply that more capitalized banks see their cost of funding reduce up to a point that it offsets the cost of issuing additional capital. The expected bankruptcy cost hypothesis not only applies in the realm of capital, but can also be used in the impact of liquid assets on profitability where banks holds more liquid assets benefit from a higher perception in the funding market increasing their profitability by reducing their financial costs.

A study was done by Bordeleau, Crawford and Graham (2009) on the effect of liquidity on profitability of 55 US and 10 Canadian banks between 1997 and 2009.Quantitative measures were used to analyse the effect of liquidity on profitability of banks. Results of the study implied that a nonlinear relationship exists where the bank holds more liquid assets, the profits increased. It will come a point whereby holding more liquid assets will diminish profits of the bank holding other variables constant. Results from the study suggested that a bank's business model and liquidity risks depended on the relationship between profitability and liquid assets. The findings from Bordeleau's research are in line with similar concepts related to international reserves, credit risk and capital.

A study was done that researched on correlation between liquidity variable and profitability variable in 15 quoted companies in the Nigeria Stock Exchange by Owolabi, Obiakor and Okwu (2011).The objective of the research was to find out the inherent and degree of the association between profitability and liquidity in listed companies and also know if there is any cause and effect between the two variables. Current asset liability- ratio was used as the liquidity measure and operating profit –turnover ratio was used as the profitability measure. The study used quantitative and investigative analysis methods. Data used was from the annual financial records belonging to the companies over the relevant years. The relationship between the variables was determined by employing the correlation and regression analysis. A model confirmed that the relationship was specified, estimated and evaluated. From the study, it was determined that there was a positively correlated relationship and a tradeoff existed between liquidity and profitability.

A study was done on the factors affecting profitability of Ethiopian banks by Abera (2012) and focused on investigating specific factors in the industry that had a direct effect on the profitability of Ethiopian commercial banks. The study period was from 2000 to 2011 and the population for the research was commercial banks registered by NBE.8 banks were sampled and researched on. The regression analysis

showed that liquidity had little impact on the profitability of banks. The regression analysis and extensive interviews showed that the association between the two variables was positive.

There was a study done in Ghana to determine the factors that impacted the performance of Naara Banks in the upper east region in Ghana by Hadad (2013). The period of study is between 2000 and 2010. Multiple regression was used and the aim of the research was to determine the relationship between financial performances of Naara banks and its liquidity, credit portfolio, total assets. The study results indicated a positive association between the two variables.

2.4.2 Local Evidence

An empirical investigation into the determinants of corporate cash holdings for companies quoted on the Nairobi Stock Exchange was done by Mureithi (2003).10 companies were studied for a period of 10 years. Quantitative and descriptive statistics analysis was used for the study. The results were that one of the variables determining the corporate cash holdings, was profitability. The relationship between liquidity and profitability was positive.

Liquidity was identified as a factor affecting profitability during a study done by Njihia(2005) to identify the determinants of commercial bank profitability.35 commercial banks in Kenya were included in the research over a 5 year period. Multiple regression analysis was used to scrutinize the data. Results concluded that liquid assets greatly affected the profitability of banks. Profitability was influenced by advances, ratio of deposits held and loans by the commercial banks.

Another research on effects of liquidity on Kenyan commercial banks was carried by Kamoyo (2006).The study was for a period of 10 years involving 30 commercial banks. The study employed descriptive statistics, investigative questionnaires and regression analysis to establish the determinants. The study implied that there was an insignificant negative association between profitability and liquidity. A study on the impact of liquidity management on the profitability of commercial banks was

done in Kenya by Loo (2007).All commercial banks in Kenya from 1997 to 2004,were included in the survey and questionnaires were sent to top management in those banks to find out their liquidity management approaches. The outcome of the research indicated that one of the factors affecting their liquidity management policy was profitability. Findings from the study also indicated a positive correlation between the two variables, liquidity and profitability.

A study was done by Maaka (2013) on the correlation between liquidity risk and bank performance. The main purpose for the research was to find out the extent of liquidity risks faced by commercial banks in Kenya and confirm the relationship between liquidity risk and Kenyan banks performance. Data was obtained from 33 Kenyan banks during the period 2008 to 2012.The F test was used estimating the significance of the regression and coefficient of determination was used to show the extent of the variation between the dependent and the independent variable. A negative association between profitability of banks and liquidity was concluded for the study.

Tesfai (2015) did a study on the relationship between capital adequacy, non-performing loans, and liquidity, on financial performance of Habib bank AG Zurich. The research found out that the bank should put more emphasis on their liquidity management practices in order to avoid liquidity risk. The researcher also stated that investors should invest more in banks that are highly liquid as their profitability is expected to be higher.

2.5 Conceptual Framework

From the theoretical and empirical theories discussed above, a hypothetical relationship exists between liquidity and profitability. The dependent variable is profitability and is measured by return on assets in this study and it shows how effective a bank is in creating its profits using its total assets. It is calculated as net income after taxes over total assets .The independent variable is

20

measured by the following ratios obtained for this study i.e. liquidity ratio, deposit to asset ratio and capital ratio.

Liquidity ratio is computed as net amount of liquid asset over total liabilities which are short term in nature and reveals the bank's ability in meeting financial short time obligations. According to Bonfirm & Kim (2012), banks with low liquidity levels tend to earn more profits and hence a negative association exists between liquidity and profitability. Deposit to asset ratio is calculated as deposits over total assets and it is plays a major role in cheap funding for banks. The correlation between deposits and profitability is positive (Baum et al., 2008).Capital ratio is calculated as total equity over total assets. The ratio shows how well a bank can endure loss due to financial distress According to Berger&Bouwman (2009), banks with higher capital have more liquidity creation avenues and hence more profit creation abilities, and therefore, a positive relationship exists between capital and profitability.

Figure 2.1 Conceptual Model

Independent Variables   Dependent Variable
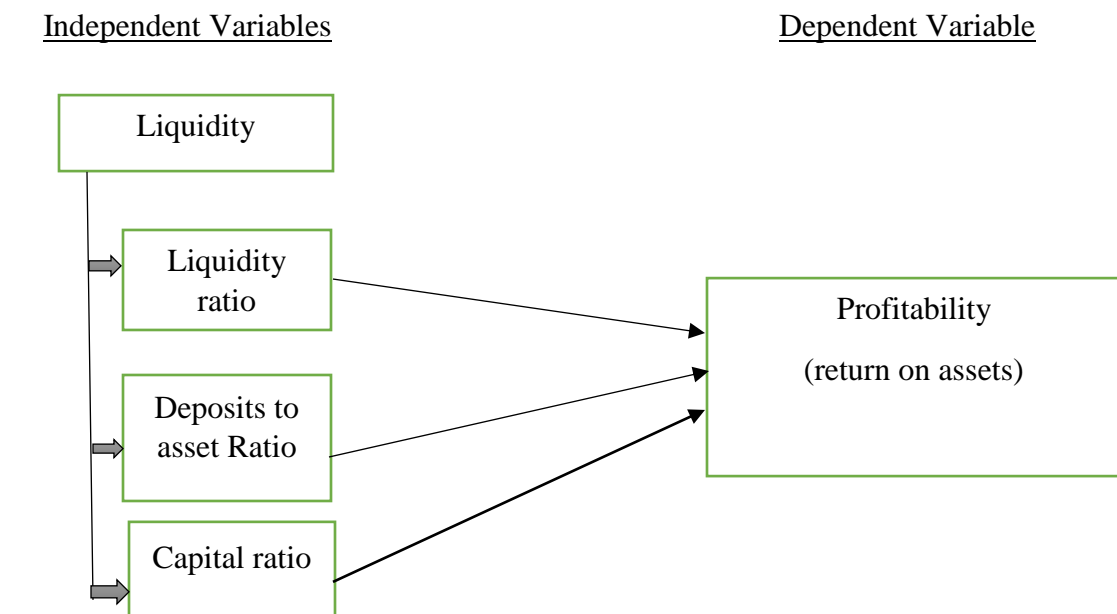
Source: Researcher 2017

21

2.6 Summary on the Literature Review

Review of the various literature, both theoretical and empirical above, shows that the association between bank profitability and bank liquidity is both positive and negative with varying extent between liquidity and profitability indicators. Local Study done by Maaka (2013) to determine the relationship between liquidity risk and performance of commercial banks in Kenya produced a negative results which contradicts with results done by Njihia (2005), Kamoyo (2006) and Loo (2007). This study will provide a clear and definitive answer on the association between liquidity and profitability of Kenyan commercial banks.

Empirical and theoretical review above also shows that many researchers studied liquidity from different views and in different environment and have revealed a lot of knowledge gaps in regards to effects of liquidity on profits of commercial banks, more so in the Kenyan context. Maaka (2013) for example agitated for further studies on liquidity risk management and performance of Kenyan banks. This research gap recognized by Maaka (2013) can be filled by putting more emphasis on the following financial indicators i.e. Return on assets, Capital ratio, Deposit to Asset ratio and current ratio. There are a few studies done in Kenya in regards to Liquidity and profitability of Kenyan banks and for the few that have been done, most of them are outdated. In light of the recent liquidity and profitability issues plaguing the Kenyan banks, an extensive research is required to get to the bottom of this issue and give the managers a clear guideline on what is to be done or rectified to mitigate on liquidity issues and increase profitability.

The central bank of Kenya, as a regulator, has imposed regulations on capital requirements on banks for safety and stability of the sector. This regulations, however, may have undermined the small banks by reducing their liquidity creation while the big banks are boosted and their liquid creation is enhanced. The effect of liquid assets that a bank holds on its profits can be impacted by

other measures such as business model of the bank, bank size and economic situations which are the beyond the scope of this research.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Methodology used in carrying out the research will be explained in this chapter. Areas to be covered are, research design, population & sampling design, data collection methods, data analysis methods and testing of data validity & reliability and conclude with a summary.

3.2 Research Design

Descriptive design was preferred since it showed in detail the relationship between profitability and liquidity management. Cooper and Schindler (2011) defines descriptive studies as those studies whose objective is to explain a phenomenon, to estimate a proportion of a population with similar characteristics and to discover associations among different variables.

3.3 Population

All commercial banks in Kenya in operation between 2011 to 2016 were part of the population study in this research. In that period, 43 commercial banks (Appendix 1) had fulfilled the data collection criteria and the research variables were derived from their audited financial statements.

3.4 Data Collection

The study was conducted using audited financial statements reports of commercial banks of Kenya from 2011 to 2016 as the main data source. The secondary data was extracted from CBK website and offices. All the data considered in the study met the requirement of accuracy and completeness before it was analysed. The duration of the data was on a yearly basis.

3.5 Diagnostic Tests

A test was done to determine and confirm the most suitable research model design for the study. This is important in order to have empirical results which are sustainable and acquire accurate policy recommendations and conclusion from the research. Secondary data has an advantage in that it factors in both path and space therefore making it easier to perform the test.

3.5.1 Normality Test

The coefficient of determination (K3) was used to establish the degree of the variation in interest rates is explained by the variation in the beta. The T-test was used to test linearity by testing the significance of the slope (B) of the line of regression at 95% confidence level. The significance of the regression was tested using F-test in ANOVA.

3.5.2 A linearity Test

A regression assumes that; the dependent variable can be calculated as a linear function of a specific set of independent variables plus an error term; the error term has a mean of 0; the error terms have constant variance for all the observations; the random variables e, are statistically independent of each other; the number of observations is greater than the number of independent variables, and they have no exact linear relationship between them.

3.5.3 Autocorrelation Test

This test identifies the association among the variables disengaged from each other by a given time lag in the residuals from a regression analysis. The T test was used to test the autocorrelation test.

3.6 Data Analysis

Data analysis mainly deals with interpreting and explaining the data collected with the help of analytical tools to comprehend and make a conclusion from the study. The data extracted was scrutinized by utilizing the statistical techniques for social science.

The two variables degree of association was established by correlation analysis. The two variables should be random samples, and should have a Normal distribution (possibly after transformation). Pearson's Correlation analysis was used to show the relationship between the two variables. Multiple linear regression was the equation used in the study and the Ordinary Least Squares was the estimation method used to establish the association between liquidity and profitability. For the aim of this study to be attained, a model was created using profitability and liquidity as the dependent variable and independent variable respectively. The data analysis was be followed by data interpretation of the results of the analysis.

3.6.1 Analytical Model

The economic model applied is: $Y = \beta_0 + \beta X \ldots.+ \varepsilon$ and it describes the association between profitability, the dependent variable and liquidity which is the independent variable.

Where, Y is a dependent variable and refers to the return on assets of a financial institution; the $\beta0$ is the intercept; X represents explanatory variable (liquidity attributes); β is co-efficient and ε represent the error term.

The empirical model used in this study is presented below as:

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

Where:

Y = This is Profitability and it is measured using ROA ratio.

X_1 = Liquidity ratio which is net liquid assets over short term liabilities.

X_2 = Deposits to total assets ratio, which clearly shows the impact on source of funding on bank profitability.

X_3 = Capital ratio ,which is total equity over total asset and is expected to show how safe and sound banks are and find out if the capital is adequate in banks .

3.6.2 Operationalization of the study variables

Y; The return on average total assets of the bank

Return on asset is an excellent measure when it comes to profitability in banks because it cannot be manipulated by high equity multiplier (Rivard and Thomas, 1997).Bank performance will be measured by use of return on assets in this study. The return on assets is basically net income over by total assets.

X1; Liquidity ratio. It calculates the liquid or near liquid assets available and also measures the short term debt paying ability of the bank.

The net assets basically are treasury bills, certificates, bank balances and bank cash asset.Net liabilities are deposits from customers, balances due to other banks and other institutions and deposits from other sources apart from customers. The data was obtained from the financial statements of all commercial banks for period of 2011 to 2016.

X2; Deposits to assets ratio

Deposits to total assets ratio clearly shows effect on the source of funding on the profitability of banks. It is the cheapest and major funding source. Husni Ali Khrawish (2011) showed evidence that as long as there is enough loan demand in banks, then customer deposits have a positive effect on bank performance.

X3; Capital and reserve to total assets ratio

This is total equity over total asset and is expected to capture the average safety and soundness of banks and find out if the capital is adequate in banks. Bank profitability can be impacted positively if banks equity level is up which will cause a reduction in cost of capital (Molyneux 1992).There is research done on profitability determinant of Ghana commercial banks by Karkrah and Ameyaw (2010) and it showed that the equity posted a positive relationship with the banks' return on assets. Suffian et al. (2008) in his research also showed that the level of capitalization and profitability in Philippine banks had a positive correlation.

3.6.3 Test of Significance

The test of significance used was the Analysis of Variance. Adjusted R squared was preferred due to the disparity with the independent variables to show the variations against the dependent variable.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introductions

Chapter mainly has to deal with data analysis and presents the findings as elaborated in the research methodology. The number of banks used for the study was 43 banks and the period of study was from 2011 to 2016.The secondary data obtained was statements of financial position, statements of comprehensive income and disclosures to the financial statement. Data was analysed using multiple linear regression analysis. Chapter concludes with summary of the analysis of the study.

4.2 Response Rate

The target population was all commercial banks on going concern from the period 2011 to 2016.A total of 9 banks were removed from the study since they were not in operation during the whole period of study. Data was obtained from 35 banks, representing 79% of the total banks. This is sufficient to draw a conclusion.

4.3. Descriptive Statistics

The objective of this study is to establish the relationship between the liquidity and profitability of commercial banks using descriptive statistics.

Table 4.1: Descriptive Statistics

		ROA	LIQUIDITY_RATIO	DEPOSIT_ASSET_ RATIO	CAPITAL_ RATIO
	Valid	210	210	210	210
Missing		0	0	0	0
	Mean	2.48	41.34	74.39	23.50
Std. Deviation		2.99	15.58	10.48	12.15
	Range	24.00	97.60	73.00	102.58
	Minimum	-13.60	1.70	18.00	7.90
	Maximum	10.40	99.30	91.00	110.48

Statistics (%)

Source: Research Findings

The mean ROA was 2.48% for the commercial banks researched on, suggesting that commercial banks have a relatively average return on assets. With the maximum of 10.40%, a standard deviation of 3% and a range of 24%, the indication is that commercial banks profitability vary quite significantly and therefore, we can conclude that liquidity levels indeed can influence return on assets for commercial banks.

The mean of the liquidity ratio is 41.34%, a standard deviation of 15.58% and a range 97.60.This shows that liquidity ratio differ significantly and hence affect the profitability of the commercial banks. Capital ratio also shows similar characteristics with return on assets and liquidity ratio. The average for capital ratio is 23.5%, the standard deviation is 12.5% and with a range of 102.6%.This is indicative of the large disparity between capital ratios in the Kenyan commercial banks.

From the descriptive study depicted above, there is a big disparity in the variables between the commercial banks used in this study. The constant findings indicate that the study variables show

a positive relationship implying that liquidity has a positive relationship with the profitability of commercial banks.

4.4 Regression Analysis

The regression model is as below;

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

Where:

Y = Profitability and is measured using return on asset ratio.

X_1 = Liquidity ratio which is net liquid assets over short term liabilities.

X_2 = Deposits to total assets ratio, which clearly shows the impact on source of funding on bank profitability.

X_3 = Capital ratio ,which is total equity over total asset and is expected to show how safe and sound banks are and find out if the capital is adequate in banks .

ε = Random error term

β = Coefficients of the variables

Table 4.2: Regression Model summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.252	.064	.050	2.92133	.064	4.669	3	206	.004

Source: Research Findings

R^2 is the coefficient of determination which shows how the dependent variable which is the return on assets, varies with changes in the liquidity ratio, deposit to asset ratio and capital ratio. From the above table, R2 is 0.064 which means that 6.4% of profitability of commercial banks is as a

result of variation in the liquidity levels, deposit to asset ratio and capital ratios at a confidence level of 95%. Therefore, 93.6% of the profits of commercial banks are due to other variables other than the liquidity levels, deposits and capital levels.

R is the Pearson correlation coefficient and it indicates the character of association linking return on assets with liquidity ratio, deposit to asset ratio and capital ratio. From the table above, R is 25.2%, meaning that there is a weak positive association between return on assets and liquidity, deposit to asset ratio and capital ratio.

Table 4.3: Analysis of Variance

ANOVA

Model	Sum of Squares	dfx	Mean Square	F	Sig.
Regression	119.541	3	39.847	4.669	.004[b]
Residual	1758.038	206	8.534		
Total	1877.579	209			

Source: Research Findings

The above table displays that the level of significance of the population parameter is 0.4% which indicates that the secondary data is satisfactory in reaching a decision on the population's parameter since the p-value, also known as the level of significance, is below 5%.

Table 4.4: Regression Coefficients Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.566	1.931		.811	.418	-2.242	5.374
LIQUIDITY_RATIO	.019	.017	.100	1.124	.262	-.014	.053
DEPOSIT/ASSET R	.021	.023	.074	.918	.360	-.024	.067
CAPITAL_RATIO	-.062	.025	-.249	-2.458	.015	-.111	-.012

Source: Research Findings

The table above give the coefficients which helps in establishing the regression line.

The coefficients of the variable are positive for liquidity ratio and deposit to asset ratio but negative for capital ratio. This indicates that the association between return on asset and liquidity ratio, deposit to asset ratio, is positive but there is a negative relationship between return on asset and capital ratio. The constant coefficient is 1.566, which implies that when the liquidity ratio, deposit to asset ratio and capital ratio is zero, the return to asset is 1.566.

The regression equation that estimates the relationship between liquidity and profitability is:

ROA=1.566 + 0.019LIQUIDITY RATIO +0.021 DEPOSIT TO ASSET RATIO -0.062CAPITAL RATIO.

4.5 Interpretation of the Findings

From the descriptive and regression analysis shown above, the results indicate that there exists a positive relationship between liquidity and profitability of commercial banks in Kenya.R which represents the simple correlation between the variables is at 25%, which indicate a weak positive relationship.R^2 shows how much of the total variation in the dependent variable can be explained by the independent variable and in this case, a percentage of 6.4% can be explained, which is low.

The analysis of variance table shows that the regression model predicts the dependent variable significantly well since the p value is 0.004 which is less than 0.05.This confirms that the model is a good fit for the data.

The coefficient table above gives us the information to predict return on asset from liquidity ratio, deposit to asset ratio and capital ratio. The table also helps us in determining if liquidity gives significantly to the model by looking at the figures in the 'Sig' column. The constant coefficient is 1.566, which indicates that when the liquidity ratio, deposit to asset ratio and capital ratio is zero, the return to asset is 1.566.The model was found to be fit at 95% level of confidence since the F-value of 4.669 is higher than the critical value. This indicates that the multiple regression model is a suitable predicting model for explaining how the selected independent variables affect the profitability of banks in Kenya.

The findings of this study are in contrast with the study by Maaka (2013) which was to measure the impact of liquidity risk on the performance of commercial banks in Kenya. The period of study was 5 years from 2008 to 2012.The results of the study was a negative relationship between the two variables due to increase in the liquidity gap and leverage. Banks had to acquire from the repo market to reduce the liquidity gap at an even higher rate and therefore reducing bank profits. This

finding is very captivating and it could be influenced by economic conditions of the country at that particular period.

The study is in agreement with other studies such as Loo (2007) which was about liquidity management approaches and their effect on profitability of commercial banks in Kenya. The study period was between 1997 to 2004. The study adopted a descriptive research design which assisted in the establishment of the relationship between liquidity management and profitability of commercial banks in Kenya. From the study, there was a positive correlation between liquidity and profitability levels of the banks.

CHAPTER FIVE

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter summarize results from the previous chapter and give our conclusion, recommendations and limitations of the research in line with the aim of the research. The reason for this research is to demonstrate the association between liquidity and profitability in Kenya's commercial banks. We used financial statements from the 35 banks as secondary data from the year 2011 to 2016 and measured profitability through return on asset and liquidity through liquidity ratio, deposit to asset ratio and capital ratio.

5.2 Summary

From the previous chapter on data analysis, there is a positive relationship between liquidity and profitability for commercial banks as shown by the R value from the regression analysis which is positive. A positive R^2 indicates that liquidity is one of the factors that determine profitability of commercial banks in Kenya.

The research revealed that the association between the variables in the study is positive as shown by R being at 0.252.However, the relationship is weak. The adjusted R^2 is 5% which implies that five percent of bank profitability is a result in variation in liquidity levels, deposit levels and capital ratio. The regression equation that estimates the relationship is as below;

ROA=1.566 + 0.019LIQUIDITY RATIO +0.021 DEPOSIT TO ASSET RATIO -0.062 CAPITAL
    RATIO.

5.3 Conclusion

From the data analysis in chapter four, liquidity is confirmed as a determinant of profitability. The relationship between return on assets and deposit to asset ratio and liquidity ratio is positive, implying that when liquidity goes up, it will make the profitability of commercial banks to increase. The association between return on asset and capital ratio however indicates a negative relationship and a quick look at the data shows that banks that were having a loss, for example, Jamii Bora Bank, UBA Bank (K) ltd, have a very high capital ratio but very low return on assets.

5.4 Recommendations for Policy and Practice

This study's results conclude that a positive relationship exists between liquidity and profitability in Kenya's commercial banks. The research recommends that Central Bank of Kenya be strict on liquidity ratio minimum and maintain it at 20% as this will have a upward effect on the earnings of the banks and ensure stability in the banking industry and economy in general in the short and long term.

Banks should not only focus on profitability alone but also ensure that there is effective and efficient liquidity management. This will enhance the growth of the Kenyan commercial banks. Banks should also not have excessive liquidity but also have other ways of maintaining liquidity such as overnight borrowing or discounting bills. The excessive liquidity should be invested in short term instruments to increase return on investments.

The regulatory body, which is CBK, should create forums where the people who make policy and senior management of commercial banks, dialogue in order to ensure monetary policies made are practical and conducive to for growth of the banking industry. The central bank should enable the

commercial banks to get other means of meeting the excess withdrawals and reduce liquidity risks. The regulatory authority should encourage use of credit cards and cheques for large transactions. This will reduce the movement of cash from the vault and banks will be able to meet unexpected withdrawals easily.

Scheduling the maturing period of short term reserve assets to match with the time the funds are needed is very vital to commercial banks. Customers should be educated on the various deposit products that are available so as to encourage and grow a saving culture in the customers and grow deposits in banks.

5.5 Limitations of the Study

During process of doing this research, we encountered a lot of issues which hindered us in conducting the research efficiently. The financial statement of some commercial banks were not available in time to be included, hence a reduction in the size of the sample from which the data was collected. The study was done in Kenya and therefore the results may relevant to states because the operating environment is different. The period of study was six years which is not enough time to draw unequivocal conclusion.

5.6 Suggestions for Further Studies

A research on the association between the two variables, profitability and liquidity, in other industries apart from banking will be interesting. There is a regulation on the level of liquidity that a bank can maintain. There should be across borders study to be carried across border states in order to understand the effect of different economic and operating factors on the association between the two variables.

REFERENCES

Abera, A.2012. *Factors affecting profitability: An empirical study on Ethiopian banking industry*. Unpublished master's thesis. Addis Ababa University.

Akhavein, J., Berger, A., & Humphrey, D. 1997. *The effects of megamergers on efficiency and prices: Evidence from a bank profit function.* Finance and Economic Discussion Series No. 9, Board of Governors of the Federal Reserve System, Washington, D.C.

Athansasoglou, P., Brissimis, S., & Delis, M. (2006). *Bank-Specific, Industry-Specific and Macroeconomic* [Online] 121-136. Retrieved from: http://ssrn.com/abstract=1106825. [Accessed: 03/06/2010]

Bank of Canada. (2010). *The Impact of Liquidity on Bank Profitability*. Working paper 2010-38.

Baum, C. F., Caglayan, M., Schäfer, D., & Talavera, O. (2008). *Political patronage in Ukrainian banking1.* Economics of Transition, 16(3), 537-557.

Berger, A.N. (1995). The relationship between capital and earnings in banking. *Journal of Money, Credit, and Banking* 27, 432–456.

Berger, A. N., & Bouwman, C. H. (2008, October). *Financial Crises and Bank Liquidity Creation. Retrieved March 2010,* from Social Science Research Network: http://ssrn.com/abstract=1231562.

Berger, A. N., & Bouwman, C. H. (2009). *Bank liquidity creation.* Review of Financial Studies, 22(9), 3779–3837.

Berger, A., Hanweck, G., & Humphrey, D 1987.Competitive viability in banking: Scale, scope and product mix economies. *Journal of Monetary Economics 20, 501- 520*

Bonfim, D., & Kim, M. (2012). *Liquidity risk in banking: is there herding?* European Banking Center Discussion Paper, 2012–2024.

Bordeleau, E., Crawford, A., & Graham, C. (2009). Regulatory *Constraints on Bank Leverage: Issues and Lessons from the Canadian Experience*. Bank of Canada Discussion Paper 2009-15.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking and Finance* 13, 65-79.

Bourke,P.(1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking & Finance*, vol.13, no.1, pp.65-79, 1989.

Brigham, E. F.,& Gapenski L. C. (1994). *Financial Management: Theory and Practice* 7th Edition. Japan. The Dryden Press. Pp.697-701.

Brunnermeier, M. K. 2009. Deciphering the Liquidity and Credit Crunch 2007–08. *Journal of Economic Perspectives*. 2009, Issue 1.

Central Bank of Kenya (2015).*Bank supervision Annual report 2015*.

Central Bank of Nigeria, (2012): *Statistical Bulletin 2012 (Various Editions)*. Abuja Central Bank of Nigeria: Annual Reports. (Various Editions), Abuja.

Cooper, D. R., & Schindler, P. S. (2011). *Business Research Methods* (11th ed.). New York: McGraw-Hill/Irwin.

Diamond, W., & Rajan, G. (2001). *Liquidity risk, liquidity creation, and financial fragility:a theory of banking. The Journal of Political Economy*, 109(2), 287-327.

Eljelly, A. (2004). Liquidity-Profitability Trade-off: An Empirical Investigation in An Emerging Market. *International Journal of Commerce and Management*, 14 (2).

Erins, J. E. (2013).Bank profitability indicators in CEE countries. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering Vol*: 7, No: 12, 2013, pp3221-3224.

Flamini, V., McDonald, C., & Schumacher, L. (2009). *Determinants of profitability in Sub-Saharan Africa.* IMF Working Paper NO 09/15, pp. 1-30.

Greuning, H., & Brajovic-Bratanovic. S, (2004). *Analysis and risk management banking*, Bucharest, Irecson Publishing House,pp 102.

Hadad, F. (2013). Financial performance of Rural Banks in Ghana: A Case Study on Naara Rural Bank. *European Journal of Banking and Finance*, Vol.11

Husni A. K (2011). Determinants of Commercial Banks Performance Evidence from Jordan. *International Research Journal of Finance and Economics*.

Ibe, S. O. (2013). The Impact of Liquidity Management on the Profitability of Banks in Nigeria. *Journal of Finance and Banking Management*, 1(1), 37–48.

Jose, M. L., Lancaster, C., & Stevens, J. L. (1996). Corporate returns and cash conversion cycles. *Journal of Economics and Finance*, Vol. 20 No.1, pp. 33-46.

Kamoyo, E. M. (2006). *Determinants of Liquidity of Commercial Banks in Kenya.* Unpublished MBA research project, University of Nairobi.

Karkrah. J., & Ameyaw. V. W. (2010). *Information Finance Markets. Conclusions. New Agriculture is Transforming Demand for Rural Financial Services.*

Kiprono, D.K. (2004). *An Analysis of the relationship between cash flows and earnings performance of firms listed in the Nairobi Stock Exchange*. Unpublished MBA research project, University of Nairobi.http://shodhganga.inflibnet.ac.in/bitstream.

Loo, M. (2007). *Survey of liquidity management approaches and their effect of profitability of Commercial Banks in Kenya*. Unpublished MBA Project, University of Nairobi.

Maaka, Z.A. (2013). *The Relationship between Liquidity Risk and Financial Performance of Commercial Banks in Kenya*. The University of Nairobi.

Merris Randall C. (1979).*Business loans at large commercial banks: Policies and Practice.* Federal Reserve Bank of Chicago Economic Perspectives Vol 3 No 1979- 21 November Pp 16.

Molyneux Philip, & Thornton John (1992). Determinants of European bank profitability. *Journal of Banking & Finance*.

Mureithi, J. K. (2003). *An Empirical Investigation into the Determinants of Corporate Cash Holdings*: *A case of Kenyan Quoted Companies.* Unpublished MBA research project, University of Nairobi.

Myers, C., & Majluf, S. (2004). Corporate financing and investment decisions when firms have information those investors do not have. *Journal of Financial Economics, 13, 187- 21.*

Nahum Nahum, & Amarjit S. Gill (2007). *The impact of corporate governance on working capital management efficiency of American manufacturing firms*. Emerald Publishing Ltd.

Njihia, J. K. (2005). *Determinants of Banks profitability: the case of Commercial Banks in Kenya.* Unpublished MBA research project, University of Nairobi

Noulas, A., & Miller, S. (1997). *Portfolio mix and large-bank profitability in the USA.* Applied Economics 29, 505-512.

Nwankwo U. (1992). *Economic Agenda for Nigeria. Centralist Production Ltd*. Lagos Nigeria.

Olagunju, A., Adeyanju O. D., & Oluwayinka, S. (2011). Liquidity Management and Commercial Banks' Profitability in Nigeria. *Research Journal of Finance and Accounting, 2, 2222-2847*.

Osborn, M., Fuertes, A., & Milne, A. (2012). *Capital and Profitability in Banking*: Evidence from US Banks. https/ miller bank profitability.

Owolabi, S. A., Obiakor, R. T., & Okwu, A. T. (2011). Investigating Liquidity – Profitability Relationship in Business Organisation: A Study of Selected Quoted Companies in Nigeria. *British Journal of Economics, Finance and Management Sciences, Vol (1), No 2.*

Pasiouras, F. & Kosmidou, K. 2007. *Factors influencing the profitability of domestic and foreign commercial banks in the European Union*. International Business and Finance, 21, 222-237.

Raheman, A., & Nasr, M. (2007*): Working Capital Management and Profitability–A Case of Pakistani Firms.* International Review of business Research Papers, Vol.3No.1.March.Pp279-300.

Rasiah, R., Gammeltoft, P., & Jiang, Y. (2010).Home Government Policies and Outward Foreign Direct Investment from Emerging Economies: Lessons from Asia. *International Journal of Emerging Markets, 5(3), 333-357.*

Rivard, R. J., & Thomas, C. R. (1997). The effect of interstate banking on large bank holding company profitability and risk. *Journal of Economics and Business 49(1): 61-76.*

Samuelson, P, A.(1945).*The effects of interest rate increases on banking system.* The American economic review, Vol.35, No. 1, pp. 16-27.

SBP, (2010). *The State of Pakistan's Economy, Central Board of State Bank of Pakistan.* State Bank of Pakistan, Islamabad.

Short, B.K. (1979). The relation between commercial bank profit rates and banking concentration in Canada, Western Europe, and Japan. *Journal of Banking and Finance 3, 209- 219.*

Sufian, F., & Chong, R. R. (2008). Determinants of bank profitability in developing economy: Empirical evidence from the Philippines. Asian Academy of Management. *Journal of accounting and finance, 4, 91–112.*

Tesfai,A.(2015). *Evaluating the relationship between liquidity, capital adequacy and non-performing loans on financial performance: case study of Habib Bank AG Zurich.* United States International University-Africa.

Velampy J., & Niresh A.2012.The relationship between Capital structure and profitability. *Global Journal of Management and Business Research.Vol.12 Issue 13 Version 1.0.ISSN; 2249-4588.*

APPENDIX I–List of Commercial Banks in Kenya as at 31st December 2016

1) African Banking Corporation Ltd
2) Bank of Africa (K) Ltd
3) Bank of Baroda (K) Ltd
4) Bank of India
5) Barclays Bank of Kenya Ltd
6) Charterhouse Bank Ltd (Under statutory Management)
7) Chase Bank (K) Ltd(In receivership)
8) Citibank N.A.
9) Commercial Bank of Africa Ltd
10) Consolidated Bank of Kenya Ltd
11) Co-operative Bank of Kenya Ltd
12) Credit Bank Ltd
13) Development Bank of Kenya Ltd
14) Diamond Trust Bank (K) Ltd
15) DIB Bank Kenya Ltd
16) Ecobank Kenya Ltd
17) Equity Bank Kenya Ltd
18) Family Bank Ltd
19) Fidelity Commercial Bank Ltd
20) First Community Bank Ltd
21) Guaranty Trust Bank of Kenya Ltd
22) Guardian Bank Ltd
23) Gulf African Bank (K) Ltd
24) Habib Bank A.G Zurich
25) Habib Bank Ltd
26) Housing Finance Co. of Kenya Ltd
27) I&M Bank Ltd
28) Imperial Bank Ltd
29) Jamii Bora Bank Ltd
30) Kenya Commercial Bank Ltd
31) Middle East Bank (K) Ltd
32) M-Oriental Bank Ltd
33) National Bank of Kenya Ltd
34) National Industrial Credit Bank   Ltd
35) Paramount Universal Bank Ltd
36) Prime Bank Ltd
37) Sidian Bank Ltd
38) Spire Bank Ltd
39) Stanbic Bank Kenya Ltd
40) Standard Chartered Bank (K) Ltd
41) Transnational Bank Ltd
42) UBA Kenya Bank Ltd
43) Victoria Commercial Bank Ltd
Source: List is obtained directly from CBK website (www.centralbank.go.ke)