

**THE EFFECT OF NON PERFORMING LOANS ON LIQUIDITY RISK OF
COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university or institution of higher learning.

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DEDICATION

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LIST OF ABBREVIATIONS

CA	-	Capital Adequacy
CBK	-	Central Bank of Kenya
CBZ	-	Central Bank of Zimbabwe
GDP	-	Growth Domestic Products
HPR	-	Holding Period
KCB	-	Kenya Commercial Bank
LG	-	Loan Growth
LG	-	Liquidity gap
NPA	-	No-performing Assets
NPL	-	Non-performing Loans
RI	-	Risk Identification
SPSS	-	Statistical Package for Social Sciences
SQRT	-	Square Root of Time
UAE	-	United Arabs Emirates
USA	-	United States of America
VAR	-	Value at Risk

ABSTRACT

Liquidity risk is considered as one of the serious concern and challenge for the modern era banks. A bank having good asset quality, strong earnings and sufficient capital may fail if it is not maintaining adequate liquidity. Towards this end, the research sought to establish the effect of non-performing loans on liquidity risk of commercial banks in Kenya. The study was of value to various commercial banks in Kenya. This area of study will add to the pool of knowledge on the under researched area of the Non-performing loans in the banking sector. The literature review provided the reader with an explanation of the theoretical rationale of the problem being studied as well as what research has already been done and how the findings relate to the problem at hand. Research methodology showed the data collection, analysis and presentation. The study adopted correlation research design where data was retrieved from the balance sheets, income statements and notes of 43 Kenyan banks during 2009-2013. Multiple regressions was applied to assess the effect of Non-performing Loans on liquidity risk of commercial banks in Kenya. The regression model treated liquidity risk as the dependent variable while the independent variables were non-performing loans, capital adequacy, Size of the bank and loan growth. The findings of the study show that non-performing loans has an effect on liquidity risk among commercial banks in Kenya when banks with large capital had higher level of non-performing loans. Capital adequacy was indicated to affect liquidity of commercial banks when banks with large capital had little exposure to negative liquidity risk. Loan growth was indicated to affect the level of non-performing loans as commercial banks with higher loans growth had higher level of nonperforming loans which exposed them to liquidity risks. Size of the bank was indicated to affect on non-performing loans when large banks led high level of loans which exposes them to liquidity risk. The study concluded that capital adequacy, nonperforming loans and loans growth was found to have the most significant negative influence on liquidity risk and size of the bank had the least positive effect on Liquidity risk. The study recommended that banks should establish the required level of non-performing loans, capital adequacy and loan book size which will help in reducing the liquidity risk. Commercial banks should have a mechanism of identifying loan defaulters and take the necessary action against them. It is recommended that banks increase their customer deposit base through making the product accessible to more customers especially the low income earners who have been neglected for a long time by the mainstream banks.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

There is no global standard to define non-performing loans at the practical level. Variations exist in terms of the classification system, the scope, and contents. Such problem potentially adds to disorder and uncertainty in the NPL issues. Commercial banks are the dominant financial institutions in most economies (Beck, 2001). Berge & Boye (2007), argue that commercial banks play a critical role to emerging economies where most borrowers have no access to capital markets. Well-functioning commercial banks accelerate economic growth, while poorly functioning commercial banks are an impediment to economic progress and aggravate poverty (Maness & Zietlow, 2004).

The traditional role of a bank is lending and loans make up the bulk of their assets (Wang, 2002). According to the research by Sundararajan & Balino (2011), interest on loans contributes significantly to interest income of commercial banks. Loans represent the majority of a bank's assets (Bhunia, 2011). Lending is not an easy task for banks because it creates a big problem which is called non-performing loans (Kiyotaki & Moore, 2008) as cited in (Upal, 2009). Due to the nature of their business, commercial banks expose themselves to the risks of default from borrowers (Nkusu, 2011).

1.1.1 Non- Performing Loans

A non-performing loan is the money lent to an individual that does not earn income and full repayment of principal and interest is no longer anticipated or maturity date has passed and payment in full has not been made (Berge & Boye, 2007). The percentage of NPLs constitutes an objective measure of capital adequacy for individual banks and an indicator of economic efficiency. According to Brigham & Ehrhardt (2005), NPLs were responsible for the financial crisis experienced in 2007. When markets stop functioning—and buyers and sellers are unable to agree on the best price (interest) then a crisis occurs. Increases in NPLs are attributed to lending rates charged by commercial banks. The challenges posed by these increase in NPLs are great and the reason for the establishment Credit reference bureau (Babihuga, 2007).

Banks often report their ratio of nonperforming loans to total loans as a measure of the quality of their outstanding loans (Eakins, 2008). A smaller NPL ratio indicates smaller losses for the bank, while a larger (or increasing) NPL ratio can mean larger losses for the bank as it writes off bad loans the problem of NPLs has been revisited in several theoretical and empirical studies (Kalani & Waweru, 2007). A considered view is that banks' lending policy could have crucial influence on non-performing loans. A default is not entirely an irrational decision. Rather a defaulter takes into account probabilistic assessment of various costs and benefits of his decision'. Dinger (2009) conceptualized 'lazy banking' while critically reflecting on banks' investment portfolio and lending] policy. In a study of institutional finance structure and implications for industrial growth,

Maness & Zietlow (2004) emphasized on key lending terms of credit, such as maturity and interest-terms of loans to corporate sector (Dinger, 2009).

1.1.2 Liquidity Risk

According to Sundararajan & Balino (2011), liquidity risk is the risk that a given security or asset cannot be traded quickly enough in the market to prevent a loss (or make the required profit). Liquidity risk arises from situations in which a party interested in trading an asset cannot do it because nobody in the market wants to trade for that asset. Liquidity risk becomes particularly important to parties who are about to hold or currently hold an asset, since it affects their ability to trade (Vento and Ganga, 2009).

Lynch (2007) defines liquidity as the ability of bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. Liquidity risk arises from the fundamental role of banks in the maturity transformation of short-term deposits into long-term loans (Maness & Zietlow, 2004). The term liquidity risk includes two types of risk: funding liquidity risk and market liquidity risk. Funding liquidity risk is the risk that the bank will not be able to meet efficiently both expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the firm (Nkusu, 2011). Market liquidity risk is the risk that a bank cannot easily offset or eliminate a position at the market price because of inadequate market depth or market disruption. Liquidity risk can be measured by two main methods: liquidity gap and liquidity ratios. The liquidity gap is the difference between assets and liabilities at both present and future dates. At any date, a positive gap between assets and liabilities is equivalent to a deficit (Weisel, Harm & Brandley, 2003).

Many banks struggled to maintain adequate liquidity during global financial crisis. Unprecedented levels of liquidity support were required from central banks in order to sustain the financial system (Vento and Ganga, 2009). Even with such extensive support, a number of banks failed, were forced into mergers or required resolution. The crisis showed the importance of adequate liquidity risk measurement and management (Eljelly, 2004). Commercial banks were heavily exposed to maturity mismatch both through their balance sheet and off-balance sheet vehicles and through their increased reliance on repo financing. A reduction in funding liquidity then caused significant distress (Brigham & Ehrhardt, 2005).

1.1.3 The Effect of Non-Performing Loans on Liquidity Risk

The important decision that the managers of commercial banks take refers to the liquidity management and specifically to the measurement of their needs related to the process of deposits and loans (Anas & Mounira, 2008). The importance of liquidity goes beyond the individual bank as a liquidity shortfall at an individual bank can have systemic repercussions it is argued that when banks hold high liquidity, they do so at the opportunity cost of some investment, which could generate high returns (Berge & Boye, 2007). The trade-offs that generally exist between return and liquidity risk are demonstrated by observing that a shift from short term securities to long term securities or loans raises a banks return but also increases its liquidity risks and the inverse is true. Thus a high liquidity ratio indicates a less risky and less profitable bank (Babihuga, 2007).

Liquidity risk is the possibility of negative effects on the interests of owners, customers and other stakeholders of the financial institution resulting from the inability to meet

current cash obligations in a timely and cost-efficient manner. Liquidity risk occurs when there is a sudden surge in liability withdrawals resulting in a bank to liquidate assets to meet the demand (Eakins, 2008). It usually arises from management's inability to adequately anticipate and plan for changes in funding sources and cash needs. According to Lynch (2007) bankers and other financial institutions are concerned about the danger of not having enough cash to meet payment or clearing obligations in a timely and cost effective manner. Efficient liquidity management requires maintaining sufficient cash reserves on hand (to meet client withdrawals, disburse loans and fund unexpected cash shortages) while also investing as many funds as possible to maximize earnings (Brigham & Ehrhardt, 2005).

1.1.4 Commercial Banks in Kenya

The study will focus mainly on the licensed commercial banks in Kenya. Currently the banking sector in Kenya is comprised of 43 commercial banks, two mortgage finance companies, 130 foreign exchange bureaus and fifteen micro finance institutions CBK (Kiyotaki & Moore, 2008). The companies Act, the Central Bank of Kenya Act Cap 491, the banking Act Cap 488 and the micro finance Act 2006 are the main Acts that govern the banking industry in Kenya. The Acts are used along with prudential guidelines that are issued by the central bank of Kenya. In 1995 the exchange controls were lifted after liberalization of the banking in Kenya.

In the banking sector in Kenya, a primary liquidity risk is deposit run-offs in a firm-specific event. The assumptions that banks utilize are based on a combination of firm-specific historical data, industry data from prior stress events and best guess estimates

(Azofra & Santamaria, 2011). When using firm-specific historical data, some banks add an extra cushion to the assumed outflows to factor in their perception that data largely based on stable historical periods may not adequately proxy depositor behavior during a future stress event. The severity of deposit outflows in a bank's stress scenario depends upon factors including the strength of the bank's relationships with its customers, the proportion of deposits that is protected by deposit insurance, the composition of its balance sheet, and the duration of the crisis (Maness & Zietlow, 2004).

It is accepted that the percentage of nonperforming loans is associated with low economic activities, bank failures and financial crisis in both developing and developed countries. According to Barr (2004), the stock of gross NPLs increased by 34.4 percent from 57.5 billion in June 2012 to Ksh 77.3 Billion in June 2013. The ratio of gross NPLs to gross loans deteriorated to 4.5 percent in June 2012 to 5.3 percent in June 2013. This increase is attributed to high interest rates and low economic activities. During the same period 9 sectors out of the 11 sectors registered an increase in NPLs.

NPLs pose a major risk to the economy if not managed and regulations put in place to address it. For instance, in Indonesia where over 60 banks collapsed during financial crisis, nonperforming loans representing 75 percent of the total asset portfolio. The banking crisis which affected a larger number of sub-Saharan African countries in the 1990s was accompanied by a rapid accumulation of NPLs (Berge & Boye, 2007).

1.2 Research Problem

The fundamental role of banks in the maturity transformation of short-term deposits into long-term loans makes banks inherently vulnerable to liquidity risk, both of an institution-specific nature and that which affects markets as a whole (Sundararajan & Balino, 2011). Liquidity creation itself is seen as the primary source of economic welfare contribution by banks but also as their primary source of risk (Nkusu, 2011). Therefore, virtually every financial transaction or commitment has implications for banks liquidity.

The stability of banking is a pre-requisite for economic development and resilience against financial crisis. Like any other business, success of banking is assessed based on profit and quality of asset it possessed (Lynch, 2007). Even though bank serves social objective through its priority sector lending, mass branch networks and employment generation, maintaining asset quality and profitability is critical for banks survival and growth. A major threat to banking sector is prevalence of Non-Performing Loans (NPLs). Non-performing Loans represent bad loans, the borrowers of which failed to satisfy their repayment obligations (Vento & Ganga, 2009).

Liquidity risk is said to be assassin of banks. This risk can adversely affect both bank's earnings and the capital. Therefore, it becomes the top priority of a bank's management to ensure the availability of sufficient funds to meet future demands of providers and borrowers, at reasonable costs (Fiscal Policy Research Institute, 2011). 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 in order to sustain the financial system (Kiyotaki & Moore, 2008). Even with such extensive support, a number of 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 (Vento & Ganga, 2009).

In Kenya the high level of non-performing loans in the banking industry has been a hindrance to economic stability (Dinger, 2009). According to (Bhunja, 2011), the stock of NPLs reduced by 1.4% to Ksh 57.5 billion by march 31st, 2012 from Ksh 58.3 billion in 2011. In the year 2010, the NPLS were Kshs. 61.5 billion (CBK Annual Report 2010). Despite reduction in NPLs in Kenya this ratio is high compared the deposits. The banking sector gross loans and advances increased from Ksh 1.08 trillion in June 2011 to Ksh 1.29 trillion in June 2012 translating to a growth of 19.0 percent CBK Annual Report 2012. The deposit base increased by 15.9 percent from Ksh 1,219.5 billion in June 2010 to Ksh 1,412.8 billion in June 2011 mainly due to branch expansion, remittances inflows and receipts from exports (Azofra & Santamaria, 2011). When these loans and advances become non-performing, banks liquidity and its earnings are adversely affected.

Nkusu (2011) on property Kenya stated that the total outstanding loan portfolio for commercial banks in Kenya was 1.2 trillion and a statistic by index mundi show the total non-performing loans was 5.4% in 2011. Nonperforming loans impacts on a bank's performance by reducing its revenue as they become expenses. Statistic show that the trend of nonperforming loans (% of gross loans) in Kenya since 2003 to 2011 has been

decreasing. In 2003, 2004, 2005, 2005, 2006, 2007, 2008, 2009, 2010 and 2011 the percentage was 34.9%, 29.3%, 25.6%, 10.6%, 9%, 7.9%, 6.3% and 5.4% respectively (Nkusu,2011). However commercial banks continue to experience liquidity problems due to high number of non-performing loans and therefore the need for the question what is the effect of Non-performing Loans on liquidity risk of commercial banks in Kenya?

1.3 Research Objective

To determine the effect of Non-performing Loans on liquidity risk of commercial banks in Kenya.

1.4 Value of the Study

The various banks will also benefit from the study if it will pick the most relevant parts of this research that suits their working. Since the research will also give the insight of what other researchers have found on the variables that were being investigated concerning the working capital practices in the banking sector.

This area of study will add to the pool of knowledge on the under researched area of the Non-performing loans in the banking sector. Future researchers will have a reference point from the information gathered that will contribute to understanding the factors as well as contributing to subsequent studies. It forms a basis for and stimulates research in order to develop a better understanding of effect of Non-performing Loans on liquidity risk of commercial banks in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review provides the reader with an explanation of the theoretical rationale of the problem being studied as well as what research has already been done and how the findings relate to the problem at hand. The main purpose of the literature review is to avoid unnecessary or intentional duplication of materials already covered.

2.2 Theoretical Review

The major objective of a commercial bank is to create liquidity while remaining financially sound. However, there are a number of dimensions in the way banks concretely manage their liquidity risk. In plain words, there are competing liquidity management theories (Alton & Hazen 2001). Liquidity management theories encompass where it is exactly performed in the organization, how liquidity is measured and monitored, and the measures that banks can take to prevent or tackle a liquidity shortage. These competing theories include: Financial Intermediation Theory Fisher's Separation Theorem and Anticipated Income Theory of Liquidity (Beck, 2001).

2.2.1 Financial Intermediation Theory

According to the theory of financial intermediation, an important role of banks in the economy is to provide liquidity by funding long term, illiquid assets with short term, liquid liabilities (Wang, 2002). Through this function of liquidity providers, banks create liquidity as they hold illiquid assets and provide cash and demand deposits to the rest of the economy. Krueger (2002) emphasize the “preference for liquidity” under uncertainty of economic agents to justify the existence of banks: banks exist because they provide better liquidity insurance than financial markets. However, as banks are liquidity insurers, they face transformation risk and are exposed to the risk of run on deposits. More generally, the higher is liquidity creation to the external public, the higher is the risk for banks to face losses from having to dispose of illiquid assets to meet the liquidity demands of customers (Horne and Wachowicz, 2000).

A natural justification for the existence of deposit-taking institutions, thereby giving also an explanation for the economically important role of banks in providing liquidity, was initially modeled by (Bryant 1980 and Diamond and Dybvig 1983). They showed that by investing in illiquid loans and financing them with demandable deposits, banks can be described as pools of liquidity in order to provide households with insurance against idiosyncratic consumption shocks (Weisel, Harm, and Brandley, 2003).

2.2.2 Commercial Loan (Traditional) Theory and Liquidity

The commercial loan theory of credit 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. 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 (Khemraj, 2006).

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 (Casu, 2006)). Moreover, the practice of continually renewing short-term notes for the purpose of supporting 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 (Eljelly, 2004).

2.2.3 Anticipated Income Theory of Liquidity

The doctrine of anticipated income, as formalized by Raghavan (2003), 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 (Horne & Wachowicz, 2000). The credit demands of business were well accommodated under this system of banking policy, and the use of loan commitments was freely pursued. 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 (Wang, 2002).

2.3 Determinants of Liquidity Risk

Liquidity risk is the possibility that over a specific time period, the bank will become unable to settle obligations with immediacy (Dinger, 2009). It is a risk arising from a bank's inability to meet its obligations when they come due without incurring unacceptable losses. This risk can adversely affect both bank's earnings and the capital and therefore, it becomes the top priority of a bank's management to ensure the availability of sufficient funds to meet future demands of providers and borrowers, at reasonable costs (Vento & Ganga, 2009).

The vulnerability of banks to liquidity risk is determined by the funding risk and the market risk. Liquidity risk needs to be monitored as part of the enterprise-wide risk

management process, taking into account market risk and credit risk to ensure stability in the balance sheet and dynamic management of liquidity risk. A bank should only attempt this if it makes good business sense, not use it as a means to keep afloat. Liquidity risk not only affects the performance of a bank but also its reputation (Lynch, 2007).

2.3.1 Non-performing Loans

Non-performing loans are loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions contained in the loan contract (Afza and Nazir, 2009). It follows that any loan facility that is not up to date in terms of payment of both principal and interest contrary to the terms of the loan agreement, is non-performing. Therefore, the amount of non-performing loan measures the quality of bank assets (Chakraborty, 2008). Bank nonperforming loans to total gross loans are the value of nonperforming loans divided by the total value of the loan portfolio (including nonperforming loans before the deduction of specific loan-loss provisions). The loan amount recorded as nonperforming should be the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue. Non-performing Loans is measured by ratio of non-performing loans over the Total (Bloem & Gorter, 2001).

Auronen (2003) emphasized that NPL in loan portfolio affect operational efficiency which in turn affects profitability, liquidity and solvency position of banks. Dinger (2009) noted that in addition to the influence on profitability, liquidity and competitive functioning, NPL also affect the psychology of bankers in respect of their disposition of funds towards credit delivery and credit expansion. NPL generate a vicious effect on banking survival and growth, and if not managed properly leads to banking failures.

According to this paper, nonperforming Assets/ loans are loans that are ninety or more days delinquent in payments of interest and/or principal (Bloem & Gorter, 2001).

2.3.2 Capital adequacy

Su (2002) has defined banks capital as common stock plus surplus plus undivided profits plus reserves for contingencies and other capital reserves. In addition since a bank's loan-loss reserves also serves as a buffer for absorbing losses, a broader definition of bank capital include this account. Opposing to the standard view of liquidity creation in which banks create liquidity by transforming liquid liabilities into illiquid assets, the recent theories indicate the creation of liquidity by changing asset mixes. Raghavan (2003). showed that banks can create more or less liquidity by simply changing their funding mix on the liability side (Maness and Zietlow, 2004).shows that capital may also affect banks asset portfolio composition, thereby affecting liquidity creation through a change in the asset mix. Capital adequacy ratios (CARs) are a measure of the amount of a bank's core capital expressed as a percentage of its risk-weighted asset.

Capital adequacy ratio is defined as:

$$\text{CAR} = \frac{\text{Tier Capital 1} + \text{Tier Capital 2}}{\text{Risk weighted Assets}}$$

$$\text{TIER 1 CAPITAL} = (\text{paid up capital} + \text{statutory reserves} + \text{disclosed free reserves}) - (\text{equity investments in subsidiary} + \text{intangible assets} + \text{current \& brought forward losses})$$

$$\text{TIER 2 CAPITAL} = \text{A) Undisclosed Reserves} + \text{B) General Loss reserves} + \text{C) hybrid debt capital instruments and subordinated debts}$$

where Risk can either be weighted assets (α) or the respective national regulator's minimum total capital requirement (Su, 2002).

2.3.3 Size

According to the “too big to fail” argument, large banks would benefit from an implicit guarantee, thus decrease their cost of funding and allows them to invest in riskier assets (Vento and Ganga, 2009). . Therefore, “too big to fail” status of large banks could lead to moral hazard behavior and excessive risk exposure. If big banks are seeing themselves as “too big to fail”, their motivation to hold liquid assets is limited. In case of a liquidity shortage, they rely on a liquidity assistance of Lender of Last Resort. Thus, large banks are likely to perform higher levels of liquidity creation that exposes them to losses associated with having to sale illiquid assets to satisfy the liquidity demands of customers (Kiyotaki and Moore, 2008). Hence, there can be positive relationship between bank size and illiquidity. However, since small banks are likely to be focused on traditional intermediation activities and transformation activities (Lynch, 2007). They do have small amount of liquidity. Hence, there can be negative relationship between bank size and illiquidity (Sharma & Iselin, 2006). Bank Size in this study was measured by the total value of the assets less the total value of liabilities over the total assets.

2.3.4 Loan Growth

Diamond & Rajan (2002) stated that lending is the principal business activity for most commercial banks. The loan portfolio is typically the largest asset and the predominate source of revenue. As such, it is one of the greatest sources of risk to a banks safety and

soundness (Kiyotaki and Moore, 2008). Since loans are illiquid assets, increase in the amount of loans means increase in illiquid assets in the asset portfolio of a bank. According to Eakins (2008), in practice the amount of liquidity held by banks is heavily influenced by loan demand that is the base for loan growth. If demand for loans is weak, then the bank tends to hold more liquid assets (short term assets), whereas if demand for loans is high they tend to hold less liquid assets since long term loans are generally more profitable. Therefore, a growth in loans and advances has negative impact on banks liquidity (Weisel, Harm, & Brandley, 2003). Loan Growth will be measured by the Current year total loans less previous year total loans over the previous year total loans which can also be measured by the leverage ratio. It can also be said that leverage ratios tend to find the debt a company has on its balance sheet or its financial health. For a shareholder the first claim he has is against the company's assets, therefore a company might not be left with nothing in the phase of bankruptcy after satisfying the debt holders besides the assets (Eakins, 2008). The formula for debt to equity ratio is:

$$\text{Debt/Equity} = (\text{Short term debt} + \text{Long term debt}) / \text{Equity}$$

Another important ratio is the interest covering ratio that determines the interest payment ability of the company against the debt it owes. The interest payment is made from the company's profit that it earns with the primary business it does. The formula for it is:

$$\text{Interest Coverage} = \text{Operating Income} / \text{Interest Expenses}$$

These leverage ratios are very important for the company's internal users as well as external users. These ratios help identify the weak areas of the company internally and help the shareholders make a judgment about their investments ((Lynch, 2007).

2.4 Empirical Review

A study by Wang (2002) on non-performing loans in French banks found out that loan growth doesn't have statistically significant effect on loan growth rate. During the period of observation, the findings were that French sample is experiencing high rate of decreasing in non-performing loan with the mean rate -12.81%, while the other samples have positive non-performing loan and liquidity. The study concluded that improvement may be the result of better internal risk management. With a better portfolio quality, there is less incentive for bank to reduce lending. The study recommended that rather than reducing loans, which enables banks to reduce the base for the new generation of non-performing loans, banks should use better risk management to control non-performing loan while keeping their lending growth at the same time.

The study was conducted by Auronen (2003) in Malaysia financial institutions on the relationship between non-performing loans and liquidity risk. Auronen (2003) found this relationship to be significant. There is evidence that the level of non-performing loans in the Asia started to increase substantially in all sectors before the collapse of the sub-prime mortgage market (Raghavan, 2003). The study showed that most of bank had liquidity problems which was caused by non-performing loans Auronen (2003), concluded that commercial banks in Malaysia lacked proper strategies for managing liquidity.

Berge & Boye (2007) provided a comparative study of banks' risk management in locally incorporated banks and foreign banks in the United Arab of Emirates (UAE). The results show that the three most important types of risks facing UAE commercial banks are foreign exchange risk, followed by credit risk and operating risk. However, an earlier study by Khemraj (2007) reports that the main risk facing UAE commercial banks is credit risk. For risk identification (RI), the study assert that inspection by branch managers and financial statement analysis were the main methods used; while Al-Tamimi and Al-Mazrooei (2007) report that inspection by the bank risk manager, audits or physical inspections, financial statement analysis and risk survey are the main methods used. These results indicate that banks are becoming more sophisticated in managing their risk.

Khemraj (2007) studied the situation in Indonesia, non-performing loans represented about 75% of total loan assets which led to the collapse of over sixty banks. The study found that most banks had liquidity problems due to non-performing loans. The study further found positive relationship between loan growth and non-performing loans. The study recommended that commercial banks should put in place effective methods of screening borrowers (Khemraj, 2007)

The study by Lynch (2007) was to find out the causes of non-performing loans in Zimbabwe. Loans form a greater portion of the total assets in banks. These assets generate huge interest income for banks which to a large extent determines the financial

performance of banks (Lynch, 2007). However, some of these loans usually fall into non-performing status and adversely affect the performance of banks. In view of the critical role banks play in an economy, it is essential to identify problems that affect the performance of these institutions. This is because non-performing loans can affect the ability of banks to play their role in the development of the economy. A case study research design of CBZ Bank Limited was employed. Interviews and questionnaires were used to collect data for the study. The paper revealed that external factors are more prevalent in causing non-performing loans in CBZ Bank Limited. The major factors causing non-performing loans were natural disasters, government policy and the integrity of the borrower (Berge & Boye, 2007).

This study by Kiyotaki & Moore (2008) evaluated the impact of nonperforming loans on profitability of Kenyan banks. The study used a case study of KCB for the period between 2009 and 2013. The study used time series data from quarterly reports of Kenya Commercial bank and Central Bank of Kenya for the period between 2007 and 2009. Estimation of parameter for the model was done using ordinary least square method with aid of E-views software package (Dinger, 2009). The main findings of the study are as follows; there is a negative relationship between profitability of commercial banks and non-performing loans, a significant negative relationship exists between GDP and non-performing loans. There also exists a positive relationship between profits and GDP. From this study, it can be concluded that when the economy is doing well, that is, when GDP is high, NPLs tend to be low as people have enough income. The study recommends that the banks should introduce more effective ways screening of borrowers

in times of poor economic performance to reduce cases of nonperforming loans (Bhunia, 2011).

2.5 Summary of Literature Review

This chapter discusses the literature review of the study; Liquidity management theories by Beck (2001), Wang (2002), Su (2002) and Horne and Wachowicz (2000) tried to bring into perspective where it is exactly performed in the organization, how liquidity is measured and monitored, and the measures that banks can take to prevent or tackle a liquidity shortage. Empirical studies by Azofra & Santamaria (2011) showed the effect of non-performing loans on liquidity risks in United States financial institutions. Local study by Bhunia (2011) showed the effect of non-performing loans in Kenya commercial bank, local and international studies by Bhunia (2011) and Azofra & Santamaria (2011) failed to give solutions to non-performing loans problems in commercial banks in Kenya.

Theoretical perspective by Wang (2002), Su (2002) and Horne and Wachowicz (2000) only gave suggestion on non-performing loans and failed to show the measures commercial banks can take to address non-performing loans and liquidity problems, there exist a gap between theoretical literature and empirical literature, the current study will recommend how commercial banks can address the nonperforming loans and liquidity problems thus filling the gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights the methodology which was used in data collection, analysis and presentation. It also highly depicts the research design, target population, sampling design, data collection and data analysis techniques.

3.2 Research Design

According to Mugenda & Mugenda (1999), this was the overall plan of conducting the study in order to answer the research questions and achieve the objective of the study. The study research design for this study was a descriptive survey research design one since it provided data from the population on the universe being studied; the researcher has no control over the research variables. According to Sekaran (2003); the goal of a descriptive design is to offer the researcher a profile to describe relevant aspects of the phenomena of interest from an individual, or industry oriented perspective. This study is not only restricted to fact findings but also result in the formulation of knowledge and solutions to the problem under consideration.

3.3 Population and Sample

Mugenda & Mugenda (1999) describe the target population as the complete set of individual cases or objects with some common characteristics to which the researcher wants to generalize the results of the study. There were 43 major banks in the Country as

at 31 December 2013. The financial statements of the banks are subject to mandatory audits by the Central Bank of Kenya hence the information obtained was reliable and available for these studies. All the commercial banks were targeted for this study which formed the sample for the study. Census was used for this study.

3.4 Data Collection

This study comprised of secondary data. The secondary data was gathered from the Commercial bank financial statements from the year 2009 to the year 2013 as submitted to Capital Markets Authority, where we obtained data relevant to the number of registered banks by the Central Bank of Kenya. Data on liquidity risk was obtained from the liquidity gap in the bank's Statement of Financial Position. Data on non-performing loans, capital adequacy, Size of the bank and loan growth was obtained from credit departments of commercial banks.

3.5 Data Analysis

Data analysis refers to examining what has been collected in the field or experiment and making deductions and inferences (Armstrong, 2012). It involves uncovering underlying structures, extracting important variables, detecting any anomalies and testing any underlying assumptions. It involves scrutinizing the acquired information and making inferences (Kombo, 2005).

Data collected was edited to ensure that it is correct and complete thus reducing biases, increase the precision and achieve consistency. Data was then analysed by using SPSS 17.0, descriptive statistics which was presented using mean, correlation, standard deviation and percentages.

3.5.1 Analytical Model

A multiple regression model was applied to analyze the relationship between the various variables. The model treated liquidity risk as the dependent variable while the independent variables were non-performing loans, capital adequacy, Size of the bank and loan growth. The responses on liquidity risk were measured by computing the mean percentage score based on the responses derived from the Likert scale questions.

The relationship equation is shown below-

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y = Liquidity risk as measured by value at risk (VAR); which is the liquidity gap given by loans and advances less the customer deposits.

VAR is obtained by;

$\text{Value at Risk} = \text{Mean} * \text{HPR} + [Z - \text{Score} * \text{Standard deviation} * \text{SQRT}(\text{HPR})$
--

Mean which is the average expected return

HPR is the holding period

Z-Score is the profitability

SQRT is the square root of time

α = Constant term- The Y intercept

β_i , = Regression coefficient variable which indicates the responsiveness of the dependent variable to the changes in i.

X_1 – Non-performing Loans is measured by ratio of non-performing loans over the Total loans. These is taken from the statement of comprehensive income for the analysis of these study

X_2 – Capital Adequacy is measured by Total Capital to Total Asset of the Bank which for the purpose of this study will be obtained from the Statement of the Financial Position.

X_3 – Size is measured by the Total value of the assets less the total value of liabilities over the total assets.

X_4 Loan Growth will be measured by the Current year total loans less previous year total loans over the previous year total loans which can also be measured by the leverage ratio.

ε = Error term- Represents the remainder during empirical analysis

3.5.2 Test of Significance

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 risks and the dependent variables. The Statistical Package for Social Sciences (SPSS) was used to analyze the data.

CHAPTER FOUR

DATA ANALYSIS, 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 4.1 below summarizes the descriptive statistics of the variables included in the regression models as presented. It represents the variables of the 43 commercial banks operating in the Kenya whose financial results were available for the years 2009-2013.

Table 4.1: Descriptive Statistics

	NPL	LG	CA	Size	LG
Mean	66.16	-2619	1.000256	0.489535	887990932
Std Deviation	25.53	-327.69	6.481	4.476961	29442.3
Skewness	16639.97	35187593.41	272.2	89.73	255220291

Source: Research Findings

NPL- Non performing Loans, LG- Liquidity Gap, CA- Capital Adequacy, LG- Loan Growth.

The mean value of Non- Performing Loans on commercial bank is positive which shows that commercial banks registered a high level of non-performing loans (M=66.16) and a standard deviation of 25.53. The mean value of the liquidity gap is negative. (M=-2619) which shows that commercial banks were exposed to liquidity risks. Most banks had low level of capital which exposes them to liquidity risks. Most banks had higher capital adequacy which is evidenced by (M=1.000256) and high standard deviation of (6.481). Most banks registered growth in loan as evidenced by mean (M=887990932) and a standard deviation of 29442.3 which shows that the high growth on loan book size has led to increased level of Non-performing loans thus exposing commercial banks to liquidity risks.

4.3 Inferential Statistics

For quantitative analysis the study used regressions model. These models were used to identify various liquidity variables influencing the dependent variable. The regression analysis is used to investigate the effect of Non-performing Loans on liquidity risk of commercial banks. When using multiple regression analysis, there is a possibility of endogeneity occurring whereby when certain variables are omitted, it leads to measurement errors (Gill and Beger 2012). Therefore to minimize endogeneity issues, the most important variables that affect the banks liquidity (NPL- Non performing Loans, LG- Liquidity Gap, CA- Capital Adequacy, LG- Loan Growth) are used.

4.3.1 Correlation Coefficient

Table 4.2 below shows the Pearson correlation coefficient generated from the data. If Non-performing loans contributed to liquidity risks, one should expect a positive relationship between the measures of non-performing loans management and liquidity risk variable. The correlation matrix (as shown in Table 4.2) depicts that Non-performing loans is positively correlated with liquidity risks, Size of the bank, Capital Adequacy and Loan growth

Table 4.2 Correlation Coefficient

		Non-performing Loans	Liquidity Risk	Capital Adequacy	Loan Growth	Size
Non-performing Loans	Pearson Correlation	1	-.125	-.365	.141	.043
	Sig. (2-tailed)		.425	.016	.367	.786
	N	43	43	43	43	43

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

Research Findings

Table 4.2 above shows direct relationship between liquidity risk and Non-performing Loans. The relationship is significant ($r = -.125$, $P < 0.01$) thus the relationship was strong between liquidity risk and Non-performing loans which shows that non-performing loans had strong relationships on liquidity risk among commercial banks.

The table above shows strong relationship between liquidity risk and capital adequacy among commercial banks in Kenya. The relationship is significant at ($r = -0.365$, $P < 0.01$), bank with large capital had higher level of non-performing loans. Banks with large capital had little exposure to negative liquidity risk. The findings agrees with Maness and Zietlow (2004) shows that capital may also affect banks' asset portfolio composition, thereby affecting liquidity creation through a change in the asset mix. The table above shows a direct relationship between liquidity risk and loan growth among commercial banks in Kenya. The relationship is significant at ($r = -0.141$, $P < 0.01$), Commercial banks with higher loans growth had higher level of nonperforming loans which exposed them to liquidity risks. The study findings agrees with Weisel, Harm, & Brandley (2003) that growth in loans and advances has negative impact on banks liquidity. The table shows strong relationship between liquidity risk and size of the bank when large banks led high level of loans which exposes them to liquidity risk. The relationship was significant at ($r = -0.043$, $P < 0.01$), thus the bigger the bank the larger the level of non-performing loans which affected liquidity risk. The study findings agrees with Vento and Ganga (2009) that large banks would benefit from an implicit guarantee, thus decrease their cost of funding and allows them to invest in riskier assets.

4.3.2 Multiple Regressions analysis

Table 4.3 shows the results of multiple regressions. The value of R^2 is 0.044, revealing 4.4% variability in liquidity accounted for by the Non-performing loans variables 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 0.057. This adjusted measure provides a revised estimate, 0.044%

variability in Non-performing loans i.e. 0.044, revealing 4.4% variability in liquidity accounted for by the Non-performing loans of banks due to the fitted model.

Table 4.3 Multiple Regressions analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.209 ^a	.044	-.057	11415.85872

a. Predictors: (Constant), Size, Capital Adequacy, Loan Growth, Non-performing Loans

Research Findings

4.3.3 Multiple Regression Model

The estimates of the regression coefficients, t-statistics, standard errors of the estimates and p values are shown in 4.4 below.

Table 4.4 Multiple Regression Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3071.461	11032.942		-.278	.782
	Non-performing Loans	-.717	.694	-.180	-1.033	.308
	Capital Adequacy	-4012.626	8326.242	-.084	-.482	.633
	Loan Growth	7.032E-5	.000	.150	.913	.367
	Size	7788.527	14152.672	.088	.550	.585

a. Dependent Variable: Liquidity Risk

Research Findings

4.4 Interpretation of findings

The mean value of Non- Performing Loans on commercial bank is positive which shows that commercial banks registered a high level of non-performing loans. Most banks had low level of capital which exposes them to liquidity risks. Most banks had higher capital adequacy. High growth on loan book size has led to increased level of Non-performing loans thus exposing commercial banks to liquidity risks.

There was direct relationship between liquidity risk and Non-performing Loans. There was a strong relationship between liquidity risk and capital adequacy among commercial banks in Kenya. There was a direct relationship between liquidity risk and loan growth among commercial banks in Kenya. There was a shows strong relationship between liquidity risk and size of the bank when large banks led high level of loans which exposes them to liquidity risk. The value of R^2 is 0.044, revealing 4.4% variability in liquidity accounted for by the Non-performing loans variables in the model developed.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y = is the dependent Variable (Liquidity Risk), X_1 is Non-performing loans, X_2 is capital adequacy, X_3 is loan growth and X_4 Size. B_0 is the regression constant; B_1 , B_2 , B_3 and B_4 are the coefficients variables. Using the results, we have the regression equation as; $Y = -3071.461 - 0.717X_1 + -4012.626X_2 + 7788.527X_3 + 7.032X_4$

The regression equation above has established that taking all factors into account (Non-performing loans, capital adequacy, loan growth and size) constant at 3071.461 liquidity risk will be -0.717. The findings presented show that taking all other independent variables at 4510.933, a unit increase in nonperforming loans would lead to a 3071.461 increase in liquidity risk, a unit increase in capital adequacy would lead to a -4012.626 decrease in liquidity risk, a unit increase in loan growth would lead to a 7788.527 increase liquidity risk. A unit increase in size would lead to a 7.032 decrease liquidity risk. Capital adequacy, nonperforming loans and loans growth was found to have the

most significant negative influence on liquidity risk and size of the bank had the least positive effect on Liquidity risk.

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

The secondary data in this analysis covered a period of 5 years from 2009 to 2013. The population of study was all commercial banks that were in operation during the study period. In the table 4.2, there was direct relationship between liquidity risk and Non-performing Loans. The relationship was strong between liquidity risk and Non-performing loans which shows that non-performing loans had strong relationships on liquidity risk among commercial banks. There was strong relationship between liquidity risk and capital adequacy among commercial banks in Kenya. Bank with large capital had higher level of non-performing loans. Banks with large capital had little exposure to negative liquidity risk. The findings agreed with other researchers who indicated that capital may also affect banks asset portfolio composition, thereby affecting liquidity creation through a change in the asset mix.

There was a direct relationship between liquidity risk and loan growth among commercial banks in Kenya. Commercial banks with higher loans growth had higher level of nonperforming loans which exposed them to liquidity risks. The findings agreed with the researchers that that growth in loans and advances has negative impact on banks liquidity.

There was a strong relationship between liquidity risk and size of the bank when large banks led high level of loans which exposes them to liquidity risk. The bigger the bank the larger the level of non-performing loans which affected liquidity risk which agreed with other researchers who indicated that large banks would benefit from an implicit guarantee, thus decrease their cost of funding and allows them to invest in riskier assets.

5.3 Conclusion

Capital adequacy, nonperforming loans and loans growth was found to have the most significant negative influence on liquidity risk and size of the bank had the least positive effect on Liquidity risk. 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 NPLs. Adequate cash reserves will decrease the bank's reliance on the repo market which consequently will reduce the cost associated with over the night borrowing and insurance cost. 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. It is the utmost priority of a bank's management to pay the required attention to the liquidity problems. These problems should be promptly addressed, and immediate remedial measures should be taken to avoid the consequences of illiquidity. Banks with liquidity problems experience problems with their loan growth as NPL negatively affect the growth of loan

book size. The size of bank means that they led heavily to the borrower which exposes them to liquidity risks.

5.4 Recommendations

The study suggests some policy implications for the managers and prospective investors in the country. It is emerging that the Kenyan banks level of liquidity is influenced by the level of non-performing loans, capital adequacy, size of the bank and loan growth. It is important therefore that banks establish the required level of non-performing loans, capital adequacy and loan book size which will help in reducing the liquidity risk. Commercial banks should have a mechanism of identifying loan defaulters and take the necessary action against them. The government should come up with policies that limit the amount of money the bank can lend.

Kenya commercial bank should enforce policies that will raise the minimum capital requirements for commercial banks. It is recommended that banks increase their customer deposit base through making the product accessible to more customers especially the low income earners who have been neglected for a long time by the mainstream banks. At the same time banks should consider targeting the corporate clients who will be willing to retain a large cash base in the banks for a longer duration.

Commercial bank management should come up with credit management strategies to caution the bank from liquidity risk. This study paves the way for more detailed studies into controlling the liquidity risk and to extending the proposed model to incorporate other causes of liquidity risk. Further, the current study has focused the effect of non-

performing loans on liquidity risks. Further research may take a broader view of the performance and can also include economic factors.

5.5 Study Limitations

The study was guided by five variables, this failed to include other effect of Non-performing Loans on liquidity risk of commercial banks in Kenya, this denied the study to cover a broad perspective and explore further on more effects of Non-performing Loans on liquidity risk of commercial banks in Kenya, the study suggested further research to be conducted so as to identify more effect of Non-performing Loans on liquidity risk of commercial banks in Kenya.

There are some respondents who did not cooperate to provide full information on effect of Non-performing Loans on liquidity risk of commercial banks in Kenya. The researcher assured the respondents that the information provided was of strict confidence and was used for the purpose that it was indicated.

The researcher encountered lack of adequate information to the fact that most people may not cooperate due to fear of victimization, this is likely to contribute to low response rate the researcher explained to the respondents that the study was of academic purposes and their views was kept highly confidential.

5.6 Suggestion for further Study

The study was to identify the effect of Non-performing Loans on liquidity risk of commercial banks in Kenya. The study findings narrowed into the four effects. There are

other effect of Non-performing Loans on liquidity risk of commercial banks in Kenya have not been studied. Suggestion for further studies is therefore advisable to contribute towards identification of more other effect of Non-performing Loans on liquidity risk of commercial banks in Kenya. The study covered only 43 commercial banks, suggestion for further study is advisable to cover other financial institutions like micro finance institutions which are struggling with liquidity problems.

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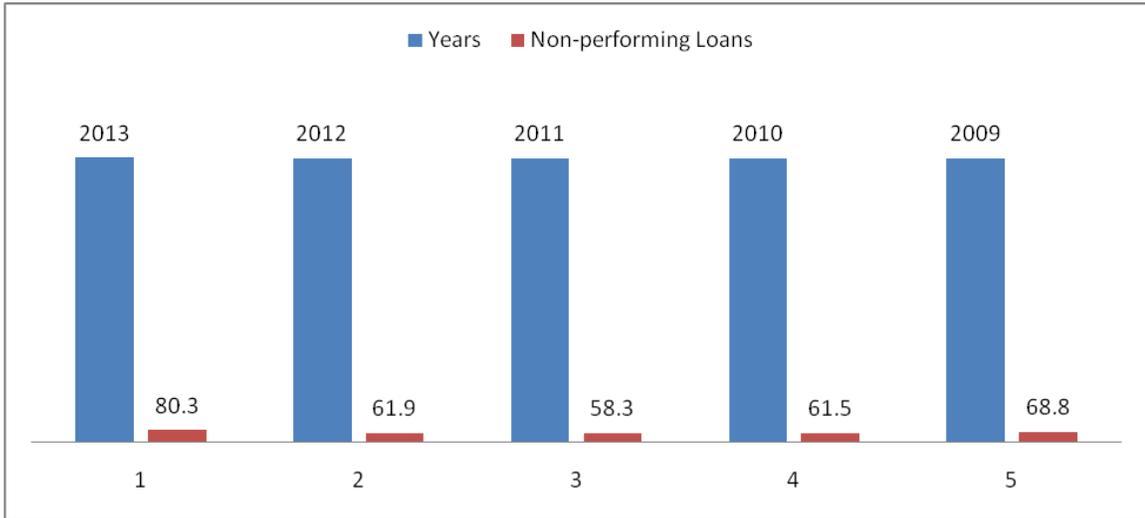
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APPENDIX I: LICENSED COMMERCIAL BANKS IN KENYA AS AT 31 DECEMBER 2013

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank
6. CFC Stanbic Bank
7. Chase Bank Kenya
8. Charterhouse Bank
9. Citibank
10. Commercial Bank of Africa
11. Consolidated Bank of Kenya
12. Cooperative Bank of Kenya
13. Credit Bank
14. Development Bank of Kenya
15. Diamond Trust Bank
16. Dubai Bank Kenya
17. Eco Bank Kenya
18. Equatorial Commercial Bank
19. Equity Bank
20. Family Bank
21. Fidelity Commercial Bank Limited
22. GT Bank(formerly Fina Bank)
23. First Community Bank
24. Giro Commercial Bank
25. Guardian Bank
26. Gulf African Bank
27. Habib Bank
28. Habib Bank AG Zurich
29. I&M Bank
30. Imperial Bank Kenya
31. Jamii Bora Bank
32. Kenya Commercial Bank
33. K-Rep Bank
34. Middle East Bank Kenya
35. National Bank of Kenya
36. NIC Bank
37. Oriental Commercial Bank
38. Paramount Universal Bank
39. Prime Bank (Kenya)
40. Standard Chartered Kenya
41. Trans National Bank Kenya
42. United Bank for Africa
43. Victoria Commercial Bank

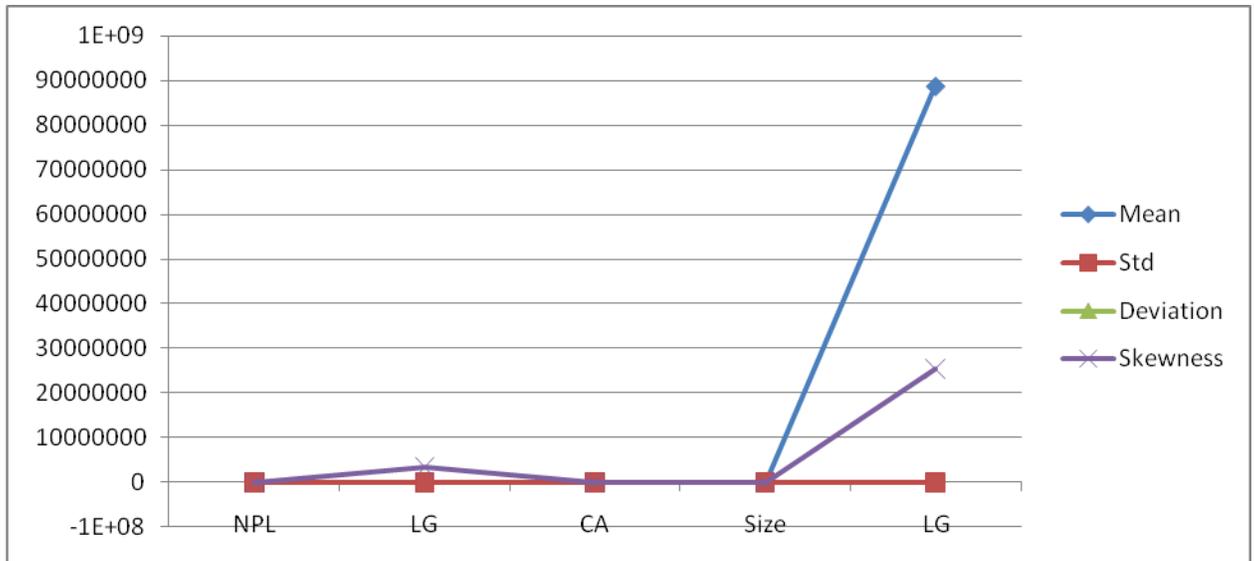
[https://www.centralbank.go.ke/images/docs/Bank Supervision Reports/Commercial Banks Directory](https://www.centralbank.go.ke/images/docs/Bank%20Supervision%20Reports/Commercial%20Banks%20Directory)

APPEDIX II: NON-PERFORMING LOANS BETWEEN THE YEAR 2009 TO 2013



Source: Research Findings

APPEDIX III: NON PERFORMING LOANS, LIQUIDITY GAP, CAPITAL ADEQUACY AND LOAN GROWTH FOR THE YEAR 2009 TO 2013



Source: Researcher (2013)

NPL- Non performing Loans, LG- Liquidity Gap, CA- Capital Adequacy, LG- Loan Growth.