EFFECTS OF MICRO AND MACRO ECONOMIC FACTORS ON BANK LIQUIDITY IN KENYA

CHEPKIRUI STELLA SOY

A Research Project Submitted to the Graduate School in Partial Fulfillment of the Requirements for the Master of Business Administration Degree of Egerton University

EGERTON UNIVERSITY

NOVEMBER 2021

DECLARATION AND RECOMMENDATION

Declaration

I declare that this research project is my original work and it has never been presented to any institution for any award of bachelor's degree or otherwise.

Signature …… Date ……..

Chepkirui Stella Soy

CM11/62562/15

Recommendation

This research project has been submitted with my approval as Egerton project Supervisor.

Signature…… Date……..

Prof. Fredrick Kalui

Egerton University

Department of Accounting, Finance and Management Science

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DEDICATION

I wish to dedicate this project to my beloved family, who supported me morally, spiritually and financially during this project, my fellow finance students and colleagues may God Almighty bless them all.

ACKNOWLEDGEMENTS

I am grateful to my supervisor Prof. Fredrick Kalui who always offered boundless encouragement and unwavering support, his invaluable input and tireless effort in ensuring the success of this project and his availability and accessibility for consultation.I am one of the many who have been impressed by, and admired, his limitless academic competence.

My deepest gratitude must also be extended to my lecturers at Egerton University particularly for their considerable foresight, imparting knowledge and research skills during coursework, which has proved quite useful in writing up the project. I sincerely cannot thank them enough for enriching my academic life.

Many regards are also extended to my colleagues especially Zipporah Muiru, Faith Odondi and My Spouse Mathew Maiyo for walking with me throughout this journey and for their constant encouragement and support.

ABSTRACT

Liquidity is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses (*Guidance on Liquidity Risk Management*, 2009)Liquidity can come from direct cash holdings in currency or on account at the central bank. More frequently, it comes from acquiring securities that can be sold quickly with minimal loss. This states highly creditworthy securities, comprising of government bills, which have short term maturities. The topic of this study is to determine the effects of micro and macro-economic factors of bank liquidity in Kenya; the specific objectives are; to determine the effects of macroeconomic factors on bank liquidity; to determine the effects of microeconomic factors on banks liquidity and to determine the combined effect of macroeconomic and microeconomic factors on banks liquidity. The study used the following theories to guide; Commercial Loan theory; The Shiftability Theory and the Anticipated Income Theory of Liquidity. The researcher used descriptive research design because it obtained information concerning the current status of bank liquidity. The population of the study consisted of 37 commercial banks in Kenya as of 2016. A census study of all banks that have been in operation for the past 5 years were included in the study. This population is small, therefore, there will be no sampling. Multiple regression analysis was applied to the data to examine the effect of level of customer's deposits, loan growth, capital adequacy, profitability and other effects macroeconomic factors on bank liquidity in Kenya. The results of multiple regressions suggest that the selected independent variables explain more than 10.8% changes in the net profit. By analyzing the other statistical results of multiple regressions we found that the results are very much consistent with the simple regression. All the results are not statistically significant and overall the study provides an idea that macro and micro factors are not the basic determinants of profitability in the banking sector. So it can be inferred that this promising and potential sector in Kenya can flourish very fast and enhance profitability by improving its liquidity position and operating efficiency. The government as a bank regulator through the CBK should adopt policies that ensure increased bank performance. Strict conditions of minimum liquidity and capital should continue being emphasized on to ensure none of the banks has lower of the two. Increased bank performance leads to general economic growth.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

CBK	Central Bank of Kenya
CRR	Cash Reserve Ratio
GDP	Gross Domestic Product
IMF	International Monetary Fund
NIM	Net Interest Margin
NPL	None performing Loans
ROA	Return on Assets
ROCE	Return on capital employed
ROE	Return on Equity
SPSS	Statistical Package for Social Sciences
WC	Working Capital

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The banking system is the backbone of any financial intermediation through the mobilization and channeling of funds. It also facilitates financial settlement through the payment system; influence money market rates and provide a means of international payments. The Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted (Ngugi & Kabubo, 1998). The role of banks in a financial market is to act as an intermediary between the savers and borrowers by mobilizing funds from the surplus spending units into the economy and by lending such funds to the deficit spending units for investments. Kenya currently has 42 banks. 29 of the banks are locally owned while the remaining 13 are foreign-owned. Among the 31 locally owned banks, the government of Kenya has a shareholding in three of them, 27 of them are commercial banks and one is a mortgage finance institution, known as Housing Finance. The recent development in banking technology has transformed banking from traditional to a digital era where efficient channels of transactions like ATM'S and newly introduced agency banking model (Mazur & Szajit, 2015)

Commercial banks like any other sectors in the economy depend on customers' deposits to advance it are their clients. Malede (2014) stated that the bank credit and bank deposits are closely related with to each other that they represent two sides of the same coin. Banks all over the world thrive to generate income through lending activities and such a lending activity can only be made if the banks can mobilize enough funds from their customers. Thus, the main function of a financial institution is to mobilize funds from surplus economic agents to the deficit economic agents hence generating economic growth. According to Weymuller (2015) to encourage more deposits banks to offer a wide range of saving products that are targeted to a particular clientele. They offer the widest variety of specialized savings product so that their customers can have a choice between immediately accessible, liquid products, semi-liquid or fixed deposits with accordingly higher rates. According to Olalekan and Adeyinka (2013) banking the system is the backbone of financial intermediation through the mobilization and channeling of financial resources. Banks in performing their pivotal role in the economy, facilitate financial settlement through the payment

system, influence money market rates and provide a means for the international payment. The sector mobilizes funds from the surplus-spending units into the economy and by on-lending such funds to the deficit spending units for investment, banks in the process increase the quantum of national savings and investment (Adebimpe, 2010).

Liquidity is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses (Guidance on Liquidity Risk Management, 2009). Liquidity can come from direct cash holdings in currency or on account at the central bank. More frequently, it comes from acquiring securities that can be sold quickly with minimal loss. This state's highly creditworthy securities, comprising of government bills, which have short term maturities. If their maturity is short enough the bank may simply wait for them to return the principal at maturity. For the short term, very safe securities favor to trade in liquid markets, stating that large volumes can be sold without moving prices too much and with low transaction costs. Liquidity was a key factor during the 2008-2009 financial crisis in which the banks funding sources dried up quickly and they found themselves short on cash to cover their obligations as they came due (Bordeleau & Graham, 2010). There is a general sense that banks had not fully appreciated the importance of liquidity risk management and the implications of such risk for the bank itself. As result, policymakers have suggested that banks should hold more liquid assets than in the past, to help self-insure against potential liquidity or funding difficulties (Maaka, 2013). Liquid assets such as cash and government securities generally have a relatively low return; therefore, holding them imposes an opportunity cost on a bank. In the absence of regulation, it is reasonable to expect that banks will hold liquid assets to the extent they help to maximize the firm's profitability. Henceforth, policymakers have the opted to require larger holdings of liquid assets.

Nevertheless, a bank's liquidity condition, particularly in a crisis, will be affected by much more than just this reserve of cash and highly liquid securities. The maturity of its less liquid assets will also matter. As some of them may mature before the cash crunch passes, thereby providing an additional source of funds. 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. Therefore, efficient and effective liquidity management is crucial if the survival and prosperity of banks are

to be assured. Liquidity management can be defined as the planning and controlling of cash flow by owner-managers to meet their day-to-day commitments (Collis & Jarvis, 2002). Day-to-day management of a firm's short term assets and liabilities plays an important role in the success of the firm. Firms with glowing long term prospects and healthy bottom lines do not remain solvent without good liquidity management (Demirgünes, 2016). According to Moss and Stine (1993) a useful way of assessing the liquidity of firms is with the cash conversion cycle (CCC). The cash conversion cycle measures the time lag between cash payments for the purchase of inventories and collection of receivables from customers. The traditional measures of liquidity such as the current ratio and quick ratio are useful liquidity indicators of firms though they focus on static balance sheet values (Maaka, 2013).

The behavior (Use British English as opposed to American) towards liquidity is affected by a firm's characteristics: a bank's liquidity position is affected by its size, status and product type. The size affects the attitude of the bank towards wholesale funding, including the access opportunity (Bai et al., 2015) and the price of the funds obtained (Fecht et al., 2009). Bank size matters because of the economy of scope and scale; concerning liquidity, a large bank might have better access to the interbank markets because it has a larger network of regular counterparties or a wider range of collateral. The product type offered to the counterparties, on both the assets and liabilities sides, can affect the liquidity position; banks that take on demand deposits and offer loan commitments need to hold higher liquidity buffers that can be mitigated if an imperfect correlation holds (Maaka, 2013).

The bank's management top priority is to ensure the availability of sufficient funds to meet future demands of providers and borrowers, at reasonable costs. Episodes of failure of many conventional banks from the past and the present provide the testimony to this claim. For instance, as United States/U.S. subprime mortgage crisis reached its peak in the years 2008/9 unprecedented levels of liquidity support were required from central banks to sustain the financial system. Even with such extensive support, several banks failed, were forced into mergers or required resolution. A reduction in funding liquidity then caused significant distress. In response to the freezing up of the interbank market, the European Central Bank and U.S. Federal Reserve injected billions in overnight credit into the interbank market. Some banks needed extra liquidity supports (Malede,

2014). Liquidity is up-to-date and important topic. Therefore banks and more so their regulators are keen to keep a control on the liquidity position of banks. Generally, in order to undertake their operations properly and profitably commercial banks have to maintain their optimal liquidity. When we say banks are liquid, they can serve the demand of new borrowers and the withdrawal of cash by their depositors without affecting their day to day activities. To do so they have to keep sufficient liquid assets on their balance sheet. What is more necessary behind maintaining their liquidity is properly identifying and managing important factors affecting the liquidity position of banks (Tesfaye, 2012).

The banking sector in Kenya is comprised of 44 commercial banks with 2 banks; Dubai Bank and Imperial Bank in receivership. All banks are regulated by the Central Bank of Kenya and Capital Markets Authority has additional oversight over the listed banks. All banks are required to adhere to certain prudential regulations such as minimum liquidity ratios and cash reserve ratios with the Central Bank. The banking sector in Kenya is ever-evolving. Despite the numerous economic challenges that have been witnessed within the sector, the industry remains strong and vibrant. At the moment, three banks have been placed under receivership with only one having recovered and back to operations. The recent changes in the industry i.e. interest rate capping and instability of banks profitability has made the public panic on the safety on their deposits.

1.2 Statement of the Problem

Liquidity was a key factor during the 2008-2009 financial crisis in which the banks funding sources dried up quickly and they found themselves short on cash to cover their obligations as they came due (Gezu, 2014). Following the collapse of 3 commercial banks in Kenya i.e. Dubai bank in which in 2015 it was put under receivership for breaching its daily cash reserve ratio, Imperial bank was also put under receivership in October 2015 due to unsafe business practices and internal fraud of up to 38Million. Chase bank was in April 2016 put under statutory management due to huge insider loans which stood up to 5.72B, liquidity has become one of the major concerns of financial institutions throughout the country. This financial crisis has revealed that liquidity has become one of the top priorities of banks management to ensure availability of sufficient funds to meet future demands at reasonable costs. Few pieces of research have been done on the effects of Micro and Macro-economic factors on bank liquidity and conflicting findings were achieved. For instance Tesfaye (2012) argued that capital adequacy, bank size, the share of non-performing loans in the

total volume of loans, had positive and statistically significant impact on banks liquidity and loan growth had statistically insignificant impact on banks liquidity whereas (Vodová, 2011) on the same issue argued that bank profitability, capital adequacy, size of banks and non-performing loans have no statistically significant impact on liquidity of Slovak commercial banks. Therefore identifying the effects of micro and macro-economic factors of bank liquidity has become the major concern of all banks and their regulators so as to mitigate liquidity problems. From the studies reviewed, it is evident that several research works on internal and external factors affecting bank performance in various parts of the world have been carried out. However, the short-coming of these reviews is that most studies seem to be ignoring the industry specific factors affecting financial institutions and only concentrate on internal and macroeconomic variables which give a generalized overview. Further from the studies these factors are inconclusive with some researchers finding insignificant effect while others establishing significant influence. This study bridges this gap by use of annual data involving the Microfinance industry, specifically answer the question: What is the effect of the micro and macro variables on the financial performance of commercial Banks in Kenya? To uncover this liquidity problems which has forced banks to go under receivership, this study seeks to determine if liquidity is the major root cause of bank insolvency.

1.3 Objectives of the study

1.3.1 General Objective

The general purpose of this study was to establish the effects of micro and macro-economic factors on bank liquidity of commercial Banks in Kenya.

1.3.2 Specific Objectives of the Study

i. To determine the effects of macroeconomic factors on banks liquidity
ii. To determine the effects of microeconomic factors on banks liquidity
iii. To determine the combined effect of macroeconomic and microeconomic factors on bank liquidity

1.5 Research Hypotheses

H_{01}: There is no significant effect of macroeconomic factors on banks liquidity.

H_{02}: There is no significant effect of microeconomic factors on banks liquidity.

H_{03}: There is no significant effect of both macroeconomic and microeconomic factors on banks liquidity.

1.6 Significance of the Study

This research provides empirical evidence on both bank-specific factors and microeconomic determinants of Kenya commercial banks' liquidity and greatly contributes to the existing knowledge in the area of this title in the context of Kenya. Its findings help commercial banks and central banks Managers, government and other stakeholders to design targeted policies, and programs that actively stimulate the growth and sustainability of commercial banks in the country as well as assist policy makers to support, encourage and promote the establishment of appropriate policies to guide the banks.

Regulatory bodies such as Central Bank of Kenya (CBK) will use the findings of this study when developing strategies on how to control money supply in the economy and when keeping cash reserve ratios for commercial banks. Capital Markets Authority (CMA) will use the findings of this report to make decisions when matching long term investments with long term capital as it encourages broader ownership of productive assets by small savers. Kenya Revenue Authority (KRA) on the other hand will use the study findings to improve on the framework for regulation and collection of taxes. The study findings will also help the management and staffs of commercial banks to gain insight on how their institutions can effectively manage their liquidity by coming up with appropriate practices.

Academicians who engage in financial research will find it useful as one of the working documents. They will be able to answer the question of whether or not CBK should intervene in commercial banks liquidity management.

1.7 Scope of the Study

This study investigated the effects of micro and Macro-economic factors of the commercial banks liquidity and was limited to see the effects of bank micro and macro-economic factors which are profitability, bank size, capital adequacy, loan growth and to see the impact of the above factors on bank liquidity. Since the number of Commercial banks is small, the researcher focused on all them and census approach was used. Secondary data from audited financial reports of Commercial banks covered a period of 5 years that is from 2011 to 2015. The period of study was recent enough to ensure data was readily available and reliable for the study. Commercial banks in this study were chosen because they play a key role in the country's economy. Commercial banks pervade key areas of the economy including: agriculture, tourism, education, industrialization, energy, transport, land, treasury, environment and communication, thus providing a suitable representation of the Kenyan economy in providing the finances.

1.8 Limitations of the Study

The banking sector is dynamic and ever-evolving leading to a continuous technological change in various products banks offer. To realign bank products with new technology, banks have opted to alternate channels of operations that are online platforms, agency banking and mobile banking where clients can do any banking transaction at their homes. The use of secondary data in this study was a limitation as the information may be prone to errors. To overcome this, the researcher sought for data spanning across several years to check on the consistency of the data.

1.9 Operational Definition of Key Terms

Bank Liquidity: it is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses.

Bank Size: is the total market value of bank securities in a mutual fund's portfolio

Capital Adequacy: is the amount of money a bank should have available as a percentage of the total amount of money its customers have paid into the bank.

Central bank reserves: the minimum fraction of customer deposits and notes that each commercial bank must hold as reserves

Customer's deposits: This is the amount of money a bank should have available as a percentage of the total amount of money its customers have paid into the bank

Fixed deposits: financial instruments by which banks provide investors with a higher rate of interest after

Loans portfolio: they are major assets of banks which include interest rates earned on the loans.

Non-Performing loans (NPL)-A non-performing loan (NPL) is the sum of borrowed money upon which the debtor has not made his scheduled payments for at least 90 days. A nonperforming loan is either in default or close to being in default.

Profitability: it is the ability of a bank to use its resources to generate revenues above its expenses.

Working Capital Ratio: It is the relative proportion of a bank's current assets to its current liabilities

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter summarizes the information from other researchers who have carried out their research in the same field of study. Liquidity can be defined in the context of how easy a security can be traded and in the context of how easy one can obtain funding to trade a security, the former being called market liquidity and the latter being funding liquidity. The specific areas covered here are theoretical review, empirical studies and conceptual framework. The topic of the study is the determinants of bank liquidity in Kenya.

2.2 Empirical Studies

Gitau et al. (2017) assessed effect of micro economic factors on performance of listed commercial banks in Kenya. The performance of commercial banks plays an important role in the economic development of a country. The performance of commercial banks can be expressed or measured in various terms and these include competition, productivity, profitability, efficiency as well as concentration. The study seeks to establish the influence of bank specific variables on the performance of listed commercial banks in Kenya. The specific objectives included to determine the effect of capital adequacy on the performance of commercial banks in Kenya; to establish the effect of bank size on the performance of commercial banks in Kenya; to evaluate the effect of operating expenses on the performance of commercial banks in Kenya; and to assess the effect of total deposits on the performance of commercial banks in Kenya. The intermediation theory and liquidity theory were used in the study. The study adopted an explanatory research design. The target for the study was 43 commercial banks in Kenya. Out of these, the 11 listed commercial banks were sampled for performance over the past five years (2010-2015). Panel secondary data was utilized in the study. Data was analyzed using descriptive such as means, standard deviation and inferential statistics such correlation to show the strength of the effect between variables and regression analysis to depict the nature of the effect between variables. Results of the study revealed a positive and significant relationship between capital adequacy, bank size, total deposits and commercial banks performance while operational expenses had an inverse significant relationship with commercial bank performance. Commercial banks ought to continuously evaluate their capital adequacy, diversify their asset base and deposits accumulation strategies.

Moreover, there is need for commercial banks to be innovative strategies which will minimize their operational costs.

Egbunike and Okerekeoti (2018) did a study on the Macroeconomic factors, firm characteristics and financial performance a study of selected quoted manufacturing firms in Nigeria. The purpose of this paper is to explore the interrelationship between macroeconomic factors, firm characteristics and financial performance of quoted manufacturing firms in Nigeria. Specifically, the study investigates the effect of interest rate, inflation rate, exchange rate and the gross domestic product (GDP) growth rate, while the firm characteristics were size, leverage and liquidity. The dependent variable financial performance is measured as return on assets (ROA). The study used the ex post facto research design. The population comprised all quoted manufacturing firms on the Nigerian Stock Exchange. The sample was restricted to companies in the consumer goods sector, selected using non-probability sampling method. The study used multiple linear regressions as the method of validating the hypotheses. The study finds no significant effect for interest rate and exchange rate, but a significant effect for inflation rate and GDP growth rate on ROA. Second, the firm characteristics showed that firm size, leverage and liquidity were significant. The study has implications for regulators and policy makers in formulating policy decisions. In addition, managers may better understand the interplay between macroeconomic factors, firm characteristics and profitability of firms. Few studies have addressed the interplay of macroeconomic factors and firm characteristics in determining the profitability of manufacturing firms in the country and developing countries in general.

Muhamed (2009) assessed the effect of macroeconomic variables on stock returns on Dhaka stock exchange, This article investigates the effects of macroeconomic variables of treasury bill interest rate and industrial production on stock returns on Dhaka Stock Exchange for the period between January 2000 and February 2007 on the basis of monthly time series data using Autoregressive Integrated Moving Average (ARIMA) model. The paper has taken the overall market stock returns as an independent variable. It does not consider the stock returns of different companies separately. This paper hypothesizes a positive relationship between the industrial growth and stock return and a negative relation between stock return and Treasury bill rate. The Box-Jenkins time series modeling process requires discrete time series data which is equally spaced over time with no

missing values and stationary in the mean, variance and auto covariance. Using the Augmented - Dicky-Fuller and Phillips-Perron tests the level data were found non-stationary. After converting this data set to first order differences they were found to be stationary as the first order differencing removed any stochastic trend, with the variable series exhibiting a constant mean. And finally for testing the causality test, Box-Jenkins Autoregressive Integrated Moving Average model was applied. Though the ARIMA model finds a positive relationship between Treasury bill interest rate and industrial production with market stock returns but the coefficients have turned out to be statistically insignificant. The effects of Treasury bill interest rate and industrial production on stock returns were found statistically insignificant. This result was expected because a good number of macroeconomic variables(such as inflation rate, exchange rate, balance of trade and consumer price index) influential in determining the value of stocks were absent in the model. Further study might examine the effects of different variables on the determination of stock returns. Michael and Osamwonyi (2014) investigated the impact of macroeconomic variables on profitability of banks in Nigeria from 1990 to 2013. As Nigeria is dominated by commercial Bank, it is important to associate their profitability with the progress in the country and hence, a study to identify the impact of macroeconomic variables on the profitability of commercial banks would bring more light to the strategies designed in interest of the institutions development. The purpose of this research is to study the relationship between macroeconomic variables and profitability of listed commercial banks in Nigeria. They used pooled ordinary least squares (POLS) regression. The macroeconomic variables were: GDP, interest and inflation rate; profitability was proxied using ROE. The study reported a positive effect of GDP on ROE. Interest rate had a significant negative effect on ROE, while inflation was not significant at all levels of significance. The importance of macroeconomic variables cannot be over-emphasized in the role performed by commercial banks to contribute effectively to the growth of any country and the profitability of banks. The higher the risk associated with the macroeconomic variables such as gross domestic product (GDP) interest rates and inflation, the lower the return on banks profitability. The study attempts to empirically examine the effects of macroeconomic variables on banks profitability in Nigeria. From the empirical result, all the variables of interest were in line with theoretical expectations. Considering the t-values, all the other variables were statistically significant except inflation. The policy implications of this study is that banks should reduce their lending rate and explore strategies that will lead to lower operational cost of deposit attraction and also diversifying

their sources of deposits . High interest rates in lending reduce borrower's ability to collect credit. Policy makers should implement policies that promote lending like lowering monetary policy rate (MPR), low rate of inflation through effective application of contractionary and expansionary monetary policy, and growth in output should be formulated as these would lead to credit expansion and invariably returns and profitability of commercial banks that could impact on the economy positively. Government should implement sustainable macroeconomic policies that will promote sustainable growth, business friendly and conducive environment that will enhance capacity utilization of industries so as to allow for high level of credit demand and absorption in the economy. Banks should strive to improve their operational efficiency internally and productivity in deploying both financial and human capital in managing and generating a well-diversified risk assets portfolio as this will ensure that both interest sensitive risk assets and liabilities are utilized towards maximizing returns.

Ouma and Muriu (2014) assessed the impact of macroeconomic variables on stock market returns in Kenya. Stock market plays a major role in financial intermediation in both developed and developing countries. The stock market avail long-term capital to the listed firms by pooling funds from different investors and allow them to expand in business by offering investors alternative investment avenues to put their surplus funds. Stock market index in this regard provides a historical stock market performance, the yardstick to compare the performance of individual portfolios. Stock market makes it possible for the economy to ensure long-term commitments in real capital. Objectives of the study are the impact M2 money supply, exchange rates, inflation (CPI) and Interest rates (91 T-bill rates) on stock returns (captured by NSE 20-share index) in Kenya and the appropriate policy measures regarding the dynamics of macroeconomic variables (money supply (M2), exchange rate, inflation rate, and interest rates measured by 91 T-bill rates and their resultant effect on the Stock market returns in Kenya. This study investigates the impact of the macroeconomic variables on stock returns in Kenya during the period 2003- 2013, using the Arbitrage Pricing Theory (APT) and Capital Asset Pricing Model (CAPM) framework for monthly data. The Ordinary Least Square (OLS) technique is applied to test the validity of the model and the relative importance of different variables which may have an impact on the stock returns. The empirical analysis found two interesting results. First, with the exception of interest rates, there exists a significant relation between stock market returns and macroeconomic variables).

According to the findings of the study, Money Supply, exchange rates and inflation affect the stock market returns in Kenya. Money supply and inflation are found to be significant determinants of the returns at NSE. Exchange rates is however, found to have a negative impact on stock returns, while interest rates is not important in determining long rung run returns in the NSE. The findings of this study have some important policy implications. First, exchange rate contains some significant information to forecast stock market performance. Therefore, Central Bank of Kenya (CBK) should try to maintain a healthy exchange rate. Second, Money supply and Inflation are major factors affecting stock markets; therefore CBK should try to control them through Repo and Reverse Repo rates. Finally, autonomous regulatory bodies such as Capital Markets Authority and visionary system of government can contribute towards the development of an efficient working and development of the Kenyan Stock Market. The listed firms in the Nairobi Securities Exchange should endeavor to make their stocks attractive to investors who may prefer investment in securities as a hedge for longer periods of investment. For this regard therefore, the firms should invest in projects that are long term and viable for long term returns to investors.

Warue (2013) did a study on effects of Bank Specific and Macroeconomic Factors on Nonperforming Loans in Commercial Banks in Kenya: A Comparative Panel Data Analysis. The main goal of every banking institution is to operate profitably in order to maintain stability and sustainable growth. However, the existence of high levels of non-performing loans (NPLs) in the banking industry negatively affects the level of private investment, impair a bank's ability to settle its liabilities when they fall due and constrain the scope of bank credit to borrowers. External and internal economic environments are viewed as critical drivers for nonperforming loans. In this regard, the main goal of this study was to investigate the link between NPLs and bank-specific and macroeconomic factors, and establish the extent to which these factors affect the occurrence of nonperforming loans in commercial banks in Kenya. The dependent variable under investigation was nonperforming loans while independent variables included macroeconomic and bank specific factors. The macroeconomic factors included; real GDP, GDP per capita, lending interest rates, inflation, government expenditure, export and imports, exchange rate between the Kenya shilling and US dollar and asset value as measured by the Nairobi Securities Exchange (NSE) 20 share Index. Bank specific factors included; credit risk management techniques, bank structures, and quality management factors. The period covered under this study was 1995 to 2009. Secondary

and primary data was used. A census of 44 commercial banks in Kenya was taken. A causal-comparative research design based on bank structures was adopted. The study used panel econometrics approach employing both pooled (unbalanced) panel and fixed effect panel models. The study found evidence that per capita income was negative and significantly related to NPL levels across bank size categories (large, t-value -6.13, medium, t-value -4.81, small, and t-value 4.16). Similarly per capita income was negative and significantly related to NPL levels across bank ownership categories (Foreign; t-value -4.45, local; t-value -6.53, government; t-value -6.41). Further, return on assets (ROA) was negative and significantly related to NPLs levels in large banks (t- value -8.10) and small banks (t- value -4.73) but insignificant in medium banks. In addition the study found that return on asset (ROA) was negative and significant in local banks (t-value-8.41) and government banks (t-value -3.99) but not in foreign banks. However the study found no evidence that banks asset size was related to NPLs levels across all bank categories in Kenya. In conclusion, the study found evidence that bank specific factors contribute to NPLs performance at higher magnitude (β= 8.361) compared with macroeconomic factors (β= 0.561).

Mokaya (2018) did a study on the bank characteristics, macroeconomic variables and lending rates among commercial banks in Kenya. The financial institutions and the banking system are among the key pillars of an economy especially while considering their key role in reallocation of funds from agents with more to those with deficit. Banks also help in solving the problem of information asymmetry and diversify risks hence leading to reduction in the cost of financing and allocation of funds within the economy. The specific objectives are; To establish the effect of bank size on lending rates among commercial banks in Kenya, to determine the effect of credit risk on lending rates among commercial banks in Kenya, to establish the effect of liquidity risk on lending rates among commercial banks in Kenya, to determine the effect of operating costs on lending rates among commercial banks in Kenya, to establish the effect of Gross Domestic Product on lending rates among commercial banks in Kenya, to determine the effect of inflation on lending rates among commercial banks in Kenya, to establish the moderating effect of political risk on the relationship between bank characteristics and lending rates among commercial banks in Kenya and to establish the moderating effect of political risk on the relationship between macroeconomic variables and lending rates among commercial banks in Kenya. The research philosophy for this research was positivism. Explanatory non-experimental research design was employed. The target

population was thirty nine (39) commercial banks from whom secondary data was collected by way of census since these are the banks from which complete information could be obtained for meaningful analysis for the study period 2006-2015. Descriptive Statistics including Mean and Standard deviation and inferential statistics: Panel regression analysis and Correlation analysis were carried out. Data analysis was run on the State 13 package and findings presented in figures, tables, graphs and charts while deriving conclusions and recommendations from the findings of the study. The study found that operating costs, credit risk and inflation had positive effects and were significant determinants of lending rates. However the effect of GDP growth rate and bank size was found to be negative and significant. Political risk was found to have insignificant moderating effect on the relationship between bank characteristics, macroeconomic variables and lending rates among commercial banks in Kenya. Based on the findings, the study concluded that bank size, credit risk, operating costs, GDP and inflation play a significant role in determining the lending rates of commercial banks. The study recommends that government pays attention to macroeconomic variables while controlling the domestic lending rates. The study further recommends that policy initiatives that will help to keep the lending rates at a low level take into consideration the need to enhance economic growth and reduce inflation. The study recommends in conclusion that commercial banks that wish to adjust their lending rates focus on their internal factors such as bank size, credit risk and their operational cost and that the government considers deregulation on lending.

Mutemi (2015) did a study on the relationship between micro-economic variables and institutional efficiency of companies listed in the NSE in Kenya. The study adopted a descriptive research design. The population of interest for this study was all the 60 companies listed on NSE in Kenya. Thus it will be a census survey. The study applied secondary data which is extracted from the firms' annual reports and financial statements for the five-year period commencing 2010 up to 2014. The data collected were therefore cleaned, coded and systematically organized in a manner that facilitates analysis using the Statistical Package for Social Sciences (SPSS). In order to test the relationship between the variables the inferential tests including the regression analysis was used. The study found that the four variables contribute to 70.9% of institutional efficiency and that a unit increase in Capitalization leads to a 0.118 increase in institutional efficiency. From the study findings and discussion, the study concludes that microeconomic variables affect the level

of institutional efficiency of companies listed in the NSE. The conclusion is that microeconomic variables had a positive and significant effect on institutional efficiency of companies listed in the NSE for the period of this study. The study recommends that companies listed in NSE should approve strategy and significant policies related to the management of liquidity risk under both normal and stressed conditions and review and approve these policies frequently as need arise. Also, it was recommended that a structure should be put in place to effectively execute financial strategies and also develop methodologies and policies to determine the level of earmarked liquid assets.

Gitau et al. (2017) assessed effect of micro economic factors on performance of listed commercial banks in Kenya. The specific objectives included to determine the effect of capital adequacy on the performance of commercial banks in Kenya; to establish the effect of bank size on the performance of commercial banks in Kenya; to evaluate the effect of operating expenses on the performance of commercial banks in Kenya; and to assess the effect of total deposits on the performance of commercial banks in Kenya. The intermediation theory and liquidity theory were used in the study. The study adopted an explanatory research design. The target for the study was 43 commercial banks in Kenya. Out of these, the 11 listed commercial banks were sampled for performance over the past five years (2010-2015). Panel secondary data was utilized in the study. Data was analyzed using descriptive such as means, standard deviation and inferential statistics such correlation to show the strength of the effect between variables and regression analysis to depict the nature of the effect between variables. Results of the study revealed a positive and significant relationship between capital adequacy, bank size, total deposits and commercial banks performance while operational expenses had an inverse significant relationship with commercial bank performance. Commercial banks ought to continuously evaluate their capital adequacy, diversify their asset base and deposits accumulation strategies. Moreover, there is need for commercial banks to be innovative strategies which will minimize their operational costs.

Mwangi (2017) assessed the effects of macroeconomic variables on financial performance of insurance companies in Kenya. The study was guided by the following research objectives: To determine the effect of inflation on financial performance of insurance companies in Kenya; To establish the effect of interest rate on financial performance of insurance companies in Kenya; To

establish the effects of exchange rate on financial performance of insurance companies in Kenya. The study utilized longitudinal design where performance of insurance firms was analyzed over a four year period from 2012-2015. Statistical Package for Social Sciences (SPSS) and excel applications was utilized to describe the data and determine the extent used and this was through descriptive analysis of means, standard deviations, and frequencies. Inferential statistics was utilized via regression analysis to determine the relation between the dependent variable and the independent factors. The information was displayed by use of tables and graphs. Results indicate that all the performance indicators were negatively correlated to inflation. A regression analysis established that only 12.9% of the variation in return on asset (ROA) of insurance firms was explained by the variations in inflation rates. Results further show that all the performance indicators were negatively correlated to average interest rates and only 3% of the variation in return on asset (ROA) of insurance firms was explained by the variations in average interest rates. It was also concluded that exchange rate negatively affect ROA, Current Ratio, Debt Ratio, Equity Ratio, Debt To Equity Ratio and Profits. Apart from this it has a very high influence on return on asset (ROA) of insurance firms. It was recommended that for the insurance firms to make ample adjustment for inflation so that during seasons of high inflation the firms do not run at a loss. It was also recommended that insurance firms need to employ more strategies where they can purchase more futures contracts on government bonds or interest rate futures in order to be able to lock-in interest rate and hedge their various portfolios. Finally it was also recommended that the firms may mitigate these risks by hedging the foreign exchange risk by purchasing spot contract to cushion against any negative swing.

Mutunga (2018) did a study on the role of micro factors on the financial performance of manufacturing firms in Kenya. The specific objectives were; examine the relationship between production capacity and firm financial performance; to establish the relationship between management practices and firm financial performance, to determine effect of operations practices and firm financial performance, and to establish the moderating effect of firm size on micro factors on firm's financial performance. Agency theory is used as the foundational theory, with enforcements from wealth maximization theory and the resources based theory. The research design was descriptive research design. Data was collected using a self-administered questionnaire, from a population of 180 manufacturing firms in Kenya. The response rate was

95%. Descriptive statistics, correlation and regression techniques were used to analyze the data. The results of the study show a statistically positive and significant direct relationship between micro factors on firm financial performance. The results show that relationship between micro factors and firm financial performance is moderated by firm size. This study contributes to the understanding of the link between micro factors, size of the firm and firm financial performance, while at the same time confirms the findings of previous studies that have found a significant positive relationship. The study has empirically confirmed that firm size moderates the relationship between macro factors and firm financial performance.

Surow (2014) assessed the effects of micro economic variables on the financial performance of Islamic banks in Kenya. This study aimed at providing more information about Islamic banking by looking at the micro economic factors affecting performance of the banks pegged on the pecking order theory, adaptive market hypothesis theory and the trade-off theory. The study used a descriptive research design targeting the 10 banks in Kenya with Islamic banking, 2 fully fledged and 8 have Islamic banking window, from whom information on assets, income, expenses, capital, and performance ratios were collected, from which the study findings were made. Islamic banking sector was observed to be attractive and highly profitable. It was found that capital adequacy, asset quality, management efficiency, earning quality and liquidity management all affected the performance of Islamic banking performance in Kenya. The study recommends that sensitization should be carried out to enhance the knowledge on Islamic banking in the Kenyan market, which many do not know. The study suggested further study to determine macro-economic factors affecting financial performance in Islamic banking in Kenya with a view to go beyond the study‘s scope.

Tuyishime (2015) established the effects of deposit mobilization on the bank financial performance in commercial banks in Rwanda. They targeted bank managers involved in deposit mobilization, the marketing team and the branch management team in Equity bank Rwanda. They used a census to study a population of 27 staff. Their main source of data was the primary and secondary data. Which was documentary method and. They processed data by use of descriptive statistics after editing have been done. They also used computer software SPSS version 20 as a device to accommodate analysis. Pearson and Spearman’s correlation analysis was also used to

test the nature of relationship. They found out that the majority of the respondents (85%) confirmed that the brand name of the Equity Bank is recognized in the public and this has made able overcoming challenges mostly facing high competition with other banks. The marketing strategy used made the bank to increase in terms of customers and it has led to the increase in deposits over the years. Their findings also indicated that a positive change in deposits interest rate affects the level of deposits received and later on the profitability of the bank. It also revealed that the introduction of innovative banking technology has led to the increase in deposits at a low cost as opposed to the usual way of getting deposits through term deposits and made financial services accessible in the unbanked people. This also made the ROA, ROE, net profit increasing due as the loans volume increases. The statistical correlation revealed that there is a positive relationship between deposits mobilization and financial performance of commercial banks in Rwanda. They recommended the bank to develop other strategies towards marketing and mobilizing more deposits as they are indispensable tools towards the profitability of the bank.

2.3 Overview of banking history in Kenya

Banking in Kenya dates back to colonial-era where the British Empire declared Kenya a British Sphere of Influence and established the East African Protectorate in the year 1865 and officially declared Kenya as a colony in the year 1920. During that 19th Century, the East African region engaged in trading activities and there was need for the use of currency. That was when the revolution in the banking sector kicked off. In 1986, a year after the establishment of the British Administration in Kenya, National Bank of India came into being. In 1910, Standard Bank of South Africa came into being. Six years after coming to Kenya, the National Bank of South Africa merged with Anglo-Egyptian Bank Ltd to form Barclays Bank. Barclays Bank was, therefore, born in 1910 as a merger between National Bank of South Africa and Anglo-Egyptian Bank Ltd. In 1951, General Bank of Netherlands was set up. In 1953, Bank of India and Bank of Baroda were set up. In 1956, Habib Bank (overseas) Ltd was set up.

In the year 1955, the Ottoman Bank and the Commercial Bank of Africa were established. Cooperative Bank of Kenya opened its doors in the year 1968. In 1968 National Bank of Kenya took over the Ottoman Bank. In 1971, Kenya Commercial Bank was formed as a result of the merger between National and Grindlays Bank with the governing owning a stake of 60 per cent.

The Merchant Bank division of Grindlays was merged with Grindlays Bank International Ltd and formed Stanbic Bank. 1971 saw Barclays Bank change its name to Barclays Bank International Ltd while in the year 1974, National Bank of Chicago and City Bank of New York were formed. The Merchant Bank division was incorporated into a new bank, Grindlays Bank International Ltd, which has changed to Stanbic Bank. In 1971, Barclays Bank (DC) changed its name to Barclays Bank International Ltd and became a wholly-owned subsidiary of Barclays Bank Ltd based in Britain. In 1974, the American Banks were established in Kenya first National Bank of Chicago and first National City Bank of New York.

Barclays Bank of Kenya has been in operation in Kenya for 97 years, CFC Stanbic Bank has been operating for the last 58 years, and Diamond Trust Bank Kenya has been in operation for 70 years while Equity Group Holdings Ltd has been in existence for 32 years. Housing Finance has been in Kenya for 51 years, I &M Holdings for 44 years, Kenya Commercial Bank for 41 years under the brand, National Bank of Kenya for 53 years, NIC Bank of Kenya for 57 years, Standard Chartered Bank for 47 years while Co-operative Bank of Kenya has been into existence for 51 years though it went public as a bank in the year 2008.

Today banking is known as innovative banking. Financial innovation associated with technological change has totally changed the banking philosophy and that is further tuned by the competition in the banking industry in Kenya. Challenging business environment within the banking system has created more innovation in the fields of product, process and market. Information technology has given rise to new innovations in the product designing and their delivery in the banking and finance industries. Customer services and customer satisfaction are their prime work. Current banking sector has come up with a lot of initiatives that oriented to providing a better customer services with the help of new technologies. Banking through internet has emerged as a strategic resource for achieving higher efficiency, control of operations and International Journal of Economics, Commerce and Management, United Kingdom Licensed under Creative Common reduction of cost by replacing paper-based and labour-intensive methods with automated processes thus leading to higher productivity and profitability. Innovations in the Kenyan banking sector include: increased use of paper money instead of cash. Cheques are the main paper based mode of payment accounting for 48% of non-cash payments. Use of Magnetic

Ink Character Recognition (MICR) ensures clearing of Cheques speedily and efficiently. The Central Bank of Kenya launched a Real Time Gross Settlement (RTGS) system known as the Kenya Electronic Payments and Settlement System (KEPSS) in July 2005 in an effort to modernize the country's payment system in line with global trends. E-credit services M-SHWARI has revolutionized the banking sector (Gatuhu, 2013)

2.4 Bank Liquidity

Liquidity is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses (Maaka, 2013). Liquidity can come from direct cash holdings in currency or on account at the central bank. More frequently, it comes from acquiring securities that can be sold quickly with minimal loss. This states highly credit worthy securities, comprising of government bills, which have short term maturities. If their maturity is short enough the bank may simply wait for them to return the principal at maturity. For the short term, very safe securities favor to trade in liquid markets, stating that large volumes can be sold without moving prices too much and with low transaction costs. This will be measured by the use of liquidity ratios (Quick Ratio/Acid Test Ratio and Working Capital Ratio).

According to Aper (2008) liquidity has two facets; maturity transformation and liquidity of bank assets. Maturity transformation is the maturity of a bank's liabilities and assets whereas asset liquidity is the extent to which an asset can be sold without incurring a significant loss of value under any market condition. Banks which have the assets that can be sold without bearing any loss ever get worried. Also, banks having assets that are going to be matured in a shorter period may have a less need to keep the liquid assets. This increases the demand of depositors creating liquidity which in turn may cause the failure of a given bank or even the entire banking system due to contagion effect (Siaw, 2013). High liquidity increases the leverage and a highly leveraged bank may turn into the consumer of liquidity from the provider.

2.5 Micro-Economic factors

2.5.1 Profitability

Profitability is the ability of a bank to use its resources to generate revenues in excess of its expenses. There is general agreement that bank profitability is a function of internal and external

factors (Maaka, 2013) observed that the performance differences between banks indicate differences in management philosophy, as well as differences in the market, served. Profitability is a function of internal factors that are principally influenced by a bank's management decisions and policy objectives such as the level of liquidity, provisioning policy, capital adequacy, expense management and bank size, and the external factors related to industrial structural factors such as ownership, market concentration and stock market development and other macroeconomic factors (Siaw, 2013). Though most of the studies on bank profitability are based on developed countries especially the USA and Europe, a couple of studies focusing on developing countries (Ojong, 2014) have also used similarly the same variables to study the determinants of bank profitability. Profitability has improved for banks that hold some liquid assets, however, there is a point at which holding further liquid assets diminishes a banks' profitability.

Liquidity problems may affect a bank's earnings, performance and capital and in extreme cases, it may result in the collapse of an otherwise solvent bank (Gatsi, 2012). Monetary et al. (2006) a case a bank faces a situation in which it has to sell a large number of its illiquid assets to meet the funding requirements (perhaps to reduce the leverage in accordance to capital adequacy requirement) the fire sale risk may arise. This may dictate a bank to offer a price discount to attract buyers and such a situation will harm the balance sheets of an institution as they will be obliged to market their assets to the fire-sale price (Siaw, 2013). Tradable securities and portfolios are highly affected by liquidity. Broadly, it refers to the loss emerging from liquidating a given position (Maaka, 2013).

Performance measures provide a tool for organizations to manage progress towards achieving predetermined objectives, defining key indicators of performance and customer satisfaction. It is the process of accessing the progress made towards achieving the set goals (Gatsi, 2012) defined performance as outcome end results and achievements either negative or positive arising out of organizational activities. He argued that it is essential to measure strategic practices in terms of outcomes that vary along a series of categories i.e. financial measures (ROA, ROE turnover and profitability).Profitability of a company will be measured by use of ROA. Return on Assets measures how effectively the company produces income from its assets. It is calculated by dividing

net income (NI) for the current year by the value of all the company's assets (A) and multiplying the quotient by 100.

2.5.2 Customer Deposits

This is the amount of money a bank should have available as a percentage of the total amount of money its customers have paid into the bank. This amount is calculated so that customers can be sure that they will be able to take their money out of the bank if the need arises. Naceur and Goaied, (2001) investigated the determinants of the Tunisian banks' performances during the period 1980-1995. Empirical evidence indicated that the best performing banks are those who maintained a high level of deposit accounts relative to their assets. Increasing the ratio of total deposits to total assets means increasing the funds available to use by the bank in different profitable ways such as investments and lending activities. Berlin and Mester (1999) concluded that core deposits such as demand and savings deposits, which are largely inelastic, have historically insulated the bank funding costs against economic shocks. Huang and Ratnovski (2009) found out that Canadian banks compared to other large commercial banks in OECD (Organization for Economic Cooperation and Development) countries were more resilient during the 2008 economic turmoil since they relied more heavily on depository funding as compared to the other banks that relied more on wholesale funding.

A related study in Kenya was conducted by Ochung (2011) and he established that there was a very strong correlation between deposits of commercial banks and Financial Institutions and their performances. Pandyaand Parmar (2012) researched on the performance of public sector commercial banks and evaluated performance by selecting parameters like deposit mobilization, analyzing loan advances, credit deposit ratios, interest spreads, employee productivity, customer service and profit as a percentage of working funds. He found out that there a gradual increase in the level of profits as customers' deposit increases. Customer's deposits are measured by use of Cash ratio, (CR) and are calculated by dividing absolute liquid assets by current liabilities. Deposits in banks are offset by higher margins from the creation of credits as loans. However, if such assets do not generate any income, the banks` ability to repay the deposit amount when they fall due would be in question. Therefore, the banks with such asset would become weak and such weak banks will lose the faith and confidence of the customers. Ultimately, unrecoverable amounts

of loans are written off as Nonperforming loan (Mallick *et al.*, 2010) as cited in (Rawlin et al., 2012). Poor asset quality leads to nonperforming loan and can seriously damage a banks' financial position and its banks' operations.

2.5.3 Capital Adequacy

According to Emori Nkamare and Nneji (2014) the strength of a bank depends on the capital funds available to it. A bank's capital is the equity value of a bank equated to the present value of its future earnings. A banks capital represents the owner's net worth in a bank and it includes the pay in the capital and all additions to the capital resource s of the bank. Bank capital helps in maintaining confidence to the public and assuring them that depositors' money are safe and the bank can accommodate credit needs of the community. Therefore, capital adequacy serves as a means of accessing the strength of a bank. Capital adequacy can be defined as the level of capital necessary for a bank as determined by the regulatory and supervisory authorities (central bank of Kenya) to assume the banks financial health and soundness. It measures the solvency of a bank and tells whether a bank has enough capital to support the risks in its balance sheet. Adequate capitalization is an important variable in business, and is more so in the business of using other peoples' money such as banking. According to Onoh and Nwachukwu (2017) a bank capital fund is considered adequate if it is enough to cover the banks operational expenses to satisfy customers with dual needs and protect depositors against total or partial loss of deposits in the event of liquidation or loss sustained by the bank.

According to Nwankwo (1991) adequate capital is that quantum of funds which a bank should have or plan to maintain to conduct its business in a prudent manner. Functionally, adequate capital is regarded as the amount of capital that can effectively discharge the primary capital function of preventing bank failure by absorbing losses. The growth of any economy depends on capital accumulation which in turn depends on investment and an equivalent amount of savings to match it. There are two important factors for developing a country how to stimulate investments and how to increase the level of savings to fund increased investments. For further understanding, a survey was conducted by Access Finance Rwanda (AFR) in Rwanda, clearly indicating the accessibility, affordability and usage of financial instruments in the country. The survey revealed that 72% of Rwandan adults are financially included -42 percent are formally served (22.8 percent by

commercial banks and 19.2 percent by nonbank formal institutions and 58 percent use formal financial mechanisms. This study thus wants to determine if capital adequacy in Kenya impact on the bank liquidity and to what level.

Onoh and Sarah (2017) defined the adequate capital for banks as the level at which the deposit ensuring agency would breakeven in guaranteeing the deposits of individual banks with premium the banks pay. He employed an option of a theoretical framework for measuring fair capital adequacy holdings for a sample of depository institutions in Taiwan, during 1985-1992. He found out that except for 1989, most banks in their sample proved to be inadequately capitalized so that capital infusion is required. Staikouras and Wood (2004) stated that there exists a positive link between greater equity and profitability among EU banks. Goddard et al. (2004) supported the above findings of positive relationship between capital/asset ratio and bank's profitability. Bank capital is the bank's net worth and is measured by use of Capital Adequacy Ratio (CAR).

2.5.4 Loan Growth of Banks

This is the percentage change in loans provision of a bank. Provision of loan is one of the major functions of banks by which banks create liquidity for the external public. Generally loans are considered as illiquid assets and generate higher revenue to banks. Therefore, the increase in loan means increase in illiquid assets and decrease in short term/liquid assets. Loan growth in banks has been spurred by macroeconomic or bank specific factors. These may comprise shareholder pressure to achieve high profitability, and personal managerial goals such as: market reputation for revenue-generating abilities, boosting future job prospects, or empire-building elements. Many researchers stipulate that loan growth increases risk, very few consider the underlying rationale for rapid lending growth, apart from moral hazard considerations.

2.5.5 Size of banks

Bank size measures its general capacity to undertake its intermediary function. There are three opposing arguments both theoretically as well as empirically regarding to the relationship between bank liquidity and size. According to one view (unstable banking hypothesis), large banks tend to engage more in risky activities (trading) and be financed more with short-term debt, which makes them more vulnerable to generalized liquidity shocks and market failures such as liquidity

shortages and fire sales (Nicol et al., 2012). According to another view, the too-big-to-fail hypothesis, regulators are reluctant to close or unwind large and complex banks, resulting in moral hazard behavior that leads banks to take on excessive risks in the expectation of government bailouts (Farhi & Tirole, 2012). According to a third view, the agency cost hypothesis, large and complex banks that engage in multiple activities (combining lending and trading) suffer from increased agency problems and poor corporate governance that can translate into systemic risk According to this view, banks have a natural tendency to take on excessive risks and to grow in size, while regulators, by focusing on regulation, do little to prevent the resulting to bank instability.

2.6 Macroeconomic factors

2.6.1 Gross Domestic Products (GDP)

Macroeconomic context is likely to affect bank activities and investment decisions as the profile of bank liquidity (Pana et al., 2010). Gross domestic product indicates the overall economic well-being of a country. According to the theory of bank liquidity and financial fragility, when the economy is at boom or goes out of recession, economic units including banks are optimistic and increase their long term investment and decrease their holding of liquid assets. Also, at boom the demand for differentiated financial products goes up may improve bank ability to expand its loan and securities portfolios at a higher rate. While in the period of recession the opposite is true. Therefore, this study expects negative relationship between banks liquidity and economic cycle. To proxy the economic cycle the real gross domestic products/GDP growth rate was used.

2.6.2 Rate of Inflation

Inflation is a sustained increase in the general price level of goods and services in an economy over a period of time. When the price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money a loss of real value in the medium of exchange and unit of account within the economy (Ongore, 2013). Emphasized on the importance of informational asymmetries in money markets and demonstrate how increases in the rate of inflation adversely affect money market frictions with negative repercussions for financial sector (both money and equity market) performance (Shuaib, 2014)

2.6.3 Interest Rates

This is the proportion of an amount loaned which a lender charges as interest to the borrower, normally expressed as an annual percentage. It is the rate a bank or other lender charges to borrow its money, or the rate a bank pays its savers for keeping money in an account. Most investors prefer their money to be in cash than in less fungible investments. Cash is on hand to be spent immediately if the need arises, but some investments require time or effort to transfer into spendable form (Yuqi, 2006). The banking industry has been facing numerous lending challenges. The explanation for this from a global context elicits varied reasons. Ejem & Ogbonna, (2019) points out that, this challenge arises because of paucity of skills required to determine the soundness of security valuation and the validity of legal charges associated with loan collateral

2.7 Theoretical Framework Underlying the Study

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. In other words, there are competing liquidity management theories. The study was guided by commercial loan theory, shiftability theory and anticipated income theory.

2.7.1 Commercial Loan (Traditional) Theory and Liquidity

The commercial loan theory was developed by Adam smith in 1920 and it became obsolete both because of its conceptual flaws and its impracticality. A critical underlying assumption of the theory held that short-term commercial loans were desirable because they would be repaid with income resulting from the commercial transaction financed by the loan. When business started growing and the requirements of trade increased, banks were able to capture additional reserves by rediscounting bills with the central banks. When business went down and the requirements of trade declined, the volume of rediscounting of bills would fall, the supply of bank reserves and the amount of bank credit and money would also contract.

It was realized that this assumption would certainly not hold during a general financial crisis even if bank loan portfolios did conform to theoretical standards, for in most commercial transactions the purchaser of goods sold by the original borrower had to depend to a significant extent on bank credit without continued general credit availability, therefore, even short-term loans backing

transactions involving real goods would turn illiquid. Rigid adherence to the orthodox doctrine was, furthermore, a practical impossibility if banks were to play a role in the nation's economic development (Maaka, 2013). Also, this theory believes that loans are self-liquidating under normal economic circumstances but if there is depression, production and trade deteriorate and the debtor fails to repay the debt at maturity. It also disregards the fact that the liquidity of a bank relies on the salability of its liquid assets and not on real trade bills. It assures safety, liquidity and profitability. The bank need not depend on maturities in time of trouble. Moreover, the practice of continually renewing short- term notes to support long-term capital projects proved unacceptable. The failure or inability of banks to tailor loan arrangements to the specific conditions encountered with longer-term uses in fact contributed to the demise of the practice (Kashyap et al., 2002).

This theory is in line with this study since theory states that whenever commercial banks make short term self-liquidating productive loans, the central bank should lend to the banks on the security of such short-term loans. This principle assures that the appropriate degree of liquidity for each bank and appropriate money supply for the whole economy. The central bank was expected to increase or erase bank reserves by rediscounting approved loans.

2.7.2 The Shiftability Theory of Liquidity

This theory was proposed by Moulton in 1915. It states that, for an asset to be perfectly shiftable, it must be directly transferable without any loss of capital when there is a need for liquidity. This is specifically used for short term market investments, like treasury bills and bills of exchange which can be directly sold whenever there is a need to raise funds by banks but in general circumstances when all banks require liquidity, the Shiftability theory need all banks to acquire such assets which can be shifted on to the central bank which is the lender of the last resort.

The Shiftability theory of liquidity replaced the commercial loan theory and was supplemented by the doctrine of anticipated income it holds that banks could most effectively protect themselves against massive deposit withdrawals by holding, as a form of liquidity reserve, credit instruments for which there existed a ready secondary market. Included in this liquidity reserve were commercial paper, prime bankers' acceptances and, most importantly as it turned out, Treasury

bills. Under normal conditions all these instruments met the tests of marketability and, because of their short terms to maturity, capital certainty.

A major defect in the Shiftability theory was discovered similar to the one that led to the abandonment of the commercial loan theory of credit, namely that in times of general crisis the effectiveness of secondary reserve assets as a source of liquidity vanishes for lack of a market (Maaka, 2013). Shiftability theory completely relies on the economic conditions and neglects acute depression. The shares and debentures cannot be shifted to others by the banks. In such a situation, there are no buyers and all who possess them want to sell them. The soundness of the banking system came to be identified more closely with the state of health of the rest of the economy, since business conditions had a direct influence on the cash flows, and thus the re- payment capabilities, of bank borrowers (Allen & Gale, 2004).

The study is related with this theory in a way that the Shiftability theory survived realizations under a modified form that included the idea of ultimate liquidity in bank loans resting with Shiftability to the Federal Reserve Banks. Under this institutional scheme, the liquidity concerns of banks were partially returned to the loan portfolio, where maintenance of quality assets that could meet the test of intrinsic soundness was paramount

2.7.3 Anticipated Income Theory of Liquidity

This theory was proposed by Prochanow in 1944 based on the practice of extending term loans by the US commercial banks, he embodied these ideas and equated intrinsic soundness of term loans, which were of growing importance, with appropriate repayment schedules adapted to the anticipated income or cash flow of the borrower. The credit demands of business were well accommodated under this system of banking policy, and the use of loan commitments was freely pursued. This theory dominates the commercial loan theory and the shiftability theory as it satisfies the three major objectives of liquidity, safety and profitability. Liquidity is settled to the bank when the borrower saves and repays the loan regularly after certain period in installments. It fulfills the safety principle as the bank permits a relying on good security as well as the ability of the borrower to repay the loan. The bank can use its excess reserves in lending term-loan and is convinced of a regular income. Changing economic conditions, however, placed extra demands on the banking

system that resulted in a new approach to balance sheet. Management and businesses faced new financial challenges. Under this emerging state of affairs, bank loan commitment policies would come to play a more important part in the credit process.

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2.8 Government Policies

Banks are subjected to certain requirements, restrictions and guidelines, designed to create market transparency between banking institutions, individuals and corporations with whom they conduct business. Given that banks manipulate the general performance of an economy, it is important for regulatory agencies to maintain control over the standardized practices of these institutions. This holds that many financial institutions (particularly investment banks with a commercial arm) hold too much control over the economy to fail without enormous consequences. This is the premise for government bailouts, in which government financial assistance is provided to banks or other financial institutions that appear to be on the brink of collapse. The belief is that without this aid, the crippled banks would not only become bankrupt but would create rippling effects throughout the economy leading to systemic failure (Adesola & Ogunmakin 2013).

2.8.1 Licensing and supervision

Banks usually require a banking license central bank of Kenya which is a regulator before they are permitted to carry on a banking business, The regulator supervises licensed banks for compliance with the requirements and responds to breaches of the requirements by obtaining undertakings, giving directions, imposing penalties or (ultimately) revoking the bank's license. Banks offer a myriad of financial services that are tailored to suit the needs and demands of their customers. In addition to being lending and borrowing institutions, banks offer other types of services such as payments, settlements and funds transfer, foreign exchange transactions, savings and investment

services, payroll services, financial advice, investments and bill finance and safe-deposit boxes (Driga & Dura, 2015).

2.8.2 Minimum requirements

CBK imposes Minimum requirements on bank capital in order to develop and promote confidence among the depositors. Often, these requirements are closely tied to the level of risk exposure for a certain sector of the bank. The most important minimum requirement in banking regulation is maintaining minimum capital ratios. This sets a framework on how banks must handle their capital in relation to their assets. The Basel Committee on Banking Supervision influences each country's capital requirements and the latest capital adequacy framework (Basel III) is intended to be more risk sensitive than the original one (Aikaeli, 2006).

2.8.3 Market Discipline

The regulator requires banks to publicly disclose financial and other information, and depositors and other creditors are able to use this information to assess the level of risk and to make investment decisions (Andrievskaya & Semenova, 2013). As a result of this, the bank is subject to market discipline and the regulator can also use market pricing information as an indicator of the bank's financial health. Market remains a focal point for policy makers in Kenya and Malawi, at a time when both these countries are considering a transition to an interest rate- targeting framework and, eventually, inflation targeting. The two markets offer an opportunity to study examples of developing markets, exploring not only their similarities but also their structural differences (Dunford & Jones, 2000).

2.8.4 The Kenya Banks' Reference Rate (KBRR)

CBK as the banks regulator manipulates lending rates by setting the lending base. KBRR was introduced in July 2014 as a uniform base lending rate across the banking sector to enable consumers compare the pricing of loan products and ensure transparency in credit conditions. The rate is computed as an average of the Central Bank Rate (CBR) and the two-month weighted moving average of the 91-day Treasury bill rate and is reviewed every six months. KBRR was set at 9.13 percent in July 2014 and was revised downwards to 8.54 percent in January 2015 (CBK, 2015).

2.9 Research Gap

Based on the existing literature, Gitau et al. (2017) assessed effect of micro economic factors on performance of listed commercial banks in Kenya. The performance of commercial banks can be expressed or measured in various terms and these include competition, productivity, profitability, efficiency as well as concentration. The specific objectives included to determine the effect of capital adequacy on the performance of commercial banks in Kenya; to establish the effect of bank size on the performance of commercial banks in Kenya; to evaluate the effect of operating expenses on the performance of commercial banks in Kenya; and to assess the effect of total deposits on the performance of commercial banks in Kenya. The intermediation theory and liquidity theory were used. This study is different from that of Gitau since the objectives and measures of the dependent variables are not the same. The dependent variable for this study is bank liquidity.

Egbunike and Okerekeoti (2018) did a study on the Macroeconomic factors, firm characteristics and financial performance a study of selected quoted manufacturing firms in Nigeria, the study investigates the effect of interest rate, inflation rate, exchange rate and the gross domestic product (GDP) growth rate, while the firm characteristics were size, leverage and liquidity. The dependent variable financial performance is measured as return on assets (ROA). The variables for the study is not the same with the variables used in the study of (Egbunike & Okerekeoti, 2018). The variables for this study are; Profitability, Level of customers deposits, Capital adequacy GDP, Interest rates, Inflation rate and Exchange rates.

Muhamed (2009) assessed the effect of macroeconomic variables on stock returns on Dhaka stock exchange, This article investigates the effects of macroeconomic variables of treasury bill interest rate and industrial production on stock returns on Dhaka Stock Exchange for the period between January 2000 and February 2007 on the basis of monthly time series data using Autoregressive Integrated Moving Average (ARIMA) model. The paper has taken the overall market stock returns as an independent variable. It does not consider the stock returns of different companies separately. Ouma and Muriu (2014) assessed the impact of macroeconomic variables on stock market returns in Kenya. Objectives of the study are the impact M2 money supply, exchange rates, inflation (CPI) and Interest rates (91 T-bill rates) on stock returns (captured by NSE 20-share index) in Kenya and

the appropriate policy measures regarding the dynamics of macroeconomic variables (money supply (M2), exchange rate, inflation rate, and interest rates measured by 91 T-bill rates and their resultant effect on the Stock market returns in Kenya. The study variables for the study are not the same with this study.

Warue (2013) did a study on effects of Bank Specific and Macroeconomic Factors on Nonperforming Loans in Commercial Banks in Kenya: A Comparative Panel Data Analysis. In this regard, the main goal of this study was to investigate the link between NPLs and bank-specific and macroeconomic factors, and establish the extent to which these factors affect the occurrence of nonperforming loans in commercial banks in Kenya. The dependent variable under investigation was nonperforming loans while independent variables included macroeconomic and bank specific factors. The macroeconomic factors included; real GDP, GDP per capita, lending interest rates, inflation, government expenditure, export and imports, exchange rate between the Kenya shilling and US dollar and asset value as measured by the Nairobi Securities Exchange (NSE) 20 share Index. Bank specific factors included; credit risk management techniques, bank structures, and quality management factors. The study conducted panel data analysis while this study did not conducted the panel data analysis for the periods under observations. From these studies there are conflicting findings therefore this study sought to fill the existing gap in the existing empirical studies.

2.10 Conceptual Framework

Conceptual framework is a detailed description of events which are under study by a graphical or visual depiction of the major variables of the study (Mugenda, 2008). The conceptual framework below shows the relationship between the independent variables and the dependent variable. The study conceptualizes a framework consisting of both independent and dependent variables. The study conceptualized that the independent variables influence the dependent variable where the independent variables could either lead to good or poor bank liquidity. The conceptual framework was as shown in the Figure 1.

Figure 1

Conceptual Framework

Independent Variables

Determinants of bank liquidity

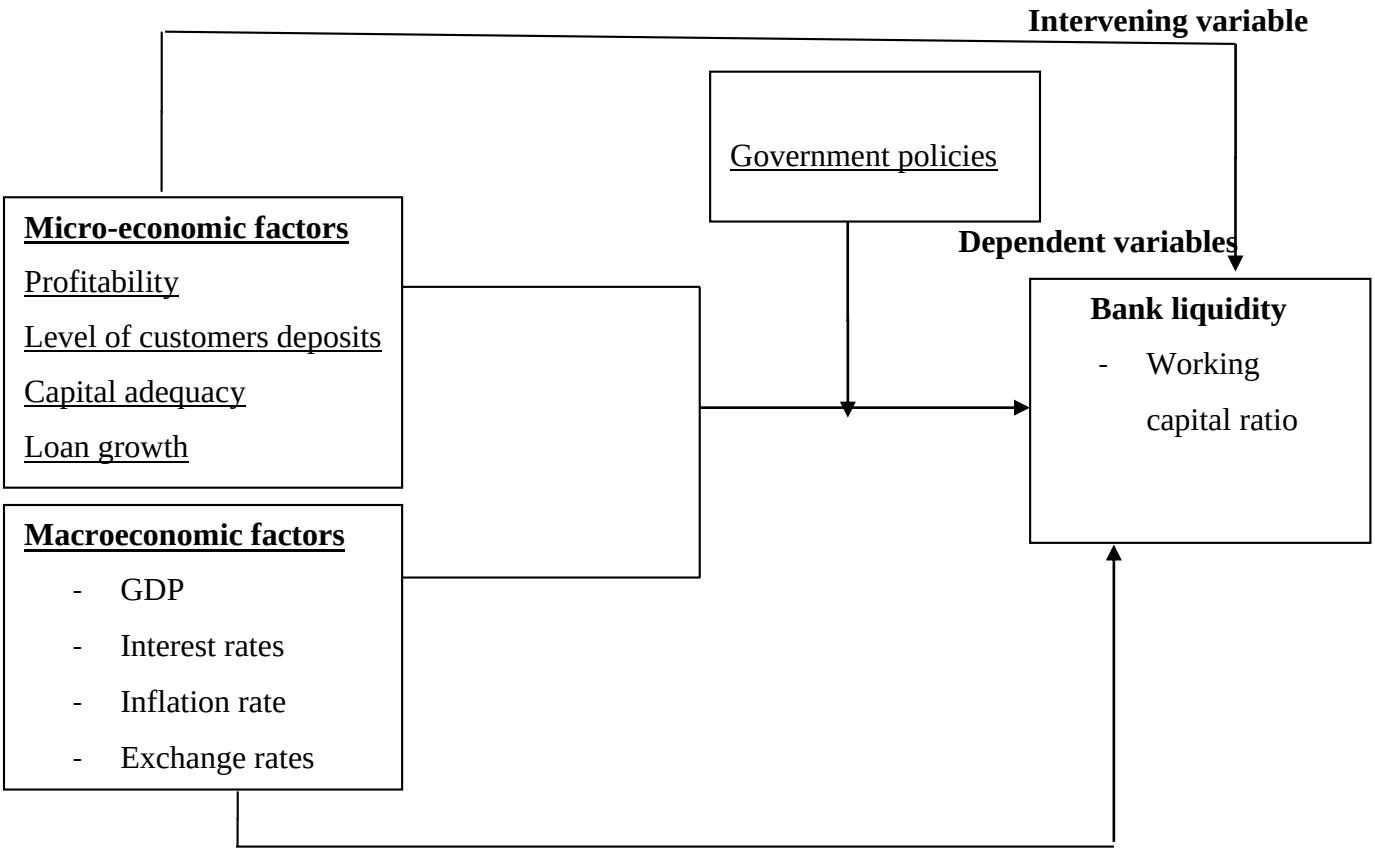


Figure 1: Conceptual Framework

The dependent variable in this study is the bank liquidity, which is measured by use of liquidity ratios (Quick Ratio/Acid Test Ratio and Working Capital Ratio). The independent variables are micro and macro-economic factors and are represented by level of customer's deposits, Profitability, capital adequacy and Loan growth. Profitability of commercial banks analysis focuses on the relationship between bank revenues and their expenses and on the level of profits relative to the investment size. Profitability was measured using return on assets which is normally used as overall index of profitability. Profitability was also measured using net income margin which can be derived by matching revenues with expenses in the income statements. Customer's deposits were measured by use of Cash ratio, (CR) which is calculated by dividing absolute liquid assets by current liabilities. Bank capital was measured by use of capital adequacy Ratio. Loan

Growth was measured by subtracting interest in suspense and loan loss provision from Gross Non-performing loans and advances. Sometimes company financial statements don't give a breakdown of quick assets on the balance sheet. In this case, quick ratio was used and calculated by; Quick Ratio; Total current Assets-Inventory-Prepaid Expenses/Current Liabilities and Working Capital Ratio=Current Assets/Current Liabilities.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design and methodology of the study. It spells out the techniques and methods of data sampling, collection, processing and analysis.

3.2 Research Design

Research Design constitutes a blueprint for the collection, measurement, and analysis of data (Cooper & Schindler, 2003). The study adopted panel data. A panel data set is one that follows a given sample of individuals over time and thus provides multiple observations of each individual in the sample. The reasons for using Empirical research methods is that empirical research method help integrating research and practice, and also educational process needs to progress, (Mugenda,& Mugenda, 1999). One of the main advantages of Panel data is that it enables the researcher to control for unobserved heterogeneity, and secondly since panel data have both cross-sectional and time series dimensions, it provides the researcher with sufficient data points to reduce the likelihood of biasness in the parameter estimators. Panel data set design was used in other studies such as the impact of determinants of liquidity of commercial Banks in Kenya by (Ogilo, 2012).

3.3 Target Population

A population is a well-defined or set of people, services, elements, events, groups of things or households that are being investigated (Vodová, 2011). The population of study consisted of all the 42 banks in Kenya as at 2016. A census study of all banks that have been in operation for the past 5 years was included in the study but the study will collect data from 37 commercial banks since the other banks were in receivership. This period was chosen because it was recent enough to access the data and most of banks undergone most reforms in 2013 so the study sought to establish the bank liquidity 2 years prior to the reforms and also 2 years after the reforms to determine if macro and micro economic factors affect the liquidity. This population is small Therefore, there was no sampling. This method is suitable not only due to the small target population but also it provides detailed and comprehensive information hence eliminates sampling biasness (Ogilo, 2012)

3.4 Data Collection

Only secondary data was used in this study. Data was collected from audited financial statements, annual reports on record and data from the financial market. The secondary data from the financial statements included after tax profit, level of customer deposits, loan advances, liquidity ratios, the liquidity gap in the bank's balance sheet, total capital base, total assets and value of loans outstanding. Data was collected for the period of five years from 2011-2015 using data collection sheet.

3.5 Data Analysis and Presentation

The data collected was coded, organized and analyzed with the help of statistical computer package for social sciences (SPSS).Multiple regression analysis was applied to the data to examine the effect of level of customer's deposits, loan growth, profitability and capital adequacy on bank liquidity in Kenya. Descriptive statistics were used to summarize the data through percentages, frequencies. Tables and bar charts were used to present the data for easy understanding and analysis. Inferential statistics was used to show the strength of association between the variables. 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 liquidity and the independent variables. The Statistical Package for Social Sciences (SPSS) was used to analyze the data. The bank size data was converted into their natural logarithm on all variables to counter co linearity problem.

3.5.1 Model Specification

The study did model specifications to assess the effect of each independent variable on the dependent variables; it was done on the specific objectives. The first objective of the study was to determine the effects of Micro economic factors on bank liquidity. The micro economic factors are proxies by; profitability, customer's deposits, capital adequacy and loan growth. The regression model was specified as;

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \alpha \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where;

Y is the dependent variable (bank liquidity)

a = constant

$\beta_1, \beta_2, \beta_3, \beta_4$=Variable Coefficients

X_1= Profitability

X_2=Customer Deposits

X_3=Capital Adequacy

X_4=loan Growth

$\propto$ = Error term

The second objective of the study was to determine the effects of Macroeconomic factors on bank liquidity. Macro-economic factors were proxies by; GDP, Inflation rate, Interest rate and exchange rate. The regression model was specified as;

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \alpha \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii)$$

Where;

Y is the dependent variable (bank liquidity)

a = constant

$\beta_1, \beta_2, \beta_3, \beta_4$=Variable Coefficients

X_1= GDP

X_2=Interest Rate

X_3=Inflation rate

X_4=Exchange rate

$\propto$ = Error term

The third objective of the study was to determine the combined effect of Micro and Macro economic factors on bank liquidity. The multiple linear regression model was specified as;

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \alpha \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$$

Where;

Y is the dependent variable (bank liquidity)

a = constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta 7, \beta 8$=Variable Coefficients

X_1= Profitability

X_2=Customer Deposits

X_3=Capital Adequacy

X_4=loan Growth

X_5= GDP

X_6=Interest Rate

X_7=Inflation rate

X_8=Exchange rate

Table 1: ***Measurement of Variables***

Variable	Operational definition	Measure
Bank Liquidity	It's the ability of a bank to fund increase in assets and meet obligations as they come due without incurring unacceptable losses.	Working Capital Ratio (WCR) =Current Assets/Current Liabilities.
Profitability	It's the ability of a bank to use its resources to generate revenues in excess of its expenses	Return On Assets(ROA)=Net Income(NI)for the current year /Value of all Company's assets (A) ×100
Level of customer's deposits	This is the amount of money a bank should have available as a percentage of the total amount of money its customers have paid into the bank.	Cash Ratio(CR)= Cash & cash equivalent / Total current liabilities
Capital adequacy	Is the amount of money a bank should have available as a percentage of the total amount of money its customers have paid into the bank.	Capital Adequacy Ratio (CAR)= Total Equity / Total Assets
Loan Growth	This is the percentage change in loans provision of a bank	Percentage change (%) of total loans.
Gross Domestic Product	Is the total monetary/market value of all the finished goods and services produced within a country's borders in a specific period of time.	Real GDP
Interest Rates	It's the rate a bank or other lender charges to borrow its money, or the rate a bank pays its savers for keeping money in an account.	Kenya Banks' Reference rate (KBRR)
Inflation rates	It's the rate at which the general level of prices for goods and services is rising and consequently, the purchasing power of currency is falling.	Consumer Price Index(CPI)
Exchange rates	It's the value of a country's currency verses that of another country or economic zone.	US dollars

3.6 Diagnostic Test

The study conducted the diagnostic test by determining the multicollinearity, normality and the linearity of the study variables.

3.6.1 Multi-Colinearity Test

According to Gujarati (2004), the standard statistical method for testing data for multi-colinearity is analyzing the explanatory variables correlation coefficients (CC); tolerance values and Variance Inflation Factor (VIF). Therefore in this study, to determine multi-colinearity variance inflation factors (VIF) and tolerance were used. For tolerance, values of less than 0.1 suggest multi-colinearity while for values of VIF that exceed 10 are often regarded as indicating multi-colinearity.

3.6.2 Test of Normality

The study run normality test to confirm if the data is appropriate for regression analysis. As a condition, for data to be tested for regression analysis, it must be normally distributed. The study employed histogram to establish if the data was normally distributed, the data is normally distributed when the tails of the histogram have no skewness and the peak is positioned at zero value.

3.6.3 Linearity

The study employed P-P plot to assess the linearity of the variables, a P–P plot is a probability plot for assessing how closely two data sets agree, which plots the two cumulative distribution functions against each other. P-P plots are vastly used to evaluate the skewness of a distribution. P–P plots are sometimes limited to comparisons between two samples, rather than comparison of a sample to a theoretical model distribution. However, they are of general use, particularly where observations are not all modelled with the same distribution.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and findings of the study based on the research objectives. The results are presented in the form of summary tables. Regression and Correlation analysis are used to analyze the data to answer the research objective.

4.2 Descriptive Statistics

Table 2 summarizes the descriptive statistics of the variables included in the regression models as presented. It represents the variables of the 37 commercial banks operating in the Kenya whose financial results were available for the years 2011-2015.

4.2.1 Bank Liquidity

The researcher sought to evaluate the liquidity of the commercial banks in Kenya and it was measured using working capital ratio. Commercial banks generate its working capital ratio through adequate monitoring of the working capital.

From appendix 3, it shows the annual working capital ratio for the sampled commercial banks, Chase Bank registered the highest working capital ratio of 5.39 in 2011 while CFC Bank registered 0.65 in the same year. The banks had fluctuating working capital ratio in the year due to change in the working capital assets which the firm holds. In 2012 First Community Bank registered the highest ratio of 10.6 while I&M Bank depicted the lowest ratio at 0.82. The average annual working capital ratio for the banks in 2014 was 1.25 for Citi bank and 0.61 Guaranty Bank as the lowest. In 2015 the following banks registered the highest and lowest working capital ratio, Barclays Bank Of Kenya, Oriental Commercial Bank at 1.28 and KCB at 0.39 respectively. The highest mean and standard deviation was registered by First Community Bank (3.0080) and 4.2465 by the same bank respectively. This could be attributed to nature of stability that banks enjoy, in terms of market share as well as deposits.

CBK, in its role as the regulator introduced increased capital requirements for all commercial banks in June 2012 to Ksh 1 Billion. This largely had an effect on the smaller banks, which had to

come up with creative ways of raising extra capital in order to keep operating. This resulted in sustained or reduced working capital being recorded. The findings are indicated in appendix three.

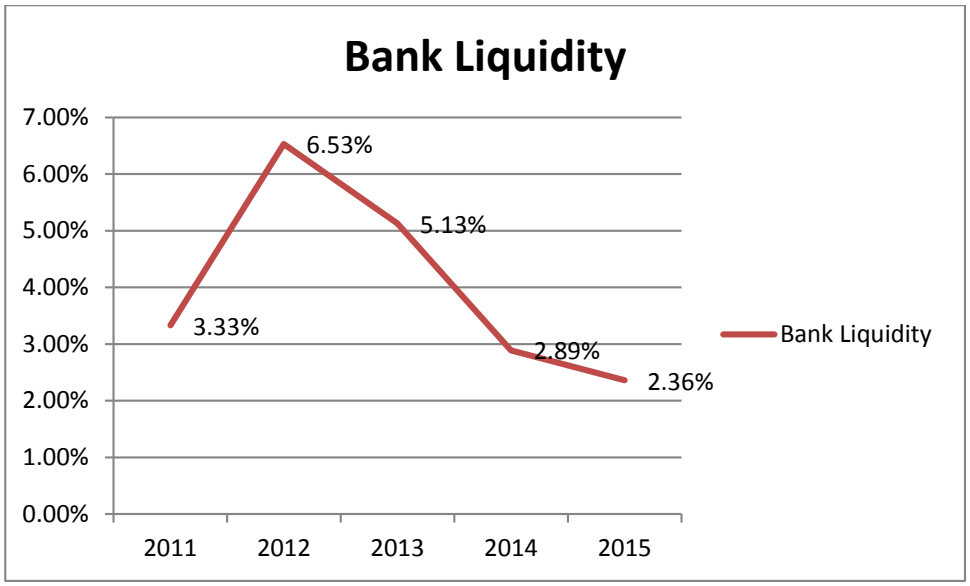
In table 2, the means, standard deviation, maximum and minimum working capital ratio for each year is shown. The mean working capital in 2011 was 1.211 in 2012 it was 1.35 while in 2013 the banks recorded a mean of 1.06, the mean of working capital ratio in 2014 was 1.055 and 1.055 in 2015. The average standard deviation of the working capital of the banks was 0.16. The banks also recorded the highest working capital of 5.39 in 2011 and the lowest working capital of 0.39 in 2015. The highest standard deviation was recorded on 2012 at 1.575 and the lowest standard deviation was recorded on 2013 at 0.11. The high standard deviation shows that the level of customer deposit varies significantly from one bank to another and this could be due to the age of the bank and also the branch network that it has established in Kenya as well as regionally. A significant amount of working capital indicates healthy levels of liquidity. Assets that increase over time are a good indication of the bank's growth. Positive working capital is a fair indication the bank has the financial ability to pay off its short-term debt. If working capital ratio is less than 1, it indicates that the amount of liabilities exceeds the amount of assets. In this study, the mean working capital ratio was above 1 which indicates the amount of liabilities exceeds the amount of assets and it shows the banks could not soon experience financial difficulties, or bankruptcy. The preferred working capital ratio varies according to industry. However, a working capital ratio between 1.2 and 2.0 is generally considered acceptable in the banking sectors in Kenya. The findings are summarized in table 2.

Table 2: ***Bank Liquidity***

Year	Mean	SD	MAX	MIN
2011	1.21	0.76	5.39	0.65
2012	1.36	1.57	10.60	0.82
2013	1.06	0.12	1.28	0.71
2014	1.06	0.13	1.25	0.61
2015	1.06	0.16	1.28	0.39
Average	**1.15**	**0.55**	**3.96**	**0.64**

Figure 2

Trend Analysis for Bank Liquidity



The study sought to determine the trend analysis for the commercial banks for the period of 5 years, the study recorded a mean of 1.21 in the year 2011, then there was an increase of the bank liquidity in 2012 to 1.36 while a reduction to 1.06 was registered in 2013 there after a constant bank liquidity to the year 2015 at a value of 1.06. The findings are summarized in figure 2.

4.2.2 Profitability

In this section, the study sought to establish the profitability of the commercial banks in Kenya between the year 2011 and 2015 and it was measured by return on assets**.**

The appendix 4 shows the trend of annual return on assets for the commercial banks, it is noted that Middle East Bank had highest return on assets of 8% in 2011 and United Bank Of Africa had the lowest return on asset of -7%, the changes in return on assets across he banks was moderate. In 2012 Middle East bank had the highest return on assets of 8% and United Bank of Africa had the lowest return on asset of -10%. The highest return of asset of 7% was registered by Middle East Bank in 2013 and the lowest return on assets on the same year was registered by United Bank of Africa with a return on assets of -7%. Middle east bank registered the highest return on assets in 2014 with a percentage of 9% while United Bank of Africa registered the lowest return on assets

of -6% in the same year. Lastly in 2015 Middle East Bank recorded the highest return on assets of 8% while spire bank and united bank of Africa recorded the lowest return on assets of -3%.

The study found out that Middle East Bank recorded the highest return on assets across the 5 years while united bank of Africa recorded the lowest return on assets on 2011 to 2015 and Spire bank recorded also the lowest return on assets in 2015. The return on assets of commercial banks registered a drop after 2013 simply because the regulations was stiff for the banks and this forced a significant reduction unlike the return on assets in 2011 and 2012 which was slightly high. This could be attributed to nature of commercial banks enjoy, in terms of net profits as well as assets. CBK, in its role as the regulator introduced increased asset management for all commercial banks in June 2012; this largely had an effect on the banks, which had to come up with creative ways of raising extra capital in order to keep operating. This resulted in sustained or reduced return on assets being recorded.

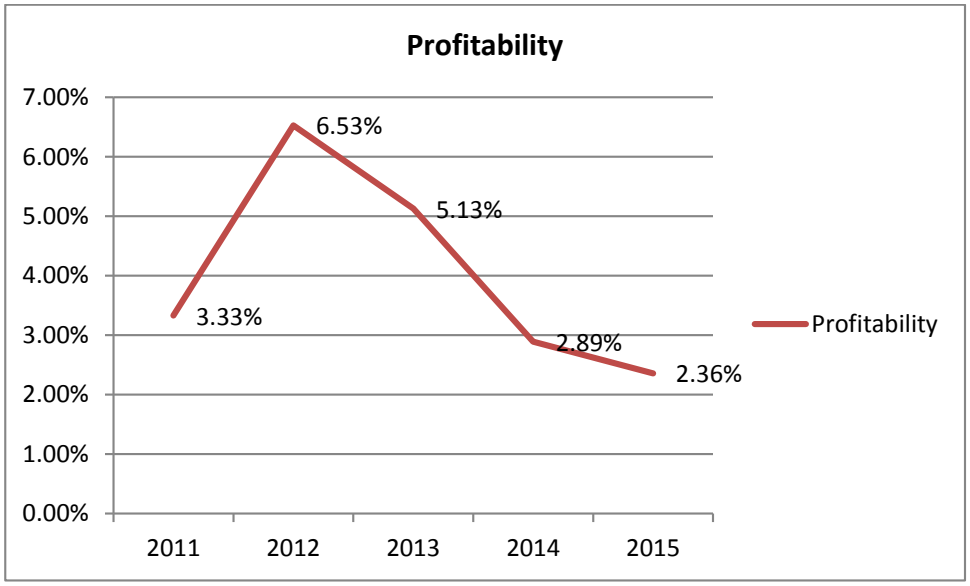
Over the five year period, banks registered the following levels of return on assets with the mean of 2.66% in 2011, 2.23% in 2012 while 2.36% in 2013, 1.70% in 2014 and 1.61% in 2015. The highest level of return on asset of 16.14% was recorded in the year 2011 while the lowest level of -9.83% was recorded in the year 2012. The fluctuations in return on assets are as indicated by the average standard deviation of 1.87%. Return on assets is a measure of how effectively a company uses its assets. The higher ROA, the better is the utilization of the company's assets. The commercial banks had the highest ratio of 2.36% in 2013 which depicts effective utilization of the assets compared to other years also the banks easily generated profits huge amount of money pumped in the same year. Investors can use ROA figure to analyze which bank has efficient utilization and thus make an informed choice before investing. An increasing ROA suggests profitability of the bank is increasing. On the other hand, a decreasing ROA can be an indication that bank's performance is deteriorating. The findings are summarized in Table 3.

Table 3: ***Profitability***

Year	Mean	Standard deviation	Maximum	Minimum
2011	2.66%	2.88%	16.14%	-4.75%
2012	2.23%	3.14%	12.61%	-9.83%
2013	2.36%	2.59%	11.57%	-7.33%
2014	1.70%	2.06%	4.94%	-5.93%
2015	1.61%	1.88%	4.74%	-3.38%
Average	**2.11%**	**2.51%**	**10.00%**	**-6.24%**

Figure 3

Trend Analysis of Profitability



In figure 3, the study recorded a decline in profitability for the period under study, the study recorded a mean profitability of 2.66% in 2011, followed by a mean of 2.23% in 2012 then the study recorded a steady increase to 2.36% in 2013 then followed by a decline in profitability with a value recorded at 1.70% and 1.61% in profitability in the years 2014 and 2015 respectively. The decline was a result of changes in economic conditions in the country for that period.

4.2.3 Level of Customer's Deposits

The study sought to evaluate the level of customer's deposits of commercial banks in Kenya between 2011 and 2015 and it was measured by use of cash ratio. In appendix 5, the study sought to determine the trend analysis of cash ratio for the all commercial banks, in the year 2011 Gurdian Bank registered the highest ratio of 10.76% while Bank of India recorded the lowest cash ratio of 0.28%, in 2012 Chase Bank depicted 12.84% followed by First Community Bank (12.20%) while Bank Of India registered 0.20% of the cash ratio. The commercial bank also registered the highest cash ratio of 70.65% by First Community Bank in 2013 while Bank of India recorded the least cash ratio at 0.34%. In 2015 the following was the cash ratio, 9.18% for Middle East Bank and bank of India recorded the least cash ratio of 0.32%.

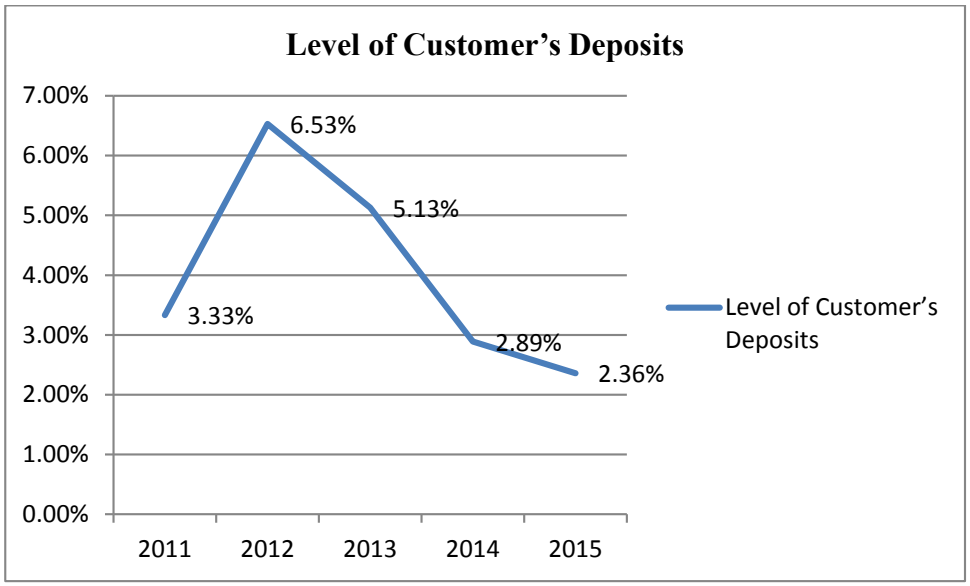
The banks recorded a mean of 3.33% in 2011, 6.53% in 2012 while the bank recorded 5.13% in 2013. The banks also recorded standard deviation of 2.47% in 2014 and standard deviation of 1.96% in 2015. T. The maximum cash ratio of 70.65% was recorded in 2013 and minimum cash reserve ratio of 0.002% in 2012. The commercial banking sector has witnessed a gradual fluctuation in customer deposits and total assets. The findings are summarized in Table 4.

Table 4: ***Level of Customer's Deposits***

Year	Mean	Standard deviation	MAX	MIN
2011	3.33%	2.90%	10.76%	0.28%
2012	6.53%	18.07%	12.20%	0.02%
2013	5.13%	11.48%	70.65%	0.34%
2014	2.89%	2.47%	10.67%	0.32%
2015	2.36%	1.96%	9.18%	0.03%
Average	**4.05%**	**7.38%**	**22.69%**	**0.20%**

Figure 4

Level of Customer's Deposits



The study sought to determine the level of customer's deposits where in 2011 the study registered 3.33% while an increase in deposits was recorded in 2012 at a value of 6.53% and a decline of the deposits was recorded from 2013 at a value of 5.13% to a value of 2.89% in 2014 and a value of 2.36% in the year 2015.

4.2.4 Capital Adequacy

Table 5 gives a summary of the mean, standard deviation, maximum and minimum values of the capital adequacy ratio which is a measure of capital adequacy of the commercial banks between 2011 and 2015. Capital adequacy ratio shows the internal strength of the bank to withstand losses during crisis. The statutory requirement of capital adequacy ratio is 14.5%. The appendix 6 shows the capital adequacy ratio of various banks between 2011 and 2015. In 2011 Jamii Bora Bank and Transnational Bank had the highest capital adequacy ratio of 24% which is high above the statutory requirements while First Community Bank had a lowest capital adequacy ratio of 1% which is below the statutory requirement. In 2012 Chase Bank has the highest ratio of 27% and in the same year First Community Bank posted the lowest capital adequacy ratio of 2% while Jamii Bora Bank recorded highest capital adequacy ratio of 25% in the year 2013 and Consolidated Bank recorded the lowest ratio of 7% in the same year. In 2014 Jamii Bora Bank registered the highest capital

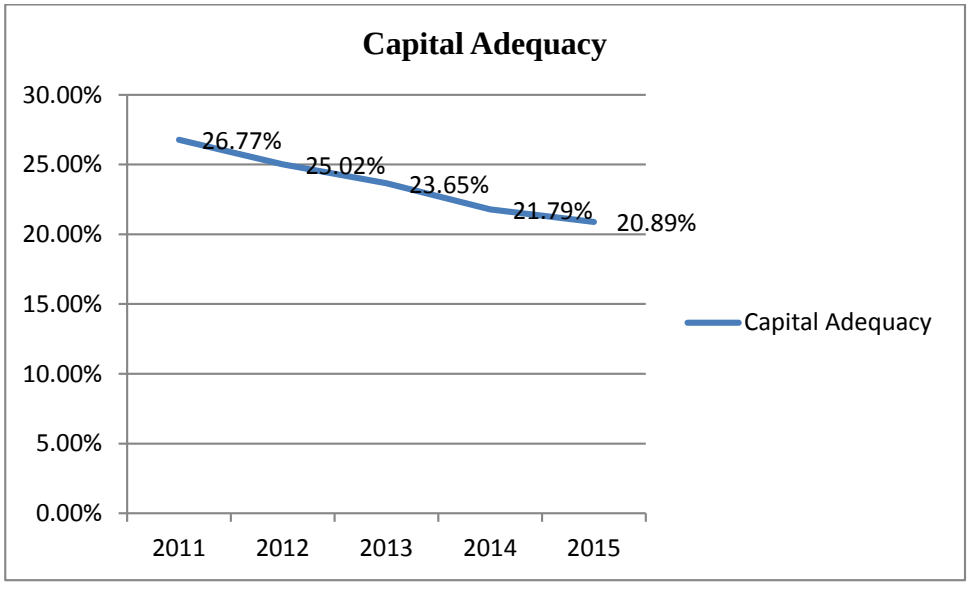
adequacy ratio of 24% which is above the statutory requirement which is set by the central bank of Kenya while Spire Bank recorded the lowest capital adequacy ratio of 7% in 2014. In table 5, the average capital adequacy ratio for the banks range between a high of 26.77% and low of 20.89%. The highest maximum value was 79.87% registered on the year 2011 with the minimum value of 8.87% registered in 2012. The minimum capital adequacy was registered in the year 2012 with a minimum of 8.87%. The standard deviation of data ranges between 15.85% and 7.24% showing a narrow spread which depicts that these data is more reliable.

Table 5: ***Capital Adequacy***

Year	Mean	Standard deviation	MAX	MIN
2011	26.77%	15.85%	79.87%	10.35%
2012	25.02%	12.54%	72.66%	8.87%
2013	23.65%	10.23%	46.89%	10.82%
2014	21.79%	9.47%	58.62%	10.71%
2015	20.89%	7.24%	42.30%	9.39%
Average	**23.62%**	**11.07%**	**60.07%**	**10.03%**

Figure 5

Capital Adequacy



In figure 5, the study recorded a decline in capital adequacy, the study recorded a mean of 26.77% in 2011, the study recorded a mean of capital adequacy of 25.02% in 2012, the study also recorded a mean of 2013 in 23.65% and a value of 21.79% and 20.89% in the years 2014 and 2015, there was a steady decline in the capital adequacy.

4.2.5 Loan Growth

In the appendix 7, the study sought to evaluate the %change of Total Loans. in 2011 Chase Bank recorded the highest %change Total Loans 71.76% while in the same year CFC Bank depicted the lowest change at -94.92%. This means chase bank had the fastest growth in total loans when compared with the CFC bank. The %change Total Loans was as follows 1347.08% for Chase bank and -19.07% for I &M bank which was an improvement when compared with the year 2011, while the percentage %change Total Loans in 2013 was 68.57% for Commercial Bank Of Africa and -13.03% for Consolidated Bank. The banks also registered the following percentage in 2014 and 2015 Jamii Bora Bank (1495.72%) and Spire Bank (1001.83%) as the highest %change Total Loans respectively. The highest mean was recorded by Jamii Bora Bank (314.77%) while the highest standard deviation of each bank was posted by the same bank at 660.67%.

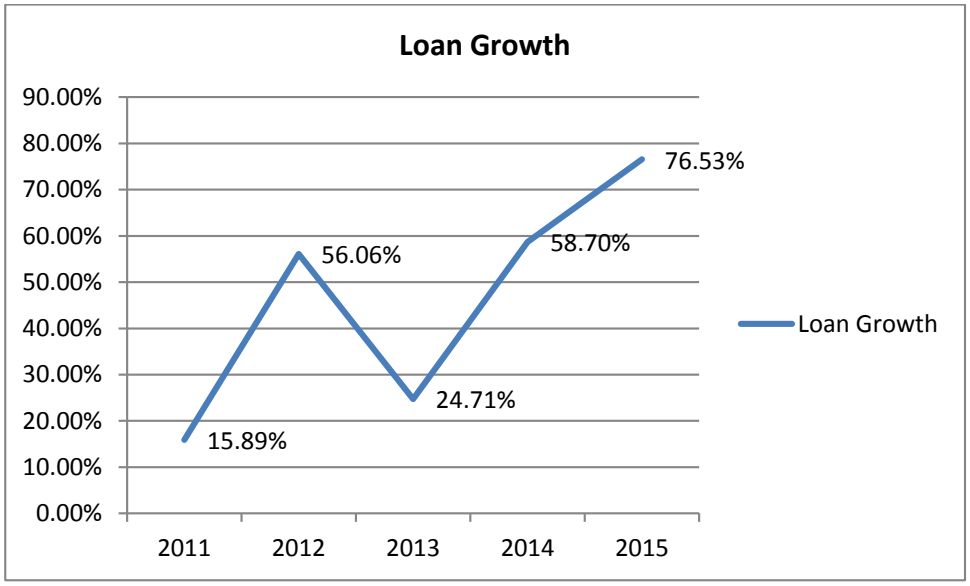
The year 2011 had the lowest mean % change of total loans of 15.89% and 2015 had the highest % change of total loans of 76.53%, with the highest maximum rate of 1495.72% in 2014, and the lowest rate of -98.73% being posted in 2015. The standard deviation values range between 219.01% and 24.92%, which shows a higher dispersion in the percentage change in the total loans. However, results show that the commercial banking sector has witnessed gradual fluctuations on loans ratio. The consistent fluctuations in loan ratio could be explained by the observation that total assets seems to have increased at a higher rate that the loans/advances. The commercial banking sector has also witnessed a gradual decline in deposits ratio. The consistent decline in deposit ratio could be explained by the observation that total assets seems to have increased at a higher rate than the deposits. The findings agree with those in (Olweny, 2011) who noted that the commercial banks assets have increased sharply over the years. The increase was partly driven by the requirements for capital adequacy where banks were required to have a minimum of 1 billion Kenya shillings as their core capital. The report by Olweny, (2011) noted that majority of banks have responded positively to this requirement. The findings are summarized in table 6.

Table 6: ***Loan Growth***

Year	Mean	Standard deviation	MAX	MIN
2011	15.89%	24.92%	71.76%	-94.92%
2012	56.06%	219.01%	1347.08%	-19.07%
2013	24.71%	18.65%	68.57%	-13.03%
2014	58.70%	247.58%	1495.72%	-80.25%
2015	76.53%	269.16%	1001.83%	-98.73%
Average	**46.38%**	**155.86%**	**796.99%**	**-61.20%**

Figure 6

Loan Growth



In figure 6 illustrated the loan growth, in 2011 the study registered a value of 15.89%, and in 2012 the study registered a value of 56.06% while a value of 24.71% recorded in the year in 2013 and a value of 58.07% and 76.53% in the year of 2014 and 2015 in the loan growth. The study depicted a fluctuating loan growth.

4.2.6 Bank Size

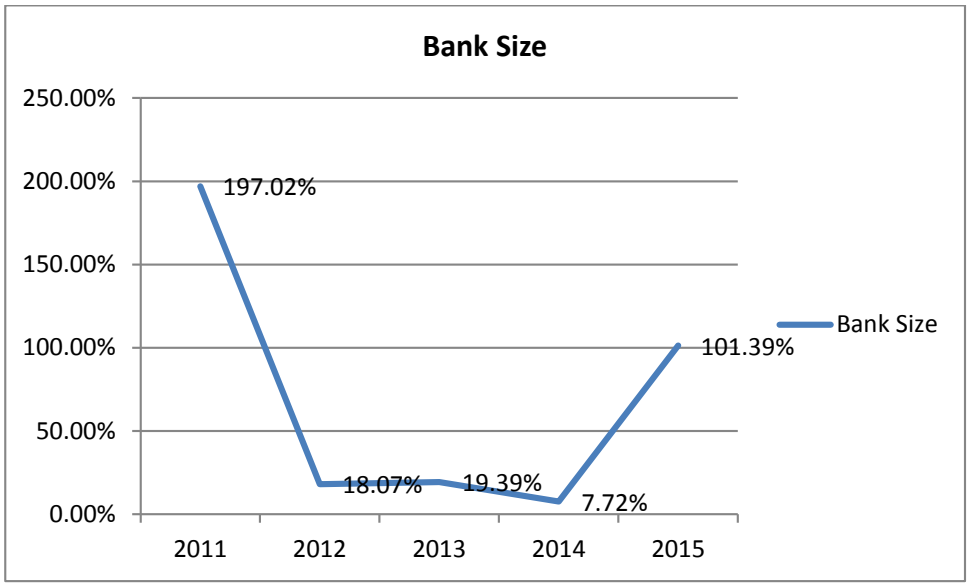
Table 7 highlights the mean, standard deviation, maximum and minimum values for the percentage change in total assets which measure the bank size. The year 2014 had the lowest mean % change of total assets at 7.72% and 2011 had the highest mean % change of total assets at 197.02%, with the highest maximum rate of 6647.59% in 2011, and the lowest rate of -100.00% being posted in 2015. The standard deviation values range between 10.89% and 75.54%, which shows a higher dispersion in the percentage change in the total assets. Market concentration had a positive and significant relationship with bank profitability. As concentration increases, competition decreases and profitability increases. One of the paradigms that advocates for this relationship is structure conduct performance paradigm which postulates that the most important profitability determinant is increased market power driven by increased market growth and concentration. A profitability enhancing market growth ensues when demand for bank products and services rises as a result of better quality services and acceptable price. The results confirm the findings of (Pervan et al., 2015).

Table 7: ***Bank Size***

Year	**Mean**	**Standard deviation**	**MAX**	**MIN**
2011	197.02%	10.89%	6647.59%	-8.81%
2012	18.07%	14.08%	54.46%	-6.79%
2013	19.39%	12.77%	42.09%	-10.14%
2014	7.72%	22.13%	63.62%	-80.10%
2015	101.39%	75.54%	1583.36%	-100.00%
Average	**68.72%**	**27.08%**	**1678.22%**	**-41.17%**

Figure 7

Bank Size



The study sought to determine the trend analysis of the bank size, the study recorded a mean of 197.02% in the year, the study registered a mean of 18.07% in the year 2012 while a bank size recorded a mean of 19.39% in 2013, 2014 recorded a mean of 7.72% and mean of 101.39% in the year 2015. The study recorded a fluctuating in the bank size. The study findings are summarized in figure 7

4.2.7 Macro-Economic Factors

Table 8: ***Log Gross Domestic Product***

Year	MEAN	SD	MAX	MIN
2015	6.61	6.61	6.61	6.61
2014	6.58	6.58	6.58	6.58
2013	6.56	6.56	6.56	6.56
2012	6.54	6.54	6.54	6.54
2011	6.52	6.52	6.52	6.52
	6.56	**0.04**	**6.61**	**6.52**

The table 8 illustrates the information on macroeconomic factors. The GDP for 2011 was 6.52, 2012 was 6.54, while for 2013 it was 6.56, in 2014 the GDP was 6.58 and 2015 it was 6.61. The mean GDP for the economy was 6.56 while the standard deviation was 0.04.

Table 9: ***Log Inflation***

Year	Mean	SD	MAX	Min
2015	2.20	2.20	2.20	2.20
2014	2.16	2.16	2.16	2.16
2013	2.15	2.15	2.15	2.15
2012	2.12	2.12	2.12	2.12
2011	2.10	2.10	2.10	2.10
	2.15	**0.04**	**2.20**	**2.10**

The inflation was 2.10, 2.12, 2.15, 2.16 and 2.20 for 2011,2012,2013,2014 and 2015 respectively. The mean inflation rate for the economy was 2.15 while the standard deviation was 0.04. The findings are summarized in table 9

Table 10: ***Interest Rate***

Year	Mean	SD	MAX	Min
2015	9.00	9.00	9.00	9.00
2014	9.30	9.30	9.30	9.30
2013	9.50	9.50	9.50	9.50
2012	11.00	11.00	11.00	11.00
2011	7.00	7.00	7.00	7.00
	9.16	**1.43**	**11.00**	**7.00**

The interest rates (KBRR) were 7.00, 11.00, 9.50, 9.30 and 9.00 for 2011, 2012, 2013, 2014 and 2015 respectively. The findings are summarized in Table 10

Table 11: ***Log exchange rate***

Year	Mean	SD	MAX	Min
2015	1.99	1.99	1.99	1.99
2014	1.94	1.94	1.94	1.94
2013	1.94	1.94	1.94	1.94
2012	1.93	1.93	1.93	1.93
2011	1.95	1.95	1.95	1.95
	1.95	**0.03**	**1.99**	**1.93**

The mean exchange rate for the economy was 1.95 while the standard deviation was 0.03. The findings are summarized in table 11.

4.3 Diagnostic Tests

Osborne and waters (2002) argue that when these assumptions are not met the results may not be valid and may lead to type I or type II error or under or over-estimation of significance. It is therefore important to pretest for these assumptions for validity of the results, hence ensuring that the findings are worth using in decision making. Prior to data analysis, the following assumptions for regression were checked that is multicollinearity, normality and linearity.

4.3.1 Multi-Colinearity Test

Multi-co linearity is a problem in multiple regressions that develops when one or more of the independent variables are highly correlated with one or more of the other independent variables. If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from perfect colinearity, and it cannot be estimated by OLS (Brooks 2008). Failure to account for perfect multi-colinearity results into determining regression coefficients and infinite standard errors while existence of imperfect multi-colinearity results into large standard errors. Large standard errors affect the precision and accuracy of rejection or failure to reject the null hypothesis. During estimation, the problem is not lack of multi-colinearity but rather its severity.

The average data for 37 commercial banks in the last 5 year period (2011-2015) was used. Failure to account for perfect multicollinearity results into determining regression coefficients and infinite standard errors while existence of imperfect multi-collinearity results into large standard errors. Large standard errors affect the precision and accuracy of rejection or failure to reject the null hypothesis. During estimation, the problem is not lack of multi-collinearity but rather its severity. According to Gujarati (2004), the standard statistical method for testing data for multi-collinearity is analyzing the explanatory variables correlation coefficients (CC); tolerance values and Variance Inflation Factor (VIF). Therefore in this study, to determine multi-collinearity variance inflation factors (VIF) and tolerance were used. For tolerance, values of less than 0.1 suggest multi-collinearity while for values of VIF that exceed 10 are often regarded as indicating multi-collinearity. The results shows that all the variables had a VIF that is less than 10 and a tolerance value of more than 0.1 ruling out the possibility of multi-colliearity. Therefore, the results imply that there was no multi-collinearity problem among independent variables. The findings are summarized in table 12.

Table 12: ***Multi-collinearity coefficients***

Model	**Collinearity Statistics**	
	Tolerance	VIF
Macro-economic factors	.978	1.022
Micro economic factors	.978	1.022
a. Dependent Variable: Bank Liquidity		

4.3.2 Test of Normality

Majority of the statistical procedures including correlations, regression, t-tests and analysis of variance are based on the assumptions that the data follows normal distribution. Thus it is assumed that the populations from which the samples are taken are normally distributed. Normality is important because if the assumptions do not hold, it is impossible to draw accurate and reliable conclusions. Test of normality is carried out to assess the extent to which the variables of interest assume a normal probability distribution. This study tested for normality using histogram. The results for test of normality were presented in figure 8.

Figure 8

Test for Normality

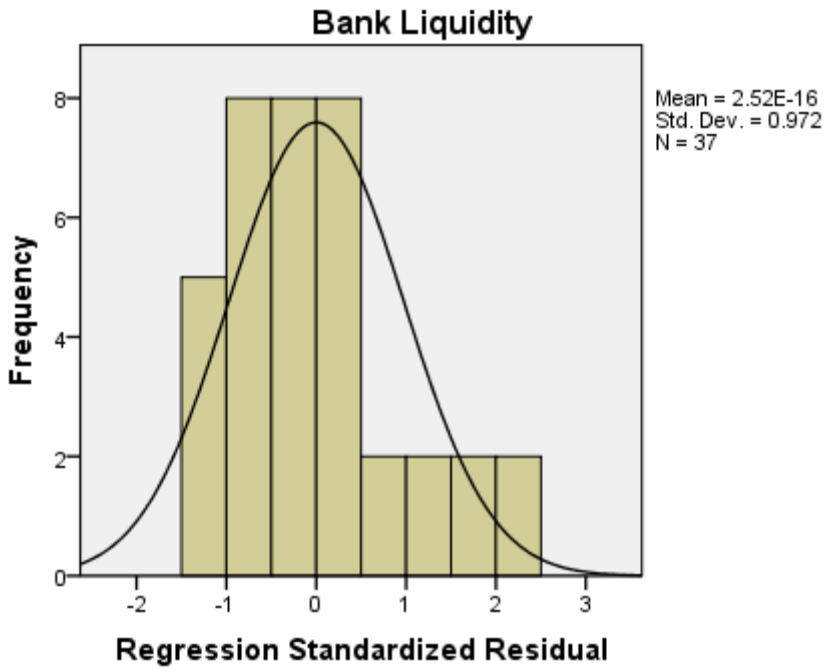


Figure 8, shows a histogram for bank liquidity data from commercial banks in Kenya which was bell shaped indicating that the data was normally distributed. The standard deviation was 0.972 on a sample of 37 banks indicating normal distribution.

4.3.3 Linearity

Multiple regressions can only accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature (Osborne & Waters, 2002). Absence of a linear relationship between independent variables and the dependent variable leads to the results of the regression linear analysis to under-estimate the true relationship. Linearity of data means that the values of the outcome variable for each increment of a predictor variable lie along a straight line. Linearity is an important association between the dependent and the independent variables. In this study, linearity was tested using scatter plots as shows in figure 8.

Figure 9

Test for Linearity

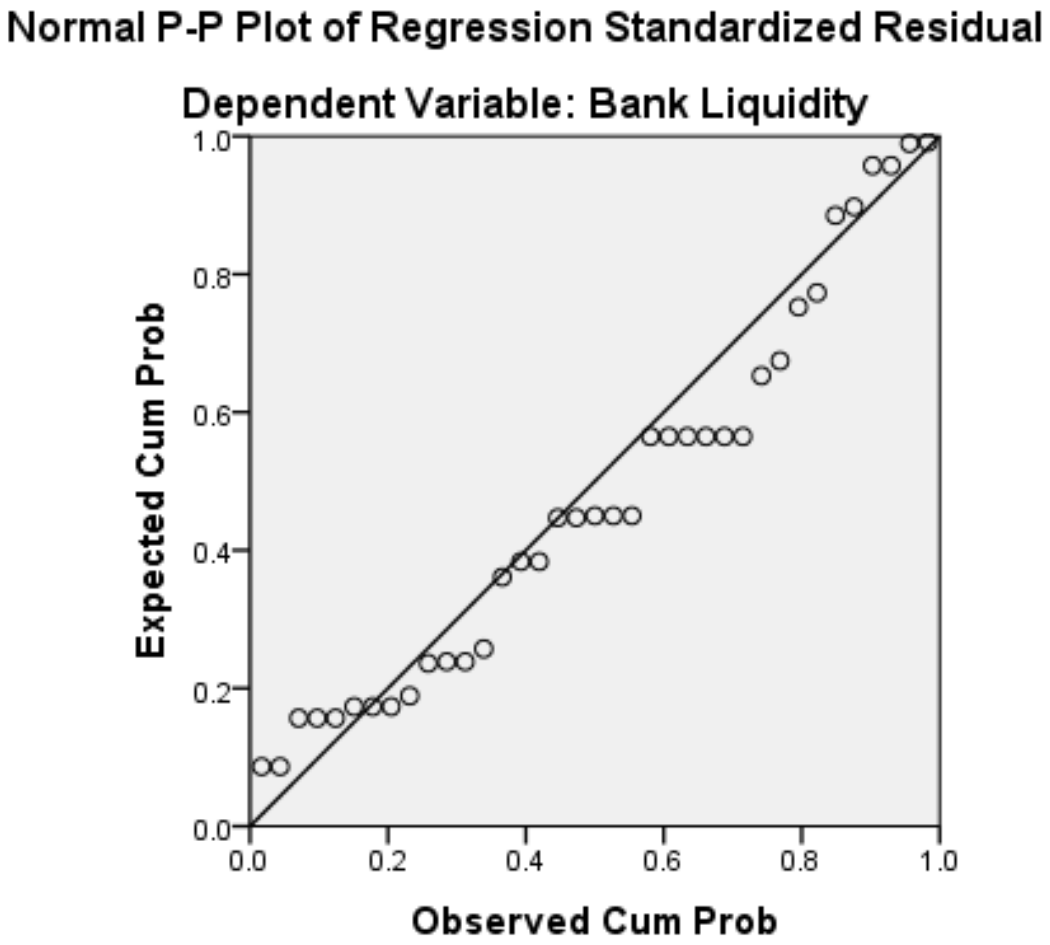


Figure 9 shows there was general linearity of data despite some cases being slightly away from the regression line. The findings also show that the relationship between the macroeconomic, micro economic factors and bank liquidity of commercial banks.

4.4 Inferential Statistics

This is used to make inference about the study population using data drawn from the population itself, usually on the basis of sample analysis and observation. It enables a researcher to arrive at conclusions that extend beyond the immediate data alone; it basically compares, tests and predicts data(Fabozzi et al., 2010). The indices that were used included regression analysis to show the relationship between the variables, ANOVA (Analysis of Variance) that tests the significance of

the findings of the study, the t-test that showed the statistical significance of the findings obtained with results in form of probabilities, which explains the chances of occurrence of an event.

4.4.1 Correlation Matrix

To determine the strength of the relationship between the variables correlation analysis was used. Correlation is denoted as r, and it can take a range of values from -1 to +1. A value of 0 denotes that there is no association between the two variables. A value greater than 0 indicate a positive association, that is, as the value of one variables increases so does the value of the other variables. A value less than 0 indicate a negative association, that is, as the value of one variable increases the value of the other variable decreases (Cohen, 2003). Pearson's Correlation Coefficient was used. The results on the table 13 shows that level of macroeconomic factor was positively related to bank liquidity with a Pearson's Correlation Coefficient of r = 0.239 and at a level of significance of 95%, the study found out macroeconomic factors positively influence the bank liquidity since the Pearson correlation value was higher than 0 and also the microeconomic factors was positively affecting the bank liquidity since the coefficient was 0.623. These findings are in line with the findings of (Maaka, 2013) who found out that macroeconomic and microeconomic factors positively affect the bank liquidity of commercial banks in Kenya.

Table 13: ***Correlation matrix***

		Bank Liquidity	**Macro-economic factors**	**Micro economic factors**
Bank Liquidity	Pearson Correlation	1	.239	.623**
	Sig. (2-tailed)		.154	.000
	N	37	.37	37
Macroeconomic	Pearson Correlation	.239	1	.148
factors	Sig. (2-tailed)	.154		.383
	N	37	37	37
Microeconomic	Pearson Correlation	.623**	.148	1
factors	Sig. (2-tailed)	.000	.383	
	N	37	37	37

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

4.4.2 Regression Analysis

The coefficient of correlation (R) shows the degree of relationship between two or more variables, it measures the nature and strength of the relationship between the variables (Mwangi, 2015). This study used the Adjusted R-Square to show the goodness of fit of the regression model; this is because it only increases if the new term added improves the model by being relevant to the study, and decreases when the added predictor adds no relevance to the study. The coefficient of determination (R-Square) was not used as it shows some bias between the variables; it continually increases when new variables are added to the model with disregard of the relevance of those variables to the study.

4.5.1 Macro economic factors on bank liquidity

The first objective was to determine the effects of macroeconomic factors on banks liquidity. The macro economic factors included GDP, interest rates, inflation rate and exchange rate. The finding is summarized using the regression model in tables 14.

Table 14: ***Model Summary of Macroeconomic factors on bank liquidity***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845[a]	.714	.429	.93332

a. Predictors: (Constant), Exchange Rate , Interest Rates, Inflation Rate, Gross Domestic Product

Research findings on table 14 shows R squared was 0.714 and it shows that the total variation of 71.4% in bank liquidity can be explained by Exchange Rate, Interest Rates, Inflation Rate and Gross Domestic Product. This means that other factors not included in the study accounted for 28.6%. The study also found a strong relationship between the Exchange Rate, Interest Rates, Inflation Rate, Gross Domestic Product and bank liquidity as depicted by coefficient of correlation (R) of 0.845, which are less than 0.5 thresholds.

Table 15: ***ANOVA for Macroeconomic factors on bank liquidity***

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.710	4	2.178	2.500	.198[b]
	Residual	3.484	4	.871		
	Total	12.194	8			

a. Dependent Variable: Bank Liquidity

b. Predictors: (Constant), Exchange Rate , Interest Rates, Inflation Rate, Gross Domestic Product

The ANOVA (Analysis of Variance) results on table 15 shows that the F value of 2.500 was statistically insignificant at 0.198, which was higher than 0.05. This depicts a linear relationship among the variables under study and that the model had higher than 0.05 likelihood of giving a wrong prediction. The above results also show that the independent variable (Exchange Rate, Interest Rates, Inflation Rate and Gross Domestic Product) used was statistically insignificant in predicting the bank liquidity at 95% significance level.

Table 16: Coefficient for Macroeconomic factors on bank liquidity

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	6.129	1.426		4.297	.013
Gross Domestic Product	.673	.482	.706	1.396	.235
Interest Rates	-1.481	.817	-.853	-1.814	.144
Inflation Rate	-.188	.216	-.293	-.868	.434
Exchange Rate	-2.856	1.088	-1.638	-2.624	.059

a. Dependent Variable: Bank Liquidity

Derived multiple regression equation from the data in the table 16 was:

$$Y = 6.129 + 0.673X_1\text{-}1.481X_2\text{-}0.188X_3\text{-}2.856X_4$$

Holding macroeconomic factors constant the bank liquidity will be 6.129, also a unit increase in gross domestic product, the bank liquidity will increase by 0.673 units, also the study recorded a

unit increase in interest rates the bank liquidity will reduce by 1.481 units, a unit increase in inflation rate led to a decline in bank liquidity by 0.188 units and an unit increase in exchange rate led to a decline in bank liquidity by 2.856 units.

From the above findings from table 16 there is no significant relationship of macroeconomic factors with the liquidity of commercial banks (p=0.000) a minimum of 95% confidence level. The above results thus leads to rejecting the null hypothesis that there is no significant effect between macroeconomic factors and bank liquidity given that the p-value is less than 0.05.

4.5.2 Micro economic factors and the bank liquidity

The second objective of the study states to determine the effects of microeconomic factors on banks liquidity, the micro economic factors include; Loan Growth, Level of Customer's deposits, Capital Adequacy, Profitability

Table 17: ***Model Summary for Micro economic factors and the bank liquidity***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.860[a]	.739	.706	.2005826

a. Predictors: (Constant), Loan Growth, Level of Customer's deposits , Capital Adequacy , Profitability

Research findings on table 17 shows R squared was 0.739 and it shows that the total variation of 73.9% in bank liquidity can be explained by variation in Loan Growth, Level of Customer's deposits , Capital Adequacy and Profitability. This means that other factors not included in the study accounted for 26.1%. The study also found a strong relationship between the Loan Growth, Level of Customer's deposits, Capital Adequacy, Profitability and bank liquidity as depicted by coefficient of correlation (R) of 0.860, which is higher than 0.5 thresholds.

Table 18: ***ANOVA for Micro economic factors and the bank liquidity***

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	3.644	4	.911	22.645	.000[b]
	Residual	1.287	32	.040		
	Total	4.932	36			

a. Dependent Variable: Bank Liquidity

b. Predictors: (Constant), Loan Growth, Level of Customer's deposits, Capital Adequacy, Profitability

The ANOVA (Analysis of Variance) results on table 18 shows that the F value of 22.645 was statistically significant at 0.000, which was less than 0.05. This depicts a linear relationship among the variables under study and that the model had lower than 0.05 likelihood of giving a wrong prediction. The above results also show that the independent variable (micro economic factors) used was statistically significant in predicting the bank liquidity at 95% significance level.

Table 19: ***Coefficients for Micro economic factors and the bank liquidity***

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.956	.107		8.916	.000
Level of Customer's deposits	5.012	.535	.859	9.374	.000
Profitability	-.979	1.551	-.059	-.631	.532
Capital Adequacy	.089	.360	.023	.249	.805
Loan Growth	-.013	.045	-.026	-.281	.781

a. Dependent Variable: Bank Liquidity

Derived multiple regression equation from the data in the table 19 was:

$$Y = 0.956 + 5.012X_1 - 0.979X_2 + 0.089X_3 - 0.013X_4$$

Holding customer's deposits, profitability, capital adequacy and loan growth constant the bank liquidity of the commercial banks would be 0.956 units and a unit increase in level of customer's

deposits the bank liquidity will increase by 5.012 units, also a unit increase in profitability led to a decline in bank liquidity by 0.979. The study also recorded that a unit increase in capital adequacy led to an increase in bank liquidity by 0.089 units and lastly a unit increase in loan growth led to a decline in bank liquidity by 0.013 units. The findings are summarized in table 19.

As presented in Table 18, microeconomic factors has significant effect (p=0.000) with bank liquidity at a minimum of 95% confidence level. Based on this finding, the study rejects the null hypothesis ($H_0 2$) that there is no significant effect of microeconomic factors on banks liquidity.

4.5.3 Effect of Macro and Micro Economic Factors on Bank Liquidity

The study conducted multiple regression model to establish the effect of macroeconomic factors and micro economic factors combined on the bank liquidity of commercial banks in Kenya.

Table 20 shows the results of multiple regressions on the model summary. The value of R^2 is 0.411, revealing 41.1% variability in bank liquidity accounted for by the macroeconomic factors and microeconomic factors in the model developed. The adjusted R^2 is an improved estimation of R^2 in the population. The value of adjusted R^2 is 0.376. This adjusted measure provides a revised estimate that is 37.6% per cent of the variability in bank liquidity due to the fitted model. The coefficient of determination in this study was 0.641 which depicts the strong correlation between the dependent and independent variables. These findings are supported by the findings of the (Tadesse,& Tesfaye 2015) who found the coefficient correlation was more than 0.61 and the R square of 0.423.

To draw inferences about the population of the sampled data, the study used a regression model, T -test is widely adopted for hypothesis testing. This test-of-significance method is to verify the truth or falsity of a null hypothesis by using sample results, showing that the means of two normally distributed populations are equal. As a result, the key idea behind tests of significance is that of a test statistic and the sampling distribution of such a statistic under the null hypothesis (Gujarati, 2003). In the case of t-test, t distribution is used, and a statistic is considered to be statistically significant if the value of the test statistic lies in the critical region, in which case the null hypothesis is accepted. In all the tests, the decision rule was if the P value observed (calculated P) is less than the set alpha (α) that is the confidence level of 0.05, then accept the null hypothesis

and if the P value observed is greater than the set alpha of 0.05, do reject the null hypothesis. The testing of these hypotheses was done at level of significance of 0.05.

Table 21 is the analysis of variance which measures the overall significance of the model; the model was statistically significant since the p value of 0.000 was less than 5% level of significance.

The study composed a composite index for the four variables of macro and micro economic factors using the Excel before exporting the variables to the SPSS. The regression result presented in table 22 indicates macroeconomic factors and microeconomic factors had positive coefficients. The coefficients are used to answer the following regression model which relates the independent and dependent variables. As per the SPSS generated table 22, the established regression equation was:

$$Y = a + \beta_1 \text{Macroeconomic factors} + \beta_2 \text{Microeconomic factors}$$

Y (Liquidity) = 0.376+0.208*Macroeconomic factors +0.530*Microeconomic factors

The regression equation above has established that holding independent variables to be constant liquidity of commercial banks will be 0.376. The findings presented also depicted that taking other independent variables at zero, a unit increase in macroeconomic factors will lead to 0.208 increases in bank liquidity and a unit increase in macroeconomic factors will lead to 0.503 increases in bank liquidity. These findings depict a positive relationship between the variables.

Table 20: ***Model Summary***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.641[a]	.411	.376	.90535

a. Predictors: (Constant), Micro economic factors , Macro economic factors

Table 21: ***ANOVAa***

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.429	2	9.714	11.852	.000[b]
	Residual	27.868	34	.820		
	Total	47.297	36			

a. Dependent Variable: Bank Liquidity

b. Predictors: (Constant), Micro economic factors , Macro economic factors

Table 22: ***Coefficientsa***

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.376	.487		.772	.446
Macro-economic factors	.208	.184	.151	1.131	.266
Micro economic factors	.530	.117	.601	4.517	.000

a. Dependent Variable: Bank Liquidity

As presented in Table 21, macroeconomic and microeconomic factors has significant relationship (p=0.00) with bank liquidity at a minimum of 95% confidence level. Based on these results of Hypothesis $H_0$3 (There is no significant effect of macroeconomic and microeconomic factors on banks liquidity) was rejected because it fall on rejection region. By rejecting the null hypothesis the results indicates that macroeconomic and microeconomic factors profitability has significant effect on bank liquidity. In addition, the ANOVA test shown in table above was used to test the significance of the model and to test the existence of variable variations within the model.

4.6 Hypothesis Testing and Discussion of the Findings

The purpose of this study was to establish the effects of micro and macro-economic factors on bank liquidity of commercial Banks in Kenya. Secondary data was collected from central bank of Kenya database and annual audited financial statements for the banks that formed the sample. Data collected was keyed into SPSS and analysis undertaken. The descriptive results found that most

banks take much into considerations the macro economic factors and micro economic factors since they have an effect on the bank liquidity.

H_{01}: There is no significant effect of Microeconomic factors on banks liquidity

As presented in Table 17, microeconomic factors has significant effect (p=0.000) with bank liquidity at a minimum of 95% confidence level. Based on this finding, the study rejects the null hypothesis ($H_0$2) that there is no significant effect of microeconomic factors on banks liquidity. By rejecting the null hypothesis the results indicates that microeconomic factors have significant effects on the liquidity of commercial banks in Kenya. These findings are in line with the findings of (Moyo et al., 2019) which depicts microeconomic factors positively influence the bank liquidity of commercial banks in Zimbabwe and also the findings are in line with the findings of (Mutunga, 2018) who did a study on the role of micro factors on the financial performance of manufacturing firms in Kenya and found out a statistically positive and significant direct relationship between micro factors on firm financial performance.

From the above regression model, the study found out that micro economic factors and micro economic factors had a positive effect on bank liquidity. The three independent variables that were studied (Macro-economic factors and microeconomic factors) explain a substantial 37.6% of bank liquidity of commercial banks in Kenya as represented by adjusted R2 (0.376). This therefore means the two variables contribute to 37.6% of the bank liquidity, while other factors not studied in this research contributes 62.4% of bank liquidity. This is in agreement with (Mutunga, 2018) who stated that firm efficiency can be influenced by factors that can be controlled by the firm, as well as by factors that are not under the control of such firms. Several studies conducted under the same topic by the South African (Ncube, 2009), Tanzanian (Aikaeli, 2006) and (Ikhide, 2008) found positive results in the relationship between micro economic variables and efficiency. However, Jagwani (2012) and (Kiyota, 2011) found no significant relationship between micro economic variables and institutional efficiency.

H_{02}: There is no significant effect of macroeconomic factors on banks liquidity

From the findings from table 19 there is no significant relationship of macroeconomic factors with the liquidity of commercial banks (p=0.266) a minimum of 95% confidence level. The above results thus leads to the accepting the null hypothesis that there is significant no significant effect between macroeconomic factors and bank liquidity given that the p-value is higher than 0.05. In a study by Mwangi (2015) on the effects of macroeconomic variables on financial performance of insurance companies in Kenya and found out high macroeconomic factors resulted in increased NPLs as a measure of financial performance which would then reduce the profits realized. These findings were similar to the findings of this study which also macroeconomic factors insignificantly affect the banks liquidity which was measured using the working capital ratio.

The study also established that the beta coefficient for macroeconomic factors was 0.208, meaning that macroeconomic factors positively and insignificantly influenced the bank liquidity of commercial banks in Kenya. This is in line with Mwangi (2015) who found that macro-economic factors is positively related to a firm's ability to produce technologically complicated products which in turn leads to banks efficiency. Vodova (2011) also found that the positive association between macroeconomic factors and efficiency stems from implementing greater differentiation and specialization strategies, and should therefore lead to bank efficiency. Subedi and Neupane (2013) who re-evaluated earlier findings against new data within an improved analytical framework showed that macroeconomic factors influences liquidity in some, but not all industries. In addition, Tuyishime (2015) indicated that the macroeconomic factors is a primary factor in determining the deposit mobilization of a firm due to the concept known as economies of scale which can be found in the traditional neo classical view of the firm.

The study established that the coefficient for micro economic factors was 0.530, meaning that micro economic factors positively and significantly influenced the bank liquidity of commercial banks in Kenya. This correlates to Mutunga (2018) showed a positive impact of micro economic factors on manufacturing firm’s performance. On the other hand, studies of Surow (2014) showed a significant negative impact of micro economic factors on company efficiency. The contradicting empirical evidence suggests that higher capital adequacy ratio as a proxy of micro economic factor leads to lower financial performance.

H_{03}: There is no significant effect of macroeconomic and microeconomic factors on banks liquidity

As presented in Table 21, macroeconomic and microeconomic factors has significant relationship (p=0.00) with bank liquidity at a minimum of 95% confidence level. Based on these results of Hypothesis $H_0$3 (There is no significant effect of macroeconomic and microeconomic factors on banks liquidity) was rejected because it fall on rejection region. By rejecting the null hypothesis the results indicates that macroeconomic and microeconomic factors profitability has significant effect on bank liquidity. In addition, the ANOVA test shown in table above was used to test the significance of the model and to test the existence of variable variations within the model. These findings are supported by the findings of (Gatuhu, 2013) which depicts the macroeconomic factors and microeconomic factors on the bank liquidity. The ANOVA results show that the model was significant ($F = 11.852$, $p < 0.05$). This further indicates that the independent variables used (macroeconomic factors and microeconomic factors) are statistically significant in predicting bank liquidity of commercial banks at 5% level of significance.

The study also established that the ANOVA coefficient for combined micro economic and macro-economic factors was 0.000, meaning that macroeconomic and micro economic factors positively and significantly affect the bank liquidity. This agrees with Talaso (2015) who indicated that the government as bank regulator through the CBK should adopt policies that ensure increased bank performance. Strict conditions of minimum liquidity and capital should continue being emphasized on to ensure none of the banks have lower of the two. Increased bank performance leads to general economic growth. The supervisory body of macroeconomic environment like Inflation and GDP should ensure viable environment for micro banking. They should regulate the variables in such a way that they lead the economy towards the growth and favor of MFBs. This will favor the financial sector by facilitating better the financial health thus increased economic growth. Previous studies revealed that managers cannot keep increasing the level of debt and that debt can also serve as a protection mechanism not to overinvest as cash should be paid to bondholders limiting the possibility of conducting wasteful activities and bondholders have a possibility to evaluate management (Pawlina, 2010).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the key findings of the study as well as the conclusions, limitations of the study, and recommendations for further research

5.2 Summary of the Findings

The secondary data in this analysis covered a period of 5 years from 2011 to 2015. The population of study was all commercial banks that were in operation during the study period. After the screening process firms whose accounts were not available in all the years of study we not included, these were Giro Bank, Prime Bank, Eco Bank, Habib Bank and Habib Zurich Bank.

5.2.1 To Determine the effects of Macroeconomic Factors on Banks Liquidity

From the above findings there is no significant relationship of macroeconomic factors with the liquidity of commercial banks (p=0.266) a minimum of 95% confidence level. The above results thus lead to the failing to reject the null hypothesis that there is no significant effect between level of macroeconomic factors and bank liquidity. Bank policies adopted by commercial banks usually impact the decisions on who to extend the credit to and how much interest rate to charge for the opportunity cost of funds lent. Bikbov and Chernov (2011) noted that one of the tools the credit department employs to manage the costs owing to credit extensions is the review of the lending interest rate offered by the bank from time to time. A key inclusion in most banks' policy is on who verifies and signs the application as well as follow-up of extended credit, therefore the department tasked with management and addressing credit issues is paramount for commercial banks. Banks with a credit committee are more effective in credit management than those without.

5.2.2 To Determine the effects of microeconomic factors on banks liquidity

Microeconomic factors has significant effect (p=0.00) with bank liquidity at a minimum of 95% confidence level. Based on these results of Hypothesis $H_0 2$ (There is no significant effect of microeconomic factors on banks liquidity) was rejected. Liquidity problems if unchecked may adversely affect a given bank's profitability, capital and under extreme circumstances, it may cause the collapse of an otherwise solvent bank. In addition, a bank having liquidity problems may

experience difficulties in meeting the demands of depositors, however, this liquidity risk may be mitigated by maintaining sufficient cash reserves, raising deposit base, decreasing the liquidity gap and profitability of commercial banks. It is imperative for the bank's management to be aware of its liquidity position in different product segment. This will help them in enhancing their investment portfolio and providing a competitive edge in the market.

5.2.3 To determine the effects of combined effect of macroeconomic and micro economic factors on bank liquidity

Combined effect of macroeconomic and micro economic factors size has significant relationship (p=0.00) with bank liquidity at a minimum of 95% confidence level. Based on these results of Hypothesis $H_0$3 (There is significant effect of macroeconomic and micro economic factors on banks liquidity) was rejected because it fall on rejection region. The study found out that combined macroeconomic and microeconomic factors positively affects the bank liquidity.

5.3 Conclusions

Conclusions are made from the study findings resulting from the analyzed data. These are based on the variables studied and their influence on liquidity of commercial banks in Kenya. The objective of the study was to establish the effect of micro and macro variables on the liquidity of commercial banks in Kenya.

This study concludes that out of the microeconomic factors that turn out to positively affect bank liquidity, the data analysis results in chapter four also indicate that liquidity is one of the determinants of performance of banks. The relationship between microeconomic factors and liquidity is positive implying that an increase in microeconomic factors will lead to an increase in bank liquidity of commercial banks.

By analyzing the other statistical results of multiple regressions the study found that the results are very much consistent with the simple regression. Microeconomic factors were statistically significant and overall provide an idea that macro and micro factors are the basic determinant of liquidity in banking sector. So it can be inferred that this promising and potential sector in Kenya can flourish very fast and enhance profitability by improving its liquidity position and operating

efficiency. The pursuit of high financial performance without consideration to the liquidity level can cause great illiquidity. Therefore, any financial institution that has the aim of maximizing its financial performance level must adopt effective liquidity management

5.4 Recommendation of the Study

Strategies to facilitate increased a favorable microeconomic environment of commercial banks should be adopted by management for a good financial performance. As the findings illustrated, financial performance banks in Kenya is highly dependent on the level of the institutions‟ micro environment. Increased Liquidity, total asset (size), and Capital adequacy are seen to facilitate favorable financial performance of these banks.

The supervisory body of macroeconomic environment should ensure viable environment for banking. They should regulate the variables in such a way that they lead the economy towards the growth and favor of commercial banks. This will favor the financial sector by facilitating better the financial health thus increased economic growth.

The government as bank regulator through the CBK should adopt policies that ensure increased bank performance. Strict conditions of minimum liquidity and capital should continue being emphasized on to ensure none of the banks have lower of the two. Increased bank performance leads to general economic growth.

5.5 Contributions of the Study to the Body Knowledge

The research findings of the study contributes to the body knowledge specifically on effects of micro and macro-economic factors on bank liquidity in Kenya and beyond in managing the level of bank liquidity in order for the commercial banks to realize their goals. This is anchored on the adopted conceptual framework which indicated that when combined, macroeconomic and micro economic factors significantly affect the bank liquidity proxied by working capital ratio of commercial banks in Kenya.

Secondly, the study contributes theoretically to the body of knowledge by validating the applicability of the theoretical framework of commercial loan (Traditional) theory, shiftability theory and anticipated income theory of liquidity which had been applied in other contexts but was

significantly absent in commercial banks in Kenya. Reviewed literature indicated that commercial loan theory, shiftability theory and anticipated income theory of liquidity had been used individually to anchor studies in other contexts such as microfinance institutions and insurance firms. Thus, by successfully anchoring the conceptualization of micro economic factors and macro-economic factors in this study fills the gap.

Empirically, the study contributes to the body of knowledge by showing the relationship that exist between the study variables among commercial banks in Kenya. Existing literature showed that although the study constructs had been studied previously, the scholars considered their individual influence on bank liquidity and not their combined influence of macro and micro economic factors. The study also noted that most of these relationships were studied at firm level.

5.6 Areas for further Research

This study is based on data for 5 year, so data from this and other published sources may be insufficient to make a solid conclusion. Hence, further studies should be undertaken to expand the period under study thus increasing the sample data and reliability of the conclusion. The study focused only on the commercial banks sub-sector of the banking sector which provides a conclusion that may not be the same with the rest of the banking sub-sectors hence this provides new areas for further research where the banking sector will be considered in totality including the CBK, microfinance institutions and insurance firms.

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APPENDICES

APPENDIX A: Data Collection Sheet

Variables measurement	**2011**	**2012**	**2013**	**2014**	**2015**
Total Net Income					
Total Asset					
Cash and cash equivalents					
Total liabilities					
No of customer's deposits					
Total loans advanced					
Risk-weighted Exposure					
Tier 1capital					
Tier 2 capital					
Short term investments					
Current receivables					
Current liabilities					
Current assets					
Real GDP					
Inflation rate (CPI)					
Exchange rate (US Dollar)					
Interest rate(kbrr)					

APPENDIX B

List of Commercial Banks

Licensed commercial banks

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank of Kenya
6. CfC Stanbic Holdings
7. Chase Bank Kenya (In Receivership)
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. Ecobank Kenya
16. Equity Bank
17. Family Bank
18. Fidelity Commercial Bank Limited
19. First Community Bank
20. Giro Commercial Bank
21. Guaranty Trust Bank Kenya
22. Guardian Bank
23. Gulf African Bank
24. Habib Bank
25. Habib Bank AG Zurich
26. Housing Finance Company of Kenya
27. I&M Bank

28. Imperial Bank Kenya (In receivership)
29. Jamii Bora Bank
30. Kenya Commercial Bank
31. Middle East Bank Kenya
32. National Bank of Kenya
33. NIC Bank
34. Oriental Commercial Bank
35. Paramount Universal Bank
36. Prime Bank (Kenya)
37. Sidian Bank
38. Spire Bank
39. Standard Chartered Kenya
40. Trans National Bank Kenya
41. United Bank for Africa
42. Victoria Commercial Bank

CBK 2016

APPENDIX C

Working capital ratio for all banks

Years							
Commercial Banks	2011	2012	2013	2014	2015	Mean	STDV
ABC	1.02	0.95	1.04	1.03	1.04	1.0160	0.0378
Bank Of Africa	1.05	1.04	1.05	0.91	0.97	1.0040	0.0623
Bank Of Baroda	1.13	1.13	1.16	1.18	1.19	1.1580	0.0277
Bank Of India	1.16	1.19	1.19	1.21	1.2	1.1900	0.0187
Barclays Bank Of Kenya	1.07	1.08	1.07	1.11	1.28	1.1220	0.0898
CFC Bank	0.65	1.1	0.86	1.02	0.94	0.9140	0.1726
Chase Bank	5.39	0.99	0.97	0.95		2.0750	2.2101
citi bank	0.93	1.06	1.13	1.25	0.99	1.0720	0.1246
Commercial Bank Of Africa	1.05	1.05	1.05	0.99	1.02	1.0320	0.0268
Consolidated Bank	0.99	1.01	0.99	1.01	1.02	1.0040	0.0134
Cooperative Bank	1.04	1.07	1.06	1.08	1.08	1.0660	0.0167
Credit Bank	1.12	1.13	1.12	1.08	1.09	1.1080	0.0217
Development Bank Of Kenya	1.12	1.11	1.11	1.18	1.18	1.1400	0.0367
Diamond Trust Bank	1.09	1.11	1.1	1.14	1.12	1.1120	0.0192
Equity Bank	1.1	1.29	1.28	1.21	1.16	1.2080	0.0804
Family Bank	1	1.04	1.08	1.14	1.1	1.0720	0.0540
Fidelity Bank	1.07	1.06	1.06	1.03	0.91	1.0260	0.0666
First Community Bank	1.36	10.6	1.03	1.01	1.04	3.0080	4.2465
Gurdian Bank	1.06	1.01	1	0.97	1.12	1.0320	0.0589
Guaranty Bank	1.07	0.92	0.71	0.61	1.08	0.8780	0.2118
Gulf African Bank	2.5	2.12	0.91	0.77	0.73	1.4060	0.8388
Housing Finance Cooperation	0.69	0.86	0.95	0.82	0.94	0.8520	0.1057
I&M Bank	1.03	0.82	0.91	0.98	0.91	0.9300	0.0797
Imperial Bank	1.1	1.09	1.09	1.1		1.0950	0.0058
Jamii Bora Bank	1.16	1.16	1.07	1.04	0.99	1.0840	0.0750
KCB	1.03	1.05	1.13	1.1	0.39	0.9400	0.3100

Middle East Bank	1.11	1.16	1.18	1.19	1.21	1.1700	0.0381
National Bank Of Kenya	1.09	1.09	1.05	1.04	1.01	1.0560	0.0344
NIC Bank	1.08	1.1	1.09	1.12	1.12	1.1020	0.0179
Oriental Commercial Bank	1.2	1.17	1.19	1.18	1.28	1.2040	0.0439
Paramount Bank	1.13	1.16	1.15	1.13	1.15	1.1440	0.0134
Sidian Bank	1.09	1.11	1.18	1.12	1.18	1.1360	0.0416
Spire Bank	0.97	0.91	0.97	0.94	1.01	0.9600	0.0374
Standard Chartered Bank	0.95	1.06	1.1	1.11	1.07	1.0580	0.0638
Transnational Bank	1.26	1.22	1.18	1.17	1.17	1.2000	0.0394
United Bank Of Africa	1.14	1.31	1.24	1.19	1.09	1.1940	0.0856
Victoria Commercial Bank	0.84	0.89	0.86	0.93	1.17	0.9380	0.1341

APPENDIX D

Profitability for all banks

Commercial Banks	2011	2012	2013	2014	2015
1. ABC Bank (Kenya)	3.00%	2.00%	2.00%	1.00%	1.00%
2. Bank Of Africa	1.00%	1.00%	1.00%	0.20%	-1.00%
3. Bank Of Baroda	4.00%	2.00%	4.00%	4.00%	2.00%
4. Bank Of India	3.00%	3.00%	3.00%	3.00%	3.00%
5. Barclays Bank Of Kenya	5.00%	5.00%	4.00%	4.00%	3.00%
6. CFC Stanbic Holdings	3.00%	3.00%	3.00%	3.00%	2.00%
7. Chase Bank	2.00%	2.00%	2.00%	2.00%	0.00%
8. Citi Bank	4.00%	7.00%	4.00%	3.00%	4.00%
9. Commercial Bank Of Africa	2.00%	3.00%	3.00%	2.00%	2.00%
10. Consolidated Bank	1.00%	1.00%	-1.00%	2.00%	0.10%
11. Cooperative Bank	3.00%	4.00%	4.00%	3.00%	3.00%
12. Credit Bank	1.00%	1.00%	1.00%	-1.00%	-1.00%
13. Development Bank Of Kenya	1.00%	1.00%	1.00%	6.00%	1.00%
14. Diamond Trust Bank	3.00%	3.00%	4.00%	3.00%	3.00%
15. Equity Bank	6.00%	5.00%	5.00%	5.00%	5.00%
16. Family Bank	-2.00%	-2.00%	3.00%	3.00%	2.00%
17. Fidelity Bank	2.00%	1.00%	2.00%	2.00%	-1.00%
18. First Community Bank	0.20%	2.00%	0.10%	0.30%	0.40%
19. Gurdian Bank	0.30%	1.00%	1.00%	2.00%	2.00%
20. Guaranty Bank	2.00%	2.00%	1.00%	2.00%	2.00%
21. Gulf African Bank	1.00%	2.00%	2.00%	2.00%	3.00%
22. Housing Finance Company of Kenya	2.00%	2.00%	2.00%	2.00%	2.00%
23. I&M Bank	3.00%	2.00%	4.00%	3.00%	4.00%
24. Imperial Bank	5.00%	4.00%	4.00%	4.00%	0.00%
25. Jamii Bora Bank	0.30%	0.10%	0.40%	0.30%	0.20%
26. Kenya Commercial Bank	3.00%	4.00%	4.00%	4.00%	4.00%
27. Middle East Bank	8.00%	8.00%	7.00%	9.00%	8.00%

28. National Bank Of Kenya	2.00%	1.00%	1.00%	1.00%	1.00%
29. NIC	3.00%	3.00%	3.00%	3.00%	3.00%
30. Oriental Commercial Bank	3.00%	2.00%	2.00%	2.00%	2.00%
31. Paramount Bank	1.00%	2.00%	1.00%	1.00%	2.00%
32. Sidian Bank	2.00%	2.00%	2.00%	3.00%	2.00%
33. Spire Bank	1.00%	-3.00%	1.00%	-2.00%	-3.00%
34. Standard Charted Bank Of Kenya	4.00%	5.00%	4.00%	5.00%	3.00%
35. Trasnational Bank	3.00%	2.00%	2.00%	1.00%	2.00%
36. United Bank Of Africa	-7.00%	-10.00%	-7.00%	-6.00%	-3.00%
37. Victoria Bank	3.00%	3.00%	3.00%	3.00%	4.00%

APPENDIX E

Cash Ratio

Commercial banks	2011	2012	2013	2014	2015	mean	STDV
ABC	1.55%	1.01%	0.99%	0.90%	1.17%	1.12%	0.26%
Bank Of Africa	1.61%	1.94%	1.99%	1.45%	1.41%	1.68%	0.27%
Bank Of Baroda	0.60%	0.55%	0.60%	0.59%	0.48%	0.56%	0.05%
Bank Of India	0.28%	0.20%	0.34%	0.40%	0.32%	0.31%	0.07%
Barclays Bank Of Kenya	3.61%	4.34%	3.60%	3.70%	3.04%	3.66%	0.46%
CFC Bank	1.53%	1.82%	1.49%	1.34%	1.54%	1.54%	0.17%
Chase Bank	7.91%	12.84 %	2.03%	3.96%		6.69%	4.78%
citi bank	1.04%	1.37%	2.58%	1.16%	1.98%	1.63%	0.64%
Commercial Bank Of Africa	7.70%	8.46%	2.10%	1.93%	1.80%	4.40%	3.37%
Consolidated Bank	2.17%	2.44%	2.44%	3.53%	2.88%	2.69%	0.53%
Cooperative Bank	4.14%	4.20%	4.61%	3.73%	3.06%	3.95%	0.59%
Credit Bank	3.18%	2.32%	2.24%	2.50%	2.85%	2.62%	0.39%
Development Bank Of Kenya	0.68%	0.65%	0.68%	0.52%	0.55%	0.62%	0.08%
Diamond Trust Bank	1.83%	2.10%	8.03%	2.17%	1.37%	3.10%	2.77%
Equity Bank	1.37%	3.18%	2.76%	2.60%	2.21%	2.42%	0.68%
Family Bank	2.14%	8.09%	16.54 %	5.81%	4.49%	7.41%	5.54%
Fidelity Bank	4.01%	1.95%	1.53%	1.74%	1.79%	2.20%	1.02%
First Community Bank	0.94%	12.20 %	70.65 %	6.99%	8.15%	39.79%	49.45%
Gurdian Bank	10.76%	1.57%	1.44%	1.21%	1.08%	3.21%	4.22%
Guaranty Bank	1.00%	6.04%	1.24%	1.28%	0.78%	2.07%	2.23%
Gulf African Bank	1.00%	4.86%	4.20%	6.13%	3.85%	4.01%	1.89%

Housing Finance Coop	3.17%	0.44%	0.39%	0.32%	0.53%	0.97%	1.23%
I&M Bank	6.55%	5.67%	7.58%	6.59%	4.83%	6.24%	1.04%
Imperial Bank	1.17%	1.82%	1.33%	0.93%	0.96	1.31%	0.38%
Jamii Bora Bank	1.89%	2.35%	2.65%	2.63%	3.07%	2.52%	0.44%
KCB	3.62%	2.98%	3.32%	2.76%	1.93%	2.92%	0.64%
Middle East Bank	6.54%	7.43%	8.48%	9.59%	9.18%	8.24%	1.26%
National Bank Of Kenya	3.87%	5.02%	4.21%	2.48%	2.93%	3.70%	1.01%
NIC Bank	0.88%	0.96%	1.15%	0.90%	0.99%	0.98%	0.11%
Oriental Commercial Bank	3.63%	3.99%	3.73%	3.22%	2.19%	3.35%	0.71%
Paramount Bank	1.69%	1.71%	0.99%	0.77%	0.81%	1.19%	0.47%
Sidian Bank	7.89%	6.20%	5.55%	3.90%	3.38%	5.38%	1.82%
Spire Bank	1.38%	1.58%	5.82%	1.55%	2.07%	2.48%	1.88%
Standard Chartered Bank	2.04%	1.92%	2.16%	2.05%	1.96%	2.03%	0.09%
Transnational Bank	10.65%	4.36%	4.40%	3.70%	3.04%	5.23%	3.08%
United Bank Of Africa	8.17%	5.18%	1.41%	1.49%	0.70%	3.39%	3.19%
Victoria Commercial Bank	1.31%	7.89%	4.88%	10.67 %	0.50%	5.05%	4.31%

APPENDIX F

Commercial Banks Capital Adequacy Ratio Analysis

Commercial Banks	2011	2012	2013	2014	2015
1. ABC Bank (Kenya)	14.00%	11.00%	12.00%	12.00%	13.00%
2. Bank Of Africa	12.00%	10.00%	12.00%	13.00%	12.00%
3. Bank Of Baroda	13.00%	12.00%	15.00%	16.00%	17.00%
4. Bank Of India	14.00%	16.00%	17.00%	15.00%	14.00%
5. Barclays Bank Of Kenya	18.00%	16.00%	16.00%	17.00%	17.00%
6. CFC Stanbic Holdings	13.00%	14.00%	13.00%	16.00%	14.00%
7. Chase Bank	26.00%	27.00%	10.00%	10.00%	
8. Citi Bank	20.00%	25.00%	22.00%	23.00%	20.00%
9. Commercial Bank Of Africa	11.00%	11.00%	9.00%	9.00%	11.00%
10. Consolidated Bank	9.00%	9.00%	7.00%	10.00%	11.00%
11. Cooperative Bank	13.00%	15.00%	16.00%	15.00%	15.00%
12. Credit Bank	18.00%	18.00%	17.00%	13.00%	14.00%
13. Development Bank Of Kenya	14.00%	12.00%	12.00%	16.00%	17.00%
14. Diamond Trust Bank	13.00%	16.00%	16.00%	18.00%	16.00%
15. Equity Bank	20.00%	20.00%	21.00%	14.00%	14.00%
16. Family Bank	14.00%	13.00%	14.00%	17.00%	15.00%
17. Fidelity Bank	9.00%	10.00%	11.00%	10.00%	12.00%
18. First Community Bank	1.00%	2.00%	9.00%	9.00%	9.00%
19. Gurdian Bank	9.00%	10.00%	12.00%	12.00%	14.00%
20. Guaranty Bank	17.00%	15.00%	24.00%	22.00%	27.00%
21. Gulf African Bank	10.00%	12.00%	17.00%	16.00%	16.00%
22. Housing Finance Company of Kenya	15.00%	13.00%	12.00%	10.00%	15.00%
23. I&M Bank	14.00%	13.00%	17.00%	15.00%	16.00%
24. Imperial Bank	14.00%	13.00%	13.00%	13.00%	12.00%
25. Jamii Bora Bank	24.00%	24.00%	25.00%	24.00%	19.00%
26. Kenya Commercial Bank	16.00%	17.00%	19.00%	19.00%	17.00%
27. Middle East Bank	9.00%	10.00%	10.00%	9.00%	8.00%

28. National Bank Of Kenya	15.00%	16.00%	13.00%	10.00%	9.00%
29. NIC	13.00%	15.00%	16.00%	17.00%	17.00%
30. Oriental Commercial Bank	26.00%	22.00%	22.00%	20.00%	26.00%
31. Paramount Bank	16.00%	16.00%	15.00%	13.00%	15.00%
32. Sidian Bank	14.00%	16.00%	13.00%	15.00%	20.00%
33. Spire Bank	9.00%	5.00%	9.00%	7.00%	14.00%
34. Standard Charted Bank Of Kenya	13.00%	16.00%	16.00%	18.00%	17.00%
35. Trasnational Bank	24.00%	21.00%	19.00%	19.00%	19.00%
36. United Bank Of Africa	20.00%	22.00%	19.00%	12.00%	14.00%
37. Victoria Bank	16.00%	20.00%	19.00%	17.00%	18.00%

APPENDIX G

Percentage change Total Loans

YEAR	2011	2012	2013	2014	2015	Mean	STDV
ABC	49.14%	9.30%	27.29%	10.60%	39.01%	27.07%	17.44%
Bank Of Africa	39.76%	10.49%	24.98%	4.64%	-57.07%	4.56%	37.05%
Bank Of Baroda	14.51%	7.55%	20.40%	9.26%	76.69%	25.68%	28.95%
Bank Of India	38.54%	6.57%	15.96%	44.30%	454.79%	112.03 %	192.24%
Barclays Bank Of Kenya	5.18%	13.59%	5.97%	15.91%	-29.86%	2.16%	18.50%
CFC Bank	-94.92%	1347.08 %	26.51%	23.91%	-82.96%	243.92 %	619.33%
Chase Bank	71.76%	43.70%	52.56%	58.96%		56.75%	11.80%
citi bank	-18.00%	4.32%	-1.34%	10.90%	71.09%	13.39%	33.99%
Commercial Bank Of Africa	13.01%	11.06%	68.57%	14.69%	-91.68%	3.13%	58.24%
Consolidated Bank	37.68%	2.31%	- 13.03%	-0.68%	879.72%	181.20 %	390.94%
Cooperative Bank	12.96%	19.12%	33.91%	15.26%	-98.73%	-3.50%	53.86%
Credit Bank	7.94%	39.07%	27.72%	28.22%	27.15%	26.02%	11.25%
Development Bank Of Kenya	10.83%	5.14%	6.13%	-8.71%	438.38%	90.35%	194.69%
Diamond Trust Bank	16.24%	25.88%	28.96%	44.04%	19.23%	26.87%	10.86%
Equity Bank	23.21%	19.89%	22.57%	18.79%	-93.48%	-1.80%	51.28%
Family Bank	11.28%	56.11%	39.40%	50.50%	-89.35%	13.59%	60.08%
Fidelity Bank	1.41%	9.34%	39.90%	-5.22%	-47.89%	-0.49%	31.63%
First Community Bank	8.72%	32.26%	35.42%	17.21%	-39.24%	10.87%	30.07%
Gurdian Bank	2.86%	20.29%	11.89%	-3.99%	-19.15%	2.38%	15.13%
Guaranty Bank	19.62%	17.46%	20.36%	-0.14%	-41.04%	3.25%	26.15%
Gulf African Bank	26.98%	12.90%	29.30%	11.87%	115.45%	39.30%	43.30%

Housing Finance Coop	26.99%	16.64%	26.42%	-1.43%	29.93%	19.71%	12.83%
I&M Bank	31.72%	-19.07%	21.93%	10.49%	-86.98%	-8.38%	47.89%
Imperial Bank	27.74%	37.47%	18.44%	-80.25%	6.39%	1.96%	47.37%
Jamii Bora Bank	6.70%	3.50%	64.08%	1495.72 %	3.86%	314.77 %	660.67%
KCB	3.86%	5.01%	26.77%	26.57%	99.23%	32.29%	39.04%
Middle East Bank	15.93%	6.77%	9.96%	7.65%	652.27%	138.52 %	287.22%
National Bank Of Kenya	1.10%	39.43%	65.90%	3.20%	-22.99%	17.33%	35.13%
NIC Bank	34.13%	15.29%	34.09%	12.68%	-97.66%	-0.29%	55.36%
Oriental Commercial Bank	22.71%	16.46%	14.38%	13.10%	-55.51%	2.23%	32.49%
Paramount Bank	16.82%	19.44%	35.92%	32.02%	35.89%	28.02%	9.21%
Sidian Bank	-0.87%	9.39%	32.29%	14.99%	-48.06%	1.55%	30.22%
Spire Bank	13.21%	19.26%	13.42%	-16.68%	1001.83 %	206.21 %	444.99%
Standard Chartered Bank	17.27%	15.07%	-5.34%	-6.21%	-96.92%	-15.23%	46.98%
Transnational Bank	28.35%	21.05%	14.51%	10.54%	-94.11%	-3.93%	50.86%
United Bank Of Africa	7.26%	79.53%	-7.07%	272.35%	50.38%	80.49%	112.64%
Victoria Commercial Bank	36.34%	75.70%	25.26%	16.68%	100.00%	50.80%	35.59%

APPENDIX H

Bank size

Commercial banks	2011	2012	2013	2014	2015	Mean	Stdv
ABC	52.48%	2.98%	9.16%	2.89%	75.60%	28.62%	35.42%
Bank Of Africa	26.39%	7.61%	18.09%	11.36%	-47.03%	3.28%	30.01%
Bank Of Baroda	25.71%	12.75%	19.08%	10.06%	-65.75%	0.37%	40.04%
Bank Of India	6.53%	23.49%	11.88%	22.67%	294.35%	71.78%	137.60%
Barclays Bank Of Kenya	11.33%	11.84%	9.23%	6.65%	-37.73%	0.26%	23.58%
CFC Bank	4.63%	19.21%	0.36%	15.89%	-81.64%	-8.31%	47.45%
Chase Bank	36.28%	54.15%	39.89%	-30.31%		25.00%	45.21%
citi bank	6.79%	2.39%	11.45%	11.02%	7.51%	7.83%	4.19%
Commercial Bank Of Africa	24.83%	23.41%	35.25%	0.25%	-92.28%	-1.71%	57.82%
Consolidated Bank	17.51%	-6.79%	-10.14%	-6.24%	106.88%	20.24%	57.33%
Cooperative Bank	19.01%	14.63%	23.51%	20.11%	-98.41%	-4.23%	59.03%
Credit Bank	18.79%	14.07%	21.28%	16.05%	12.01%	16.44%	3.98%
Development Bank Of Kenya	16.44%	16.13%	8.82%	-0.07%	357.12%	79.69%	174.54%
Diamond Trust Bank	22.03%	20.76%	23.69%	35.26%	-7.35%	18.88%	18.08%
Equity Bank	22.00%	10.36%	15.92%	23.62%	-92.38%	-4.10%	54.78%
Family Bank	19.17%	40.39%	42.09%	31.35%	86.71%	43.94%	24.83%
Fidelity Bank	9.11%	8.55%	29.24%	-9.02%	-99.02%	-12.23%	56.51%
First Community Bank	6647.59 %	13.52%	35.14%	-4.67%	-26.86%	1332.94%	26.38%
Gurdian Bank	10.26%	9.27%	13.53%	0.27%	0.14%	6.69%	6.69%
Guaranty Bank	17.22%	49.49%	26.68%	-10.97%	-56.03%	5.28%	46.19%
Gulf African Bank	5.01%	18.38%	23.05%	25.11%	29.37%	20.18%	4.57%

Housing Finance Coop	27.25%	14.92%	29.38%	18.46%	7.32%	19.47%	9.17%
I&M Bank	19.01%	54.46%	-2.95%	7.76%	-82.67%	-0.88%	56.96%
Imperial Bank	35.02%	24.33%	31.61%	-80.10%		2.72%	62.50%
Jamii Bora Bank	7.79%	3.15%	4.74%	27.93%	1583.36%	325.39%	785.79%
KCB	7.65%	6.11%	16.82%	24.08%	99.36%	30.80%	42.49%
Middle East Bank	33.17%	12.72%	31.61%	-4.36%	1109.40%	236.51%	548.24%
National Bank Of Kenya	-2.20%	37.73%	32.84%	1.98%	-41.27%	5.82%	36.35%
NIC Bank	38.31%	10.95%	21.41%	14.35%	-96.79%	-2.35%	56.35%
Oriental Commercial Bank	23.65%	12.65%	12.15%	8.13%	-17.23%	7.87%	14.25%
Paramount Bank	3.16%	10.67%	29.56%	1.19%	-11.47%	6.62%	17.29%
Sidian Bank	2.44%	22.58%	35.04%	20.92%	-32.34%	9.73%	29.93%
Spire Bank	9.14%	10.30%	6.60%	-12.78%	1033.74%	209.40%	516.28%
Standard Chartered Bank	19.17%	12.80%	0.96%	5.16%	-96.89%	-11.76%	51.83%
Transnational Bank	20.78%	9.73%	6.03%	2.08%	-69.32%	-6.14%	37.76%
United Bank Of Africa	-8.81%	26.88%	28.20%	63.62%	-1.75%	21.63%	26.76%
Victoria Commercial Bank	35.02%	32.18%	26.38%	16.10%	-100.00%	1.94%	62.80%

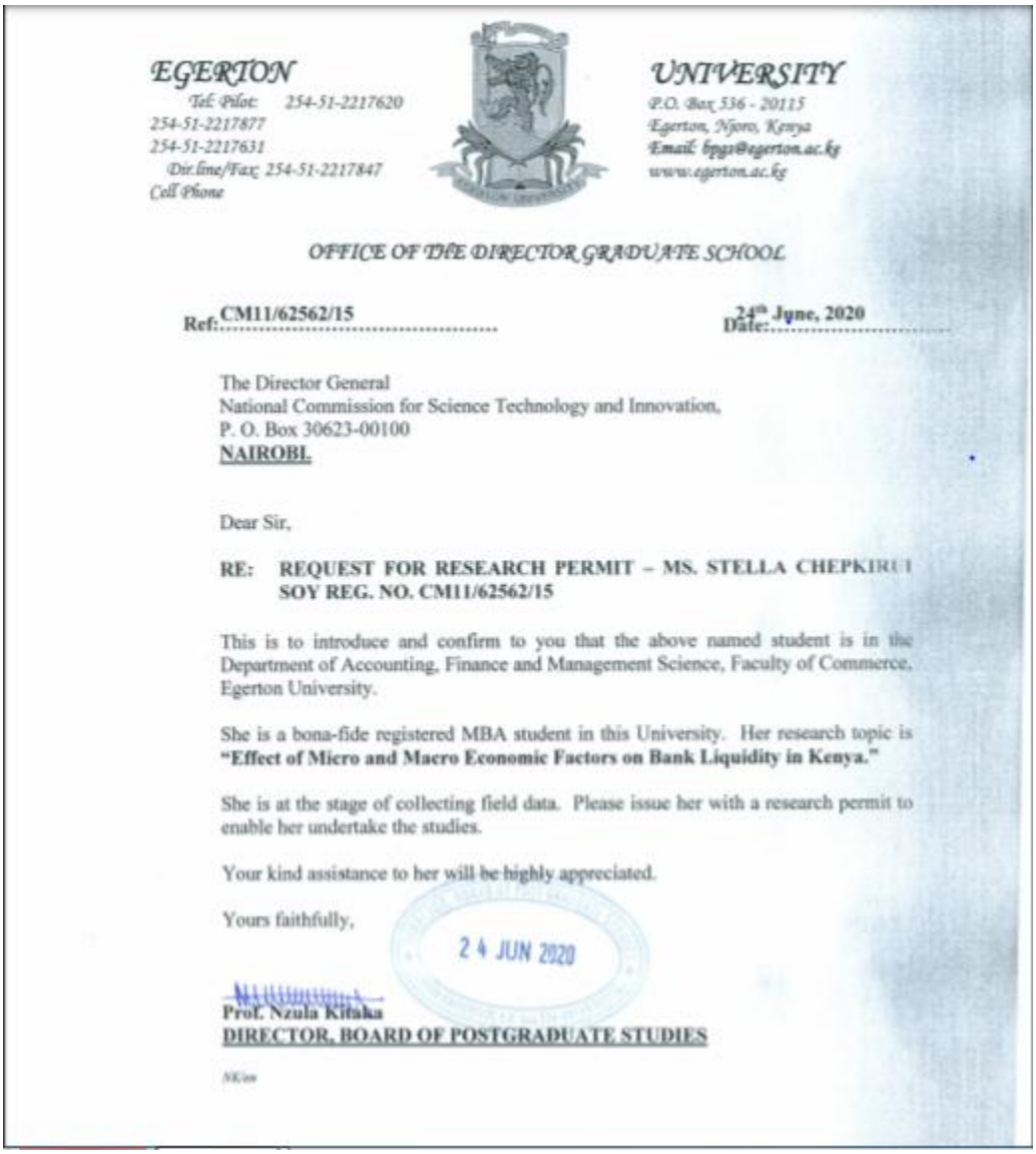
APPENDIX I

Macro-Economic Factors

Year	Real GDP prices (Ksh Million)	Inflation (CPI)	Interest rate	Exchange rate
2015	4,061,901	159.6	9%	98.179
2014	3,842,186	144.24	9.3%	87.922
2013	3,646,821	140.91	9.5%	86.122
2012	3,444,339	131.85	11%	84.528
2011	3,294,026	124.71	7%	88.81

APPENDIX J

Introduction Letter



EGERTON UNIVERSITY

Tel: Pilot: 254-51-2217620
254-51-2217877
254-51-2217631
Dir.line/Fax: 254-51-2217847
Cell Phone

P.O. Box 536 - 20115
Egerton, Njoro, Kenya
Email: bpgs@egerton.ac.ke
www.egerton.ac.ke

OFFICE OF THE DIRECTOR GRADUATE SCHOOL

Ref: CM11/62562/15 Date: 24th June, 2020

The Director General
National Commission for Science Technology and Innovation,
P. O. Box 30623-00100
NAIROBI.

Dear Sir,

RE: REQUEST FOR RESEARCH PERMIT – MS. STELLA CHEPKIRUI SOY REG. NO. CM11/62562/15

This is to introduce and confirm to you that the above named student is in the Department of Accounting, Finance and Management Science, Faculty of Commerce, Egerton University.

She is a bona-fide registered MBA student in this University. Her research topic is **"Effect of Micro and Macro Economic Factors on Bank Liquidity in Kenya."**

She is at the stage of collecting field data. Please issue her with a research permit to enable her undertake the studies.

Your kind assistance to her will be highly appreciated.

Yours faithfully,

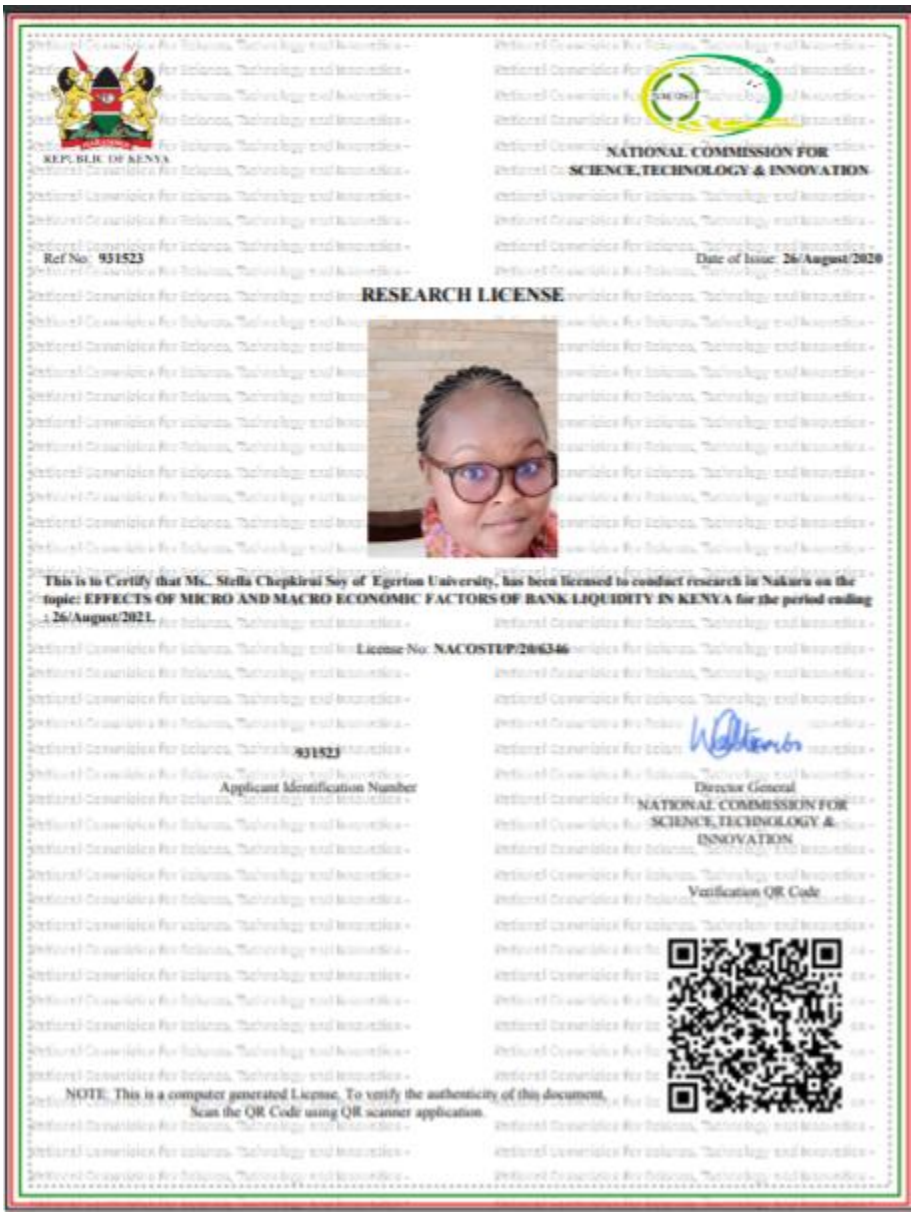
24 JUN 2020

Prof. Nzula Kitaka
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

NKm

APPENDIX K

Research Permit



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 931523

Date of Issue: 26/August/2020

RESEARCH LICENSE

This is to Certify that Ms. Stella Chepkirui Soy of Egerton University, has been licensed to conduct research in Nakuru on the topic: EFFECTS OF MICRO AND MACRO ECONOMIC FACTORS OF BANK LIQUIDITY IN KENYA for the period ending : 26/August/2021.

License No: NACOSTI/P/20/6346

931523

Applicant Identification Number

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Mobile: 0713 788 787 / 0735 404 245
E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
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International Journal of Business Management & Finance 3(1): 19-30, 2021

ISSN 2616-1818

www. serialpublishers.org

EFFECTS OF MICRO AND MACRO ECONOMIC FACTORS ON BANK LIQUIDITY IN KENYA

Chepkirui Stella Soy[1], Dr. Fredrick Kalui[2]

[1]Egerton University, Kenya

[2]Department of Accounting and Finance, Egerton University

Abstract: The study sought to determine the effects of micro and macro-economic factors on bank liquidity in Kenya; the specific objectives are; to determine the effects of macroeconomic factors on bank liquidity; to determine the effects of microeconomic factors on banks liquidity and to determine the combined effect of macroeconomic and microeconomic factors on banks liquidity. The study utilized Commercial Loan theory; The Shiftability Theory and the Anticipated Income Theory of Liquidity. The population of the study consisted of 37 commercial banks in Kenya as of 2016. A census study of all banks that had been in operation for 5 years, were included in the study. Multiple regression analysis was applied to the data to examine the effect of level of customer's deposits, loan growth, capital adequacy, profitability and other effects macroeconomic factors on bank liquidity in Kenya. The results of multiple regressions suggest that the selected independent variables explain more than 10.8% changes in the net profit. By analyzing the other statistical results of multiple regressions we found that the results are very much consistent with the simple regression. All the results are not statistically significant and overall the study provides an idea that macro and micro factors are not the basic determinants of profitability in the banking sector. So it can be inferred that this promising and potential sector in Kenya can flourish very fast and enhance profitability by improving its liquidity position and operating efficiency. The government as a bank regulator through the CBK should adopt policies that ensure increased bank performance. Strict conditions of minimum liquidity and capital should continue being emphasized on to ensure none of the banks has lower of the two. Increased bank performance leads to general economic growth.

Keywords: Micro Economic, Macro Economic Factors, Bank Liquidity